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(71) Applicant: **MEDIVATION TECHNOLOGIES, INC.**
[US/US]; 525 Market Street, 36th Floor, San Francisco,
California 94105 (US).

(72) Inventors: **MCCULLAGH, Emma**; c/o Medivation Tech-
nologies, Inc., 525 Market Street, 36th Floor, San Fran-
cisco, California 94105 (US). **BERNALES, Sebastian**; c/o
Medivation Technologies, Inc., 525 Market Street, 36th
Floor, San Francisco, California 94105 (US). **HUNG,
David**; c/o Medivation Technologies, Inc., 525 Market
Street, 36th Floor, San Francisco, California 94105 (US).

(74) Agent: **HEMMENDINGER, Lisa M.**; Banner & Witcoff
Ltd, 1100 13th Street NW, Suite 1200, Washington, Dis-
trict of Columbia 20005 (US).

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(54) Title: PELLET COMPOSITION CONTAINING REPAIR CELLS

(57) Abstract: This disclosure describes compositions and methods for delivering and localizing repair cells, such as mesenchymal stem cells (MSCs) to the sites of tissue injuries, including cartilage injuries. This disclosure also describes methods for chondrogenic differentiation of MSCs in pellet compositions.



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PELLET COMPOSITION CONTAINING REPAIR CELLS**TECHNICAL FIELD**

[01] The technical field to which this disclosure relates is targeted therapeutics.

[02] Each reference cited in this disclosure is incorporated herein in its entirety.

BRIEF DESCRIPTION OF THE FIGURES

[03] **FIG. 1.** Photomicrographs demonstrating formation of Raji cell pellets after incubation with 10 μ M Compound 20 for 1, 5, 15, or 30 minutes.

[04] **FIGS. 2A-B.** Stability of Raji cell pellets after incubation with 1 μ M or 10 μ M Compound 20. **FIG. 2A**, 30 minute incubation. **FIG. 2B**, 5 minute incubation.

[05] **FIGS. 3A-B.** Photomicrographs demonstrating chondrogenic differentiation of rat bone marrow-derived mesenchymal stem cells (MSCs) after 21 days in chondrogenic medium. **FIG. 3A**, without Compound 20. **FIG. 3B**, in the presence of 10 μ M Compound 20.

[06] **FIGS. 4A-D.** Photomicrographs demonstrating chondrogenic differentiation of rabbit MSCs in pellet cultures. **FIG. 4A**, rabbit MSCs incubated in chondrogenic medium without Compound 20. **FIG. 4B**, rabbit MSCs incubated in chondrogenic medium with Compound 20. **FIG. 4C**, rabbit MSCs incubated in basal medium without Compound 20. **FIG. 4D**, rabbit MSCs incubated in basal medium with Compound 20.

[07] **FIGS. 5A-B.** Photomicrographs demonstrating chondrogenic differentiation in pellet cultures of 100,000 rabbit MSCs after 21 days. **FIG. 5A**, rabbit MSCs incubated in chondrogenic medium without Compound 20. **FIG. 5B**, rabbit MSCs incubated in chondrogenic medium with Compound 20.

[01] **FIG. 6.** Graph demonstrating qualitative analysis of targeting of Raji cells stained with Compound 20 on different tissues.

[02] **FIG. 7.** Photomicrographs demonstrating targeting of rabbit mesenchymal stem cells (rbMSCs) incubated with Compound 20 to different organs from Balb/c mice.

[03] **FIG. 8A.** Photomicrographs demonstrating that Compound 4 promotes adherence of Raji cells to meniscus explants.

[04] **FIG. 8B.** Photomicrographs demonstrating that Compound 4 and Compound 20 (FIG. 3B) promote cell adherence of Raji cells to meniscus explants.

[05] **FIG. 9.** Photomicrographs demonstrating the presence of Compound 4 in the knees of rats up to 24 hours after intra-articular injection.

[06] **FIGS. 10A-B.** Photomicrographs demonstrating that Compound 4 stains the small intestine (**FIG. 10A**) but not Peyer's patches (**FIG. 10B**) after oral administration.

[07] **FIGS. 11A-11B.** Photomicrographs demonstrating the location of safranin-O and Compound 4 staining in various tissues 24 hours after oral administration. **FIG. 11A**, thymus, liver, heart, lung. **FIG. 11B**, spleen, small intestine.

[08] **FIGS. 12A-12B.** Photomicrographs demonstrating the location of Compound 4 staining in various tissues 24 hours after intravenous administration. **FIG. 12A**, spleen, heart, kidney, brain. **FIG. 12B**, liver, lung, bladder, blood.

Definitions

[09] "Aryl" refers to an unsaturated aromatic carbocyclic group having a single ring (*e.g.*, phenyl) or multiple condensed rings (*e.g.*, naphthyl or anthryl) which condensed rings may or may not be aromatic. In one variation, the aryl group contains from 6 to 14 annular carbon atoms (*e.g.*, 6-14, 6-13, 6-12, 6-11, 6-10, 6-9, 6-8, 6-7, 7-14, 7-13, 7-12, 7-11, 7-10, 7-9, 7-8, 8-14, 8-13, 8-12, 8-11, 8-10, 8-9, 9-14, 9-13, 9-12, 9-11, 9-10, 10-14, 10-13, 10-12, 10-11, 11-14, 11-13, 11-12, 12-14, 12-13, 13-14, 6, 7, 8, 9, 10, 11, 12, 13, or 14). An aryl group having more than one ring where at least one ring is non-aromatic may be connected to the parent structure at either an aromatic ring position or at a non-aromatic ring position. In one variation, an aryl group having more than one ring where at least one ring is non-aromatic is connected to the parent structure at an aromatic ring position.

[10] "Heteroaryl" refers to an unsaturated aromatic carbocyclic group having from 2 to 10 annular carbon atoms (*e.g.*, 2-10, 2-9, 2-8, 2-7, 2-6, 2-5, 2-4, 2-3, 3-10, 3-9, 3-8, 3-7, 3-6, 3-5, 3-4, 4-10, 4-9, 4-8, 4-7, 4-6, 4-5, 5-10, 5-9, 5-8, 5-7, 5-6, 6-10, 6-9, 6-8, 6-7, 7-10, 7-9, 7-8, 8-10, 8-9, 9-10, 2, 3, 4, 5, 6, 7, 8, 9, or 10) and at least one annular heteroatom, including but not limited to heteroatoms such as nitrogen, oxygen and sulfur. A heteroaryl group may have a single ring (*e.g.*, pyridyl, furyl) or multiple condensed rings (*e.g.*, indoliziny, benzothienyl) which condensed rings may or may not be aromatic. A heteroaryl group having more than one ring where at least one ring is non-aromatic may be connected to the parent structure at either an

aromatic ring position or at a non-aromatic ring position. In one variation, a heteroaryl group having more than one ring where at least one ring is non-aromatic is connected to the parent structure at an aromatic ring position.

[11] “Cycloalkyl” is a saturated cyclic hydrocarbon structure and can consist of one ring, such as cyclohexyl, or multiple rings, such as adamantyl. A cycloalkyl comprising more than one ring may be fused, spiro or bridged, or combinations thereof. A cycloalkyl can be a saturated cyclic hydrocarbon having from 3 to 13 annular carbon atoms (*e.g.*, 3-13, 3-12, 3-11, 3-10, 3-9, 3-8, 3-7, 3-6, 3-5, 3-4, 4-13, 4-12, 4-11, 4-10, 4-9, 4-8, 4-7, 4-6, 4-5, 5-13, 5-12, 5-11, 5-10, 5-9, 5-8, 5-7, 5-6, 6-13, 6-12, 6-11, 6-10, 6-9, 6-8, 6-7, 7-13, 7-12, 7-11, 7-10, 7-9, 7-8, 8-13, 8-12, 8-11, 8-10, 8-9, 9-13, 9-12, 9-11, 9-10, 10-13, 10-12, 10-11, 11-13, 11-12, 12-13, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, or 13 annular carbon atoms). Examples of cycloalkyl groups include adamantyl, decahydronaphthalenyl, cyclopropyl, cyclobutyl, cyclopentyl, and cyclohexyl.

[12] “Heterocyclyl” refers to a saturated or an unsaturated non-aromatic group having a single ring or multiple condensed rings, and having from 1 to 10 annular carbon atoms (*e.g.*, 1-10, 1-9, 1-8, 1-7, 1-6, 1-5, 1-4, 1-3, 1-2, 2-10, 2-9, 2-8, 2-7, 2-6, 2-5, 2-4, 2-3, 3-10, 3-9, 3-8, 3-7, 3-6, 3-5, 3-4, 4-10, 4-9, 4-8, 4-7, 4-6, 4-5, 5-10, 5-9, 5-8, 5-7, 5-6, 6-10, 6-9, 6-8, 6-7, 7-10, 7-9, 7-8, 8-10, 8-9, 9-10, 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10) and from 1 to 4 annular heteroatoms (*e.g.*, 1-4, 1-3, 1-2, 2-4, 2-3, 3-4, 1, 2, 3, or 4), such as nitrogen, sulfur or oxygen. A heterocycle comprising more than one ring may be fused, spiro or bridged, or any combination thereof. In fused ring systems, one or more of the rings can be aryl or heteroaryl. A heterocycle having more than one ring where at least one ring is aromatic may be connected to the parent structure at either a non-aromatic ring position or at an aromatic ring position. In one variation, a heterocycle having more than one ring where at least one ring is aromatic is connected to the parent structure at a non-aromatic ring position.

[13] “5-10 membered heteroaromatic ring” includes heteroaryls having 5-10, 5-9, 5-8, 5-7, 5-6, 6-10, 6-9, 6-8, 6-7, 7-10, 7-9, 7-8, 8-10, 8-9, 9-10, 2, 3, 4, 5, 6, 7, 8, 9, or 10 annular carbon atoms

[14] “C1-C6 linear or branched alkyl” means each of C1-C6 linear or branched alkyl, C1-C5 linear or branched alkyl, C1-C4 linear or branched alkyl, C1-C3 linear or branched alkyl, C1-C2 linear or branched alkyl, C2-C6 linear or branched alkyl, C2-C5 linear or branched alkyl, C2-C4 linear or branched alkyl, C2-C3 linear or branched alkyl, C3-C6 linear or branched alkyl, C3-C5 linear or branched alkyl, C3-C4 linear or branched alkyl, C4-C6 linear or branched alkyl, C4-C5

linear or branched alkyl, C5-C6 linear or branched alkyl, C6 linear or branched alkyl, C5 linear or branched alkyl, C4 linear or branched alkyl, C3 linear or branched alkyl, ethyl, and methyl.

[15] “C2-C6 linear or branched alkenyl” means each of C2-C6 linear or branched alkenyl, C2-C5 linear or branched alkenyl, C2-C4 linear or branched alkenyl, C2-C3 linear or branched alkenyl, C3-C6 linear or branched alkenyl, C3-C5 linear or branched alkenyl, C3-C4 linear or branched alkenyl, C4-C6 linear or branched alkenyl, C4-C5 linear or branched alkenyl, C5-C6 linear or branched alkenyl, C6 linear or branched alkenyl, C5 linear or branched alkenyl, C4 linear or branched alkenyl, C3 linear or branched alkenyl, and ethenyl.

[16] “C2-C6 linear or branched alkynyl” means each of C2-C6 linear or branched alkynyl, C2-C5 linear or branched alkynyl, C2-C4 linear or branched alkynyl, C2-C3 linear or branched alkynyl, C3-C6 linear or branched alkynyl, C3-C5 linear or branched alkynyl, C3-C4 linear or branched alkynyl, C4-C6 linear or branched alkynyl, C4-C5 linear or branched alkynyl, C5-C6 linear or branched alkynyl, C6 linear or branched alkynyl, C5 linear or branched alkynyl, C4 linear or branched alkynyl, C3 linear or branched alkynyl, and ethynyl.

[17] “**R_a** and **R_b** (or **R_{a1}** and **R_{b1}**; or **R_{a2}** and **R_{b2}**; or **R_{c1}** and **R_X**; or **R_{c2}** and **R_Y**) are  or



means “**R_a** and **R_b** (or **R_{a1}** and **R_{b1}**; or **R_{a2}** and **R_{b2}**; or **R_{c1}** and **R_X**; or **R_{c2}** and **R_Y**),

together with the carbon atom to which they are attached, are  or .

“**R_a** and **R_b** (or **R_{a1}** and **R_{b1}**; or **R_{a2}** and **R_{b2}**; or **R_{c1}** and **R_X**; or **R_{c2}** and **R_Y**) are  means “**R_a** and **R_b** (or **R_{a1}** and **R_{b1}**; or **R_{a2}** and **R_{b2}**; or **R_{c1}** and **R_X**; or **R_{c2}** and **R_Y**), together with the carbon atom to which

they are attached, are .

“**R_a** and **R_b** (or **R_{a1}** and **R_{b1}**; or **R_{a2}** and **R_{b2}**; or **R_{c1}** and **R_X**; or **R_{c2}** and **R_Y**) are  means “**R_a** and **R_b** (or **R_{a1}** and **R_{b1}**; or **R_{a2}** and **R_{b2}**; or **R_{c1}** and **R_X**; or **R_{c2}** and

R_Y), together with the carbon atom to which they are attached, are .

[18] “Formulae (Ia.1)-(Ia.63)” means each of formulae (Ia.1), (Ia.2), (Ia.3), (Ia.4), (Ia.5), (Ia.6), (Ia.7), (Ia.8), (Ia.9), (Ia.10), (Ia.11), (Ia.12), (Ia.13), (Ia.14), (Ia.15), (Ia.16), (Ia.17), (Ia.18), (Ia.19), (Ia.20), (Ia.21), (Ia.22), (Ia.23), (Ia.24), (Ia.25), (Ia.26), (Ia.27), (Ia.28), (Ia.29), (Ia.30), (Ia.31), (Ia.32), (Ia.33), (Ia.34), (Ia.35), (Ia.36), (Ia.37), (Ia.38), (Ia.39), (Ia.40), (Ia.41),

(Ia.42), (Ia.43), (Ia.44), (Ia.45), (Ia.46), (Ia.47), (Ia.48), (Ia.49), (Ia.50), (Ia.51), (Ia.52), (Ia.53), (Ia.54), (Ia.55), (Ia.56), (Ia.57), (Ia.58), (Ia.59), (Ia.60), (Ia.61), (Ia.62), and (Ia.63).

[19] “Formulae (Ia)-(Ia.63)” means each of formulae (Ia), (Ia.1), (Ia.2), (Ia.3), (Ia.4), (Ia.5), (Ia.6), (Ia.7), (Ia.8), (Ia.9), (Ia.10), (Ia.11), (Ia.12), (Ia.13), (Ia.14), (Ia.15), (Ia.16), (Ia.17), (Ia.18), (Ia.19), (Ia.20), (Ia.21), (Ia.22), (Ia.23), (Ia.24), (Ia.25), (Ia.26), (Ia.27), (Ia.28), (Ia.29), (Ia.30), (Ia.31), (Ia.32), (Ia.33), (Ia.34), (Ia.35), (Ia.36), (Ia.37), (Ia.38), (Ia.39), (Ia.40), (Ia.41), (Ia.42), (Ia.43), (Ia.44), (Ia.45), (Ia.46), (Ia.47), (Ia.48), (Ia.49), (Ia.50), (Ia.51), (Ia.52), (Ia.53), (Ia.54), (Ia.55), (Ia.56), (Ia.57), (Ia.58), (Ia.59), (Ia.60), (Ia.61), (Ia.62), and (Ia.63).

[20] “Formulae (Ib.1)-(Ib.63)” means each of formulae (Ib.1), (Ib.2), (Ib.3), (Ib.4), (Ib.5), (Ib.6), (Ib.7), (Ib.8), (Ib.9), (Ib.10), (Ib.11), (Ib.12), (Ib.13), (Ib.14), (Ib.15), (Ib.16), (Ib.17), (Ib.18), (Ib.19), (Ib.20), (Ib.21), (Ib.22), (Ib.23), (Ib.24), (Ib.25), (Ib.26), (Ib.27), (Ib.28), (Ib.29), (Ib.30), (Ib.31), (Ib.32), (Ib.33), (Ib.34), (Ib.35), (Ib.36), (Ib.37), (Ib.38), (Ib.39), (Ib.40), (Ib.41), (Ib.42), (Ib.43), (Ib.44), (Ib.45), (Ib.46), (Ib.47), (Ib.48), (Ib.49), (Ib.50), (Ib.51), (Ib.52), (Ib.53), (Ib.54), (Ib.55), (Ib.56), (Ib.57), (Ib.58), (Ib.59), (Ib.60), (Ib.61), (Ib.62), and (Ib.63).

[21] “Formulae (Ib)-(Ib.63)” means each of formulae (Ib), (Ib.1), (Ib.2), (Ib.3), (Ib.4), (Ib.5), (Ib.6), (Ib.7), (Ib.8), (Ib.9), (Ib.10), (Ib.11), (Ib.12), (Ib.13), (Ib.14), (Ib.15), (Ib.16), (Ib.17), (Ib.18), (Ib.19), (Ib.20), (Ib.21), (Ib.22), (Ib.23), (Ib.24), (Ib.25), (Ib.26), (Ib.27), (Ib.28), (Ib.29), (Ib.30), (Ib.31), (Ib.32), (Ib.33), (Ib.34), (Ib.35), (Ib.36), (Ib.37), (Ib.38), (Ib.39), (Ib.40), (Ib.41), (Ib.42), (Ib.43), (Ib.44), (Ib.45), (Ib.46), (Ib.47), (Ib.48), (Ib.49), (Ib.50), (Ib.51), (Ib.52), (Ib.53), (Ib.54), (Ib.55), (Ib.56), (Ib.57), (Ib.58), (Ib.59), (Ib.60), (Ib.61), (Ib.62), and (Ib.63).

[22] “Formulae (Ic.1)-(Ic.63)” means each of formulae (Ic.1), (Ic.2), (Ic.3), (Ic.4), (Ic.5), (Ic.6), (Ic.7), (Ic.8), (Ic.9), (Ic.10), (Ic.11), (Ic.12), (Ic.13), (Ic.14), (Ic.15), (Ic.16), (Ic.17), (Ic.18), (Ic.19), (Ic.20), (Ic.21), (Ic.22), (Ic.23), (Ic.24), (Ic.25), (Ic.26), (Ic.27), (Ic.28), (Ic.29), (Ic.30), (Ic.31), (Ic.32), (Ic.33), (Ic.34), (Ic.35), (Ic.36), (Ic.37), (Ic.38), (Ic.39), (Ic.40), (Ic.41), (Ic.42), (Ic.43), (Ic.44), (Ic.45), (Ic.46), (Ic.47), (Ic.48), (Ic.49), (Ic.50), (Ic.51), (Ic.52), (Ic.53), (Ic.54), (Ic.55), (Ic.56), (Ic.57), (Ic.58), (Ic.59), (Ic.60), (Ic.61), (Ic.62), and (Ic.63).

[23] “Formulae (Ic)-(Ic.63)” means each of formulae (Ic), (Ic.1), (Ic.2), (Ic.3), (Ic.4), (Ic.5), (Ic.6), (Ic.7), (Ic.8), (Ic.9), (Ic.10), (Ic.11), (Ic.12), (Ic.13), (Ic.14), (Ic.15), (Ic.16), (Ic.17), (Ic.18), (Ic.19), (Ic.20), (Ic.21), (Ic.22), (Ic.23), (Ic.24), (Ic.25), (Ic.26), (Ic.27), (Ic.28), (Ic.29), (Ic.30), (Ic.31), (Ic.32), (Ic.33), (Ic.34), (Ic.35), (Ic.36), (Ic.37), (Ic.38), (Ic.39), (Ic.40), (Ic.41), (Ic.42), (Ic.43), (Ic.44), (Ic.45), (Ic.46), (Ic.47), (Ic.48), (Ic.49), (Ic.50), (Ic.51), (Ic.52), (Ic.53), (Ic.54), (Ic.55), (Ic.56), (Ic.57), (Ic.58), (Ic.59), (Ic.60), (Ic.61), (Ic.62), and (Ic.63).

[24] “Formulae (Id.1)-(Id.63)” means each of formulae (Id.1), (Id.2), (Id.3), (Id.4), (Id.5), (Id.6), (Id.7), (Id.8), (Id.9), (Id.10), (Id.11), (Id.12), (Id.13), (Id.14), (Id.15), (Id.16), (Id.17), (Id.18), (Id.19), (Id.20), (Id.21), (Id.22), (Id.23), (Id.24), (Id.25), (Id.26), (Id.27), (Id.28), (Id.29), (Id.30), (Id.31), (Id.32), (Id.33), (Id.34), (Id.35), (Id.36), (Id.37), (Id.38), (Id.39), (Id.40), (Id.41), (Id.42), (Id.43), (Id.44), (Id.45), (Id.46), (Id.47), (Id.48), (Id.49), (Id.50), (Id.51), (Id.52), (Id.53), (Id.54), (Id.55), (Id.56), (Id.57), (Id.58), (Id.59), (Id.60), (Id.61), (Id.62), and (Id.63).

[25] “Formulae (Id)-(Id.63)” means each of formulae (Id), (Id.1), (Id.2), (Id.3), (Id.4), (Id.5), (Id.6), (Id.7), (Id.8), (Id.9), (Id.10), (Id.11), (Id.12), (Id.13), (Id.14), (Id.15), (Id.16), (Id.17), (Id.18), (Id.19), (Id.20), (Id.21), (Id.22), (Id.23), (Id.24), (Id.25), (Id.26), (Id.27), (Id.28), (Id.29), (Id.30), (Id.31), (Id.32), (Id.33), (Id.34), (Id.35), (Id.36), (Id.37), (Id.38), (Id.39), (Id.40), (Id.41), (Id.42), (Id.43), (Id.44), (Id.45), (Id.46), (Id.47), (Id.48), (Id.49), (Id.50), (Id.51), (Id.52), (Id.53), (Id.54), (Id.55), (Id.56), (Id.57), (Id.58), (Id.59), (Id.60), (Id.61), (Id.62), and (Id.63).

[26] “Formulae (Ie.1)-(Ie.63)” means each of formulae (Ie.1), (Ie.2), (Ie.3), (Ie.4), (Ie.5), (Ie.6), (Ie.7), (Ie.8), (Ie.9), (Ie.10), (Ie.11), (Ie.12), (Ie.13), (Ie.14), (Ie.15), (Ie.16), (Ie.17), (Ie.18), (Ie.19), (Ie.20), (Ie.21), (Ie.22), (Ie.23), (Ie.24), (Ie.25), (Ie.26), (Ie.27), (Ie.28), (Ie.29), (Ie.30), (Ie.31), (Ie.32), (Ie.33), (Ie.34), (Ie.35), (Ie.36), (Ie.37), (Ie.38), (Ie.39), (Ie.40), (Ie.41), (Ie.42), (Ie.43), (Ie.44), (Ie.45), (Ie.46), (Ie.47), (Ie.48), (Ie.49), (Ie.50), (Ie.51), (Ie.52), (Ie.53), (Ie.54), (Ie.55), (Ie.56), (Ie.57), (Ie.58), (Ie.59), (Ie.60), (Ie.61), (Ie.62), and (Ie.63).

[27] “Formulae (Ie)-(Ie.63)” means each of formulae (Ie), (Ie.1), (Ie.2), (Ie.3), (Ie.4), (Ie.5), (Ie.6), (Ie.7), (Ie.8), (Ie.9), (Ie.10), (Ie.11), (Ie.12), (Ie.13), (Ie.14), (Ie.15), (Ie.16), (Ie.17), (Ie.18), (Ie.19), (Ie.20), (Ie.21), (Ie.22), (Ie.23), (Ie.24), (Ie.25), (Ie.26), (Ie.27), (Ie.28), (Ie.29), (Ie.30), (Ie.31), (Ie.32), (Ie.33), (Ie.34), (Ie.35), (Ie.36), (Ie.37), (Ie.38), (Ie.39), (Ie.40), (Ie.41), (Ie.42), (Ie.43), (Ie.44), (Ie.45), (Ie.46), (Ie.47), (Ie.48), (Ie.49), (Ie.50), (Ie.51), (Ie.52), (Ie.53), (Ie.54), (Ie.55), (Ie.56), (Ie.57), (Ie.58), (Ie.59), (Ie.60), (Ie.61), (Ie.62), and (Ie.63).

[28] “Formulae (If.1)-(If.63)” means each of formulae (If.1), (If.2), (If.3), (If.4), (If.5), (If.6), (If.7), (If.8), (If.9), (If.10), (If.11), (If.12), (If.13), (If.14), (If.15), (If.16), (If.17), (If.18), (If.19), (If.20), (If.21), (If.22), (If.23), (If.24), (If.25), (If.26), (If.27), (If.28), (If.29), (If.30), (If.31), (If.32), (If.33), (If.34), (If.35), (If.36), (If.37), (If.38), (If.39), (If.40), (If.41), (If.42), (If.43), (If.44), (If.45), (If.46), (If.47), (If.48), (If.49), (If.50), (If.51), (If.52), (If.53), (If.54), (If.55), (If.56), (If.57), (If.58), (If.59), (If.60), (If.61), (If.62), and (If.63).

[29] “Formulae (If)-(If.63)” means each of formulae (If), (If.1), (If.2), (If.3), (If.4), (If.5), (If.6), (If.7), (If.8), (If.9), (If.10), (If.11), (If.12), (If.13), (If.14), (If.15), (If.16), (If.17), (If.18),

(If.19), (If.20), (If.21), (If.22), (If.23), (If.24), (If.25), (If.26), (If.27), (If.28), (If.29), (If.30), (If.31), (If.32), (If.33), (If.34), (If.35), (If.36), (If.37), (If.38), (If.39), (If.40), (If.41), (If.42), (If.43), (If.44), (If.45), (If.46), (If.47), (If.48), (If.49), (If.50), (If.51), (If.52), (If.53), (If.54), (If.55), (If.56), (If.57), (If.58), (If.59), (If.60), (If.61), (If.62), and (If.63).

DETAILED DESCRIPTION

[30] This disclosure describes compositions and methods for delivering and localizing repair cells to the sites of cartilage injuries. A “repair cell” as used herein includes cells which, when exposed to appropriate conditions, differentiate into an appropriate cell type for repair of a particular target tissue, as well as cells which are at least partially differentiated into the appropriate cell type for the tissue to be repaired. For example, in some variations a repair cell differentiates into a cell which produces and secretes components needed to repair an injury to a joint (*e.g.*, hyaline cartilage, tendon, meniscus). In some variations of the disclosed methods, a repair cell is a chondrocyte. In some variations of the disclosed methods, a repair cell is a mesenchymal stem cell (MSC). Methods of obtaining, culturing, and expanding populations of MSCs are well known in the art. *See, e.g.*, US 2004/0009157; US 2012/0148548; U.S. Patent 5,486,359; and U.S. Patent 5,226,914. Typically, autologous MSCs are used. In some embodiments, allogenic MSCs are used (*e.g.*, MSCs obtained from banks of umbilical cord MSCs, MHC-matched MSCs, or MSCs engineered to not have comprise immunogenic MHCs).

[31] In the disclosed methods, a population of repair cells, *e.g.*, MSCs, is incubated with a compound of formula (I), described below, under conditions sufficient for the compound to bind to the surface of the repair cells, then the population is subjected to centrifugation to form a pellet composition. A “pellet composition” as used herein, unless otherwise specified, does not imply that the pelleted have been cultured *in vitro* (as in the optional culture step disclosed below).

Conditions for Incubating Repair Cells with a Compound of Formula (I)

[32] Examples of conditions sufficient for a compound of formula (I), such as compound 4 or compound 20, to bind to the surface of cells are provided in the working examples, below. These conditions include incubation with the compound at room temperature for 1, 5, 15, or 30 minutes. Conditions for other compounds within the scope of formula (I) can readily be determined using the working examples as a starting point.

[33] In some variations, the repair cells (*e.g.*, MSCs) are incubated with compound 20 or a compound of formula (I) for 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, or 30 minutes.

[34] In some variations, about $0.5-1 \times 10^6$ repair cells (*e.g.*, MSCs) are incubated with a compound of formula (I) (*e.g.*, compound 4 or compound 20). In some variations, about 10^5 repair cells (*e.g.*, MSCs) are incubated with a compound of formula (I) (*e.g.*, compound 4 or compound 20).

Pelleting the Repair Cells

[35] Pellet cultures of MSCs are known in the art (*e.g.*, US 2003/0026786; US 2005/0019865; Bosnakovski *et al.*, *Experimental Hematology* 32, 502-09, 2004; Chen *et al.*, *PLoS One* 9, e91561, 1-11, 2014; Miyanashi *et al.*, *Tissue Engineering* 12, 1419-28, 2006; Ong *et al.*, *Biomaterials* 27, 2-87-08, 2006; Kawamura *et al.*, *Experimental Hematology* 33, 865-72, 2005; Safshekan *et al.*, *Artificial Organs* 36, 1065-71, 2012; Ullah *et al.*, *BioResearch Open Access* 1, 297-305, 2012), and examples of suitable conditions for forming a pellet of a population of MSCs after incubation of the MSCs with a compound of formula (I) are provided in the working examples, below. Pellet cultures of other types of repair cells can be similarly prepared.

Optional Culture of Repair Cell Pellet

[36] In some variations, the pellet is not cultured before applying the pellet to the site of the injury. In some variations, the pellet is cultured for varying periods of time before applying the pellet to the site of the injury, as described in the paragraphs below.

[37] In some variations, the pellet is cultured for 1-21 days, 1-20 days, 1-19 days, 1-18 days, 1-17 days, 1-16 days, 1-15 days, 1-14 days, 1-13 days, 1-12 days, 1-11 days, 1-10 days, 1-9 days, 1-8 days, 1-7 days, 1-6 days, 1-5 days, 1-4 days, 1-3 days, or 1-2 days. In some variations, the pellet is cultured for less than 1-21 days, 1-20 days, 1-19 days, 1-18 days, 1-17 days, 1-16 days, 1-15 days, 1-14 days, 1-13 days, 1-12 days, 1-11 days, 1-10 days, 1-9 days, 1-8 days, 1-7 days, 1-6 days, 1-5 days, 1-4 days, 1-3 days, or 1-2 days.

[38] In some variations, the pellet is cultured for 2-21 days, 2-20 days, 2-19 days, 2-18 days, 2-17 days, 2-16 days, 2-15 days, 2-14 days, 2-13 days, 2-12 days, 2-11 days, 2-10 days, 2-9 days, 2-8 days, 2-7 days, 2-6 days, 2-5 days, 2-4 days, or 2-3 days. In some variations, the pellet is cultured for less than 2-21 days, 2-20 days, 2-19 days, 2-18 days, 2-17 days, 2-16 days, 2-15 days, 2-14 days, 2-13 days, 2-12 days, 2-11 days, 2-10 days, 2-9 days, 2-8 days, 2-7 days, 2-6 days, 2-5 days, 2-4 days, or 2-3 days.

[39] In some variations, the pellet is cultured for 3-21 days, 3-20 days, 3-19 days, 3-18 days, 3-17 days, 3-16 days, 3-15 days, 3-14 days, 3-13 days, 3-12 days, 3-11 days, 3-10 days, 3-9 days, 3-8 days, 3-7 days, 3-6 days, 3-5 days, or 3-4 days. In some variations, the pellet is cultured for less than for 3-21 days, 3-20 days, 3-19 days, 3-18 days, 3-17 days, 3-16 days, 3-15 days, 3-14 days, 3-13 days, 3-12 days, 3-11 days, 3-10 days, 3-9 days, 3-8 days, 3-7 days, 3-6 days, 3-5 days, or 3-4 days.

[40] In some variations, the pellet is cultured for 4-21 days, 4-20 days, 4-19 days, 4-18 days, 4-17 days, 4-16 days, 4-15 days, 4-14 days, 4-13 days, 4-12 days, 4-11 days, 4-10 days, 4-9 days, 4-8 days, 4-7 days, 4-6 days, or 4-5 days. In some variations, the pellet is cultured for less than 4-21 days, 4-20 days, 4-19 days, 4-18 days, 4-17 days, 4-16 days, 4-15 days, 4-14 days, 4-13 days, 4-12 days, 4-11 days, 4-10 days, 4-9 days, 4-8 days, 4-7 days, 4-6 days, or 4-5 days.

[41] In some variations, the pellet is cultured for 5-21 days, 5-20 days, 5-19 days, 5-18 days, 5-17 days, 5-16 days, 5-15 days, 5-14 days, 5-13 days, 5-12 days, 5-11 days, 5-10 days, 5-9 days, 5-8 days, 5-7 days, or 5-6 days. In some variations, the pellet is cultured for less than 5-21 days, 5-20 days, 5-19 days, 5-18 days, 5-17 days, 5-16 days, 5-15 days, 5-14 days, 5-13 days, 5-12 days, 5-11 days, 5-10 days, 5-9 days, 5-8 days, 5-7 days, or 5-6 days.

[42] In some variations, the pellet is cultured for 6-21 days, 6-20 days, 6-19 days, 6-18 days, 6-17 days, 6-16 days, 6-15 days, 6-14 days, 6-13 days, 6-12 days, 6-11 days, 6-10 days, 6-9 days, 6-8 days, or 6-7 days. In some variations, the pellet is cultured for less than 6-21 days, 6-20 days, 6-19 days, 6-18 days, 6-17 days, 6-16 days, 6-15 days, 6-14 days, 6-13 days, 6-12 days, 6-11 days, 6-10 days, 6-9 days, 6-8 days, or 6-7 days.

[43] In some variations, the pellet is cultured for 7-21 days, 7-20 days, 7-19 days, 7-18 days, 7-17 days, 7-16 days, 7-15 days, 7-14 days, 7-13 days, 7-12 days, 7-11 days, 7-10 days, 7-9 days, or 7-8 days. In some variations, the pellet is cultured for less than for 7-21 days, 7-20 days, 7-19 days, 7-18 days, 7-17 days, 7-16 days, 7-15 days, 7-14 days, 7-13 days, 7-12 days, 7-11 days, 7-10 days, 7-9 days, or 7-8 days.

[44] In some variations, the pellet is cultured for 8-21 days, 8-20 days, 8-19 days, 8-18 days, 8-17 days, 8-16 days, 8-15 days, 8-14 days, 8-13 days, 8-12 days, 8-11 days, 8-10 days, or 8-9 days. In some variations, the pellet is cultured for less than 8-21 days, 8-20 days, 8-19 days, 8-18 days, 8-17 days, 8-16 days, 8-15 days, 8-14 days, 8-13 days, 8-12 days, 8-11 days, 8-10 days, or 8-9 days.

[45] In some variations, the pellet is cultured for 9-21 days, 9-20 days, 9-19 days, 9-18 days, 9-17 days, 9-16 days, 9-15 days, 9-14 days, 9-13 days, 9-12 days, 9-11 days, or 9-10 days. In some variations, the pellet is cultured for less than for 9-21 days, 9-20 days, 9-19 days, 9-18 days, 9-17 days, 9-16 days, 9-15 days, 9-14 days, 9-13 days, 9-12 days, 9-11 days, or 9-10 days.

[46] In some variations, the pellet is cultured for 10-21 days, 10-20 days, 10-19 days, 10-18 days, 10-17 days, 10-16 days, 10-15 days, 10-14 days, 10-13 days, 10-12 days, or 10-11 days. In some variations, the pellet is cultured for less than 10-21 days, 10-20 days, 10-19 days, 10-18 days, 10-17 days, 10-16 days, 10-15 days, 10-14 days, 10-13 days, 10-12 days, or 10-11 days.

[47] In some variations, the pellet is cultured for 11-21 days, 11-20 days, 11-19 days, 11-18 days, 11-17 days, 11-16 days, 11-15 days, 11-14 days, 11-13 days, or 11-12 days. In some variations, the pellet is cultured for less than 11-21 days, 11-20 days, 11-19 days, 11-18 days, 11-17 days, 11-16 days, 11-15 days, 11-14 days, 11-13 days, or 11-12 days.

[48] In some variations, the pellet is cultured for 12-21 days, 12-20 days, 12-19 days, 12-18 days, 12-17 days, 12-16 days, 12-15 days, 12-14 days, or 12-13 days. In some variations, the pellet is cultured for less than 12-21 days, 12-20 days, 12-19 days, 12-18 days, 12-17 days, 12-16 days, 12-15 days, 12-14 days, or 12-13 days.

[49] In some variations, the pellet is cultured for 13-21 days, 13-20 days, 13-19 days, 13-18 days, 13-17 days, 13-16 days, 13-15 days, or 13-14 days. In some variations, the pellet is cultured for less than 13-21 days, 13-20 days, 13-19 days, 13-18 days, 13-17 days, 13-16 days, 13-15 days, or 13-14 days.

[50] In some variations, the pellet is cultured for 14-21 days, 14-20 days, 14-19 days, 14-18 days, 14-17 days, 14-16 days, or 14-15 days. In some variations, the pellet is cultured for less than 14-21 days, 14-20 days, 14-19 days, 14-18 days, 14-17 days, 14-16 days, or 14-15 days.

[51] In some variations, the pellet is cultured for 15-21 days, 15-20 days, 15-19 days, 15-18 days, 15-17 days, or 15-16 days. In some variations, the pellet is cultured for less than 15-21 days, 15-20 days, 15-19 days, 15-18 days, 15-17 days, or 15-16 days.

[52] In some variations, the pellet is cultured for 16-21 days, 16-20 days, 16-19 days, 16-18 days, or 16-17 days. In some variations, the pellet is cultured for less than 16-21 days, 16-20 days, 16-19 days, 16-18 days, or 16-17 days.

[53] In some variations, the pellet is cultured for 17-21 days, 17-20 days, 17-19 days, or 17-18 days. In some variations, the pellet is cultured for less than 17-21 days, 17-20 days, 17-19 days, or 17-18 days.

[54] In some variations, the pellet is cultured for 18-21 days, 18-20 days, or 18-19 days. In some variations, the pellet is cultured for less than 18-21 days, 18-20 days, or 18-19 days.

[55] In some variations, the pellet is cultured for 19-21 days or 19-20 days. In some variations, the pellet is cultured for less than 19-21 days or 19-20 days.

[56] In some variations, the pellet is cultured for 20-21 days. In some variations, the pellet is cultured for less than 20-21 days.

[57] In some variations, the pellet is cultured for 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, or 21 days. In some variations, the pellet is cultured for less than 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, or 21 days.

[58] In some of the variations about in which the pellet, *e.g.*, an MSC pellet, is cultured before applying it to the site of injury, the culture medium does not comprise TGF β .

[59] In some of the variations about in which the pellet, *e.g.*, an MSC pellet, is cultured before applying it to the site of injury, the culture medium comprises TGF β .

[60] In some of the variations about in which the pellet, *e.g.*, an MSC pellet, is cultured before applying it to the site of injury, the culture medium is a basal culture medium.

[61] In some of the variations about in which the pellet, *e.g.*, an MSC pellet, is cultured before applying it to the site of injury, the culture medium is a chondrocyte differentiation medium.

Methods of Chondrogenic Differentiation of MSCs

[62] Using the culture conditions described above, this disclosure also provides methods of differentiating MSCs in pellet cultures which do not require the use of chondrogenic medium or TGF β . See example B5, below.

Administration of a Pellet Composition to the Site of a Tissue Injury

[63] Pellet compositions comprising repair cells can be used to treat injured or diseased tissues, including, but not limited to, pancreas, kidney, intestine (*e.g.*, small intestine, cecum), heart, cartilage (*e.g.*, trachea, femoral cartilage), thymus, liver, brain, bladder, blood.

Administration of a Pellet Composition to the Site of a Cartilage Injury

[64] Administration of one or more pellet compositions of MSCs can be carried out during an arthroscopic or open joint procedure and can be used to treat cartilage injuries at joints such as the acromioclavicular, carpometacarpal (finger or thumb), coracoclavicular, humeroulnar, humeroradial, radioulnar (distal, intermedial, proximal), intermetacarpal, interphalangeal, metacarpophalangeal, midcarpal, radiocarpal, shoulder, sternoclavicular, wrist, temporomandibular, sternocostal, xiphisternal, lumbosacral, sacroiliac, talocrural (ankle), hip, metatarsophalangeal, tarsometatarsal, tibiofemoral (knee) joints, and zygapophyseal joints.

[65] Types of cartilage injuries which can be treated include damage to cartilage at a synovial joint occurring as a result of mechanical destruction due to trauma or progressive degeneration (osteoarthritis; wear and tear) or associated with a disease or disorder, such as osteoarthritis, rheumatoid arthritis, gout, reactive arthritis, psoriatic arthritis, or juvenile arthritis. Other injuries include damage to tendons, ligaments, and the meniscus. Use of tissue engineering, including stem cell therapy, to treat such injuries has been reviewed. *See, e.g.* Nesic, *et al.* "Cartilage Tissue Engineering for Degenerative Joint Disease," *Advanced Drug Delivery Reviews* (2006), 58(2):300-322; Johnstone, *et al.* "Tissue Engineering for Articular Cartilage Repair – The State of the Art," *European Cells and Materials* (2013) 25:248-267; Dragoo, *et al.* "Healing Full-Thickness Cartilage Defects using Adipose-Derived Stem Cells," *Tissue Engineering* (2007), 13(7):1615-1621. Use of animal models including chondral / osteochondral defects has been discussed recently. *See, e.g.* Cook, *et al.* "Animal Models of Cartilage Repair," *Bone Joint Res.* (2014), 4:89-94. Bone-marrow derived MSCs, as well as human embryonic stem cells, have been shown to enhance cartilage repair in chondral defect models: Frisbie, *et al.* "Evaluation of Intra-Articular Mesenchymal Stem Cells to Augment Healing of Microfractures Chondral Defects," *Arthroscopy* (2011), 27(11):1552-1561; Tsaiwei, *et al.* "Repair of Cartilage Defects in Arthritic Tissue with Differentiated Human Embryonic Stem Cells," *Tissue Engineering Part A* (2014) 20(3-4):683-692.

Pharmaceutical Compositions

[66] Pellet compositions can be provided in a pharmaceutical composition comprising a pharmaceutically acceptable carrier. A "pharmaceutically acceptable carrier" carrier is a material that is not biologically or otherwise undesirable, *e.g.*, the material may be incorporated into a pharmaceutical composition administered to an individual without causing significant undesirable biological effects or interacting in a deleterious manner with any of the other components of the composition in which it is contained. Pharmaceutically acceptable carriers

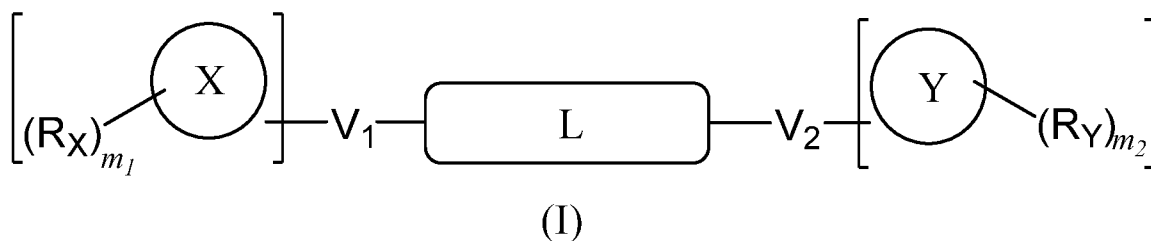
meet the required standards of toxicological and manufacturing testing and/or are included on the Inactive Ingredient Guide prepared by the U.S. Food and Drug administration.

Compounds

[67] The compounds depicted herein, by virtue of their cationic nature, are typically present as salts even if salts are not depicted and thus are accompanied by a pharmaceutically acceptable counterion, forming a pharmaceutically acceptable salt. A “pharmaceutically acceptable counterion” is an ionic portion of a salt that is not toxic when released from the salt upon administration to a recipient. Pharmaceutically acceptable salts may be formed with many acids, including but not limited to hydrochloric, sulfuric, acetic, lactic, malic, succinic, hydrogen bisulfide, salicylic, tartaric, bitartaric, ascorbic, maleic, besylic, fumaric, gluconic, glucuronic, formic, glutamic, methanesulfonic, ethanesulfonic, benzenesulfonic, lactic, oxalic, para-bromophenylsulfonic, carbonic, succinic, citric, benzoic and acetic acid, and related inorganic and organic acids. Such pharmaceutically acceptable counterions thus include sulfate, pyrosulfate, bisulfate, sulfite, bisulfate, phosphate, monohydrogenphosphate, dihydrogenphosphate, metaphosphate, pyrophosphate, chloride, bromide, iodide, acetate, propionate, decanoate, caprylate, acrylate, formate, isobutyrate, caprate, heptanoate, propiolate, oxalate, malonate, succinate, suberate, sebacate, fumarate, maleate, butyne-1,4-dioate, hexyne-1,6-dioate, benzoate, chlorobenzoate, methylbenzoate, dinitrobenzoate, hydroxybenzoate, methoxybenzoate, phthalate, terephthalate, sulfonate, xylenesulfonate, phenylacetate, phenylpropionate, phenylbutyrate, citrate, lactate, β -hydroxybutyrate, glycolate, maleate, tartrate, methanesulfonate, propanesulfonate, naphthalene-1-sulfonate, naphthalene-2-sulfonate, mandelate and the like.

[68] Where tautomeric forms may be present for any of the compounds described herein, each and every tautomeric form is intended even though only one or some of the tautomeric forms may be explicitly depicted. The tautomeric forms specifically depicted may or may not be the predominant forms in solution or when used according to the methods described herein.

[69] Compounds useful for preparing pellet compositions described above are compounds of formula (I):



wherein:

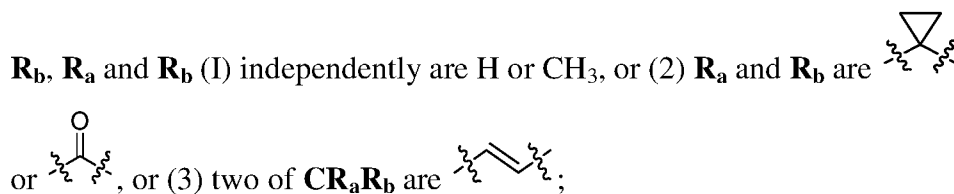
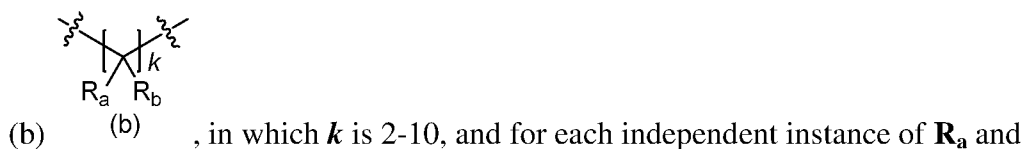
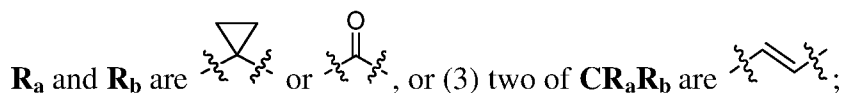
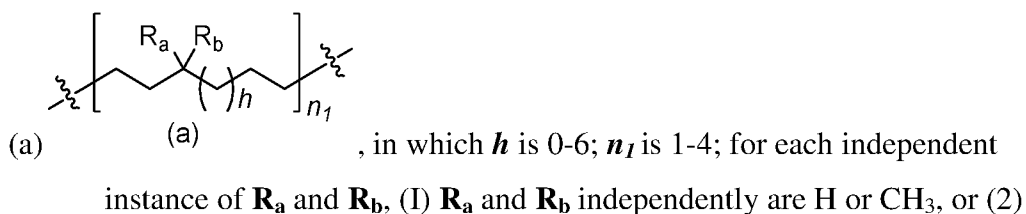
each **X** and **Y** independently is a positively charged moiety selected from (a) a 5-10 membered heteroaromatic ring and (b) a multiple-fused ring system comprising at least one 6-10 membered aromatic or 5-10 membered heteroaromatic ring;

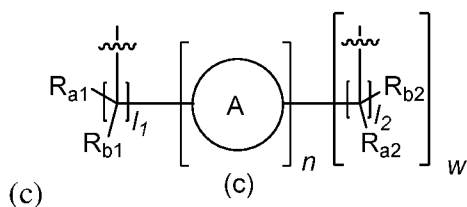
each **R_X** and **R_Y** independently is selected from the group consisting of **R**, -NH₂, -NHR, -NR₂, -N(**R**)₃⁺, -NHCOR, -NO₂, -OH, -OR, halo, C1-C6 perhaloalkyl, -CN, -SH, -SR, -SO₂H, -SO₃H, -CO₂H, -CO₂**R**, -CHO, and -COR, wherein **R** is (i) C1-C6 linear or branched alkyl, (ii) C3-C8 cycloalkyl, (iii) C2-C6 linear or branched alkenyl, (iv) C2-C6 linear or branched alkynyl, (v) C6-C10 aryl, or (vi) C5-C10 heteroaryl;

m₁ and **m₂** independently are 0 or an integer from 1-6;

V₁ and **V₂** independently are absent or are selected from -C(**R_Z**)₂-, -C(=O)-, -C(=O)O-, -C(=O)NR_Z-, -NR_Z-, -O-, -S-, -S(=O)-, -S(=O)₂-, -S(=O)₂O-, and -S(=O)₂NR_Z-, wherein each **R_Z** independently is H or C1-C6 linear or branched alkyl; and

L is a linker selected from the group consisting of:

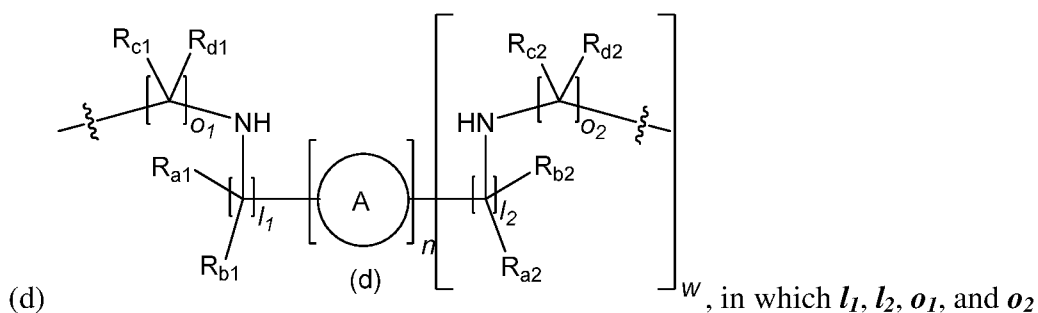




independently are H or CH₃, or (2) R_{a1} and R_{b1} are  or , or (3)

two of $CR_{a1}R_{b1}$ are ; for each independent instance of R_{a2} and R_{b2} , R_{a2} and R_{b2} (1) independently are H or CH₃, or (2) R_{a2} and R_{b2} are

 or , or (3) two of $CR_{a2}R_{b2}$ are .



independently are 0-4; w is 1-2; n is 1-4; each **ring A** independently is aryl, heteroaryl, cycloalkyl, or heterocyclyl; for each independent instance of R_{a1} and R_{b1} , (1) R_{a1} and R_{b1} independently are H or CH₃, (2) R_{a1} and

R_{b1} are  or , or (3) two of $CR_{a1}R_{b1}$ are ; for each

independent instance of R_{a2} and R_{b2} , (1) R_{a2} and R_{b2} independently are H

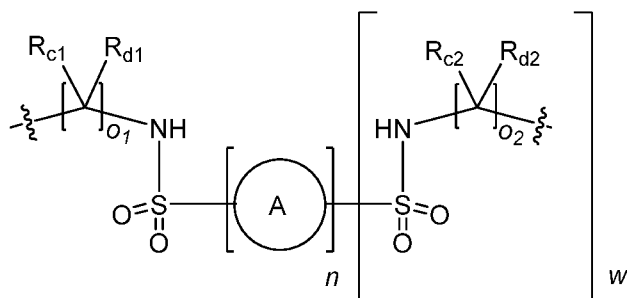
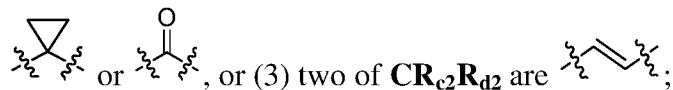
or CH₃, (2) R_{a2} and R_{b2} are  or , or (3) two of $CR_{a2}R_{b2}$ are

; for each independent instance of R_{c1} and R_{d1} , (1) R_{c1} and R_{d1}

independently are H or CH₃, (2) R_{c1} and R_{d1} are  or , or (3)

two of $CR_{c1}R_{d1}$ are ; for each independent instance of R_{c2} and

R_{d2} , (1) R_{c2} and R_{d2} independently are H or CH_3 , (2) R_{c2} and R_{d2} are



(e)

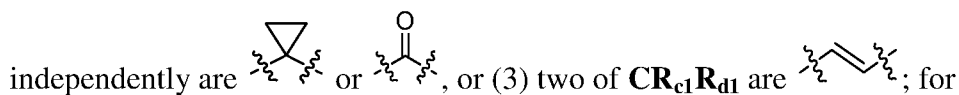
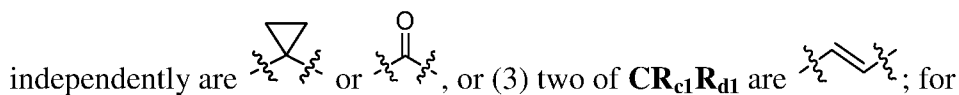
(e)

, in which n , o_1 , and o_2

independently are 1-4; w is 1-2; each **ring A** independently is aryl,

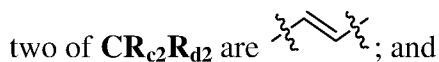
heteroaryl, cycloalkyl, or heterocyclyl; for each independent instance of

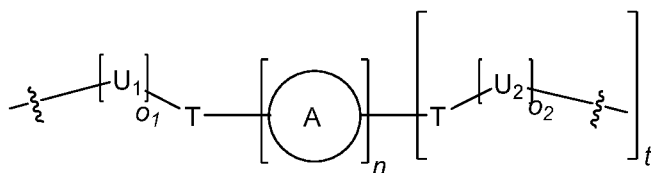
R_{c1} and R_{d1} , (1) R_{c1} and R_{d1} independently are H or CH_3 , (2) R_{c1} and R_{d1}

independently are ; or (3) two of $CR_{c1}R_{d1}$ are 

for each independent instance of R_{c2} and R_{d2} , (1) R_{c2} and R_{d2} independently

are H or CH_3 , (2) R_{c2} and R_{d2} independently are ; or (3)

two of $CR_{c2}R_{d2}$ are ; and



(f)

(f)

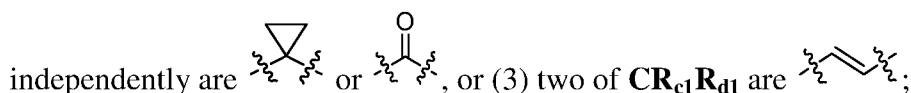
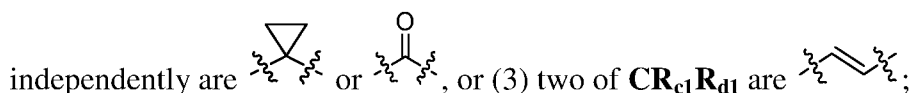
, in which n , o_1 , and o_2

independently are 1-8; t is 1-3; each **ring A** independently is aryl,

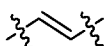
heteroaryl, cycloalkyl, or heterocyclyl;

T is a moiety selected from $-C(=O)NH-$, $-NH(C=O)-$, $-C(=O)-$, $-S-$, $-O-$, $-NH-$, $-S(=O)-$, $-S(=O)_2NH-$, and $-NHS(=O)_2-$;

U₁ is a moiety selected from $-C(R_{c1}R_{d1})-$, $-N-$, $-O-$, or $-S-$, wherein no two $-N-$, $-O-$, or $-S-$ are adjacent, and wherein for each independent instance of R_{c1} and R_{d1} , (1) R_{c1} and R_{d1} independently are H or CH_3 , (2) R_{c1} and R_{d1}

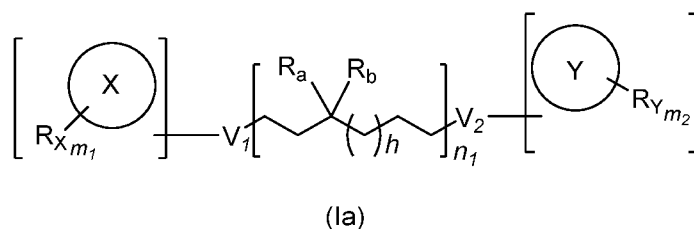
independently are ; or (3) two of $CR_{c1}R_{d1}$ are 

U_2 is a moiety selected from $-C(R_{c2}R_{d2})-$, $-N-$, $-O-$, or $-S-$, wherein no two $-N-$, $-O-$, or $-S-$ are adjacent, and wherein for each independent instance of R_{c2} and R_{d2} , (1) R_{c2} and R_{d2} independently are H or CH_3 , (2) R_{c2} and R_{d2}

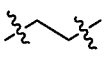
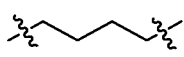
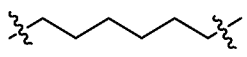
independently are  or , or (3) two of $CR_{c2}R_{d2}$ are .

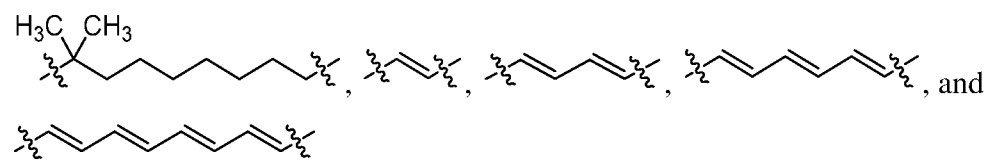
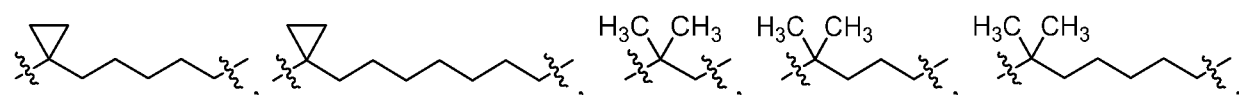
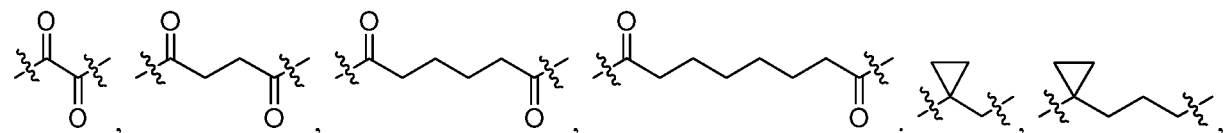
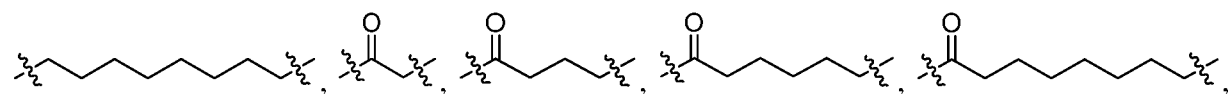
Compounds of Formula (Ia)

[70] In some variations, compounds of formula (I) fall within formula (Ia), which comprises linker (a):

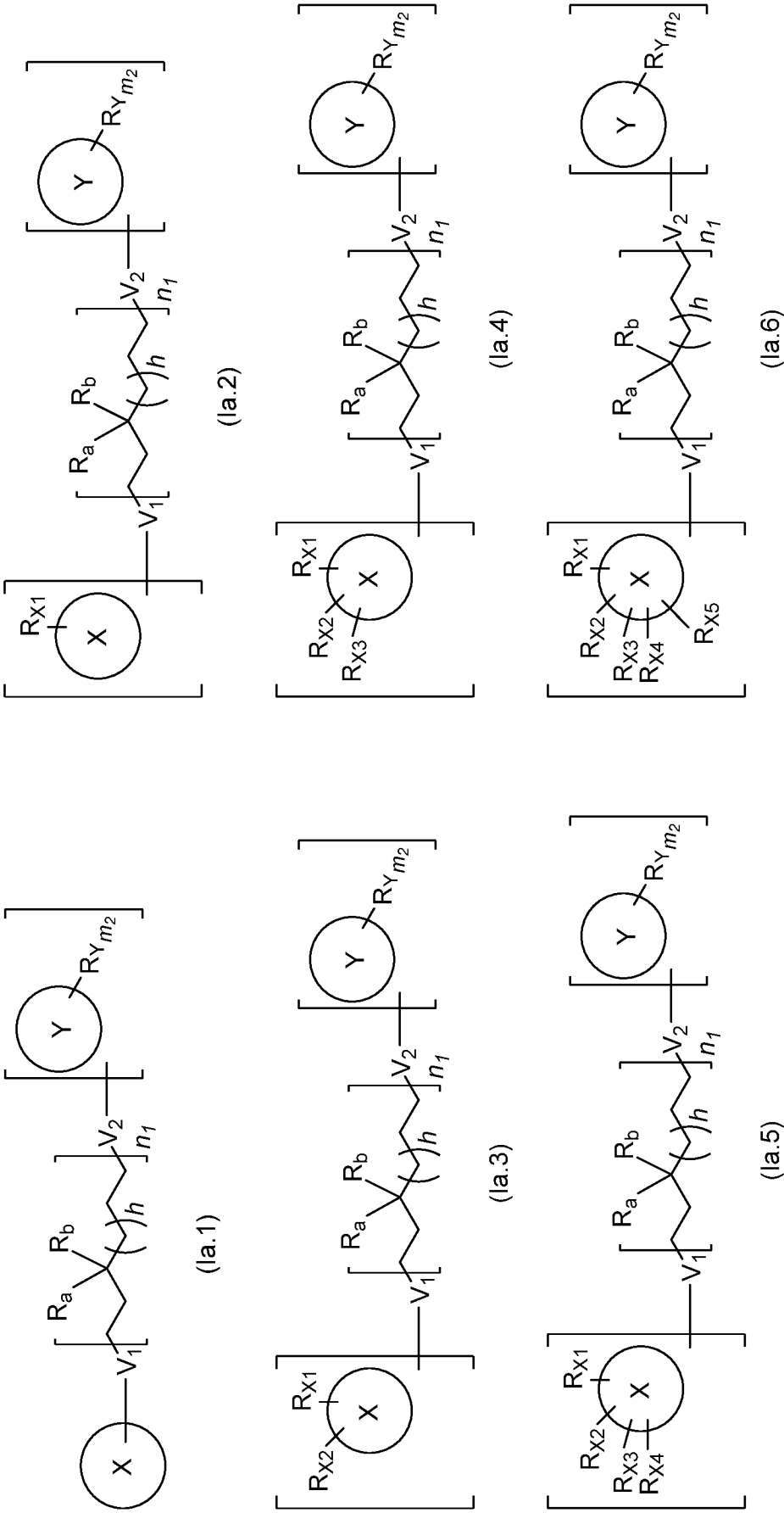


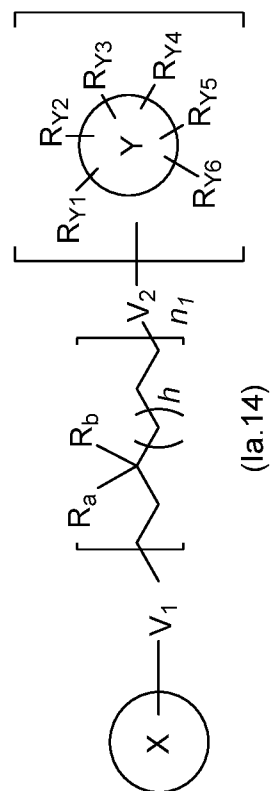
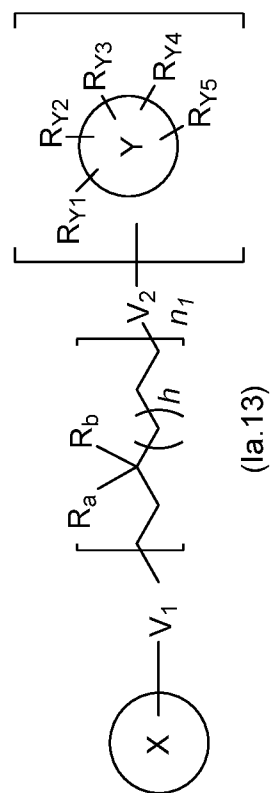
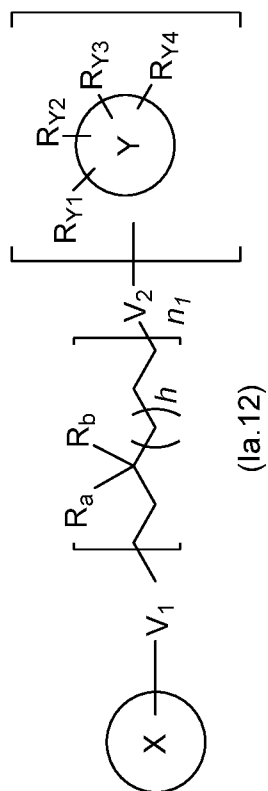
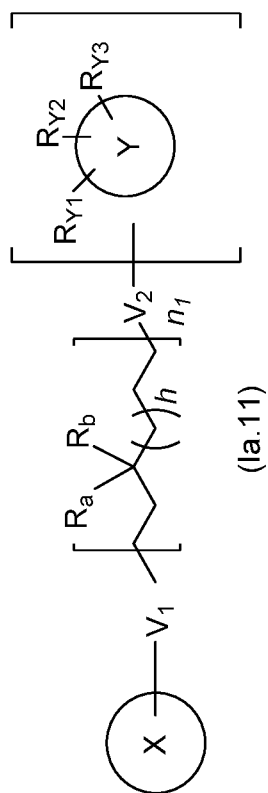
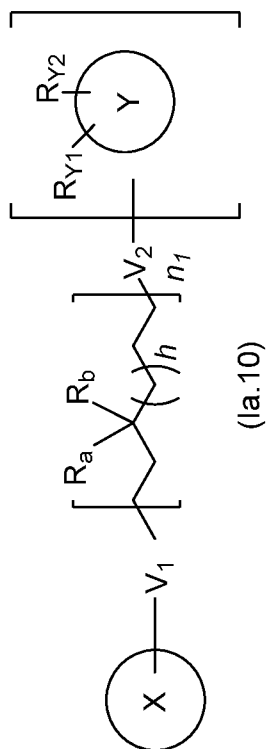
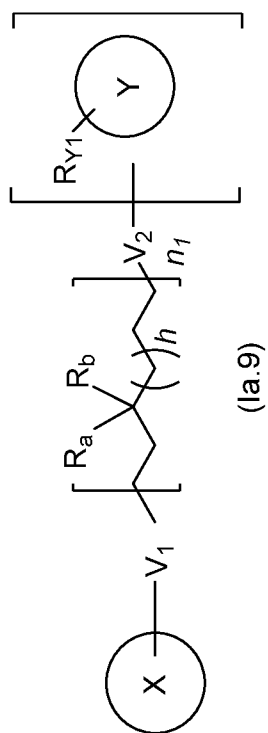
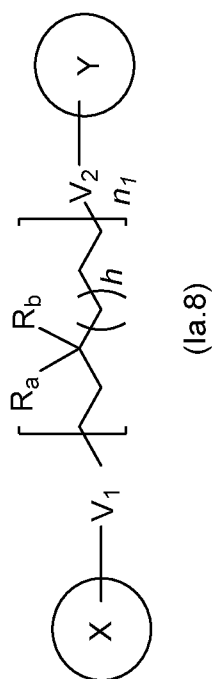
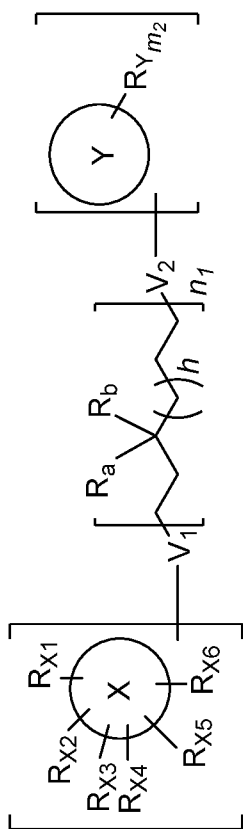
in which X , Y , R_X , R_Y , R , m_1 , m_2 , V_1 , V_2 , R_Z , R_a , R_b , and h are as defined above for formula (I).

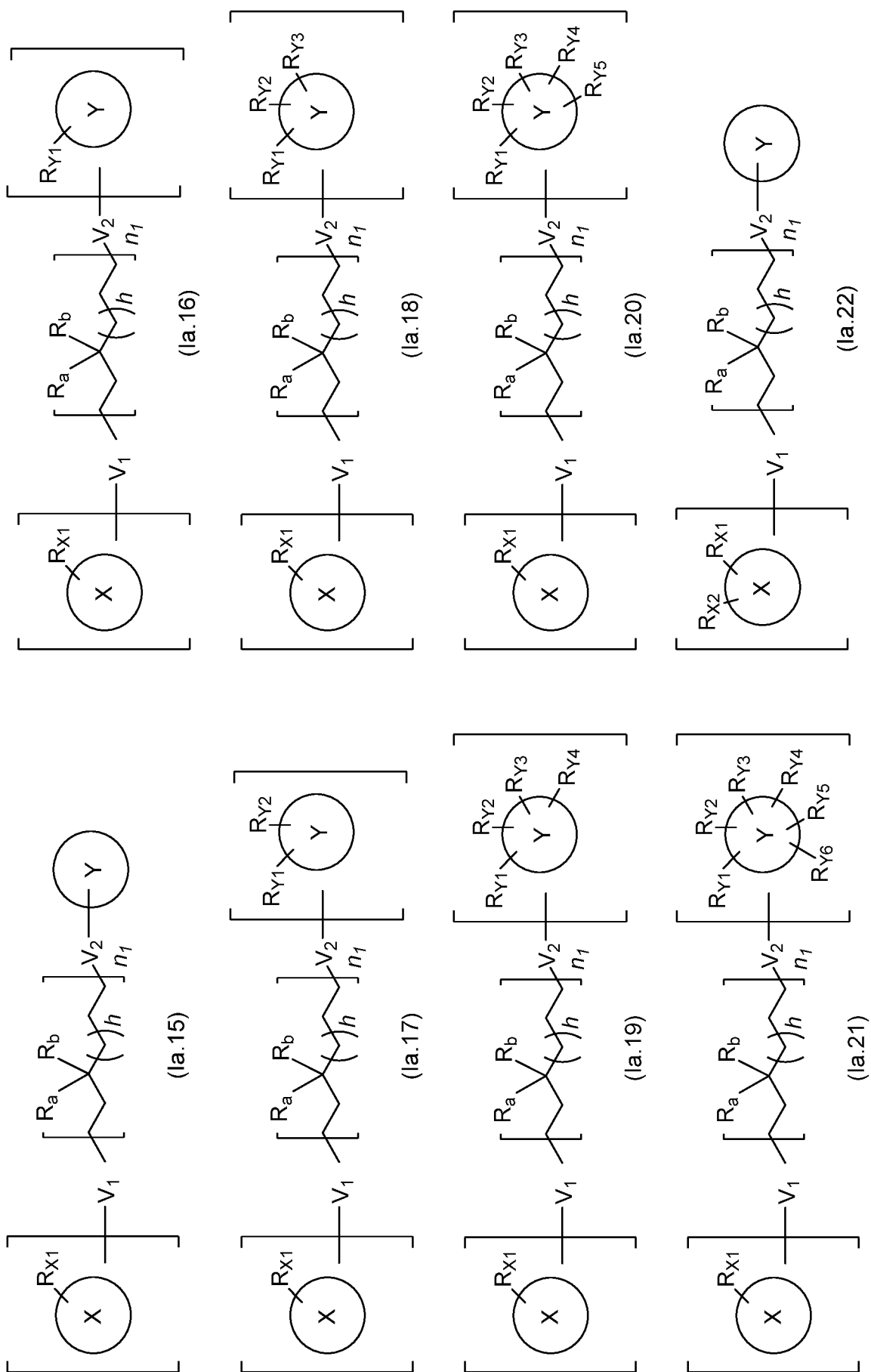
[71] Examples of linker (a) include , , ,

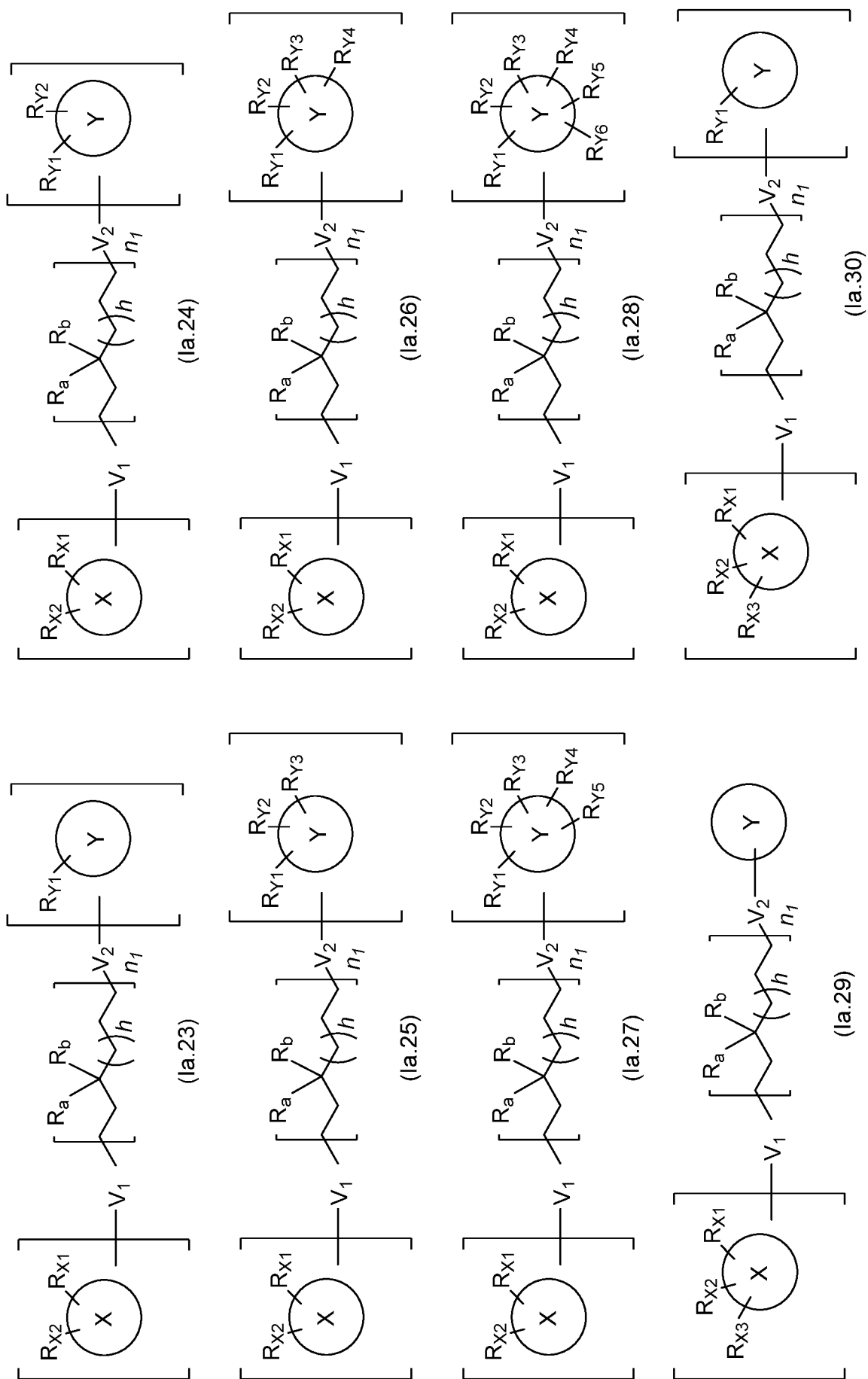


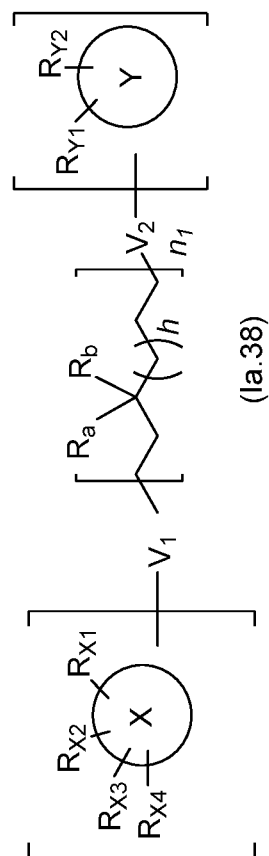
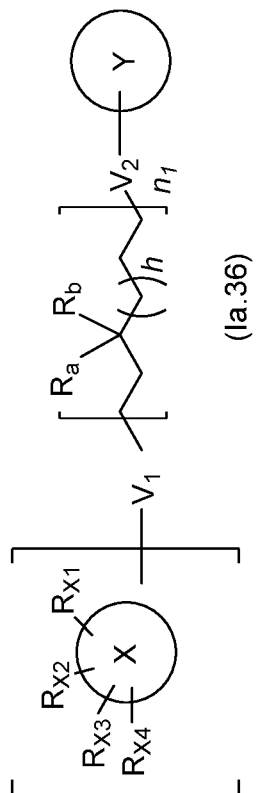
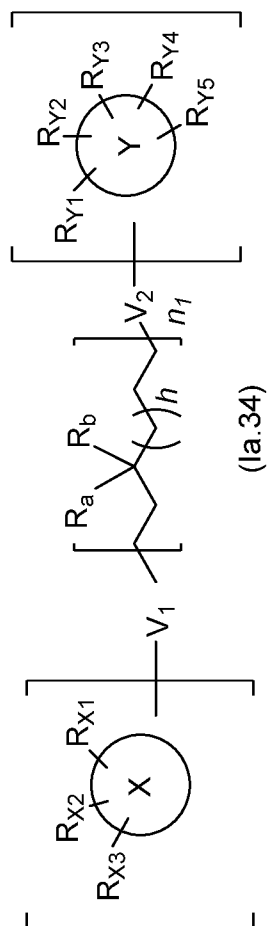
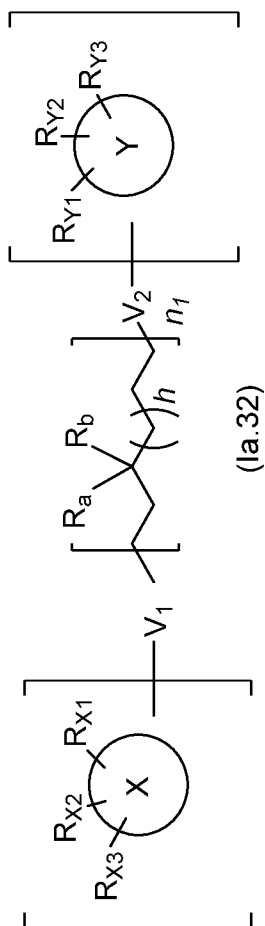
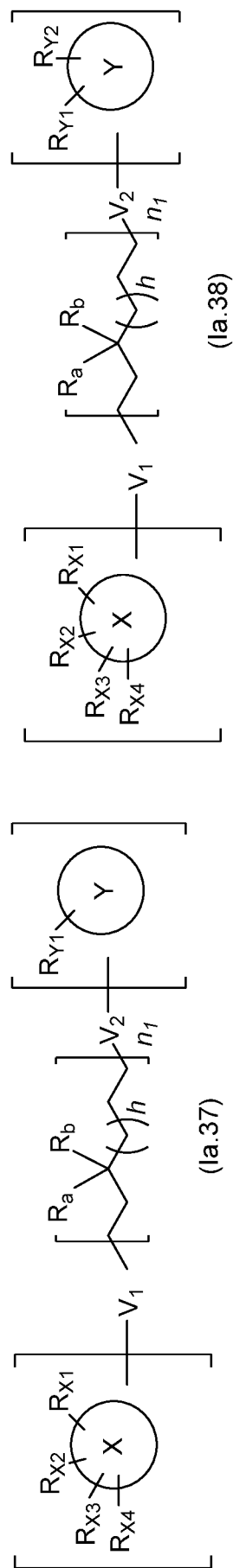
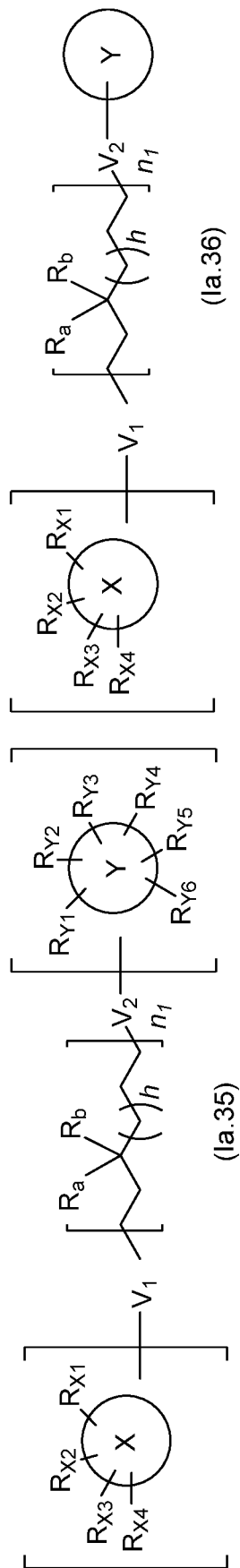
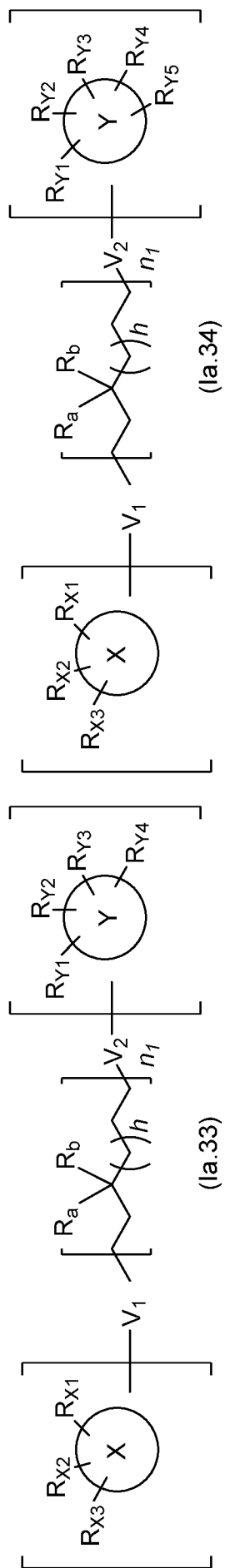
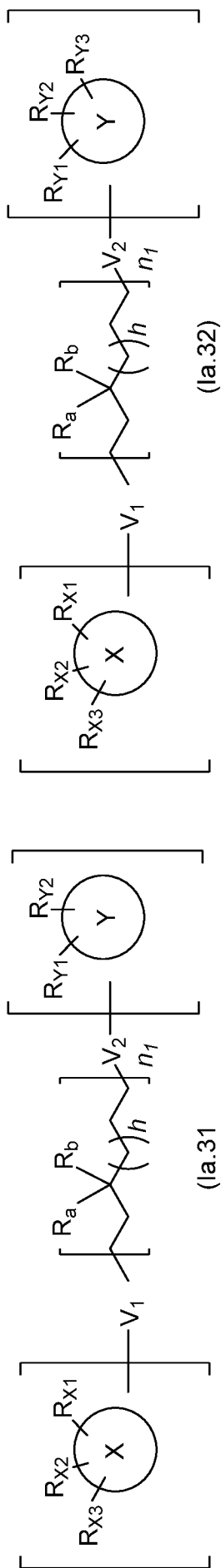
[72] In some variations, compounds of formula (Ia) fall within one or more of formulae (Ia.1)-(Ia.63), shown below.

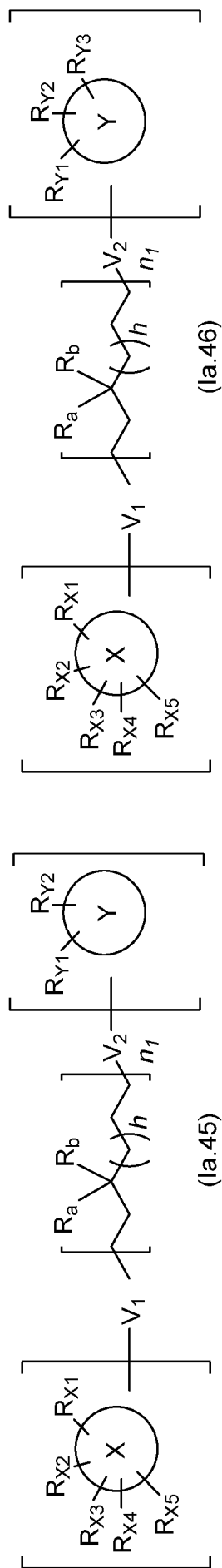
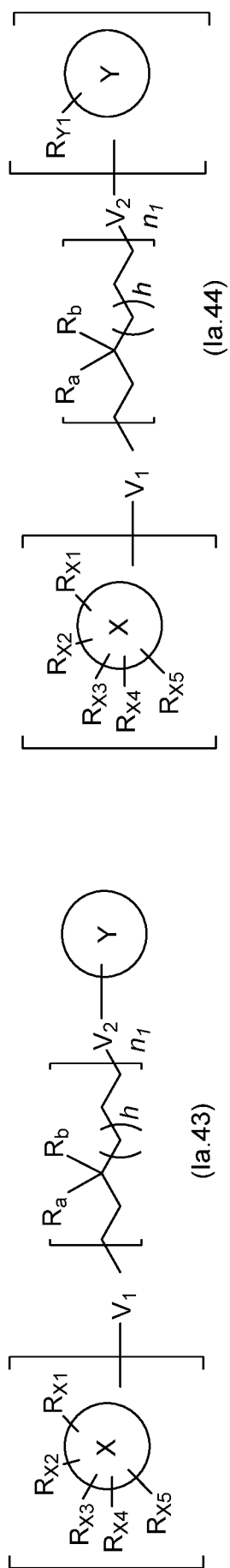
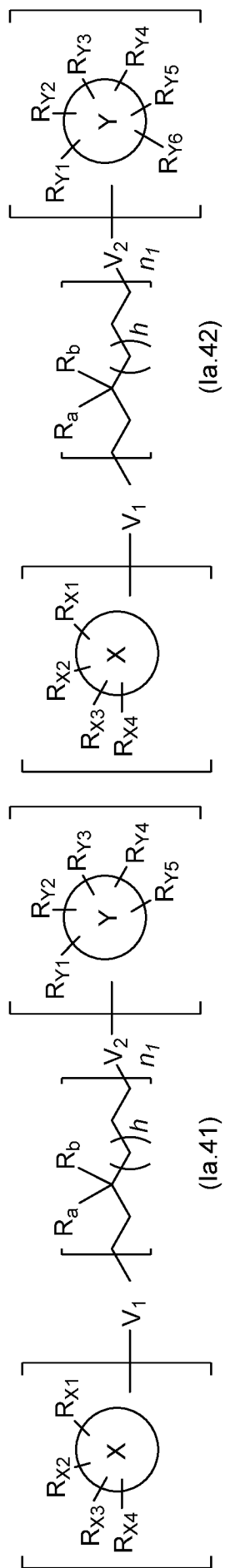
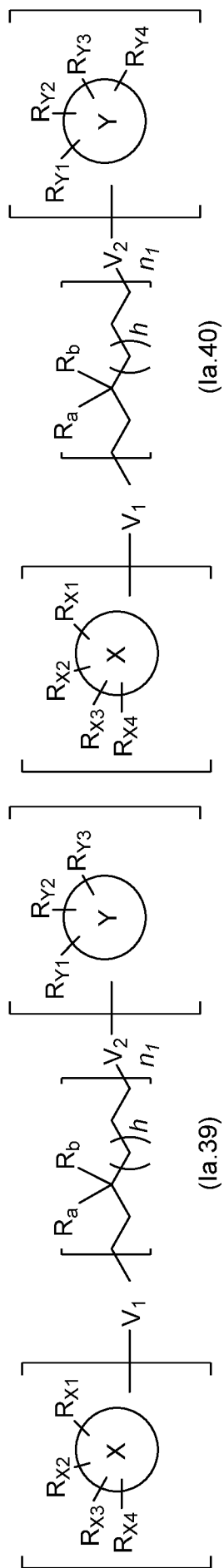


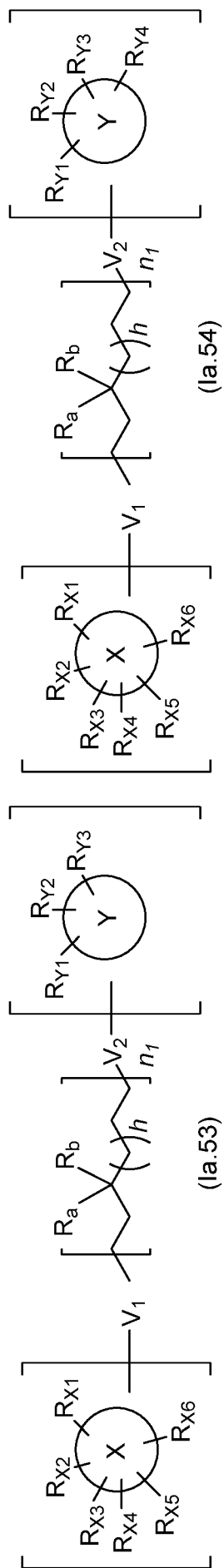
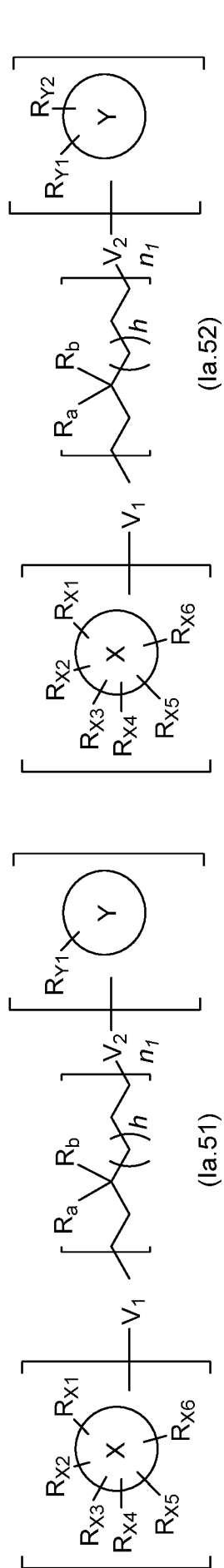
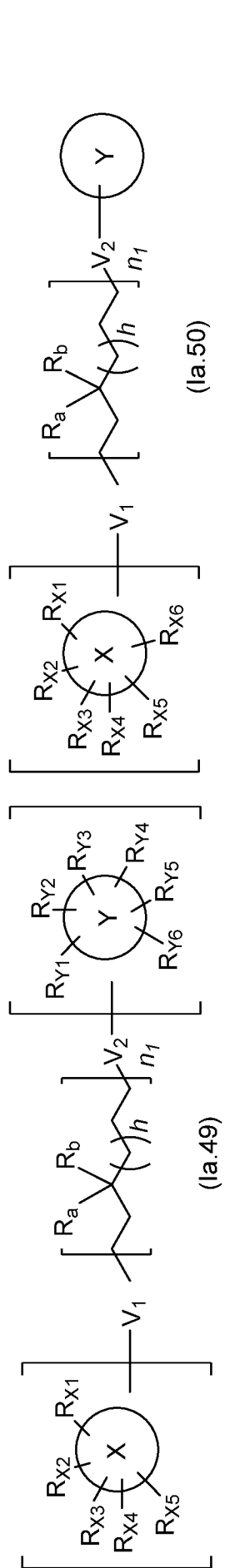
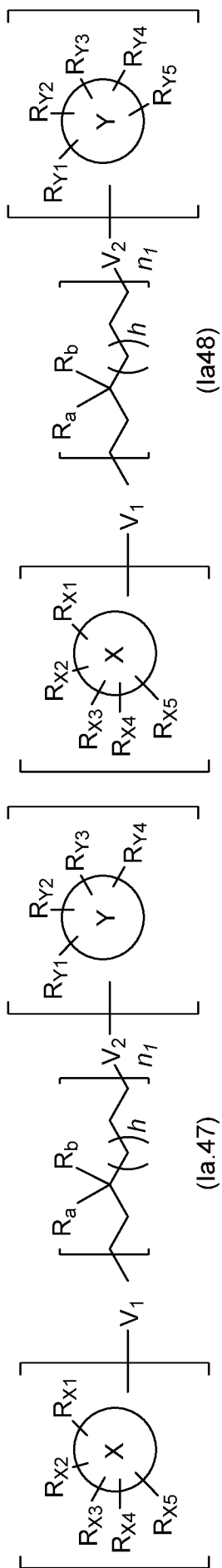


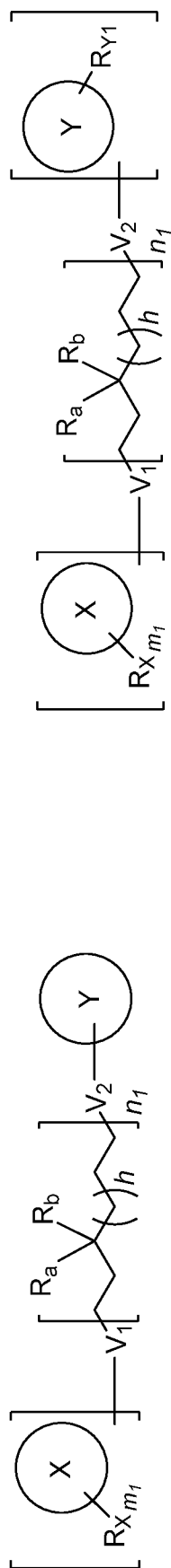
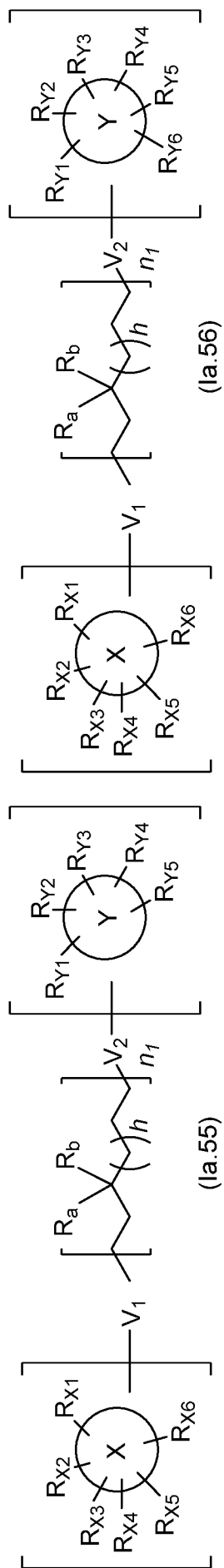






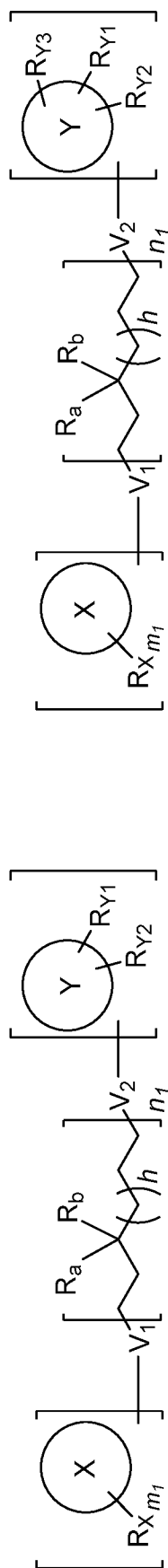




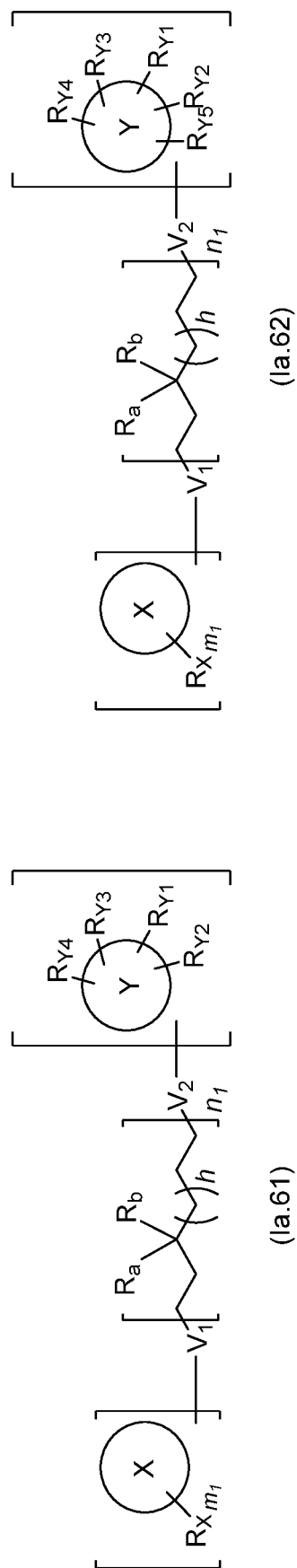


(la.57)

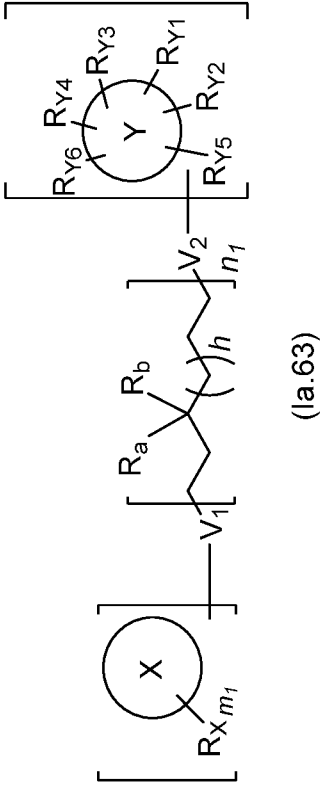
(la.58)



(la.60)



(la.62)



[73] In some variations of formulae (Ia)-(Ia.63) described in the paragraphs above, h is 0-6, 0-5, 0-4, 0-3, 0-2, 0-1, 1-6, 1-5, 1-4, 1-3, 1-2, 2-6, 2-5, 2-4, 2-3, 3-6, 3-5, 3-4, 4-6, 4-5, 5-6, 0, 1, 2, 3, 4, 5, or 6.

[74] In some variations of formulae (Ia)-(Ia.63) described in the paragraphs above, n_I is 1-4, 1-3, 1-2, 2-4, 2-3, 3-4, 1, 2, 3, or 4.

Variations of formulae (Ia)-(Ia.63) in which n_I is 1

[75] In some variations of formulae (Ia)-(Ia.63) described in the paragraphs above, n_I is 1.

[76] In some variations, R_a and R_b are both H. In some variations, R_a is H and R_b is CH₃. In

some variations, R_a and R_b are both CH₃. In some variations, R_a and R_b are . In some

variations, R_a and R_b are .

Variations of formulae (Ia)-(Ia.63) in which n_I is 2

[77] In variations of formulae (Ia)-(Ia.63) described in the paragraphs above in which n_I is 2, the two instances of R_a and R_b are indicated as R_{a1} and R_{b1} and R_{a2} and R_{b2} , respectively.

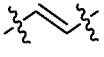
[78] In some variations, each of R_{a1} and R_{b1} and R_{a2} and R_{b2} is H. In some variations, each of R_{a1} and R_{b1} and R_{a2} and R_{b2} is CH₃. In some variations, each of R_{a1} and R_{a2} is H and each of R_{b1} and R_{b2} is CH₃. In some variations, each of R_{a1} , R_{a2} , and R_{b1} is H and R_{b2} is CH₃.

[79] In some variations, each of R_{a1} and R_{b1} is H and R_{a2} and R_{b2} are . In some

variations, each of R_{a1} and R_{b1} is H and R_{a2} and R_{b2} are . In some variations, each of R_{a1}

and R_{b1} is CH₃ and R_{a2} and R_{b2} are . In some variations, each of R_{a1} and R_{b1} is CH₃ and

R_{a2} and R_{b2} are .

[80] In some variations, R_{a1} is H, R_{b1} is CH₃, and R_{a2} and R_{b2} are . In some variations, R_{a1} is H, R_{b1} is CH₃, and R_{a2} and R_{b2} are . In some variations, R_{a1} and R_{b1} and R_{a2} and R_{b2} together are . In some variations, R_{a1} and R_{b1} are  R_{a2} and R_{b2} are . In some variations, R_{a1} and R_{b1} are  and R_{a2} and R_{b2} are . In some variations, R_{a1} and R_{b1} are  and R_{a2} and R_{b2} are .

Variations of formulae (Ia)-(Ia.63) in which n_1 is 3

[81] In variations, the three instances of R_a and R_b are indicated as R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; and R_{a3} and R_{b3} , respectively.

[82] In some variations, each of R_{a1} , R_{b1} , R_{a2} , R_{b2} , R_{a3} , and R_{b3} is H. In some variations, each of R_{a1} , R_{b1} , R_{a2} , R_{b2} , R_{a3} , and R_{b3} is CH₃. In some variations, each of R_{a1} , R_{b1} , R_{a2} , and R_{b2} , is H and each of R_{a3} and R_{b3} is CH₃. In some variations, each of R_{a1} , R_{b1} , R_{a2} , and R_{b2} , is CH₃ and each of R_{a3} and R_{b3} is H. In some variations, R_{a1} is H and each of R_{a2} , R_{a3} , R_{b1} , R_{b2} , and R_{b3} is CH₃. In some variations, each of R_{a1} and R_{a2} is H and each of R_{a3} , R_{b1} , R_{b2} , and R_{b3} is CH₃. In some variations, each of R_{a1} , R_{a2} , and R_{a3} is H and each of R_{b1} , R_{b2} , and R_{b3} is CH₃.

[83] In some variations, each of R_{a1} , R_{b1} , R_{a2} , and R_{b2} , is H and R_{a3} and R_{b3} are . In some variations, each of R_{a1} , R_{b1} , R_{a2} , and R_{b2} , is CH₃ and R_{a3} and R_{b3} are . In some variations, R_{a1} is H and each of R_{a2} , R_{b1} , and R_{b2} is CH₃, and R_{a3} and R_{b3} are . In some variations, each of R_{a1} and R_{a2} is H and each of R_{b1} and R_{b2} is CH₃, and R_{a3} and R_{b3} are .

[84] In some variations, each of R_{a1} , R_{b1} , R_{a2} , and R_{b2} , is H and R_{a3} and R_{b3} are . In some variations, each of R_{a1} , R_{b1} , R_{a2} , and R_{b2} , is CH₃ and R_{a3} and R_{b3} are .

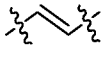
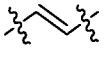
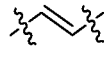
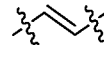
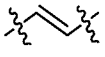
variations, R_{a1} is H and each of R_{a2} , R_{b1} , and R_{b2} is CH_3 , and R_{a3} and R_{b3} are . In some

variations, each of R_{a1} and R_{a2} is H and each of R_{b1} and R_{b2} is CH_3 , and R_{a3} and R_{b3} are .

[85] In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and each of R_{a3} and R_{b3} is H. In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and each of R_{a3} and R_{b3} is CH_3 . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} is H, and R_{b3} is CH_3 . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and each of R_{a3} and R_{b3} is H. In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and each of R_{a3} and R_{b3} is CH_3 . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} is H, and R_{b3} is CH_3 .

[86] In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and each of R_{a3} and R_{b3} is H. In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and each of R_{a3} and R_{b3} is CH_3 . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} is H, and R_{b3} is CH_3 . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and each of R_{a3} and R_{b3} is H. In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and each of R_{a3} and R_{b3} is CH_3 . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} is H, and R_{b3} is CH_3 .

[87] In some variations, $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ are , $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ are , and each of $\mathbf{R}_{a3}$ and $\mathbf{R}_{b3}$ is H. In some variations, $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ are , $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ are , and each of $\mathbf{R}_{a3}$ and $\mathbf{R}_{b3}$ is CH_3 . In some variations, $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ are , $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ are , $\mathbf{R}_{a3}$ is H, and $\mathbf{R}_{b3}$ is CH_3 . In some variations, $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ are , $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ are , and each of $\mathbf{R}_{a3}$ and $\mathbf{R}_{b3}$ is H. In some variations, $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ are , $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ are , and each of $\mathbf{R}_{a3}$ and $\mathbf{R}_{b3}$ is CH_3 . In some variations, $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ are , $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ are , $\mathbf{R}_{a3}$ is H, and $\mathbf{R}_{b3}$ is CH_3 .

[88] In some variations, $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ and $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ together are , and each of $\mathbf{R}_{a3}$ and $\mathbf{R}_{b3}$ is H. In some variations, $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ and $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ together are , and each of $\mathbf{R}_{a3}$ and $\mathbf{R}_{b3}$ is CH_3 . In some variations, $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ and $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ together are , $\mathbf{R}_{a3}$ is H, and $\mathbf{R}_{b3}$ is CH_3 . In some variations, $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ and $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ together are , and $\mathbf{R}_{a3}$ and $\mathbf{R}_{b3}$ are . In some variations, $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ and $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ together are , and $\mathbf{R}_{a3}$ and $\mathbf{R}_{b3}$ are .

Variations of formulae (Ia)-(Ia.63) in which n_1 is 4

[89] In variations, the four instances of $\mathbf{R}_a$ and $\mathbf{R}_b$ are indicated as $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$; $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$; $\mathbf{R}_{a3}$ and $\mathbf{R}_{b3}$; and $\mathbf{R}_{a4}$ and $\mathbf{R}_{b4}$, respectively.

[90] In some variations, each of $\mathbf{R}_{a1}$, $\mathbf{R}_{b1}$, $\mathbf{R}_{a2}$, $\mathbf{R}_{b2}$, $\mathbf{R}_{a3}$, $\mathbf{R}_{b3}$, $\mathbf{R}_{a4}$, and $\mathbf{R}_{b4}$ is H. In some variations, each of $\mathbf{R}_{a1}$, $\mathbf{R}_{b1}$, $\mathbf{R}_{a2}$, $\mathbf{R}_{b2}$, $\mathbf{R}_{a3}$, $\mathbf{R}_{b3}$, $\mathbf{R}_{a4}$, and $\mathbf{R}_{b4}$ is CH_3 . In some variations, each of $\mathbf{R}_{a1}$, $\mathbf{R}_{b1}$, $\mathbf{R}_{a2}$, $\mathbf{R}_{b2}$, $\mathbf{R}_{a3}$, and $\mathbf{R}_{b3}$ is H and each of $\mathbf{R}_{a4}$ and $\mathbf{R}_{b4}$ is CH_3 . In some variations, each of $\mathbf{R}_{a1}$, $\mathbf{R}_{b1}$, $\mathbf{R}_{a2}$, and $\mathbf{R}_{b2}$ is H and each of $\mathbf{R}_{a3}$, $\mathbf{R}_{b3}$, $\mathbf{R}_{a4}$, and $\mathbf{R}_{b4}$ is CH_3 . In some variations, each of $\mathbf{R}_{a1}$, $\mathbf{R}_{b1}$, $\mathbf{R}_{a2}$, $\mathbf{R}_{b2}$, $\mathbf{R}_{a3}$, and $\mathbf{R}_{b3}$ is CH_3 and each of $\mathbf{R}_{a4}$ and $\mathbf{R}_{b4}$ is H.

[95] In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are H, R_{a3} and R_{b3} are H, and R_{a4} and

R_{b4} are . In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are H, R_{a3} and R_{b3} are CH₃,

and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are CH₃, R_{a3} and

R_{b3} are CH₃, and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are CH₃, R_{a2} and R_{b2}

are CH₃, R_{a3} and R_{b3} are CH₃, and R_{a4} and R_{b4} are .

[96] In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are H, R_{a3} and R_{b3} are , and R_{a4}

and R_{b4} are . In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are CH₃, R_{a3} and R_{b3} are

, and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are CH₃, R_{a2} and R_{b2} are CH₃,

R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are . In some variations, R_{a1} is H, R_{b1} is CH₃, R_{a2}

and R_{b2} are CH₃, R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are . In some variations, R_{a1} is H,

R_{b1} is CH₃, R_{a2} is H, R_{b2} is CH₃, R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are .

[97] In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are , R_{a3} and R_{b3} are , and

R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are CH₃, R_{a2} and R_{b2} are , R_{a3} and

R_{b3} are , and R_{a4} and R_{b4} are . In some variations, R_{a1} is H, R_{b1} is CH₃, R_{a2} and R_{b2}

are , R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are

, R_{a2} and R_{b2} are , R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are .

[98] In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are H, R_{a3} and R_{b3} are H, and R_{a4}

and R_{b4} are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are CH₃, R_{a3} and R_{b3}

are CH₃, and **R**_{a4} and **R**_{b4} are . In some variations, **R**_{a1} and **R**_{b1} are , **R**_{a2} and **R**_{b2} are H, **R**_{a3} and **R**_{b3} are CH₃, and **R**_{a4} and **R**_{b4} are .

[99] In some variations, **R**_{a1} and **R**_{b1} are , **R**_{a2} and **R**_{b2} are , **R**_{a3} and **R**_{b3} are H, and **R**_{a4} and **R**_{b4} are . In some variations, **R**_{a1} and **R**_{b1} are , **R**_{a2} and **R**_{b2} are , **R**_{a3} and **R**_{b3} are CH₃, and **R**_{a4} and **R**_{b4} are . In some variations, **R**_{a1} and **R**_{b1} are , **R**_{a2} and **R**_{b2} are , **R**_{a3} and **R**_{b3} are CH₃, and **R**_{a4} and **R**_{b4} are . In some variations, **R**_{a1} and **R**_{b1} are , **R**_{a2} and **R**_{b2} are , **R**_{a3} and **R**_{b3} are H, and **R**_{a4} and **R**_{b4} are .

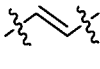
[100] In some variations, **R**_{a1} and **R**_{b1} are , **R**_{a2} and **R**_{b2} are , **R**_{a3} and **R**_{b3} are , and **R**_{a4} and **R**_{b4} are .

[101] In some variations, **R**_{a1} and **R**_{b1} are , **R**_{a2} and **R**_{b2} are , **R**_{a3} and **R**_{b3} are H, and **R**_{a4} and **R**_{b4} are . In some variations, **R**_{a1} and **R**_{b1} are , **R**_{a2} and **R**_{b2} are , **R**_{a3} and **R**_{b3} are CH₃, and **R**_{a4} and **R**_{b4} are . In some variations, **R**_{a1} and **R**_{b1} are , **R**_{a2} and **R**_{b2} are , **R**_{a3} and **R**_{b3} are CH₃, and **R**_{a4} and **R**_{b4} are . In some variations, **R**_{a1} and **R**_{b1} are , **R**_{a2} and **R**_{b2} are , **R**_{a3} and **R**_{b3} are H, and **R**_{a4} and **R**_{b4} are .

[102] In some variations, **R**_{a1} and **R**_{b1} are , **R**_{a2} and **R**_{b2} are , **R**_{a3} and **R**_{b3} are , and **R**_{a4} and **R**_{b4} are .

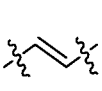
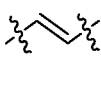
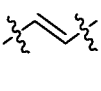
[103] In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} and R_{b3} are H, and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} and R_{b3} are CH₃, and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} and R_{b3} are CH₃, and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} and R_{b3} are H, and R_{a4} and R_{b4} are .

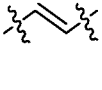
[104] In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are .

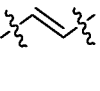
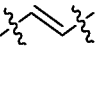
[105] In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are H, and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are . In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are CH₃, and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are . In some variations, R_{a1} and R_{a2} are H, R_{b1} and R_{b2} are CH₃, and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are .

[106] In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are , and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are CH₃, and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are . In some variations, R_{a1} is H, R_{b1} is CH₃, R_{a2} and R_{b2} are , and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are .

[107] In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are , and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are CH₃, and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are . In some variations, R_{a1} is H, R_{b1} is CH₃, R_{a2} and R_{b2} are , and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are .

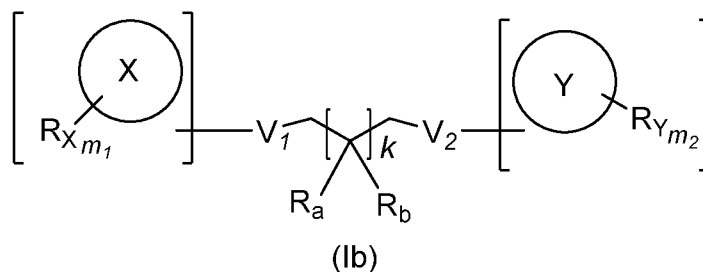
[108] In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are .

[109] In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are .

[110] In some variations, R_{a1} and R_{b1} and R_{a2} and R_{b2} together are , and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are .

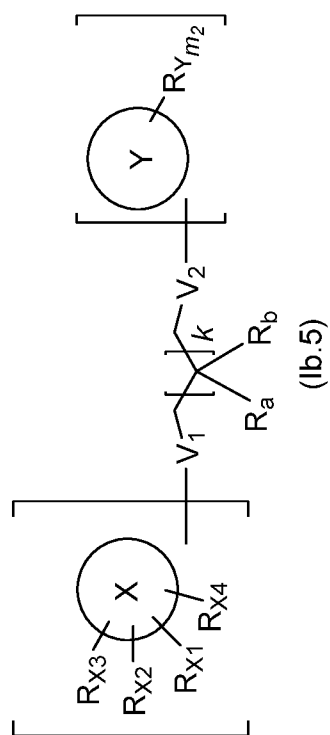
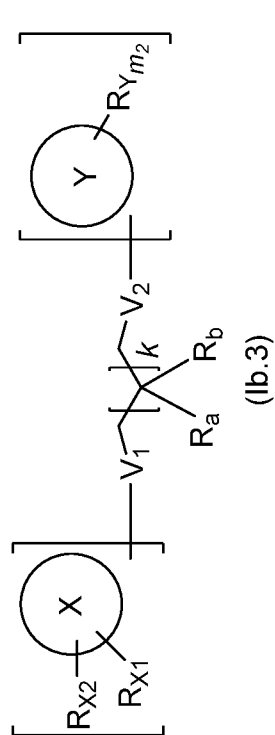
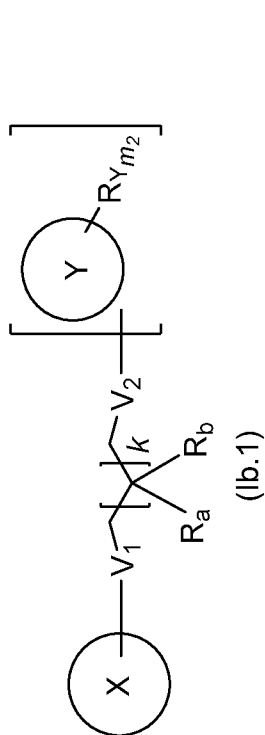
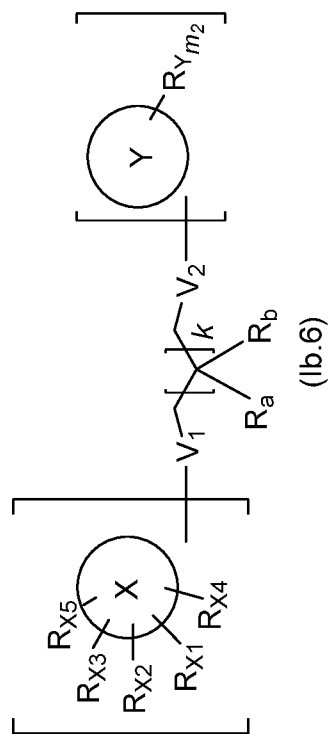
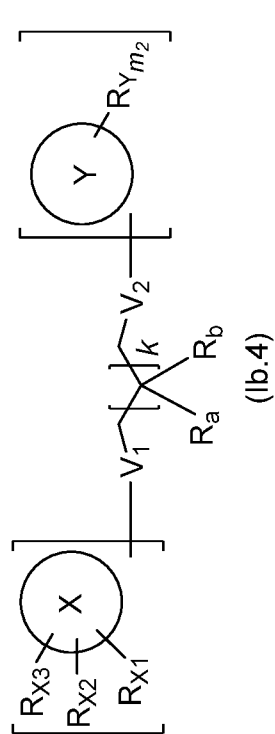
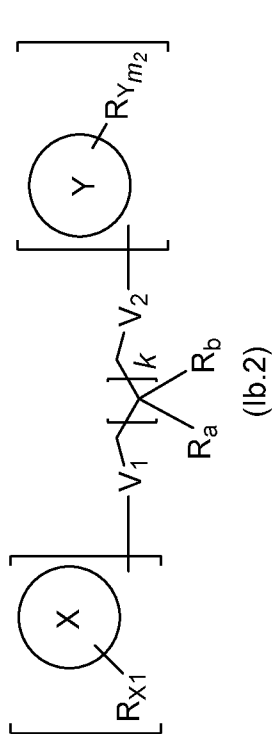
Compounds of Formula (Ib)

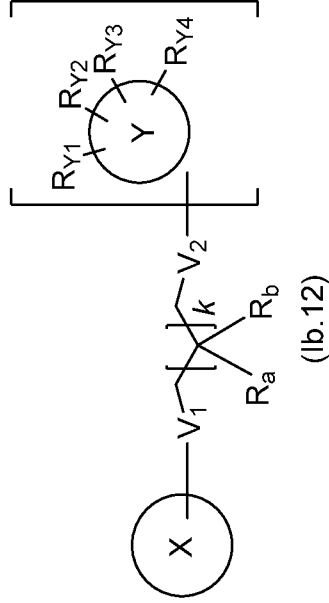
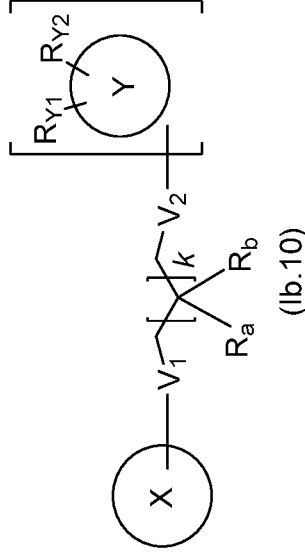
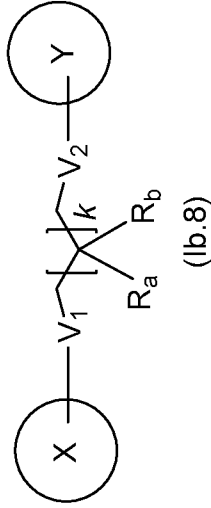
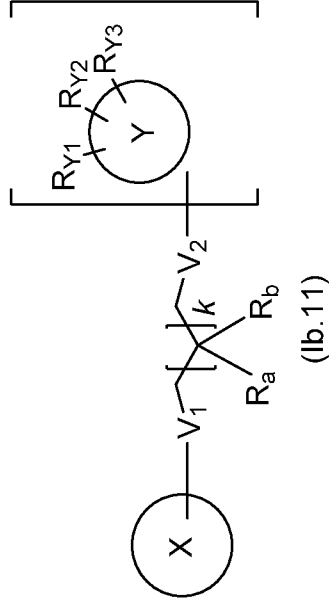
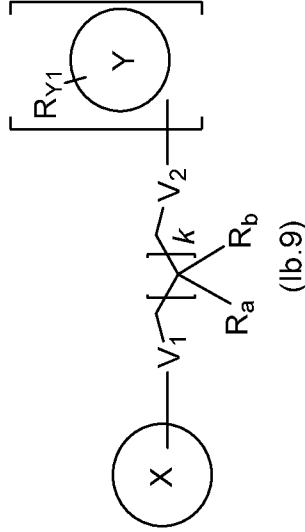
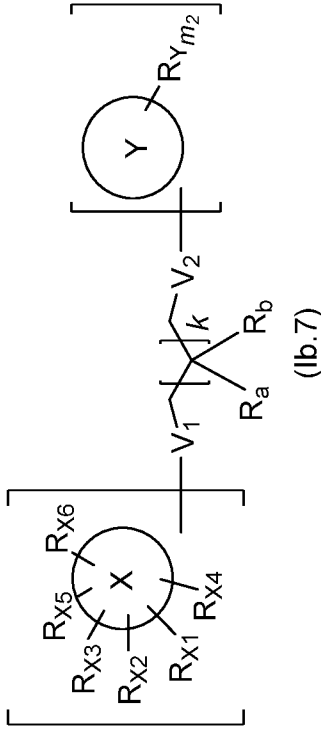
[111] Some compounds fall within formula (Ib), which comprises linker (b):

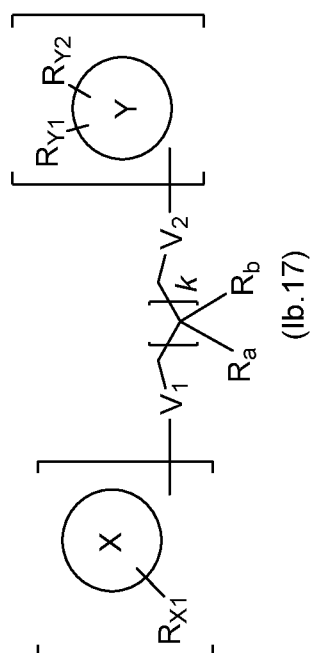
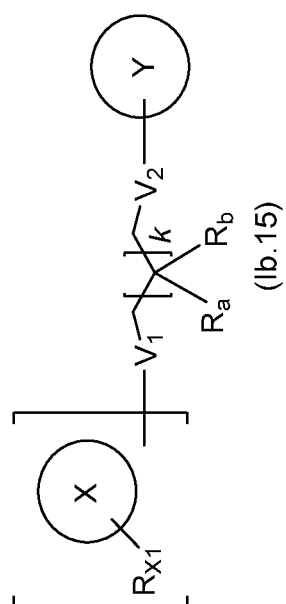
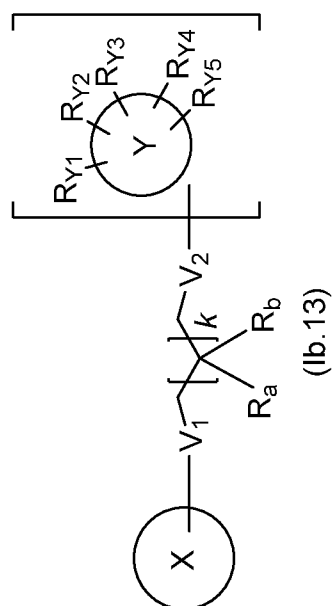
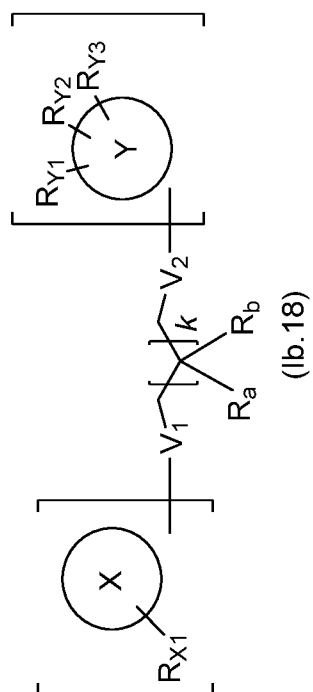
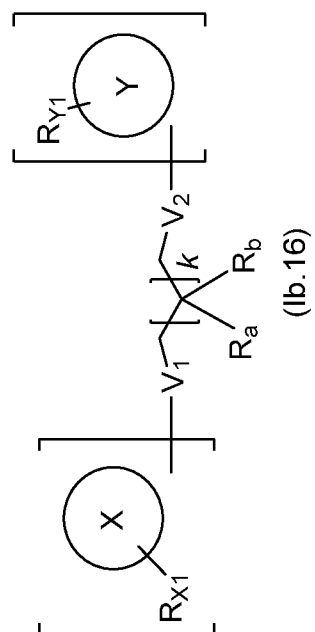
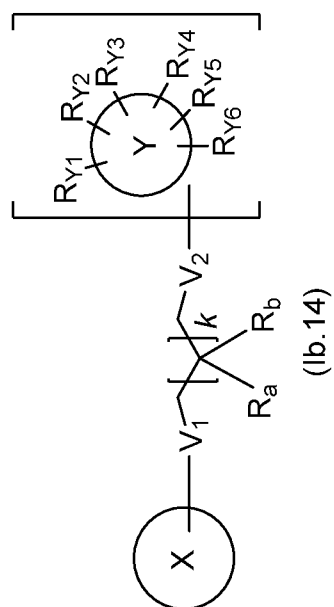


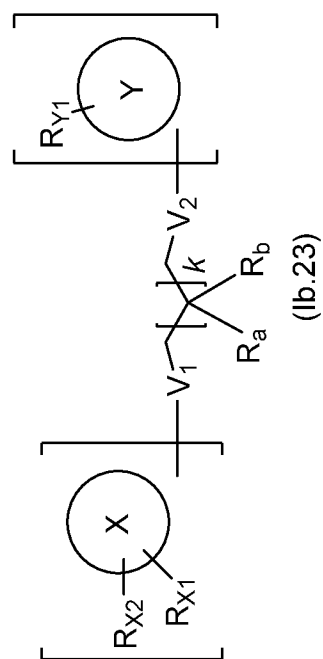
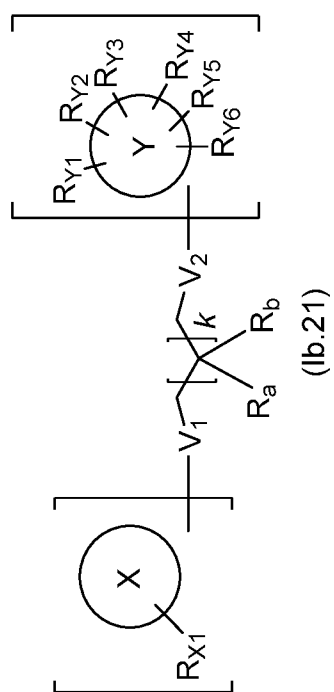
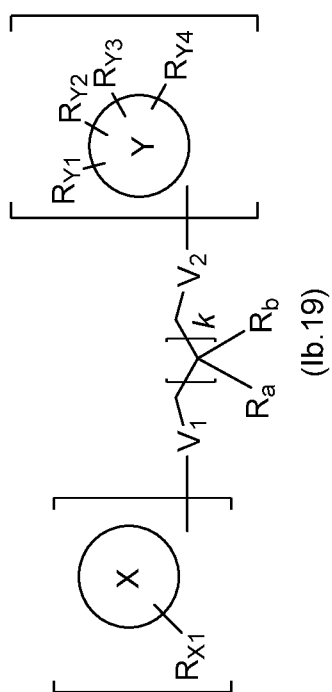
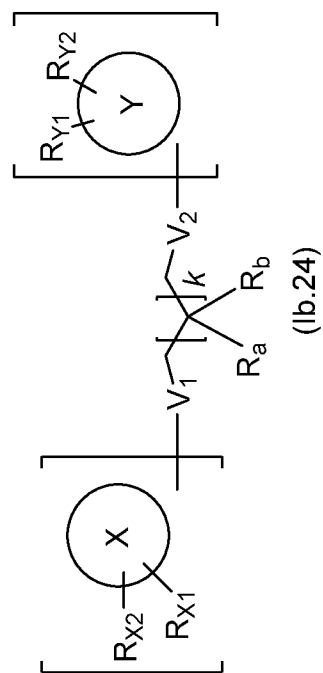
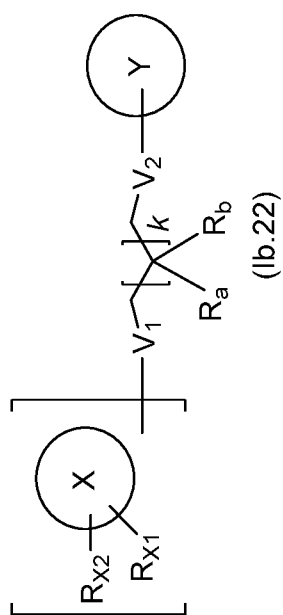
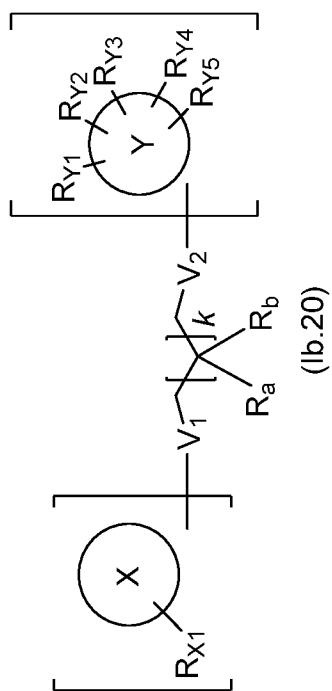
wherein: X, Y, R_X , R_Y , R , m_1 , m_2 , V_1 , V_2 , R_Z , R_a , R_b , and k are as defined in formula (I).

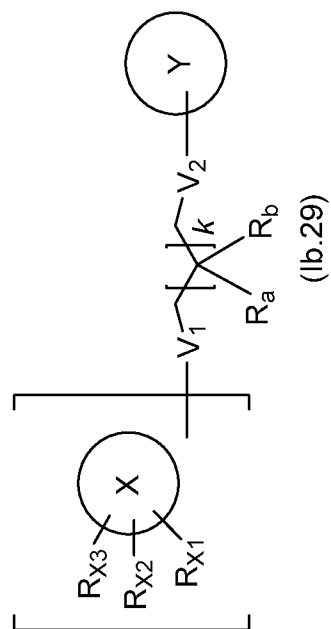
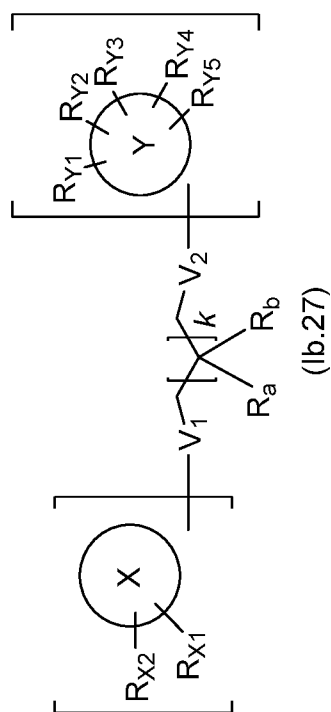
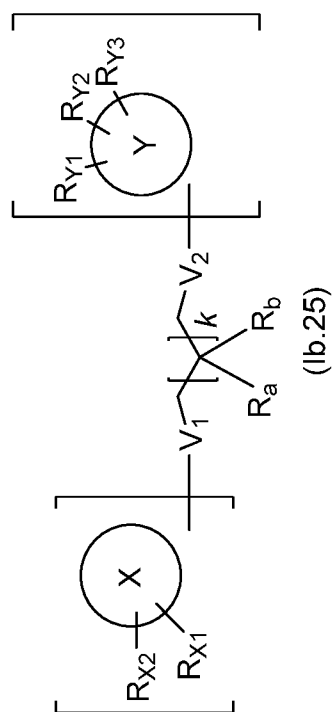
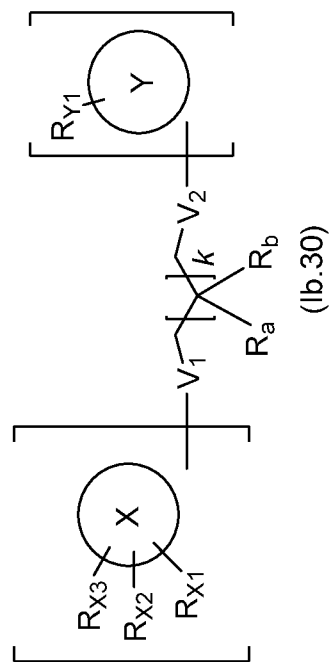
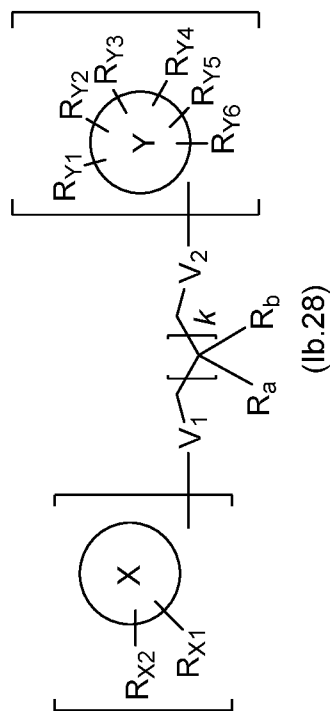
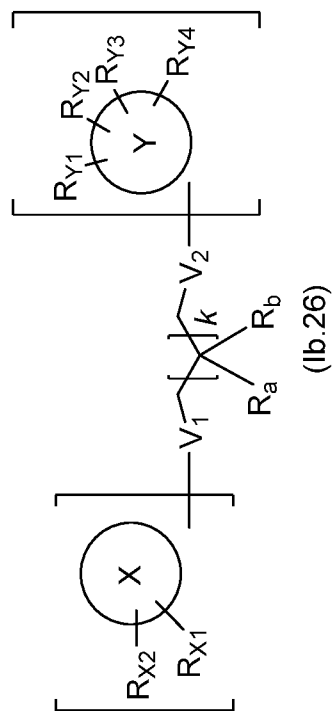
[112] In some variations, compounds of formula (Ib) fall within one or more of formulae (Ib.1)-(Ib.63), shown below.

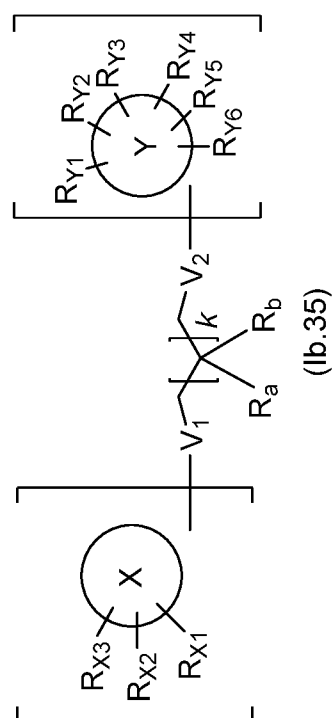
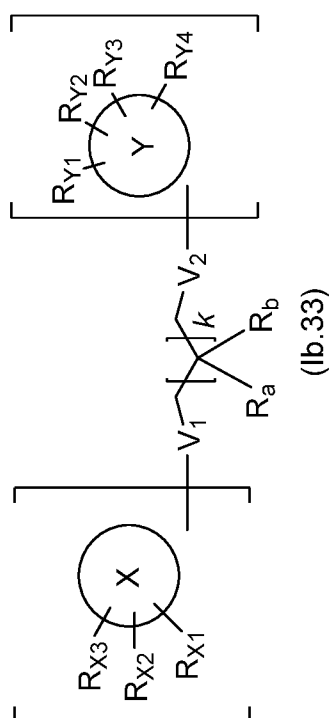
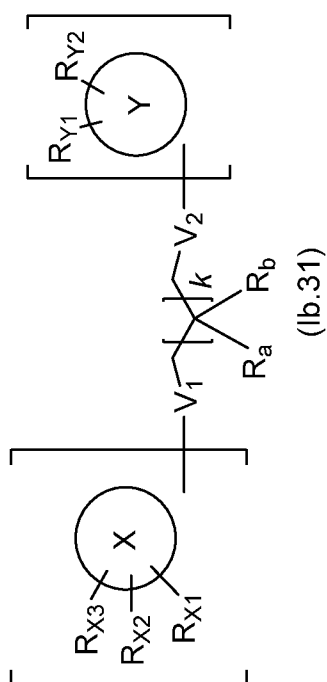
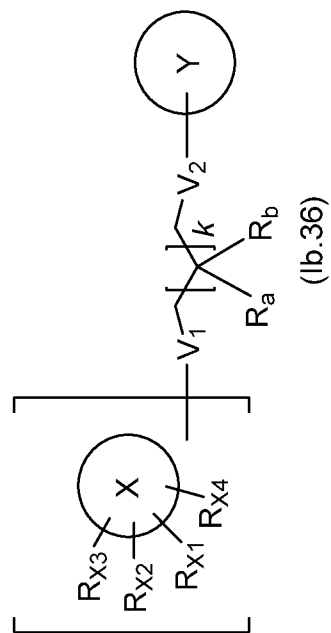
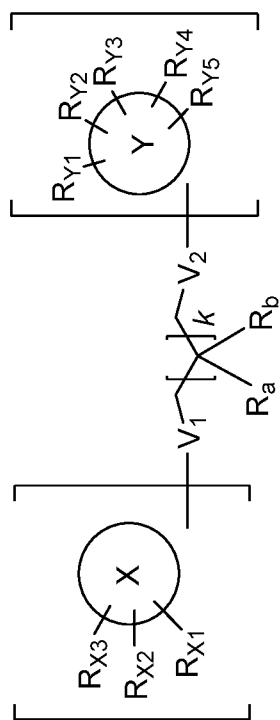
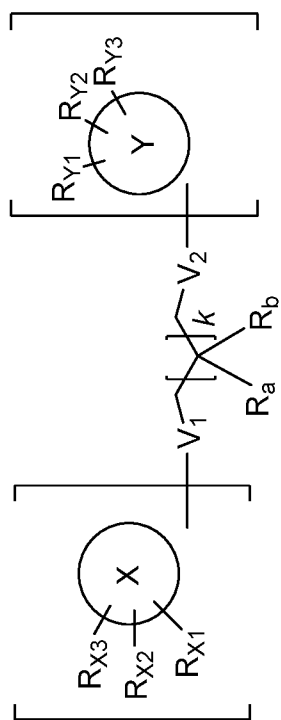


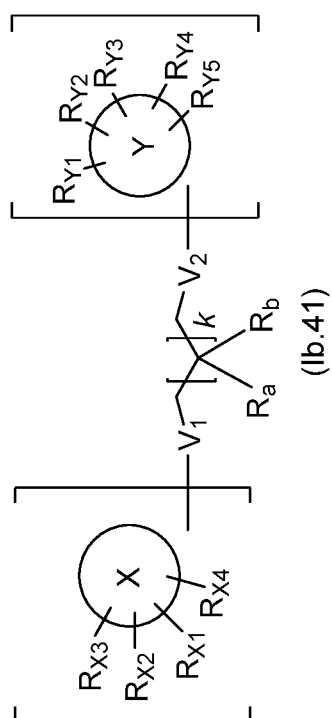
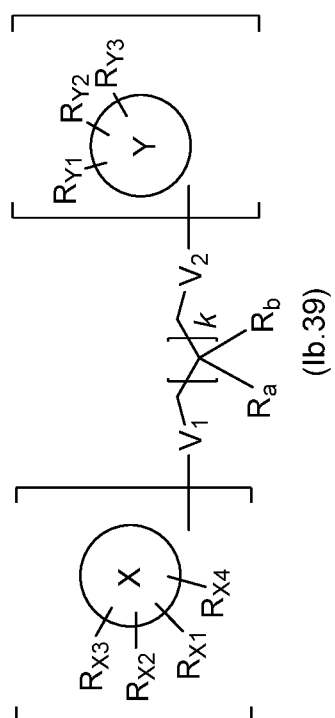
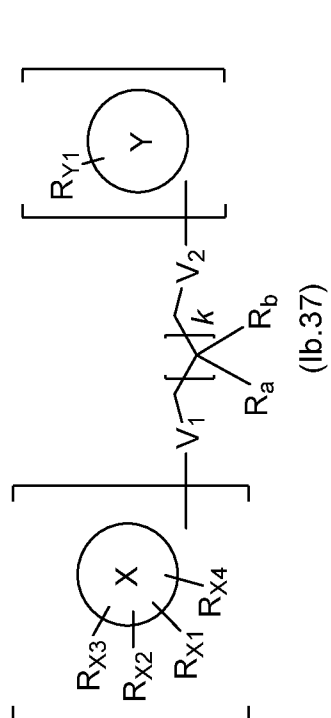
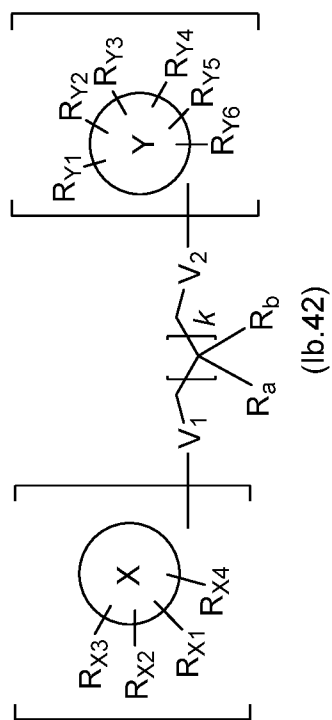
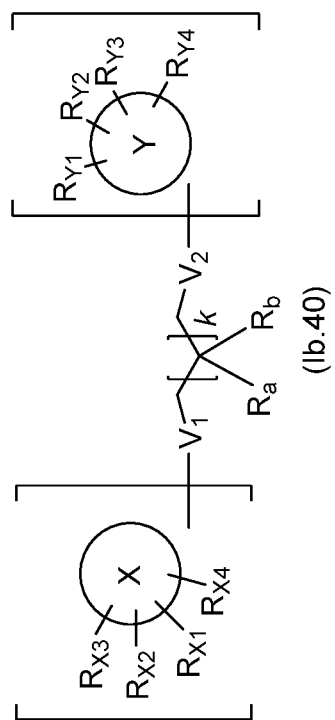
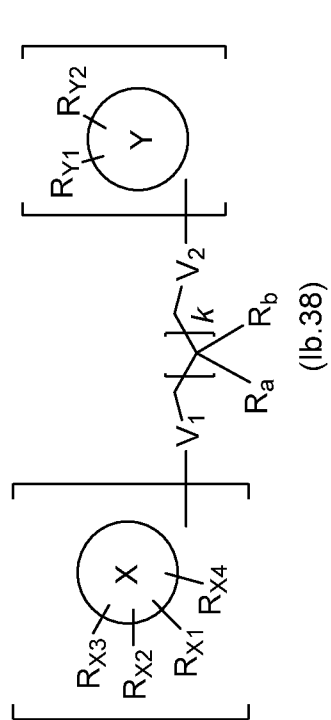


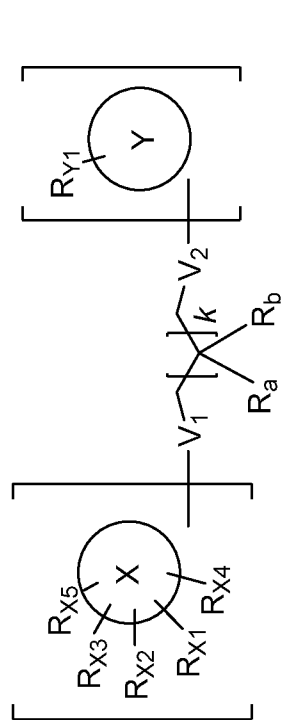




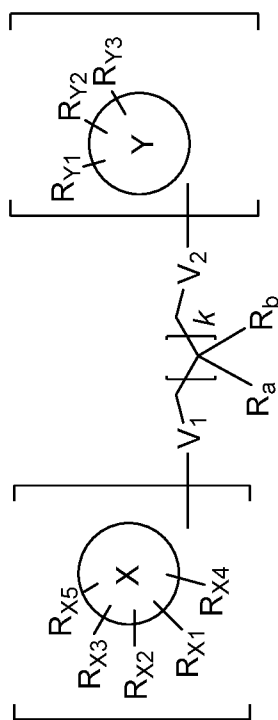




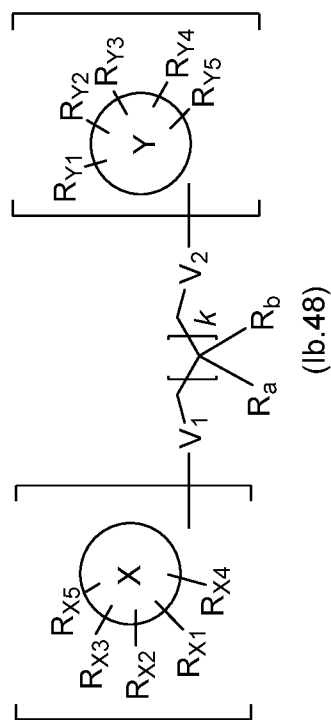




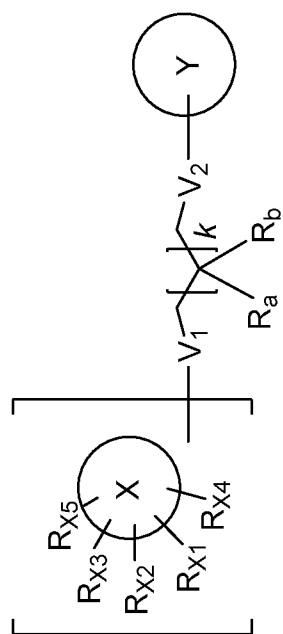
(lb.44)



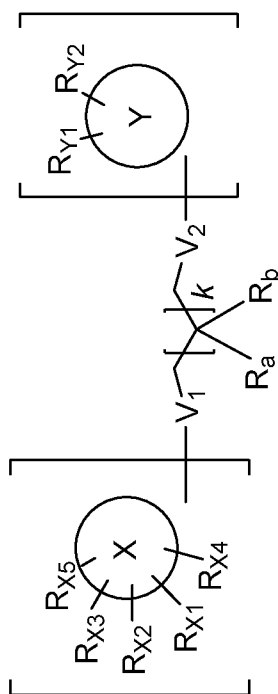
(lb.46)



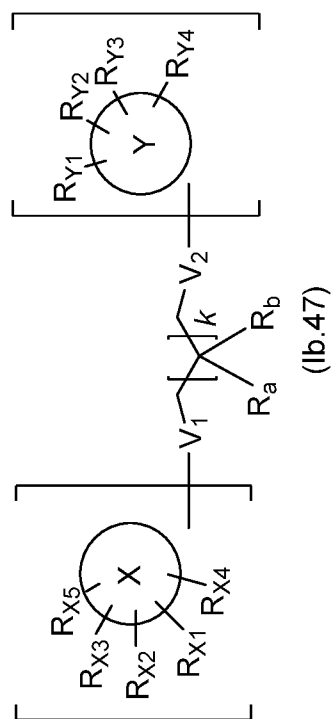
(lb.48)



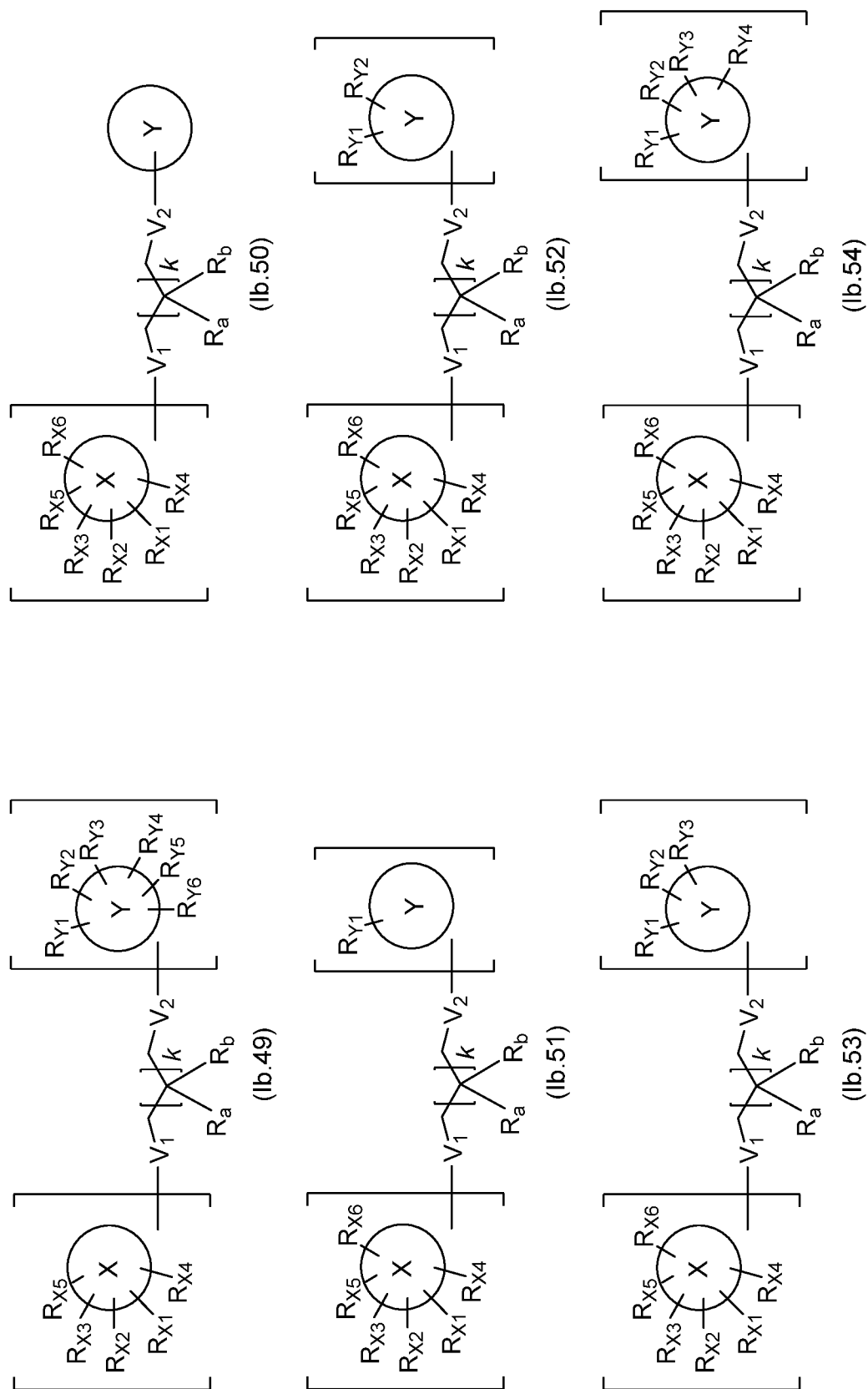
(lb.43)

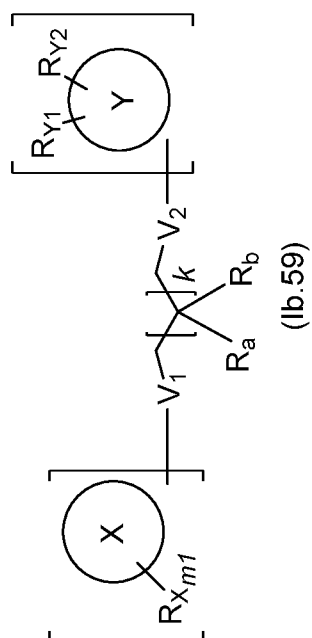
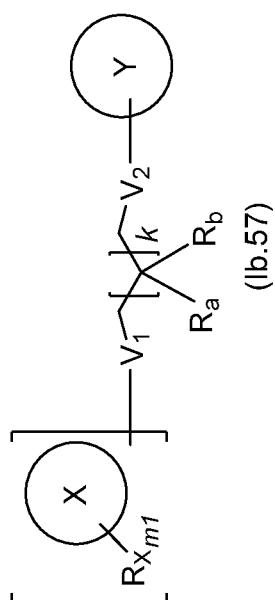
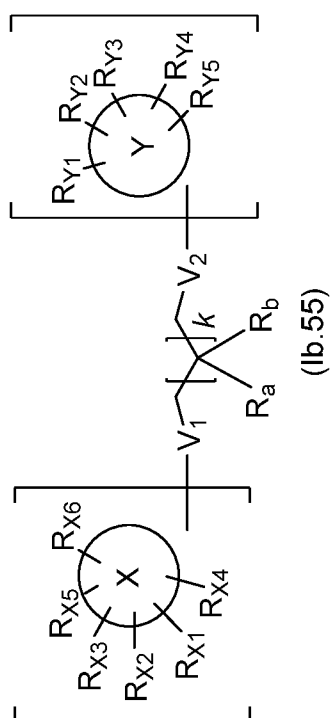
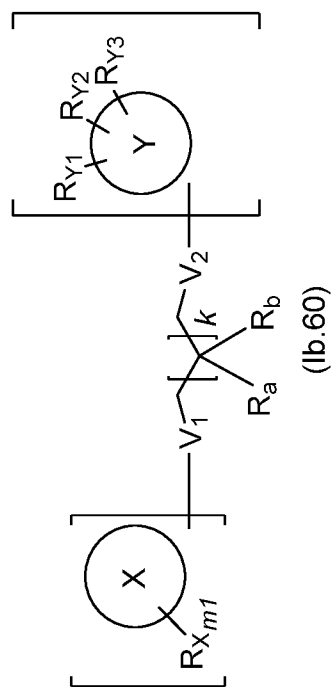
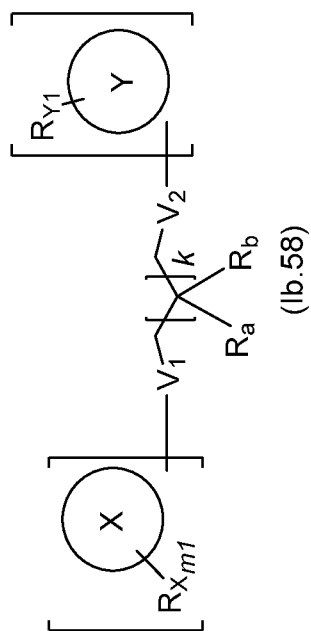
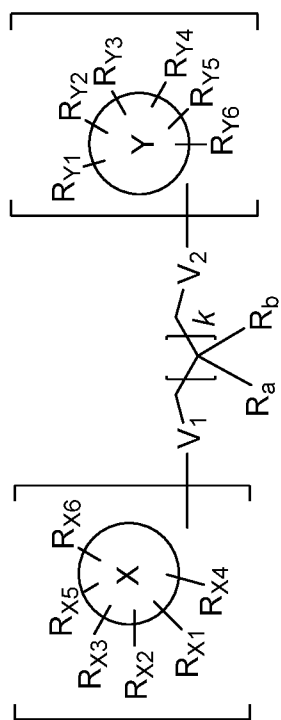


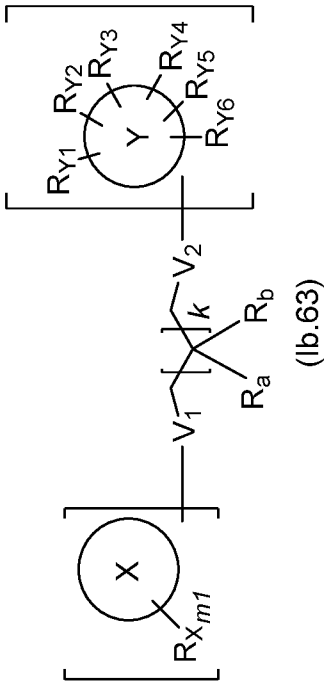
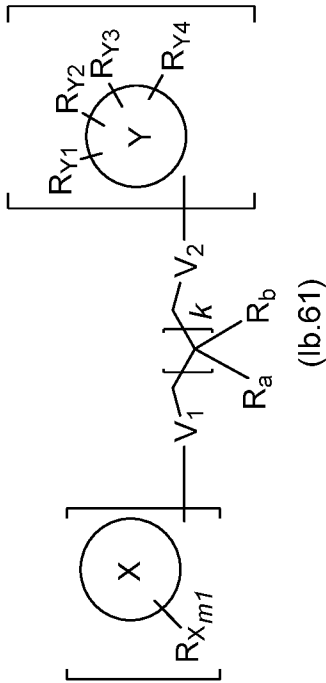
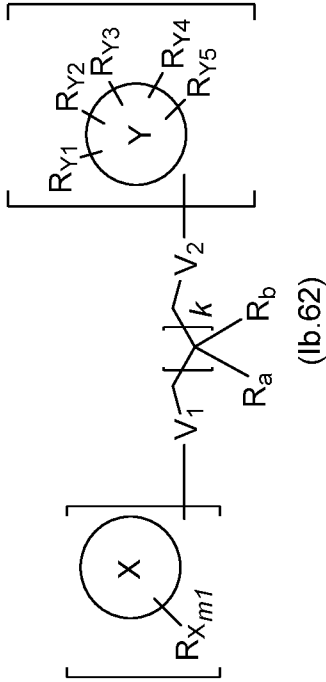
(lb.45)



(lb.47)







[113] In some variations of formulae (Ib.1-Ib.63) described in the paragraphs above, k is 2-10, 2-9, 2-8, 2-7, 2-6, 2-5, 2-4, 2-3, 3-10, 3-9, 3-8, 3-7, 3-6, 3-5, 3-4, 4-10, 4-9, 4-8, 4-7, 4-6, 4-5, 5-10, 5-9, 5-8, 5-7, 5-6, 6-10, 6-9, 6-8, 6-7, 7-10, 7-9, 7-8, 8-10, 8-9, 9-10, 2, 3, 4, 5, 6, 7, 8, 9, or 10.

Variations of formulae (Ib)-(Ib.63) in which k is 2

[114] In variations of formulae (Ib)-(Ib.63) described in the paragraphs above in which k is 2, the two instances of $\mathbf{R}_a$ and $\mathbf{R}_b$ are indicated as $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ and $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$, respectively.

[115] In some variations, each of $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ and $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ is H. In some variations, each of $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ and $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ is CH_3 . In some variations, each of $\mathbf{R}_{a1}$ and $\mathbf{R}_{a2}$ is H and each of $\mathbf{R}_{b1}$ and $\mathbf{R}_{b2}$ is CH_3 . In some variations, each of $\mathbf{R}_{a1}$, $\mathbf{R}_{a2}$, and $\mathbf{R}_{b1}$ is H and $\mathbf{R}_{b2}$ is CH_3 .

[116] In some variations, each of $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ is H and $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ are . In some variations, each of $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ is H and $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ are . In some variations, each of $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ is CH_3 and $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ are . In some variations, each of $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ is CH_3 and $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ are .

[117] In some variations, $\mathbf{R}_{a1}$ is H, $\mathbf{R}_{b1}$ is CH_3 , and $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ are . In some variations, $\mathbf{R}_{a1}$ is H, $\mathbf{R}_{b1}$ is CH_3 , and $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ are . In some variations, $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ and $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ together are . In some variations, $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ are  $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ are . In some variations, $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ are  and $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ are . In some variations, $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ are  and $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ are .

Variations of formulae (Ib)-(Ib.63) in which k is 3

[118] In variations of formulae (Ib)-(Ib.63) described in the paragraphs above in which k is 3, the three instances of $\mathbf{R}_a$ and $\mathbf{R}_b$ are indicated as $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$; $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$; and $\mathbf{R}_{a3}$ and $\mathbf{R}_{b3}$, respectively.

[119] In some variations, each of R_{a1} , R_{b1} , R_{a2} , R_{b2} , R_{a3} , and R_{b3} is H. In some variations, each of R_{a1} , R_{b1} , R_{a2} , R_{b2} , R_{a3} , and R_{b3} is CH₃. In some variations, each of R_{a1} , R_{b1} , R_{a2} , and R_{b2} is H and each of R_{a3} and R_{b3} is CH₃. In some variations, each of R_{a1} , R_{b1} , R_{a2} , and R_{b2} is CH₃ and each of R_{a3} and R_{b3} is H. In some variations, R_{a1} is H and each of R_{a2} , R_{a3} , R_{b1} , R_{b2} , and R_{b3} is CH₃. In some variations, each of R_{a1} and R_{a2} is H and each of R_{a3} , R_{b1} , R_{b2} , and R_{b3} is CH₃. In some variations, each of R_{a1} , R_{a2} , and R_{a3} is H and each of R_{b1} , R_{b2} , and R_{b3} is CH₃.

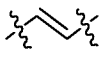
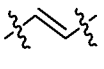
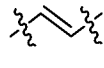
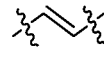
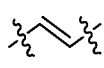
[120] In some variations, each of R_{a1} , R_{b1} , R_{a2} , and R_{b2} is H and R_{a3} and R_{b3} are . In some variations, each of R_{a1} , R_{b1} , R_{a2} , and R_{b2} is CH₃ and R_{a3} and R_{b3} are . In some variations, R_{a1} is H and each of R_{a2} , R_{b1} , and R_{b2} is CH₃, and R_{a3} and R_{b3} are . In some variations, each of R_{a1} and R_{a2} is H and each of R_{b1} and R_{b2} is CH₃, and R_{a3} and R_{b3} are .

[121] In some variations, each of R_{a1} , R_{b1} , R_{a2} , and R_{b2} is H and R_{a3} and R_{b3} are . In some variations, each of R_{a1} , R_{b1} , R_{a2} , and R_{b2} is CH₃ and R_{a3} and R_{b3} are . In some variations, R_{a1} is H and each of R_{a2} , R_{b1} , and R_{b2} is CH₃, and R_{a3} and R_{b3} are . In some variations, each of R_{a1} and R_{a2} is H and each of R_{b1} and R_{b2} is CH₃, and R_{a3} and R_{b3} are .

[122] In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and each of R_{a3} and R_{b3} is H. In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and each of R_{a3} and R_{b3} is CH₃. In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} is H, and R_{b3} is CH₃. In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and each of R_{a3} and R_{b3} is H. In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and each of R_{a3} and R_{b3} is CH₃. In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} is H, and R_{b3} is CH₃.

[123] In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and each of R_{a3} and R_{b3} is H. In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and each of R_{a3} and R_{b3} is CH_3 . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} is H, and R_{b3} is CH_3 . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and each of R_{a3} and R_{b3} is H. In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and each of R_{a3} and R_{b3} is CH_3 . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} is H, and R_{b3} is CH_3 .

[124] In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and each of R_{a3} and R_{b3} is H. In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and each of R_{a3} and R_{b3} is CH_3 . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} is H, and R_{b3} is CH_3 . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and each of R_{a3} and R_{b3} is H. In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and each of R_{a3} and R_{b3} is CH_3 . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} is H, and R_{b3} is CH_3 .

[125] In some variations, R_{a1} and R_{b1} and R_{a2} and R_{b2} together are , and each of R_{a3} and R_{b3} is H. In some variations, R_{a1} and R_{b1} and R_{a2} and R_{b2} together are , and each of R_{a3} and R_{b3} is CH_3 . In some variations, R_{a1} and R_{b1} and R_{a2} and R_{b2} together are , R_{a3} is H, and R_{b3} is CH_3 . In some variations, R_{a1} and R_{b1} and R_{a2} and R_{b2} together are , and R_{a3} and R_{b3} are . In some variations, R_{a1} and R_{b1} and R_{a2} and R_{b2} together are , and R_{a3} and R_{b3} are .

Variations of formulae (Ib)-(Ib.63) in which k is 4

[126] In variations of formulae (Ib)-(Ib.63) described in the paragraphs above in which k is 4, the four instances of R_a and R_b are indicated as R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; and R_{a4} and R_{b4} , respectively.

[127] In some variations, each of R_{a1} , R_{b1} , R_{a2} , R_{b2} , R_{a3} , R_{b3} , R_{a4} , and R_{b4} is H. In some variations, each of R_{a1} , R_{b1} , R_{a2} , R_{b2} , R_{a3} , R_{b3} , R_{a4} , and R_{b4} is CH_3 . In some variations, each of R_{a1} , R_{b1} , R_{a2} , R_{b2} , R_{a3} , and R_{b3} is H and each of R_{a4} and R_{b4} is CH_3 . In some variations, each of R_{a1} , R_{b1} , R_{a2} , and R_{b2} is H and each of R_{a3} , R_{b3} , R_{a4} , and R_{b4} is CH_3 . In some variations, each of R_{a1} , R_{b1} , R_{a2} , R_{b2} , R_{a3} , and R_{b3} is CH_3 and each of R_{a4} and R_{b4} is H.

[128] In some variations, each of R_{a1} , R_{a2} , and R_{a3} is H and each of R_{b1} , R_{b2} , and R_{b3} is CH_3 . In some variations, R_{a1} is H, R_{b1} is CH_3 , and each of R_{a2} , R_{b2} , R_{a3} , and R_{b3} is CH_3 . In some variations, R_{a1} is H, R_{b1} is CH_3 , and each of R_{a2} , R_{b2} , R_{a3} , and R_{b3} is H. In some variations, each of R_{a1} and R_{a2} is H, each of R_{b1} and R_{b2} is CH_3 , and each of R_{a3} and R_{b3} is H. In some variations, each of R_{a1} and R_{a2} is H, each of R_{b1} and R_{b2} is CH_3 , and each of R_{a3} and R_{b3} is CH_3 .

[129] In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are H, R_{a3} and R_{b3} are H, and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are H, R_{a3} and R_{b3} are CH_3 , and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are CH_3 , R_{a3} and R_{b3} are CH_3 , and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are CH_3 , R_{a2} and R_{b2} are CH_3 , R_{a3} and R_{b3} are CH_3 , and R_{a4} and R_{b4} are .

[130] In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are H, R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are CH_3 , R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are CH_3 , R_{a2} and R_{b2} are CH_3 , R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are . In some variations, R_{a1} is H, R_{b1} is CH_3 , R_{a2} and R_{b2} are CH_3 , R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are . In some

variations, R_{a1} is H, R_{b1} is CH₃, R_{a2} is H, R_{b2} is CH₃, R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are .

[131] In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are , R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are CH₃, R_{a2} and R_{b2} are , R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are . In some variations, R_{a1} is H, R_{b1} is CH₃, R_{a2} and R_{b2} are , R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are .

[132] In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are H, R_{a3} and R_{b3} are H, and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are H, R_{a3} and R_{b3} are CH₃, and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are CH₃, R_{a3} and R_{b3} are CH₃, and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are CH₃, R_{a2} and R_{b2} are CH₃, R_{a3} and R_{b3} are CH₃, and R_{a4} and R_{b4} are .

[133] In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are H, R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are CH₃, R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are CH₃, R_{a2} and R_{b2} are CH₃, R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are . In some variations, R_{a1} is H, R_{b1} is CH₃, R_{a2} and R_{b2} are CH₃, R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are . In some variations, R_{a1} is H, R_{b1} is CH₃, R_{a2} is H, R_{b2} is CH₃, R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are .

[134] In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are , R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are CH₃, R_{a2} and R_{b2} are , R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are . In some variations, R_{a1} is H, R_{b1} is CH₃, R_{a2} and R_{b2} are , R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are .

[135] In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are H, R_{a3} and R_{b3} are H, and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are CH₃, R_{a3} and R_{b3} are CH₃, and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are H, R_{a3} and R_{b3} are CH₃, and R_{a4} and R_{b4} are .

[136] In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} and R_{b3} are H, and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} and R_{b3} are CH₃, and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} and R_{b3} are CH₃, and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} and R_{b3} are H, and R_{a4} and R_{b4} are .

[137] In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are .

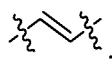
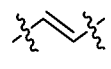
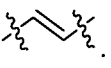
[138] In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} and R_{b3} are H, and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} and R_{b3} are CH₃, and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} and R_{b3} are CH₃, and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} and R_{b3} are H, and R_{a4} and R_{b4} are .

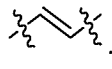
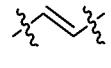
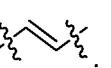
[139] In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are .

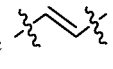
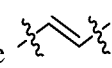
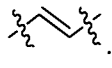
[140] In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} and R_{b3} are H, and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} and R_{b3} are CH₃, and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} and R_{b3} are CH₃, and R_{a4} and R_{b4} are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} and R_{b3} are H, and R_{a4} and R_{b4} are .

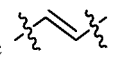
[141] In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , R_{a3} and R_{b3} are , and R_{a4} and R_{b4} are .

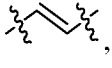
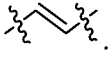
[142] In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are H, and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are . In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are CH₃, and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are . In some variations, R_{a1} and R_{a2} are H, R_{b1} and R_{b2} are CH₃, and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are .

[143] In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are , and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are CH₃, and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are . In some variations, R_{a1} is H, R_{b1} is CH₃, R_{a2} and R_{b2} are , and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are .

[144] In some variations, R_{a1} and R_{b1} are H, R_{a2} and R_{b2} are , and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are CH₃, and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are . In some variations, R_{a1} is H, R_{b1} is CH₃, R_{a2} and R_{b2} are , and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are .

[145] In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are . In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are .

[146] In some variations, R_{a1} and R_{b1} are , R_{a2} and R_{b2} are , and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are .

[147] In some variations, R_{a1} and R_{b1} and R_{a2} and R_{b2} together are , and R_{a3} and R_{b3} and R_{a4} and R_{b4} together are .

Variations of formulae (Ib)-(Ib.63) in which k is 5

[148] In variations of formulae (Ib)-(Ib.63) described in the paragraphs above in which k is 5, the five instances of R_a and R_b are indicated as R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; R_{a4} and R_{b4} ; and R_{a5} and R_{b5} , respectively.

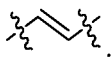
[149] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; and R_{a4} and R_{b4} are as described above, and each of R_{a5} and R_{b5} is H.

[150] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; and R_{a4} and R_{b4} are as described above, and each of R_{a5} and R_{b5} is CH_3 .

[151] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; and R_{a4} and R_{b4} are as described above, R_{a5} is H, and R_{b5} is CH_3 .

[152] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; and R_{a4} and R_{b4} are as described above, and R_{a5} and R_{b5} are .

[153] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; and R_{a4} and R_{b4} are as described above, and R_{a5} and R_{b5} are .

[154] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; and R_{a3} and R_{b3} ; and R_{a4} and R_{b4} and R_{a5} and R_{b5} together are .

Variations of formulae (Ib)-(Ib.63) in which k is 6

[155] In variations of formulae (Ib)-(Ib.63) described in the paragraphs above in which k is 6, the six instances of R_a and R_b are indicated as R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; R_{a4} and R_{b4} ; R_{a5} and R_{b5} ; and R_{a6} and R_{b6} , respectively.

[156] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; R_{a4} and R_{b4} ; and R_{a5} and R_{b5} are as described above, and each of R_{a6} and R_{b6} is H.

[157] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; R_{a4} and R_{b4} ; and R_{a5} and R_{b5} are as described above, and each of R_{a6} and R_{b6} is CH_3 .

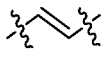
[158] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; R_{a4} and R_{b4} ; and R_{a5} and R_{b5} are as described above, R_{a6} is H, and R_{b6} is CH_3 .

[159] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; R_{a4} and R_{b4} ; and R_{a5} and R_{b5} are as described above, and R_{a6} and R_{b6} are .

[160] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; R_{a4} and R_{b4} ; and R_{a5} and R_{b5}

are as described above, and R_{a6} and R_{b6} are .

[161] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; and R_{a4} and R_{b4} ; and R_{a5} and

R_{b5} and R_{a6} and R_{b6} and R_{a7} and R_{b7} together are .

Variations of formulae (Ib)-(Ib.63) in which k is 7

[162] In variations of formulae (Ib)-(Ib.63) described in the paragraphs above in which k is 7, the seven instances of R_a and R_b are indicated as R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; R_{a4} and R_{b4} ; R_{a5} and R_{b5} ; R_{a6} and R_{b6} ; and R_{a7} and R_{b7} , respectively.

[163] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; R_{a4} and R_{b4} ; R_{a5} and R_{b5} ; R_{a6} and R_{b6} are as described above, and each of R_{a7} and R_{b7} is H.

[164] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; R_{a4} and R_{b4} ; R_{a5} and R_{b5} ; R_{a6} and R_{b6} are as described above, and each of R_{a7} and R_{b7} is CH_3 .

[165] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; R_{a4} and R_{b4} ; R_{a5} and R_{b5} ; R_{a6} and R_{b6} are as described above, R_{a7} is H, and R_{b7} is CH_3 .

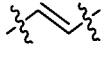
[166] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; R_{a4} and R_{b4} ; R_{a5} and R_{b5} ; R_{a6}

and R_{b6} are as described above, and R_{a7} and R_{b7} are .

[167] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; R_{a4} and R_{b4} ; R_{a5} and R_{b5} ; R_{a6}

and R_{b6} are as described above, and R_{a7} and R_{b7} are .

[168] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; R_{a4} and R_{b4} ; R_{a5} and R_{b5} are

as described above, and R_{a6} and R_{b6} and R_{a7} and R_{b7} together are .

Variations of formulae (Ib)-(Ib.63) in which k is 8

[169] In variations of formulae (Ib)-(Ib.63) described in the paragraphs above in which k is 8, the eight instances of R_a and R_b are indicated as R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; R_{a4} and R_{b4} ; R_{a5} and R_{b5} ; R_{a6} and R_{b6} ; R_{a7} and R_{b7} ; and R_{a8} and R_{b8} , respectively.

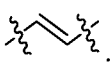
[170] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; R_{a4} and R_{b4} ; R_{a5} and R_{b5} ; R_{a6} and R_{b6} ; and R_{a7} and R_{b7} are as described above, and each of R_{a8} and R_{b8} is H.

[171] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; R_{a4} and R_{b4} ; R_{a5} and R_{b5} ; R_{a6} and R_{b6} ; and R_{a7} and R_{b7} are as described above, and each of R_{a8} and R_{b8} is CH_3 .

[172] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; R_{a4} and R_{b4} ; R_{a5} and R_{b5} ; R_{a6} and R_{b6} ; and R_{a7} and R_{b7} are as described above, and each of R_{a8} is H, and R_{b8} is CH_3 .

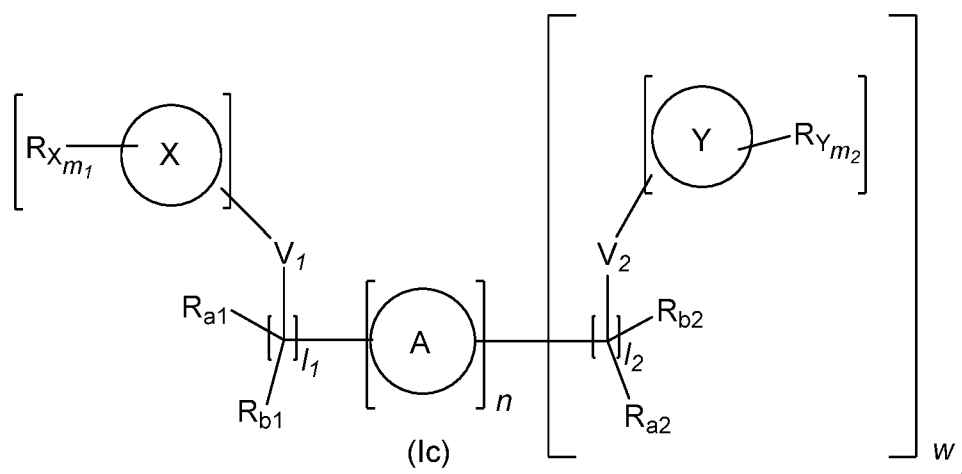
[173] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; R_{a4} and R_{b4} ; R_{a5} and R_{b5} ; R_{a6} and R_{b6} ; and R_{a7} and R_{b7} are as described above, and R_{a8} and R_{b8} are .

[174] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; R_{a4} and R_{b4} ; R_{a5} and R_{b5} ; R_{a6} and R_{b6} ; and R_{a7} and R_{b7} are as described above, and R_{a8} and R_{b8} are .

[175] In some variations, R_{a1} and R_{b1} ; R_{a2} and R_{b2} ; R_{a3} and R_{b3} ; R_{a4} and R_{b4} ; R_{a5} and R_{b5} ; and R_{a6} and R_{b6} are as described above, and R_{a7} and R_{b7} and R_{a8} and R_{b8} together are .

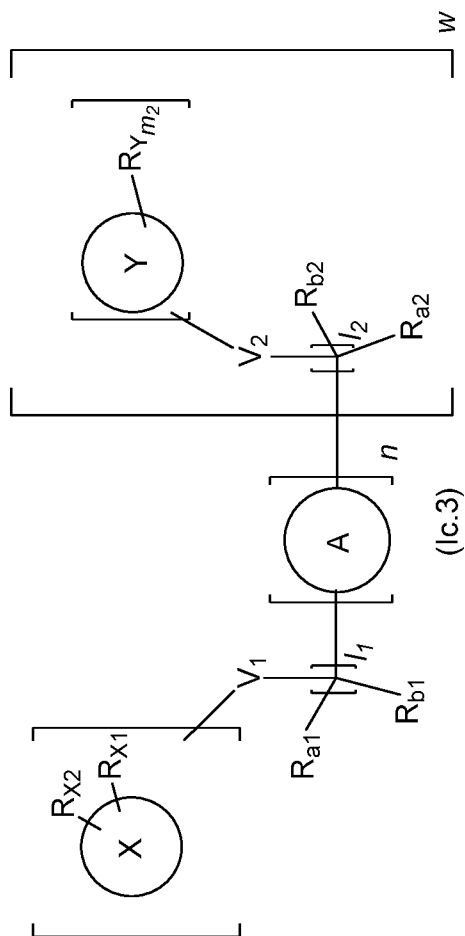
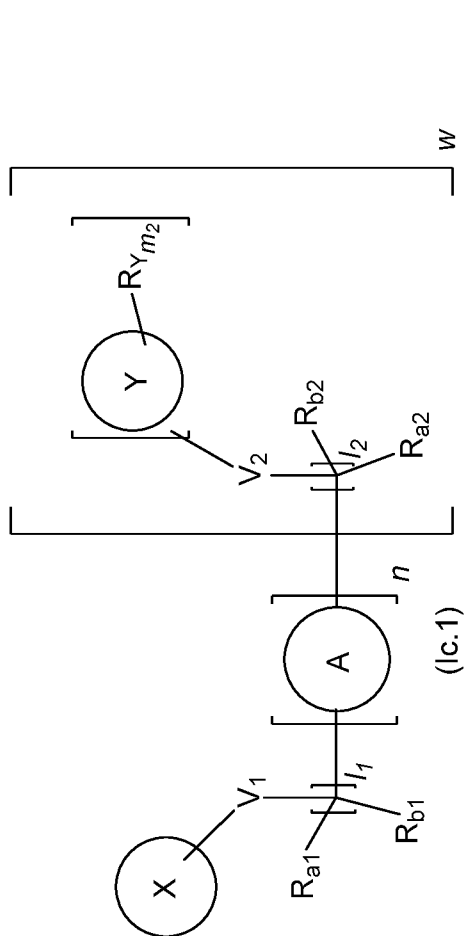
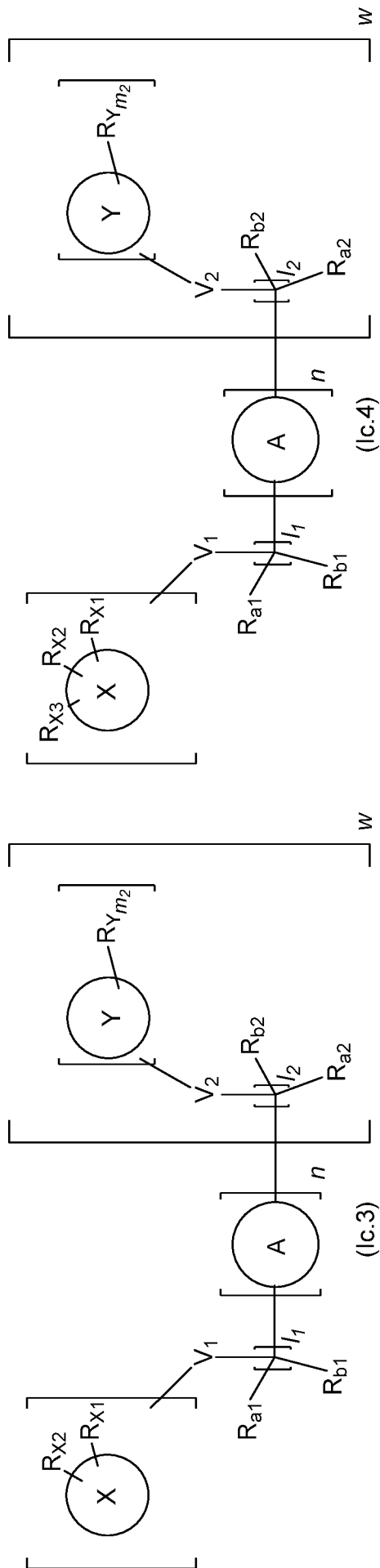
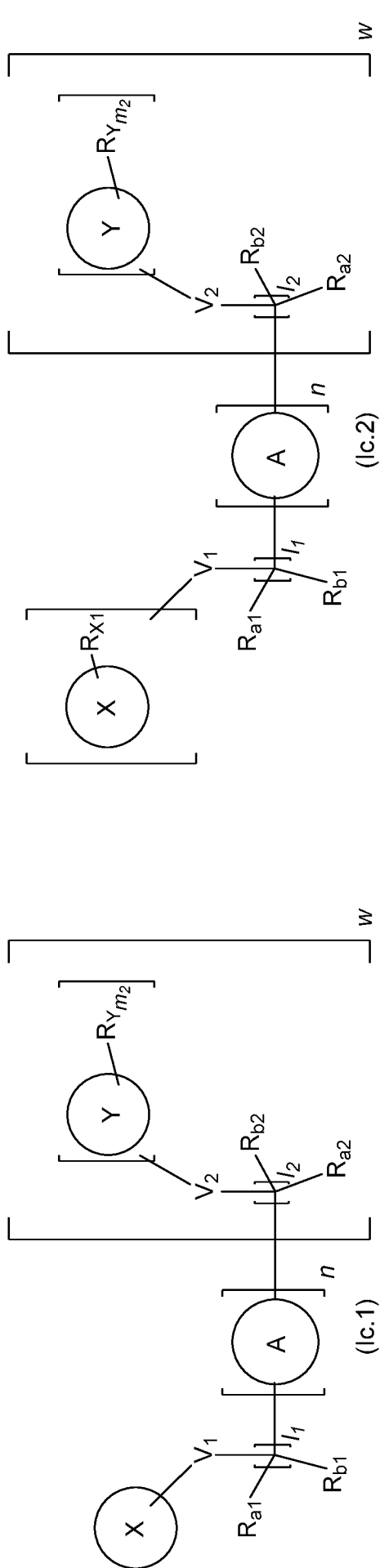
Compounds of Formula (Ic)

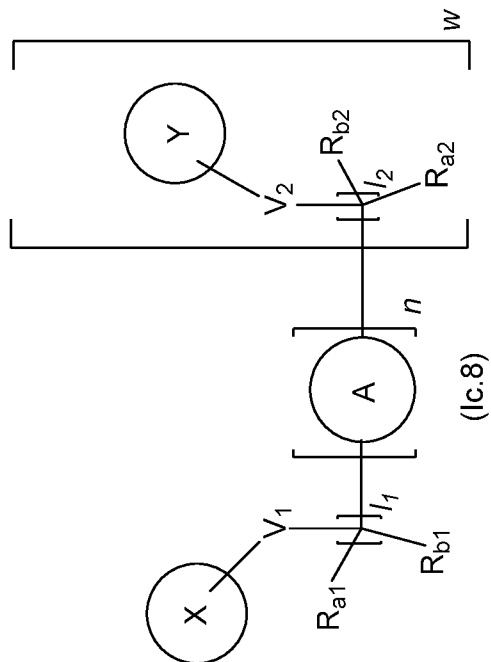
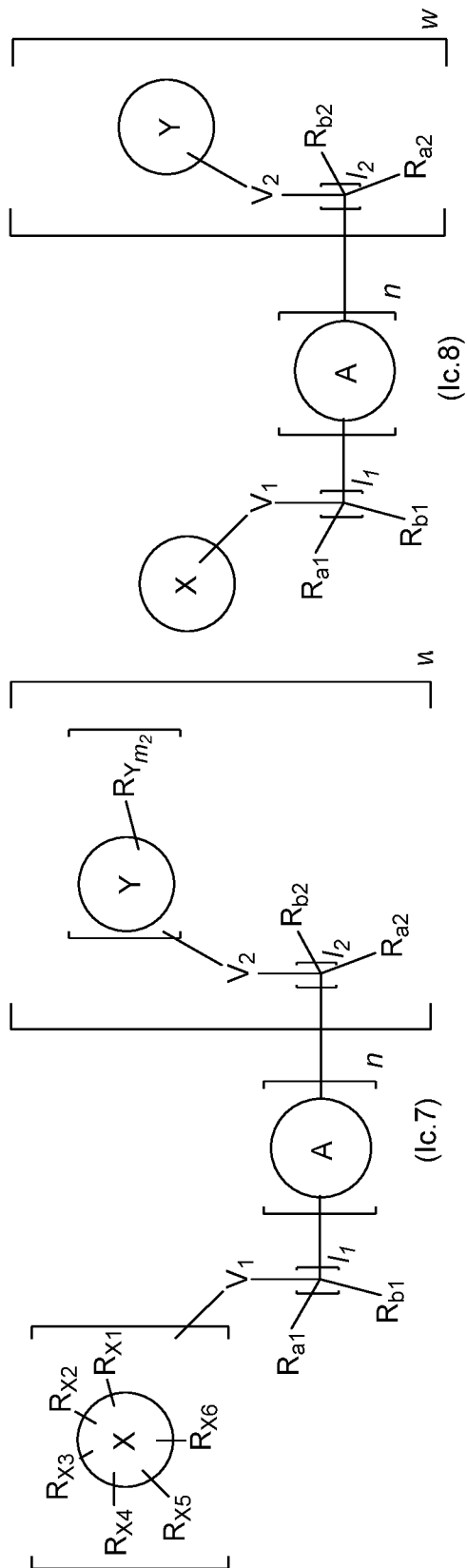
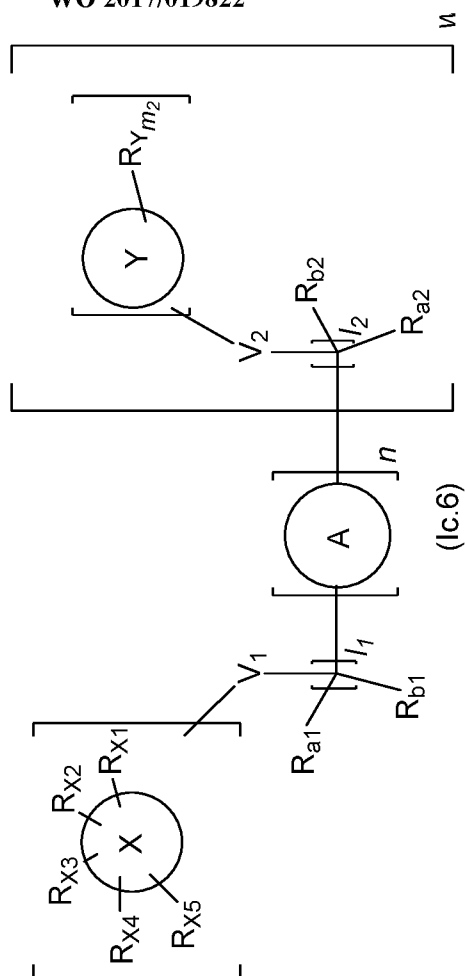
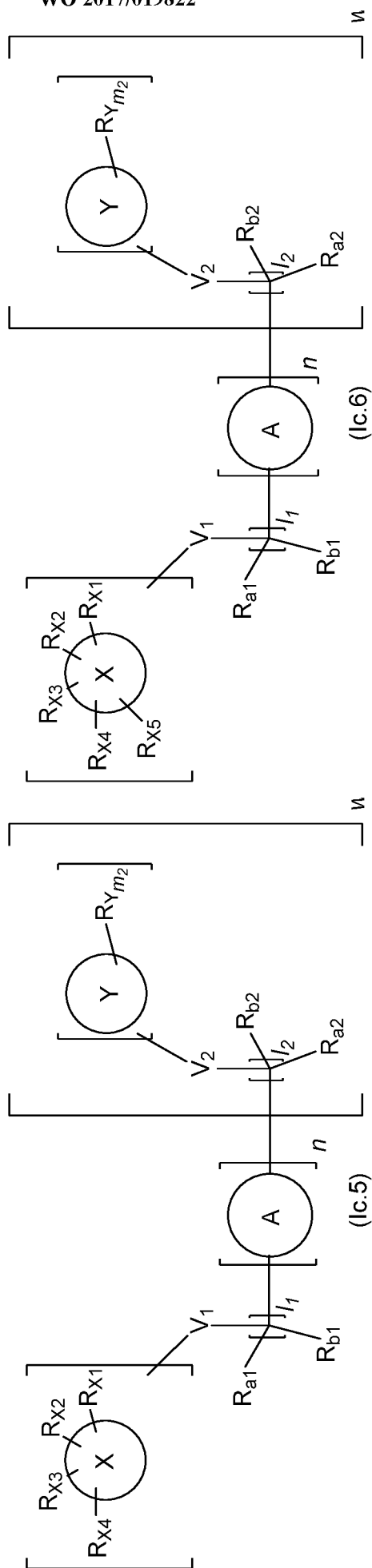
[176] Some compounds fall within formula (Ic), which comprises linker (c):

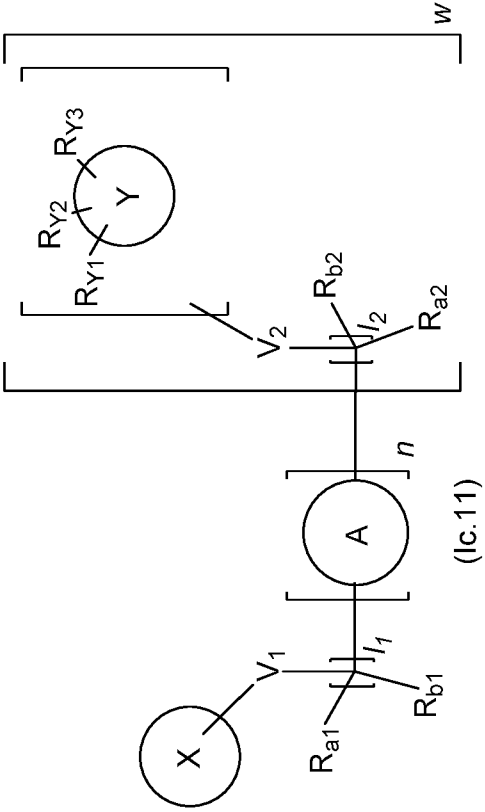
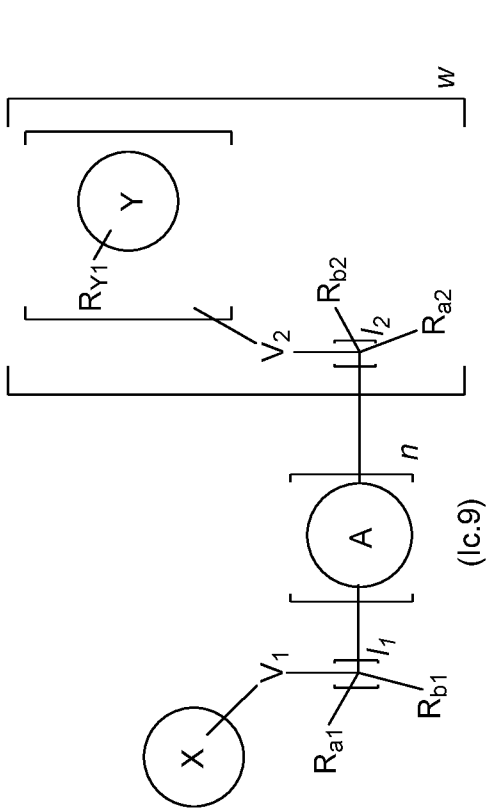
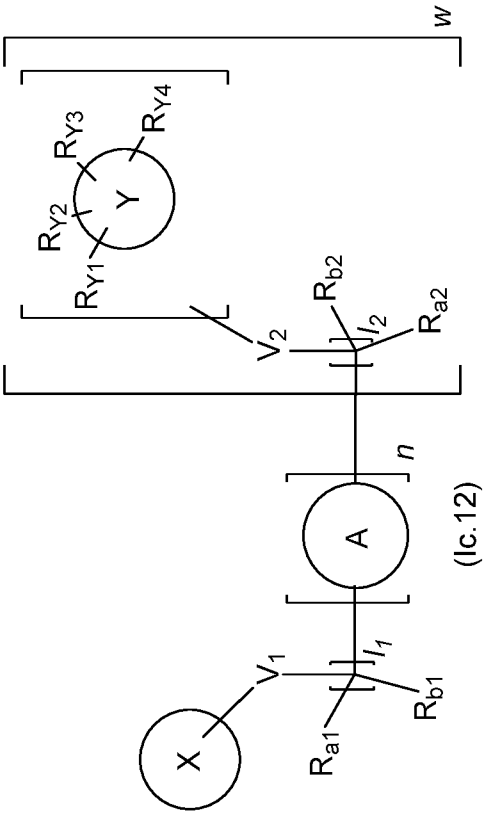
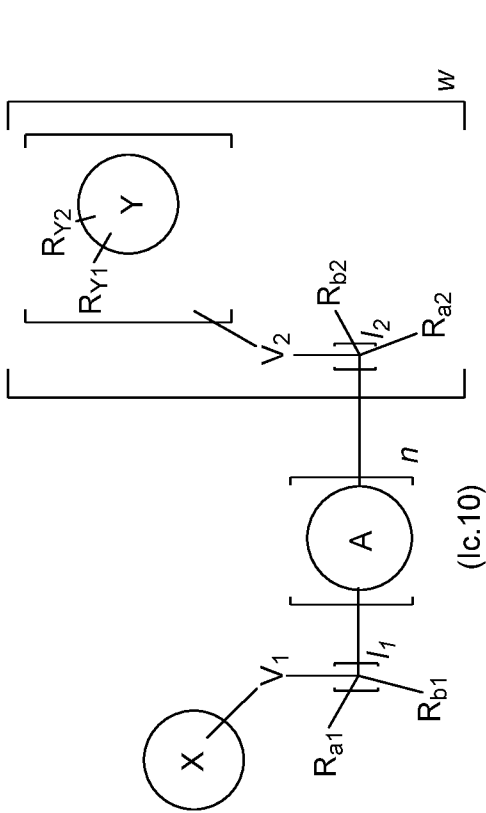


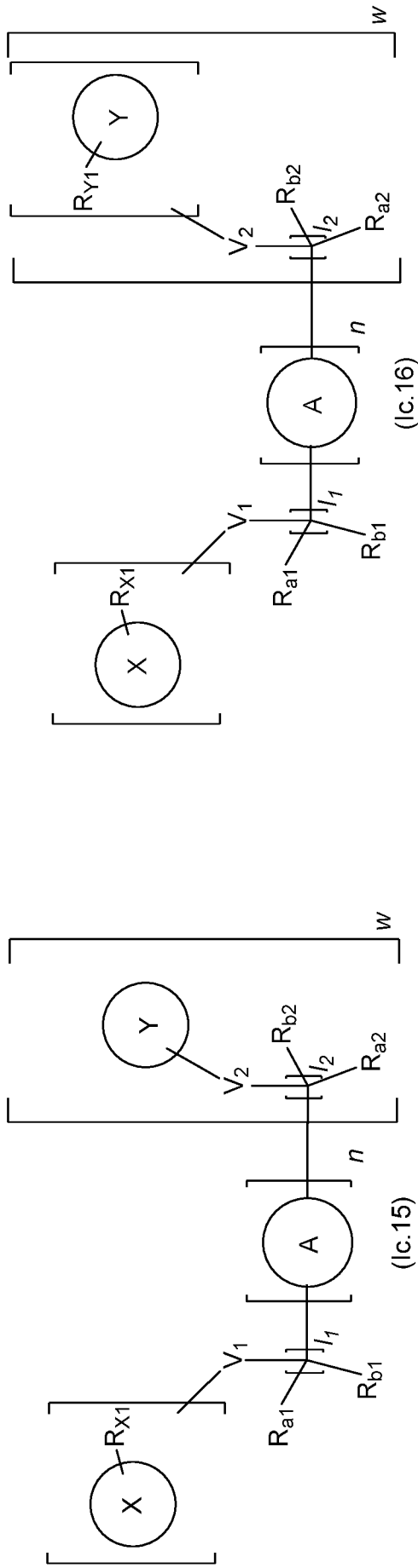
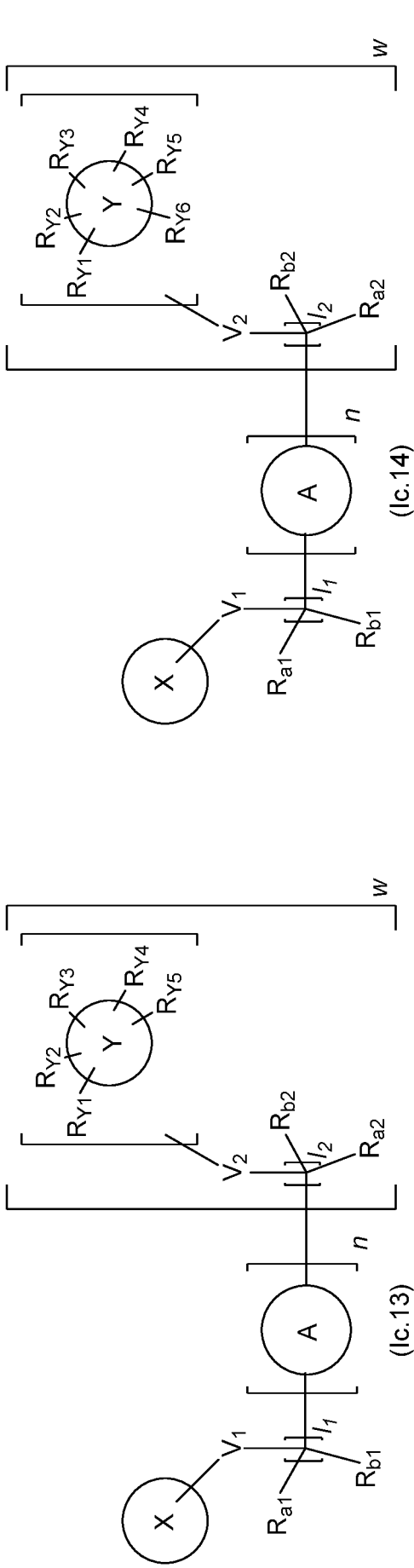
wherein: **X**, **Y**, **R_X**, **R_Y**, **R**, **m₁**, **m₂**, **V₁**, **V₂**, **R_Z**, **R_{a1}**, **R_{b1}**, **R_{a2}**, and **R_{b2}** are as defined above in formula (I).

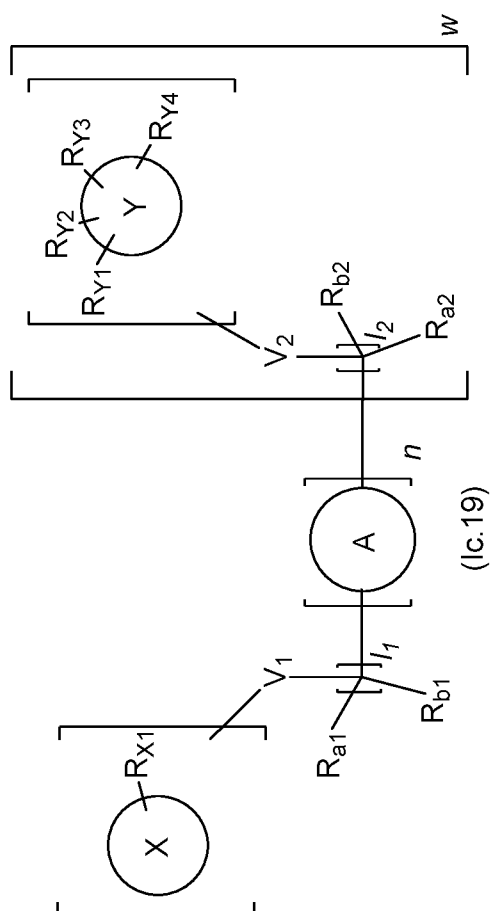
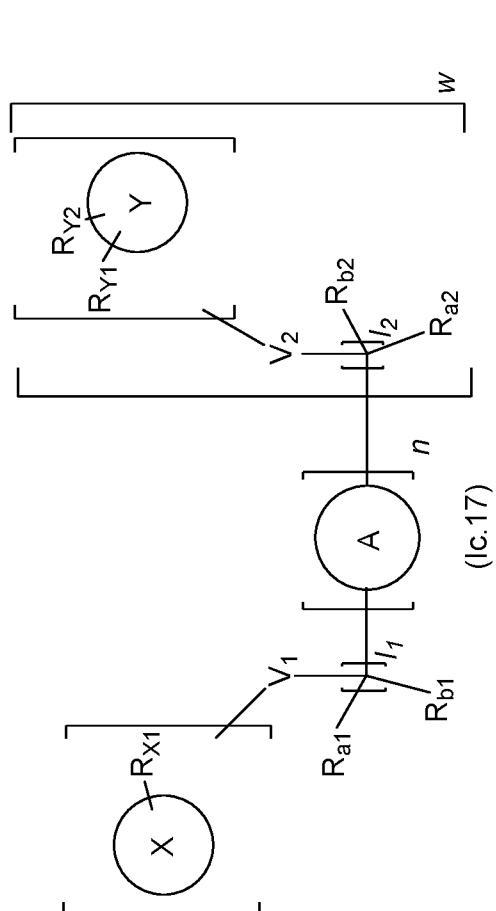
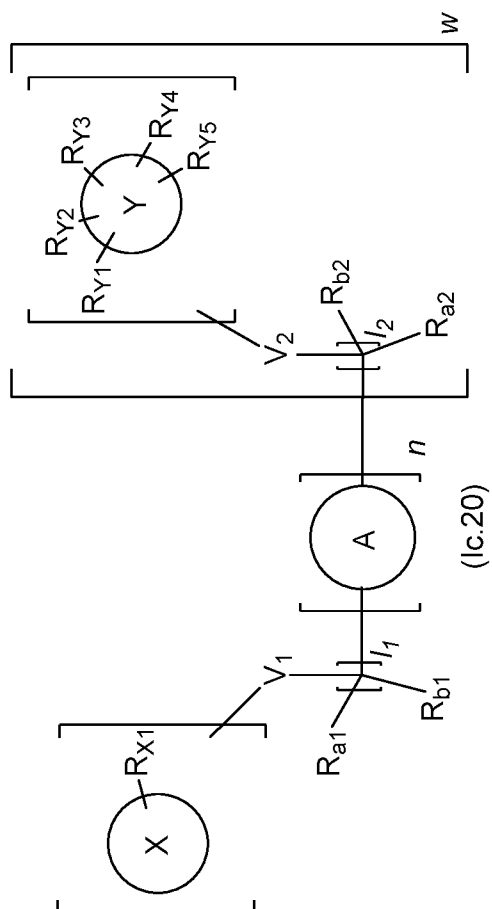
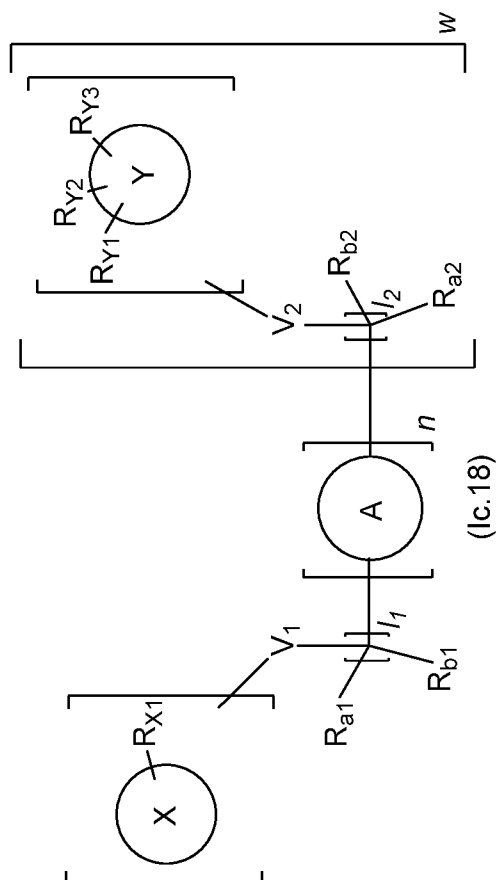
[177] In some variations, compounds of formula (Ic) fall within one or more of formulae (Ic.1)-(Ic.63), shown below.

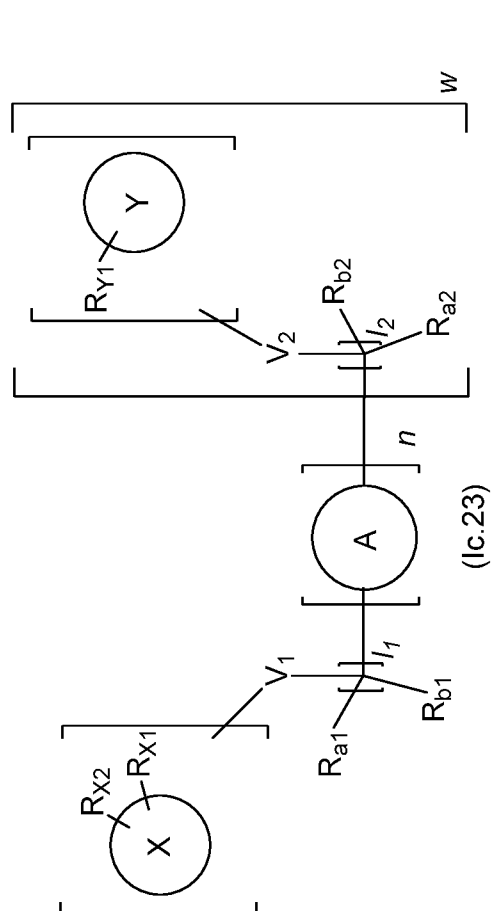
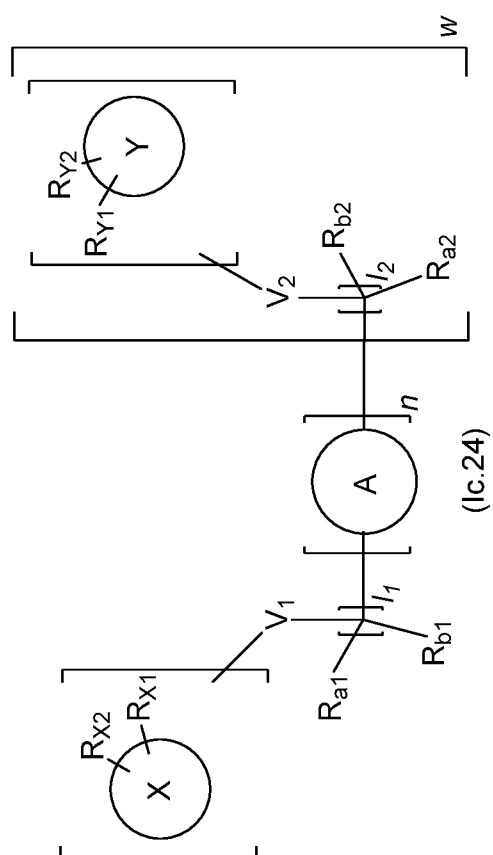
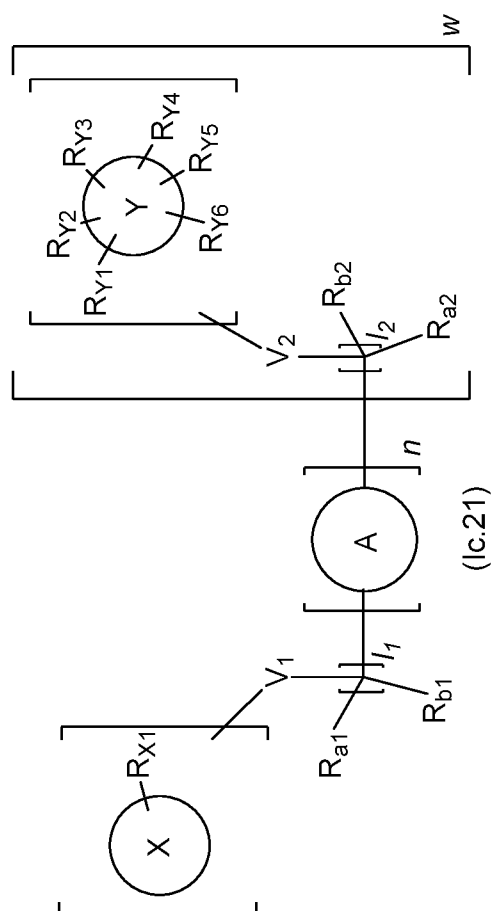
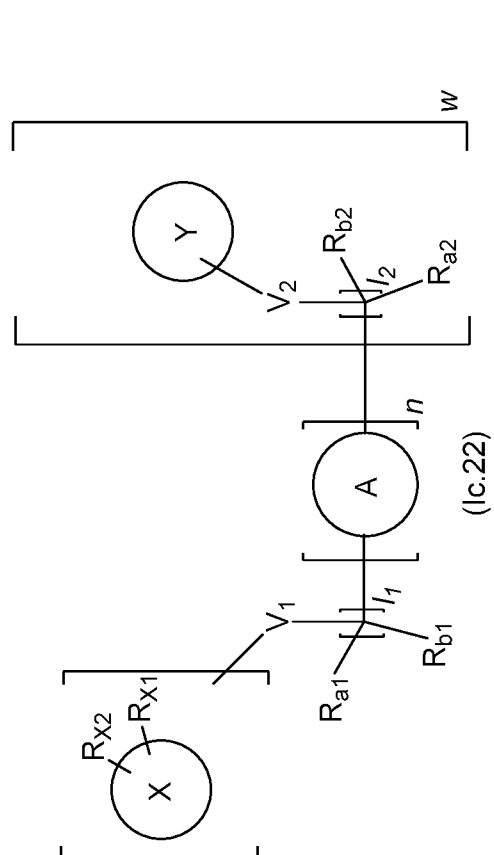


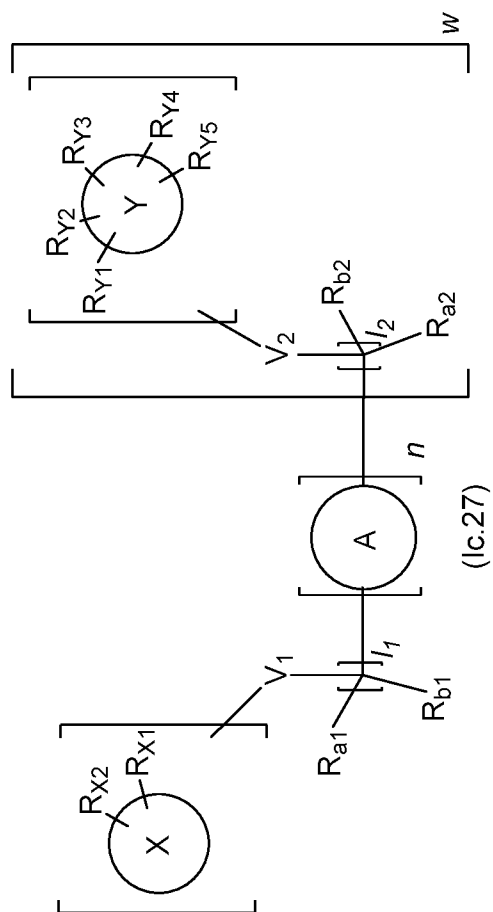
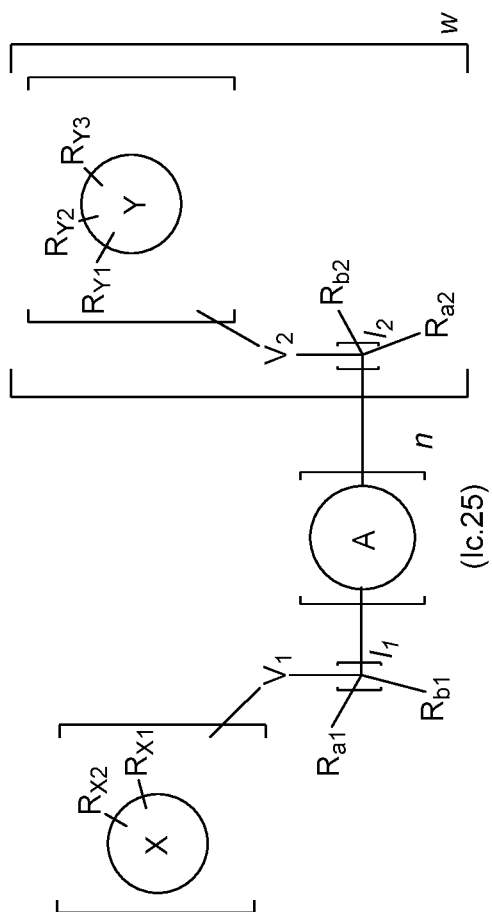
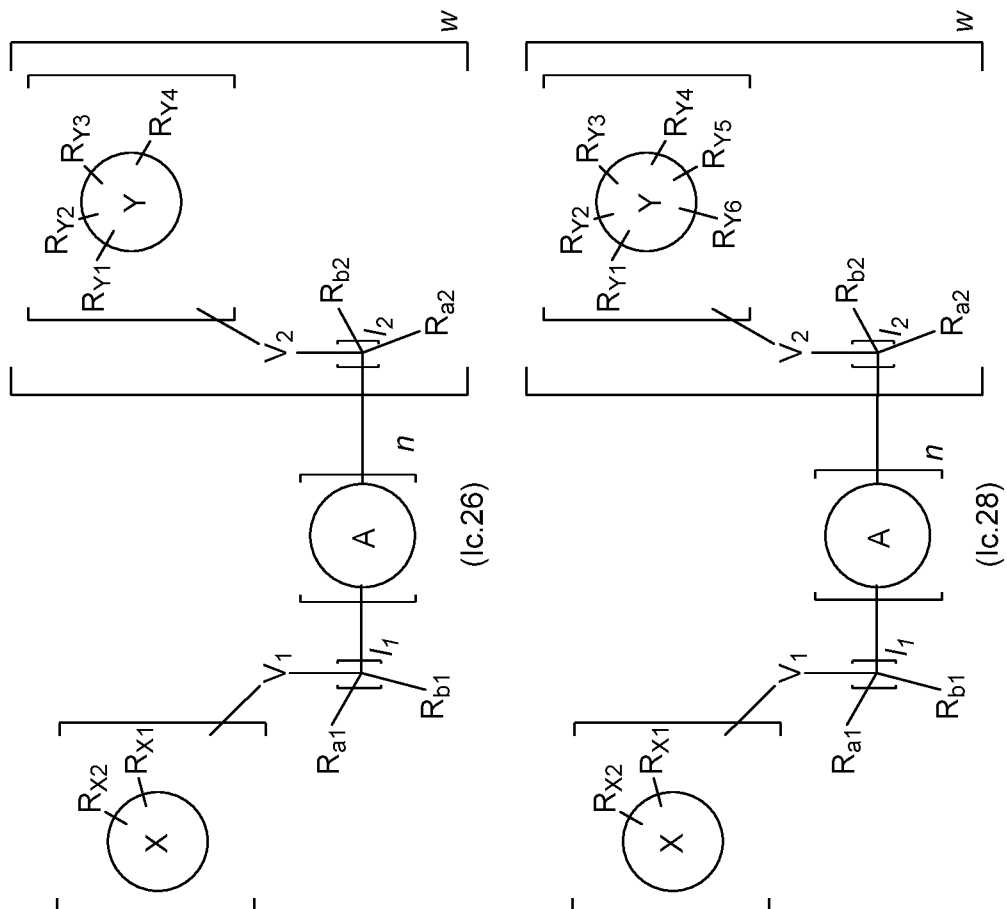
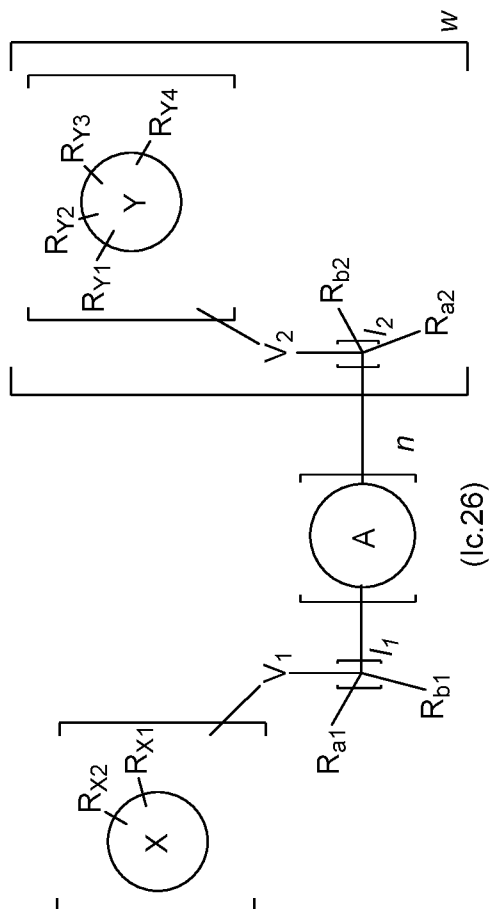


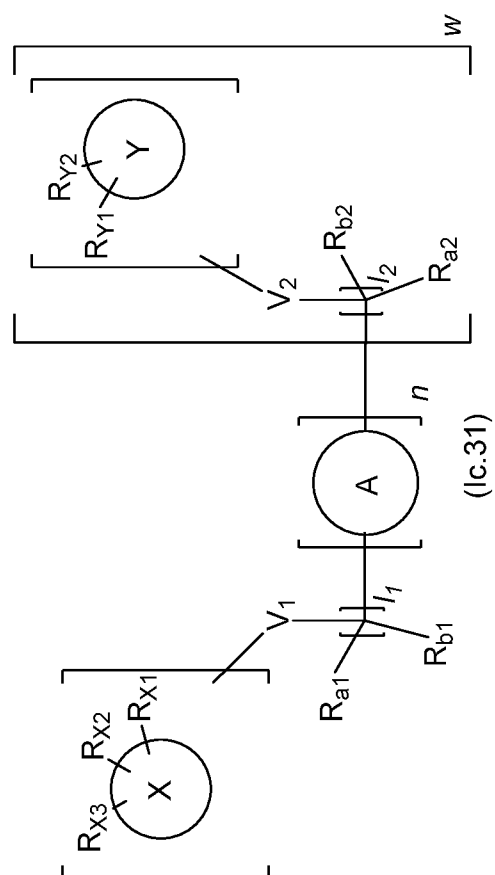
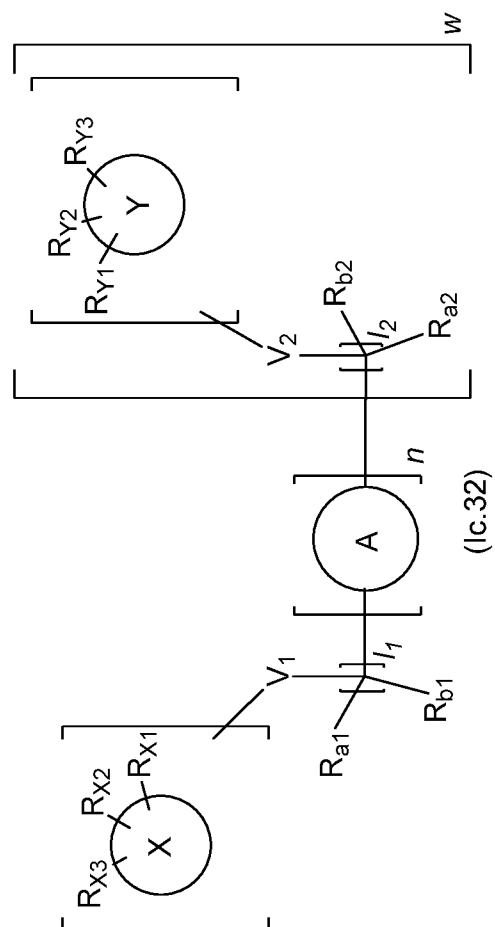
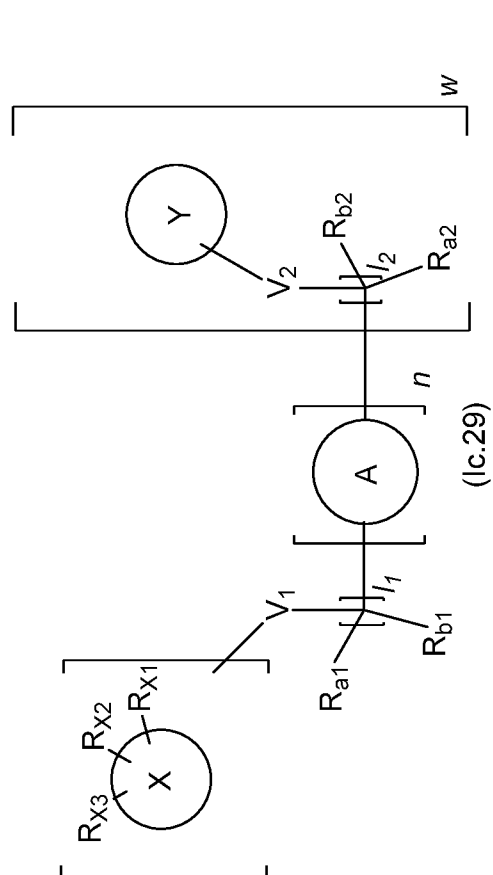
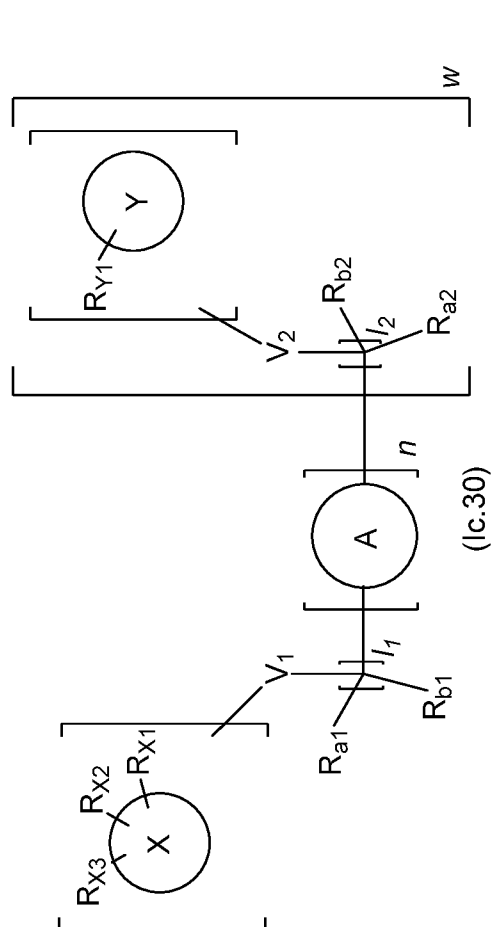


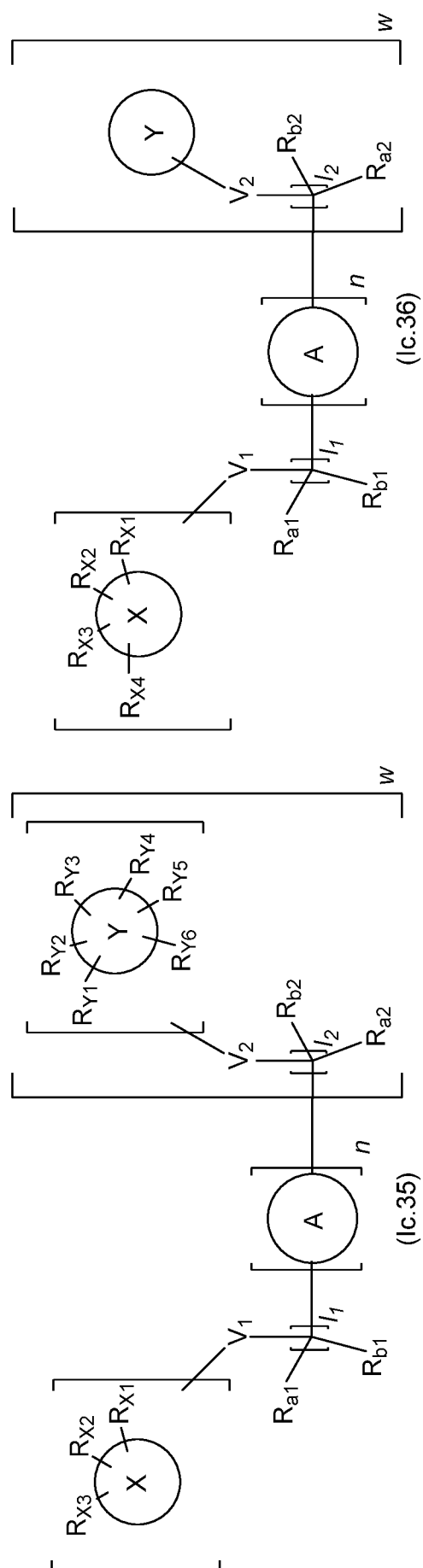
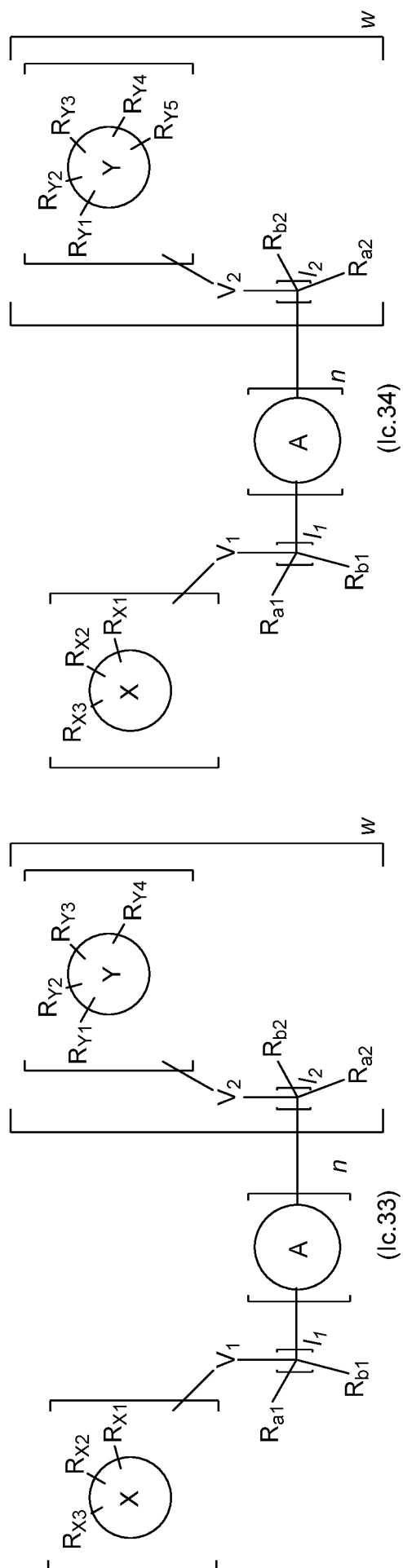


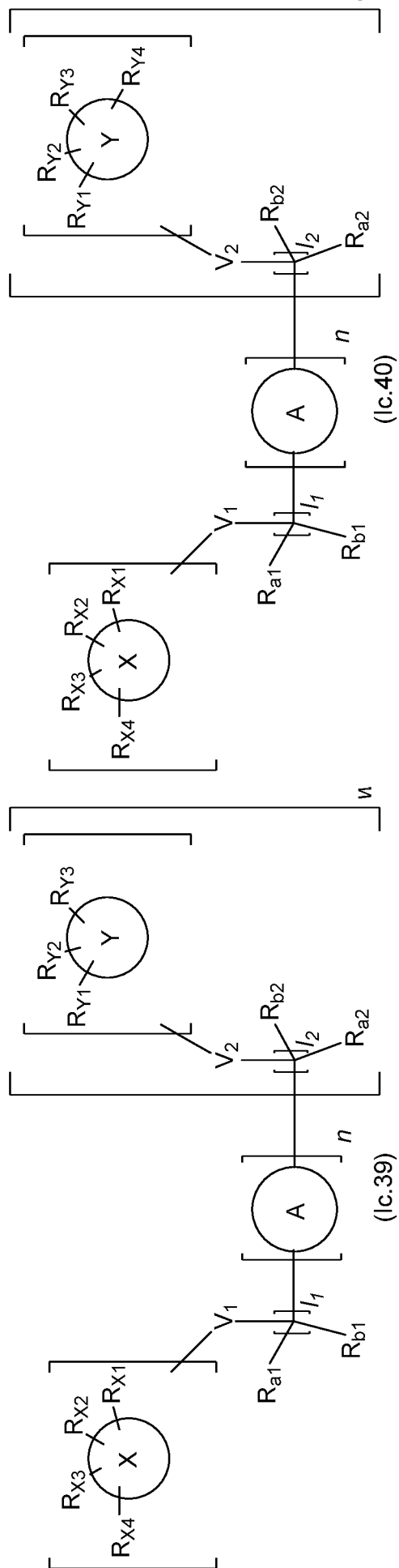
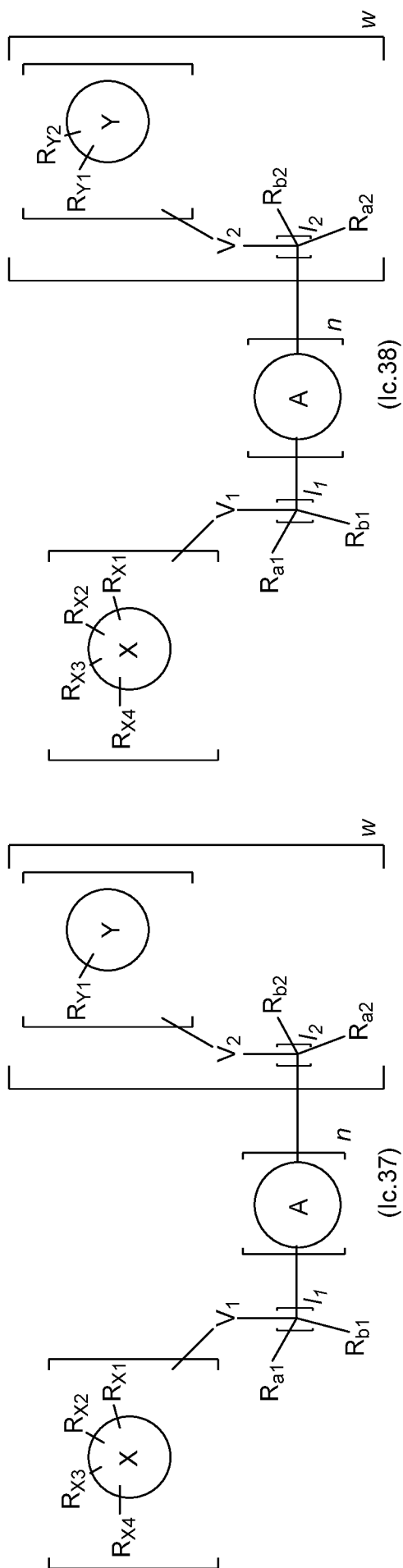


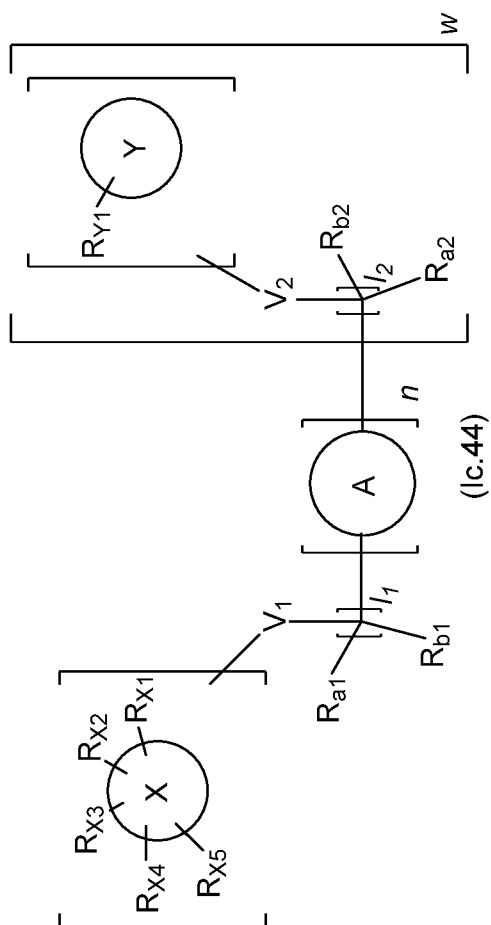
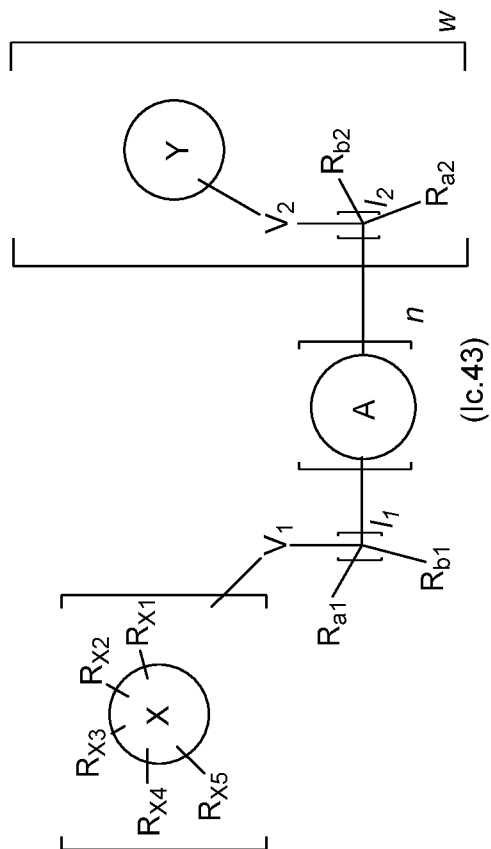
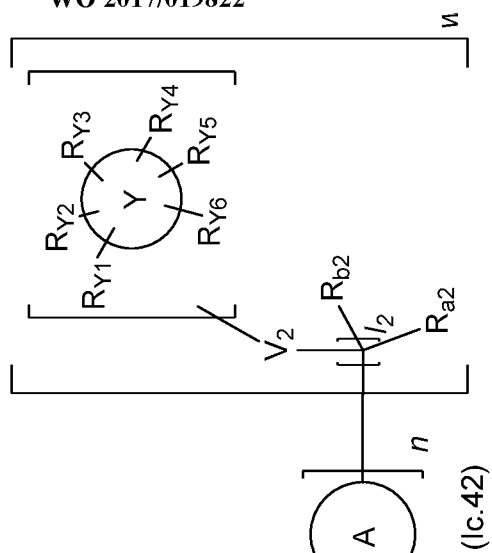
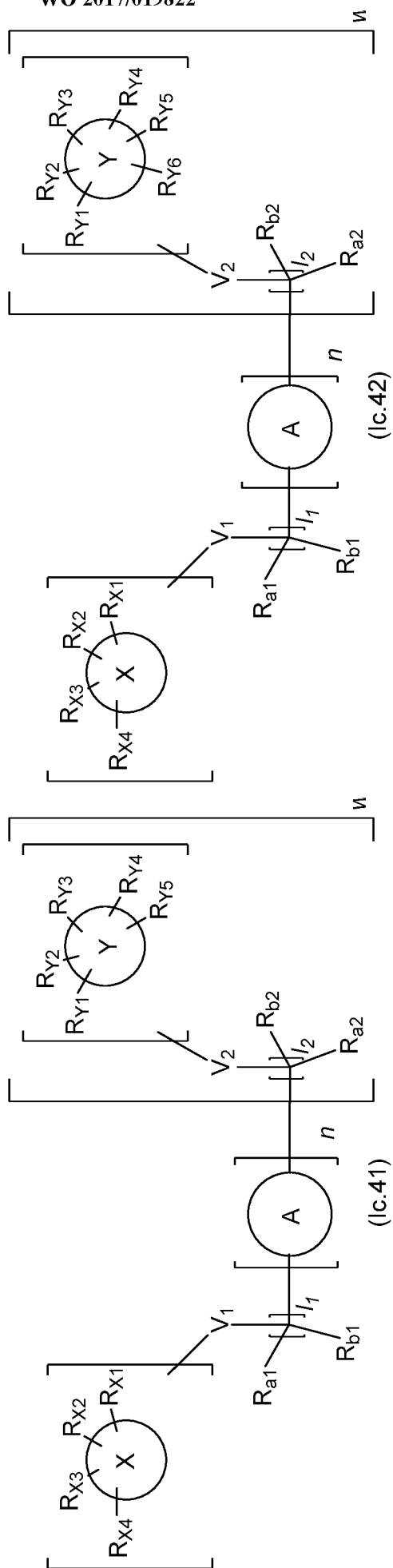


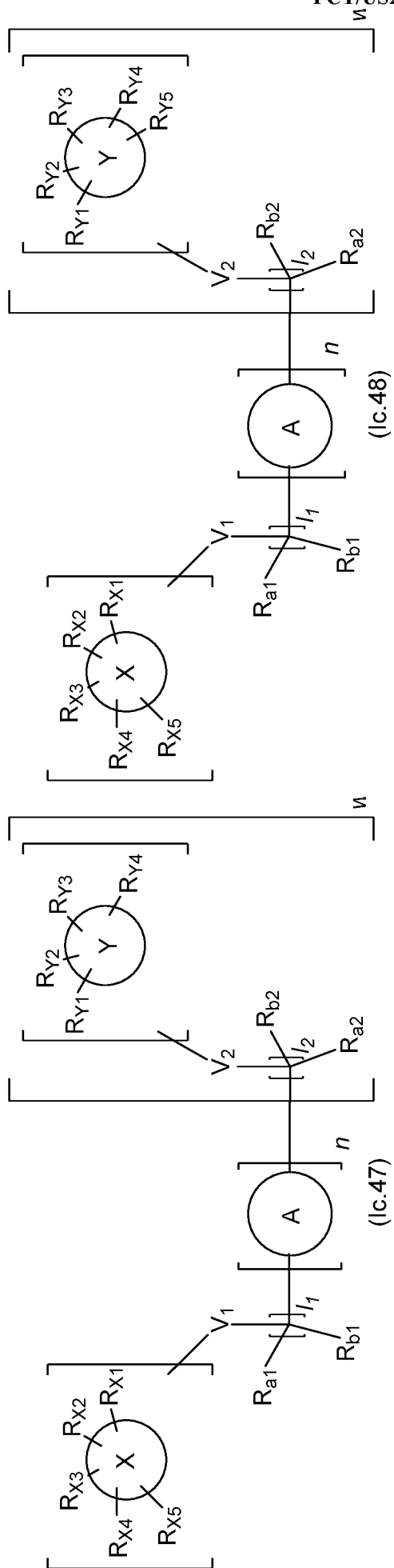
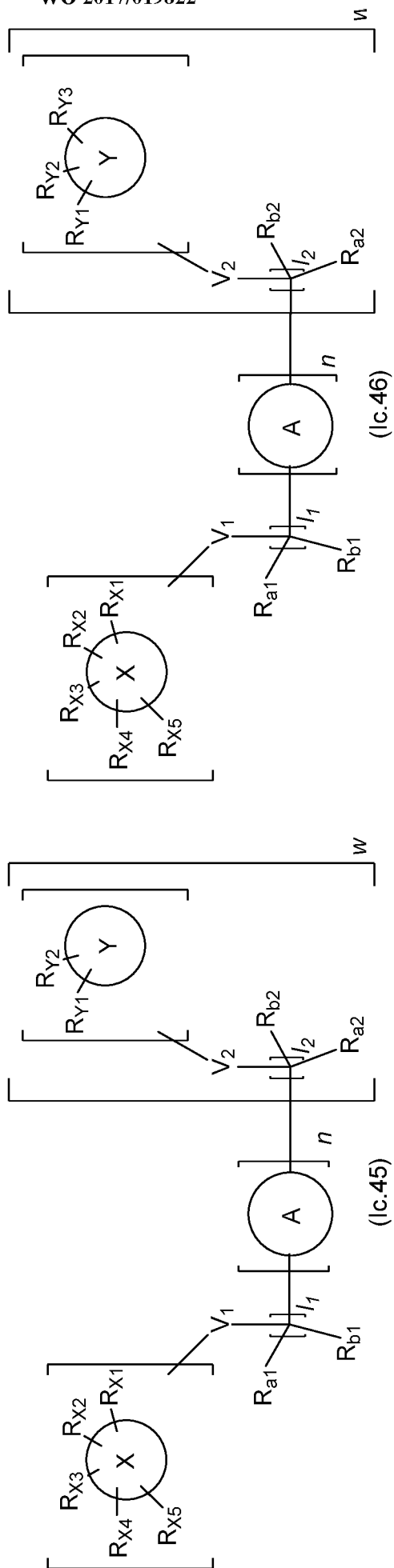


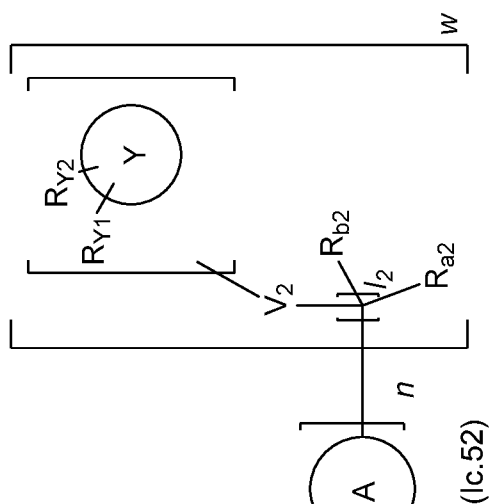
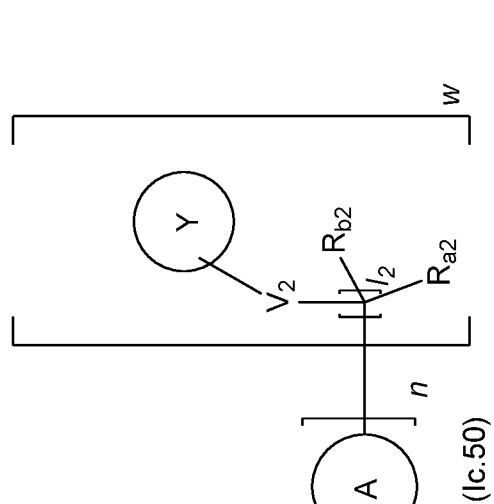
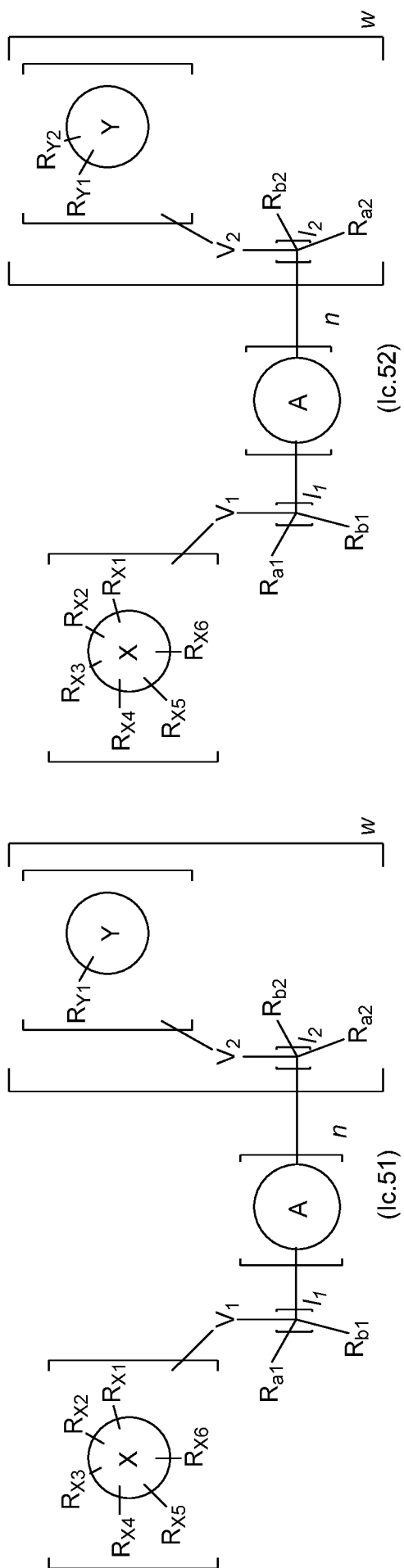
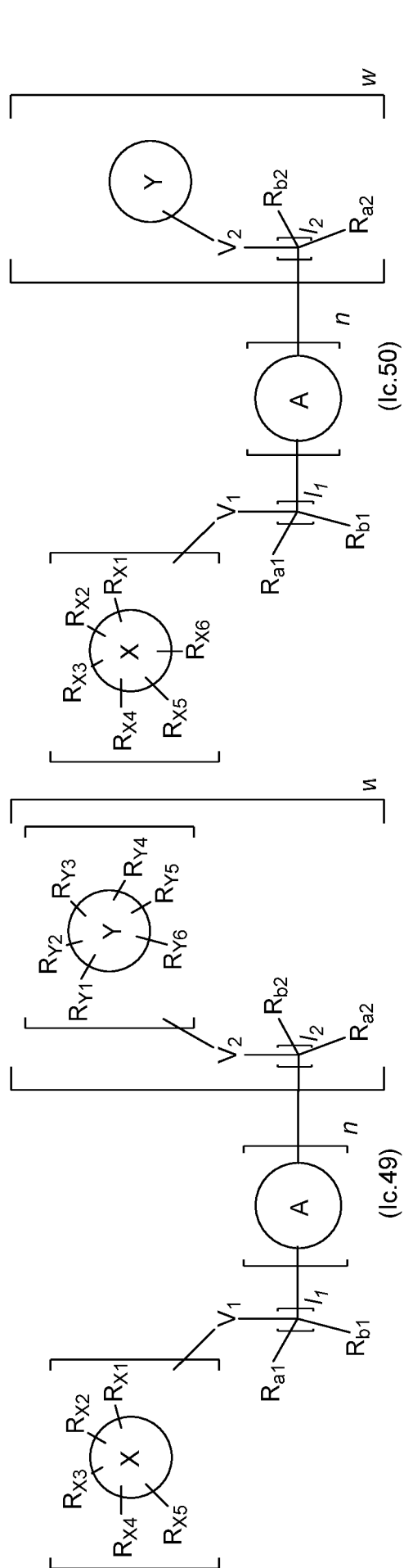


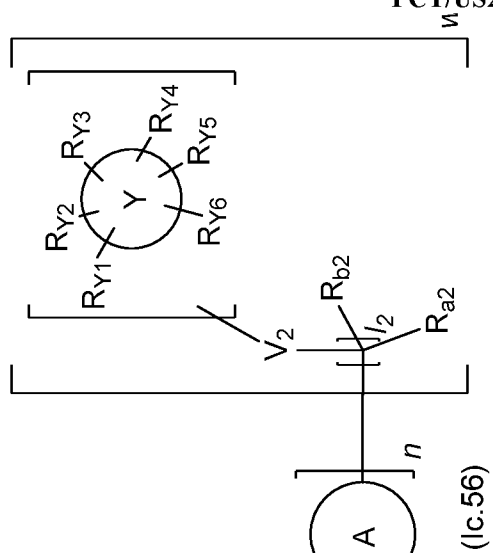
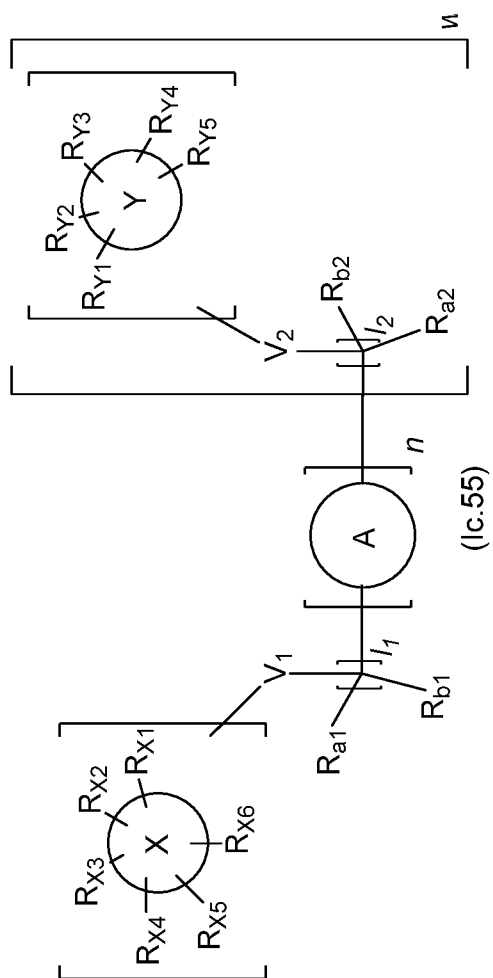
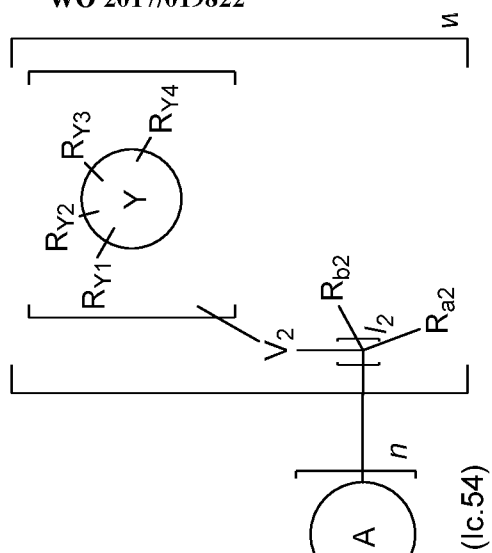
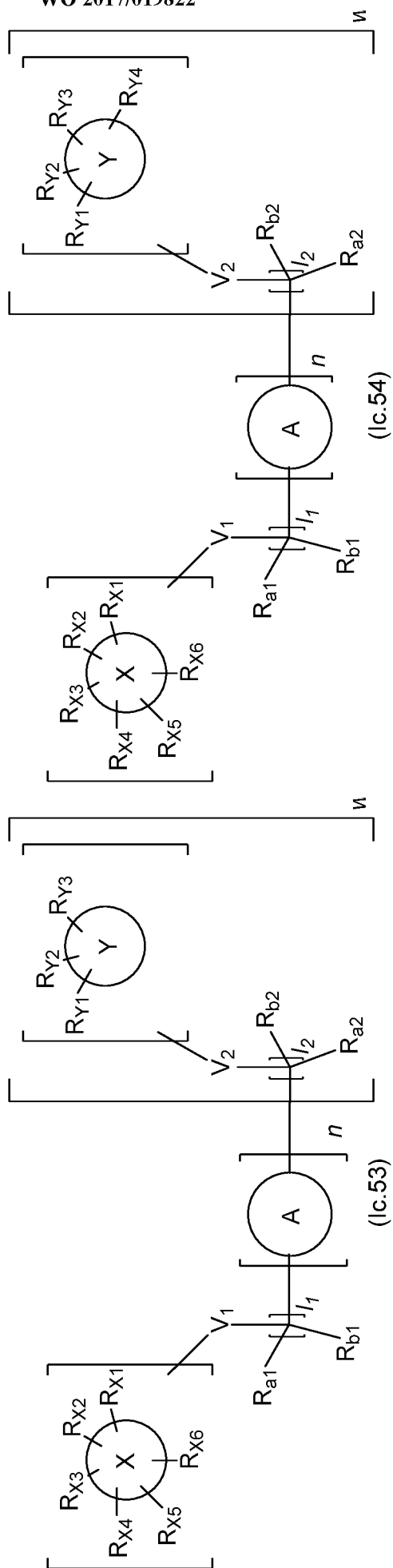


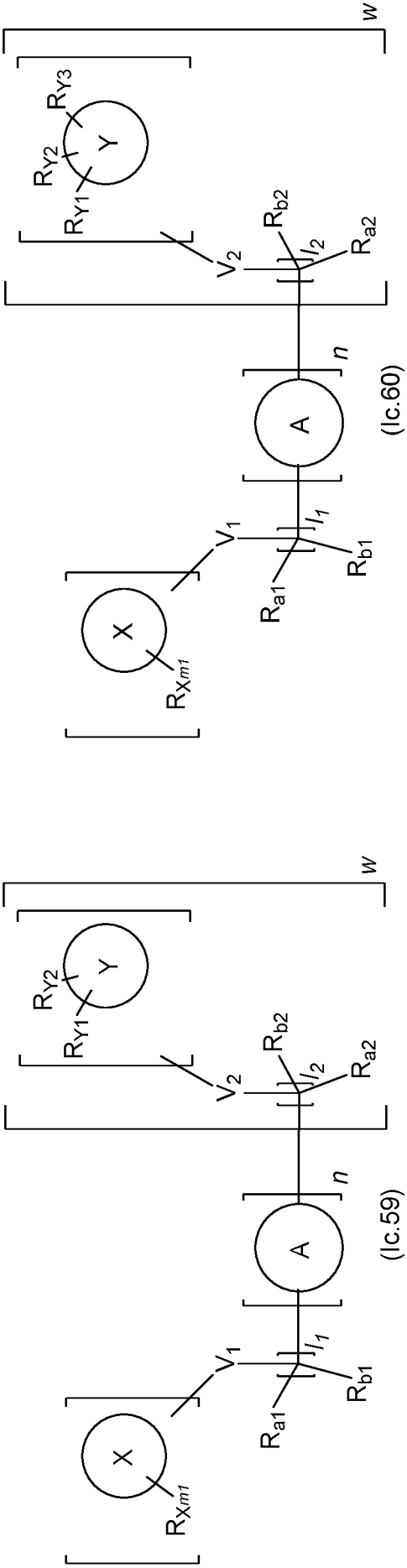
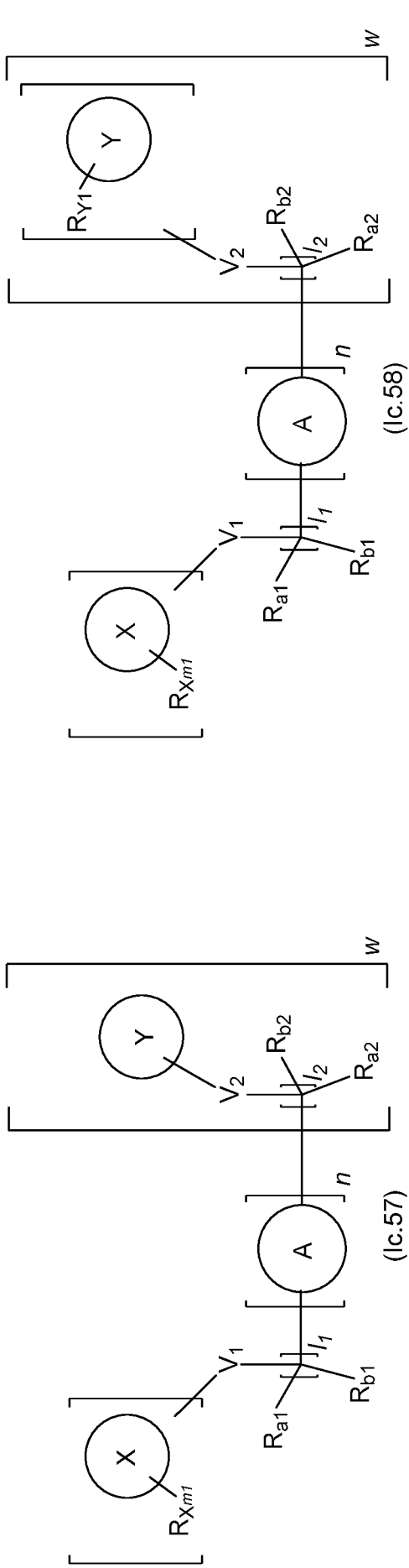


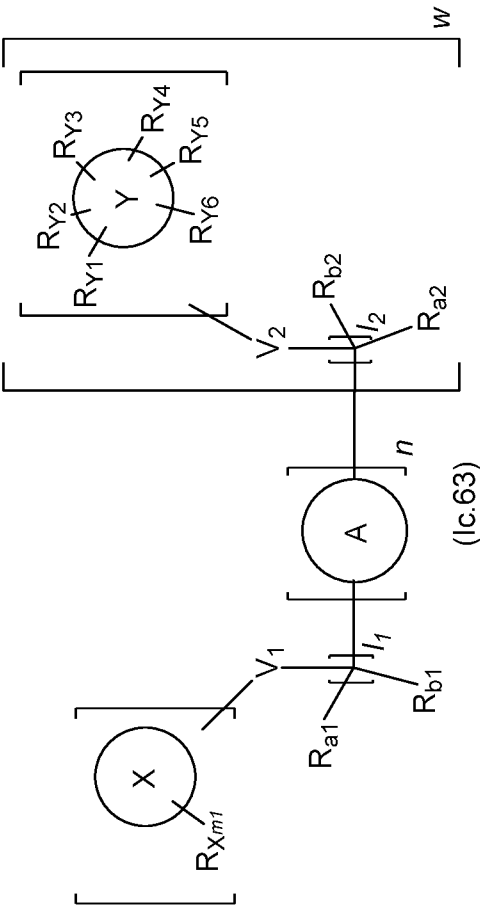
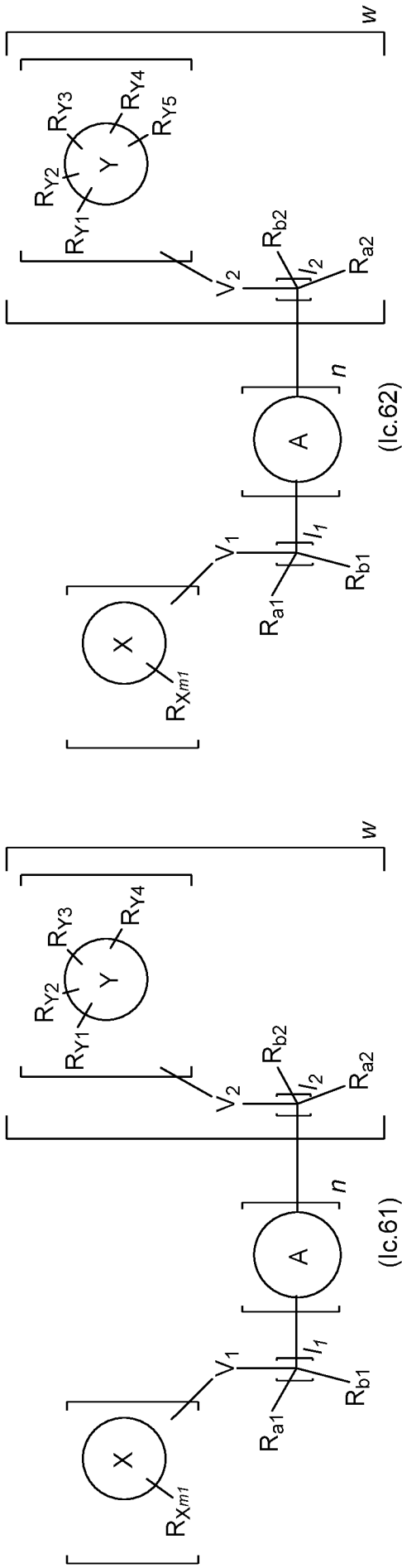












Variations of formulae (Ic)-(Ic.63) in which w is 1

[178] In some variations of formulae (Ic)-(Ic.63) in which w is 1, l_1 is 1-4, 1-3, 1-2, 2-4, 2-3, 3-4, 1, 2, 3, or 4. In some of these variations, l_2 is 1-4, 1-3, 1-2, 2-4, 2-3, 3-4, 1, 2, 3, or 4.

[179] In some variations of formulae (Ic)-(Ic.63) described in the paragraphs above in which w is 1, l_2 is 1-4, 1-3, 1-2, 2-4, 2-3, 3-4, 1, 2, 3, or 4.

Variations of formulae (Ic)-(Ic.63) in which w is 1 and l_1 is 1

[180] In some variations of formulae (Ic)-(Ic.63), l_1 is 1.

[181] In some variations, R_{a1} and R_{b1} are both H. In some variations, R_{a1} is H and R_{b1} is CH₃.

In some variations, R_{a1} and R_{b1} are both CH₃. In some variations, R_{a1} and R_{b1} are . In

some variations, R_{a1} and R_{b1} are .

Variations of formulae (Ic)-(Ic.63) in which w is 1 and l_1 is 2

[182] In variations of formulae (Ic)-(Ic.63) described in the paragraphs above in which l_1 is 2, the two instances of R_{a1} and R_{b1} are indicated as $R_{a1.1}$ and $R_{b1.1}$ and $R_{a1.2}$ and $R_{b1.2}$, respectively.

[183] In some variations, each of $R_{a1.1}$ and $R_{b1.1}$ and $R_{a1.2}$ and $R_{b1.2}$ is H. In some variations, each of $R_{a1.1}$ and $R_{b1.1}$ and $R_{a1.2}$ and $R_{b1.2}$ is CH₃. In some variations, each of $R_{a1.1}$ and $R_{a1.2}$ is H and each of $R_{b1.1}$ and $R_{b1.2}$ is CH₃. In some variations, each of $R_{a1.1}$, $R_{a1.2}$, and $R_{b1.1}$ is H and $R_{b1.2}$ is CH₃.

[184] In some variations, each of $R_{a1.1}$ and $R_{b1.1}$ is H and $R_{a1.2}$ and $R_{b1.2}$ are . In some

variations, each of $R_{a1.1}$ and $R_{b1.1}$ is H and $R_{a1.2}$ and $R_{b1.2}$ are . In some variations, each of

$R_{a1.1}$ and $R_{b1.1}$ is CH₃ and $R_{a1.2}$ and $R_{b1.2}$ are . In some variations, each of $R_{a1.1}$ and $R_{b1.1}$ is

CH₃ and $R_{a1.2}$ and $R_{b1.2}$ are .

some variations, $\mathbf{R}_{a1.1}$ is H, $\mathbf{R}_{b1.1}$ is CH_3 , and $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are . In some variations, $\mathbf{R}_{a1.1}$ is H, $\mathbf{R}_{b1.1}$ is CH_3 , and $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are . In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ and $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ together are . In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are  $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are . In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , and $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are . In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , and $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are .

Variations of formulae (Ic)-(Ic.63) in which w is 1 and l_I is 3

[185] In variations of formulae (Ic)-(Ic.63) in which l_I is 3, the three instances of $\mathbf{R}_a$ and $\mathbf{R}_b$ are indicated as $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$; $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$; and $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$, respectively.

[186] In some variations, each of $\mathbf{R}_{a1.1}$, $\mathbf{R}_{b1.1}$, $\mathbf{R}_{a1.2}$, $\mathbf{R}_{b1.2}$, $\mathbf{R}_{a1.3}$, and $\mathbf{R}_{b1.3}$ is H. In some variations, each of $\mathbf{R}_{a1.1}$, $\mathbf{R}_{b1.1}$, $\mathbf{R}_{a1.2}$, $\mathbf{R}_{b1.2}$, $\mathbf{R}_{a1.3}$, and $\mathbf{R}_{b1.3}$ is CH_3 . In some variations, each of $\mathbf{R}_{a1.1}$, $\mathbf{R}_{b1.1}$, $\mathbf{R}_{a1.2}$, and $\mathbf{R}_{b1.2}$, is H and each of $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ is CH_3 . In some variations, each of $\mathbf{R}_{a1.1}$, $\mathbf{R}_{b1.1}$, $\mathbf{R}_{a1.2}$, and $\mathbf{R}_{b1.2}$, is CH_3 and each of $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ is H. In some variations, $\mathbf{R}_{a1.1}$ is H and each of $\mathbf{R}_{a1.2}$, $\mathbf{R}_{a1.3}$, $\mathbf{R}_{b1.1}$, $\mathbf{R}_{b1.2}$, and $\mathbf{R}_{b1.3}$ is CH_3 . In some variations, each of $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{a1.2}$ is H and each of $\mathbf{R}_{a1.3}$, $\mathbf{R}_{b1.1}$, $\mathbf{R}_{b1.2}$, and $\mathbf{R}_{b1.3}$ is CH_3 . In some variations, each of $\mathbf{R}_{a1.1}$, $\mathbf{R}_{a1.2}$, and $\mathbf{R}_{a1.3}$ is H and each of $\mathbf{R}_{b1.1}$, $\mathbf{R}_{b1.2}$, and $\mathbf{R}_{b1.3}$ is CH_3 .

[187] In some variations, each of $\mathbf{R}_{a1.1}$, $\mathbf{R}_{b1.1}$, $\mathbf{R}_{a1.2}$, and $\mathbf{R}_{b1.2}$, is H and $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are . In some variations, each of $\mathbf{R}_{a1.1}$, $\mathbf{R}_{b1.1}$, $\mathbf{R}_{a1.2}$, and $\mathbf{R}_{b1.2}$, is CH_3 and $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are . In some variations, $\mathbf{R}_{a1.1}$ is H and each of $\mathbf{R}_{a1.2}$, $\mathbf{R}_{b1.1}$, and $\mathbf{R}_{b1.2}$ is CH_3 , and $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are . In some variations, each of $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{a1.2}$ is H and each of $\mathbf{R}_{b1.1}$ and $\mathbf{R}_{b1.2}$ is CH_3 , and $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are .

[188] In some variations, each of $R_{a1.1}$, $R_{b1.1}$, $R_{a1.2}$, and $R_{b1.2}$, is H and $R_{a1.3}$ and $R_{b1.3}$ are .

In some variations, each of $R_{a1.1}$, $R_{b1.1}$, $R_{a1.2}$, and $R_{b1.2}$, is CH_3 and $R_{a1.3}$ and $R_{b1.3}$ are .

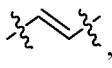
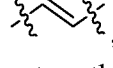
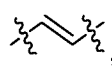
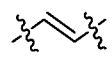
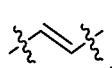
some variations, $R_{a1.1}$ is H and each of $R_{a1.2}$, $R_{b1.1}$, and $R_{b1.2}$ is CH_3 , and $R_{a1.3}$ and $R_{b1.3}$ are . In some variations, each of $R_{a1.1}$ and $R_{a1.2}$ is H and each of $R_{b1.1}$ and $R_{b1.2}$ is CH_3 , and $R_{a1.3}$ and

$R_{b1.3}$ are .

[189] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , and each of $R_{a1.3}$ and $R_{b1.3}$ is H. In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , and each of $R_{a1.3}$ and $R_{b1.3}$ is CH_3 . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ is H, and $R_{b1.3}$ is CH_3 . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , and each of $R_{a1.3}$ and $R_{b1.3}$ is H. In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , and each of $R_{a1.3}$ and $R_{b1.3}$ is CH_3 . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ is H, and $R_{b1.3}$ is CH_3 .

[190] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , and each of $R_{a1.3}$ and $R_{b1.3}$ is H. In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , and each of $R_{a1.3}$ and $R_{b1.3}$ is CH_3 . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ is H, and $R_{b1.3}$ is CH_3 . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , and each of $R_{a1.3}$ and $R_{b1.3}$ is H. In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , and each of $R_{a1.3}$ and $R_{b1.3}$ is CH_3 . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ is H, and $R_{b1.3}$ is CH_3 .

[191] In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are , and each of $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ is H. In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are , and each of $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ is CH₃. In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are , $\mathbf{R}_{a1.3}$ is H, and $\mathbf{R}_{b1.3}$ is CH₃. In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are , and each of $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ is H. In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are , and each of $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ is CH₃. In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are , $\mathbf{R}_{a1.3}$ is H, and $\mathbf{R}_{b1.3}$ is CH₃.

[192] In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ and $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ together are , and each of $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ is H. In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ and $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ together are , and each of $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ is CH₃. In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ and $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ together are , $\mathbf{R}_{a1.3}$ is H, and $\mathbf{R}_{b1.3}$ is CH₃. In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ and $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ together are , and $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are . In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ and $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ together are , and $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are .

Variations of formulae (Ic)-(Ic.63) in which w is 1 and l_I is 4

[193] In variations of formulae (Ic)-(Ic.63) in which l_I is 4, the four instances of $\mathbf{R}_{a1}$ and $\mathbf{R}_{b1}$ are indicated as $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$; $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$; $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$; and $\mathbf{R}_{a1.4}$ and $\mathbf{R}_{b1.4}$, respectively.

[194] In some variations, each of $\mathbf{R}_{a1.1}$, $\mathbf{R}_{b1.1}$, $\mathbf{R}_{a1.2}$, $\mathbf{R}_{b1.2}$, $\mathbf{R}_{a1.3}$, $\mathbf{R}_{b1.3}$, $\mathbf{R}_{a1.4}$, and $\mathbf{R}_{b1.4}$ is H. In some variations, each of $\mathbf{R}_{a1.1}$, $\mathbf{R}_{b1.1}$, $\mathbf{R}_{a1.2}$, $\mathbf{R}_{b1.2}$, $\mathbf{R}_{a1.3}$, $\mathbf{R}_{b1.3}$, $\mathbf{R}_{a1.4}$, and $\mathbf{R}_{b1.4}$ is CH₃. In some variations, each of $\mathbf{R}_{a1.1}$, $\mathbf{R}_{b1.1}$, $\mathbf{R}_{a1.2}$, $\mathbf{R}_{b1.2}$, $\mathbf{R}_{a1.3}$, and $\mathbf{R}_{b1.3}$ is H and each of $\mathbf{R}_{a1.4}$ and $\mathbf{R}_{b1.4}$ is CH₃. In some variations, each of $\mathbf{R}_{a1.1}$, $\mathbf{R}_{b1.1}$, $\mathbf{R}_{a1.2}$, and $\mathbf{R}_{b1.2}$ is H and each of $\mathbf{R}_{a1.3}$, $\mathbf{R}_{b1.3}$, $\mathbf{R}_{a1.4}$, and $\mathbf{R}_{b1.4}$ is CH₃. In some variations, each of $\mathbf{R}_{a1.1}$, $\mathbf{R}_{b1.1}$, $\mathbf{R}_{a1.2}$, $\mathbf{R}_{b1.2}$, $\mathbf{R}_{a1.3}$, and $\mathbf{R}_{b1.3}$ is CH₃ and each of $\mathbf{R}_{a1.4}$ and $\mathbf{R}_{b1.4}$ is H.

[195] In some variations, each of $\mathbf{R}_{a1.1}$, $\mathbf{R}_{a1.2}$, and $\mathbf{R}_{a1.3}$ is H and each of $\mathbf{R}_{b1}$, $\mathbf{R}_{b2}$, and $\mathbf{R}_{b1.3}$ is CH₃. In some variations, $\mathbf{R}_{a1.1}$ is H, $\mathbf{R}_{b1.1}$ is CH₃, and each of $\mathbf{R}_{a1.2}$, $\mathbf{R}_{b1.2}$, $\mathbf{R}_{a1.3}$, and $\mathbf{R}_{b1.3}$ is CH₃.

In some variations, $\mathbf{R}_{a1.1}$ is H, $\mathbf{R}_{b1.1}$ is CH_3 , and each of $\mathbf{R}_{a1.2}$, $\mathbf{R}_{b1.2}$, $\mathbf{R}_{a1.3}$, and $\mathbf{R}_{b1.3}$ is H. In some variations, each of $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{a1.2}$ is H, each of $\mathbf{R}_{b1.1}$ and $\mathbf{R}_{b1.2}$ is CH_3 , and each of $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ is H. In some variations, each of $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{a1.2}$ is H, each of $\mathbf{R}_{b1.1}$ and $\mathbf{R}_{b1.2}$ is CH_3 , and each of $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ is CH_3 .

[196] In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are H, $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are H, $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are H, and

$\mathbf{R}_{a1.4}$ and $\mathbf{R}_{b1.4}$ are . In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are H, $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are H, $\mathbf{R}_{a1.3}$

and $\mathbf{R}_{b1,3}$ are CH_3 , and $\mathbf{R}_{a1,4}$ and $\mathbf{R}_{b1,4}$ are . In some variations, $\mathbf{R}_{a1,1}$ and $\mathbf{R}_{b1,1}$ are H, $\mathbf{R}_{a1,2}$

and $\mathbf{R}_{b1.2}$ are CH_3 , $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are CH_3 , and $\mathbf{R}_{a1.4}$ and $\mathbf{R}_{b1.4}$ are . In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are CH_3 , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are CH_3 , $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are CH_3 , and $\mathbf{R}_{a1.4}$ and $\mathbf{R}_{b1.4}$ are

[197] In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are H, $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are H, $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are ,

and $\mathbf{R}_{a1.4}$ and $\mathbf{R}_{b1.4}$ are . In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are H, $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are CH₃,

$\mathbf{R}_{a1,3}$ and $\mathbf{R}_{b1,3}$ are , and $\mathbf{R}_{a1,4}$ and $\mathbf{R}_{b1,4}$ are . In some variations, $\mathbf{R}_{a1,1}$ and $\mathbf{R}_{b1,1}$ are

CH₃, **R**_{a1,2} and **R**_{b1,2} are CH₃, **R**_{a1,3} and **R**_{b1,3} are , and **R**_{a1,4} and **R**_{b1,4} are . In some

variations, $\mathbf{R}_{a1.1}$ is H, $\mathbf{R}_{b1.1}$ is CH₃, $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are CH₃, $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are , and $\mathbf{R}_{a1.4}$

and $\mathbf{R}_{b1,4}$ are . In some variations, $\mathbf{R}_{a1,1}$ is H, $\mathbf{R}_{b1,1}$ is CH₃, $\mathbf{R}_{a1,2}$ is H, $\mathbf{R}_{b1,2}$ is CH₃, $\mathbf{R}_{a1,3}$

and $\mathbf{R}_{b1,3}$ are , and $\mathbf{R}_{a1,4}$ and $\mathbf{R}_{b1,4}$ are 

[198] In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are H, $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are , $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are , and $\mathbf{R}_{a1.4}$ and $\mathbf{R}_{b1.4}$ are . In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are CH_3 , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$

are , $\mathbf{R}_{a13}$ and $\mathbf{R}_{b13}$ are , and $\mathbf{R}_{a14}$ and $\mathbf{R}_{b14}$ are . In some variations, $\mathbf{R}_{a11}$ is

H, **R**_{b1.1} is CH₃, **R**_{a1.2} and **R**_{b1.2} are , **R**_{a1.3} and **R**_{b1.3} are , and **R**_{a1.4} and **R**_{b1.4} are






In some variations, $\mathbf{R}_{a1,1}$ and $\mathbf{R}_{b1,1}$ are , $\mathbf{R}_{a1,2}$ and $\mathbf{R}_{b1,2}$ are , $\mathbf{R}_{a1,3}$ and $\mathbf{R}_{b1,3}$

are , and $\mathbf{R}_{a14}$ and $\mathbf{R}_{b14}$ are .

[199] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are H, $R_{a1.3}$ and $R_{b1.3}$ are H, and

$R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are H, $R_{a1.3}$ and $R_{b1.3}$ are CH₃, and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are CH₃, $R_{a1.3}$ and $R_{b1.3}$ are CH₃, and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are CH₃, $R_{a1.2}$ and $R_{b1.2}$ are CH₃, $R_{a1.3}$ and $R_{b1.3}$ are CH₃, and $R_{a1.4}$ and $R_{b1.4}$ are .

[200] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are H, $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are CH₃, $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are CH₃, $R_{a1.2}$ and $R_{b1.2}$ are CH₃, $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ is H, $R_{b1.1}$ is CH₃, $R_{a1.2}$ and $R_{b1.2}$ are CH₃, $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ is H, $R_{b1.1}$ is CH₃, $R_{a1.2}$ is H, $R_{b1.2}$ is CH₃, $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are .

[201] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are CH₃, $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ is H, $R_{b1.1}$ is CH₃, $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are .

[202] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are H, $R_{a1.3}$ and $R_{b1.3}$ are H, and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are CH₃, $R_{a1.3}$ and $R_{b1.3}$ are CH₃, and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are H, $R_{a1.3}$ and $R_{b1.3}$ are CH₃, and $R_{a1.4}$ and $R_{b1.4}$ are .

[203] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are H, and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are CH₃, and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are CH₃, and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are H, and $R_{a1.4}$ and $R_{b1.4}$ are .

[204] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are .

[205] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are H, and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are CH₃, and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are CH₃, and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are H, and $R_{a1.4}$ and $R_{b1.4}$ are .

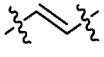
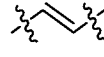
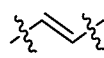
[206] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are .

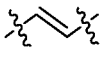
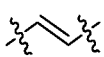
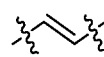
[207] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are H, and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are CH₃, and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are CH₃, and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are H, and $R_{a1.4}$ and $R_{b1.4}$ are .

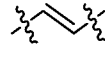
[208] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are .

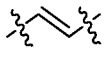
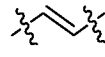
[209] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are H, and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are CH₃, and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are CH₃, and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are .

[210] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are , and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are CH₃, and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are . In some variations, $R_{a1.1}$ is H, $R_{b1.1}$ is CH₃, $R_{a1.2}$ and $R_{b1.2}$ are , and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are .

[211] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are , and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are CH₃, and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are . In some variations, $R_{a1.1}$ is H, $R_{b1.1}$ is CH₃, $R_{a1.2}$ and $R_{b1.2}$ are , and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are .

[212] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are .

[213] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are .

[214] In some variations, $R_{a1.1}$ and $R_{b1.1}$ and $R_{a1.2}$ and $R_{b1.2}$ together are , and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are .

Variations of formulae (Ic)-(Ic.63) in which w is 1, l_1 is 1, 2, 3, or 4 and l_2 is 1

[215] In some variations, R_{a2} and R_{b2} are both H. In some variations, R_{a2} is H and R_{b2} is CH₃. In some variations, R_{a2} and R_{b2} are both CH₃. In some variations, R_{a2} and R_{b2} are . In some variations, R_{a2} and R_{b2} are .

Variations of formulae (Ic)-(Ic.63) in which w is 1, l_1 is 1, 2, 3, or 4 and l_2 is 2

[216] In variations of formulae (Ic)-(Ic.63) described in the paragraphs above in which l_1 is 2, the two instances of R_{a2} and R_{b2} are indicated as $R_{a2.1}$ and $R_{b2.1}$ and $R_{a2.2}$ and $R_{b2.2}$, respectively.

[217] In some variations, each of $R_{a2.1}$ and $R_{b2.1}$ and $R_{a2.2}$ and $R_{b2.2}$ is H. In some variations, each of $R_{a2.1}$ and $R_{b2.1}$ and $R_{a2.2}$ and $R_{b2.2}$ is CH₃. In some variations, each of $R_{a2.1}$ and $R_{a2.2}$ is H and each of $R_{b2.1}$ and $R_{b2.2}$ is CH₃. In some variations, each of $R_{a2.1}$, $R_{a2.2}$, and $R_{b2.1}$ is H and $R_{b2.2}$ is CH₃.

[218] In some variations, each of $R_{a2.1}$ and $R_{b2.1}$ is H and $R_{a2.2}$ and $R_{b2.2}$ are . In some variations, each of $R_{a2.1}$ and $R_{b2.1}$ is H and $R_{a2.2}$ and $R_{b2.2}$ are . In some variations, each of $R_{a2.1}$ and $R_{b2.1}$ is CH₃ and $R_{a2.2}$ and $R_{b2.2}$ are . In some variations, each of $R_{a2.1}$ and $R_{b2.1}$ is CH₃ and $R_{a2.2}$ and $R_{b2.2}$ are .

some variations, $R_{a2.1}$ is H, $R_{b2.1}$ is CH₃, and $R_{a2.2}$ and $R_{b2.2}$ are . In some variations, $R_{a2.1}$ is H, $R_{b2.1}$ is CH₃, and $R_{a2.2}$ and $R_{b2.2}$ are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ and $R_{a2.2}$ and $R_{b2.2}$ together are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are  $R_{a2.2}$ and $R_{b2.2}$ are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , and $R_{a2.2}$ and $R_{b2.2}$ are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , and $R_{a2.2}$ and $R_{b2.2}$ are .

Variations of formulae (Ic)-(Ic.63) in which w is 1, l_1 is 1, 2, 3, or 4 and l_2 is 3

[219] In variations of formulae (Ic)-(Ic.63) in which l_1 is 3, the three instances of R_a and R_b are indicated as $R_{a2.1}$ and $R_{b2.1}$; $R_{a2.2}$ and $R_{b2.2}$; and $R_{a2.3}$ and $R_{b2.3}$, respectively.

[220] In some variations, each of $R_{a2.1}$, $R_{b2.1}$, $R_{a2.2}$, $R_{b2.2}$, $R_{a2.3}$, and $R_{b2.3}$ is H. In some variations, each of $R_{a2.1}$, $R_{b2.1}$, $R_{a2.2}$, $R_{b2.2}$, $R_{a2.3}$, and $R_{b2.3}$ is CH₃. In some variations, each of $R_{a2.1}$, $R_{b2.1}$, $R_{a2.2}$, and $R_{b2.2}$, is H and each of $R_{a2.3}$ and $R_{b2.3}$ is CH₃. In some variations, each of $R_{a2.1}$, $R_{b2.1}$, $R_{a2.2}$, and $R_{b2.2}$, is CH₃ and each of $R_{a2.3}$ and $R_{b2.3}$ is H. In some variations, $R_{a2.1}$ is H and each of $R_{a2.2}$, $R_{a2.3}$, $R_{b2.1}$, $R_{b2.2}$, and $R_{b2.3}$ is CH₃. In some variations, each of $R_{a2.1}$ and $R_{a2.2}$ is H and each of $R_{a2.3}$, $R_{b2.1}$, $R_{b2.2}$, and $R_{b2.3}$ is CH₃. In some variations, each of $R_{a2.1}$, $R_{a2.2}$, and $R_{a2.3}$ is H and each of $R_{b2.1}$, $R_{b2.2}$, and $R_{b2.3}$ is CH₃.

[221] In some variations, each of $R_{a2.1}$, $R_{b2.1}$, $R_{a2.2}$, and $R_{b2.2}$, is H and $R_{a2.3}$ and $R_{b2.3}$ are . In some variations, each of $R_{a2.1}$, $R_{b2.1}$, $R_{a2.2}$, and $R_{b2.2}$, is CH₃ and $R_{a2.3}$ and $R_{b2.3}$ are . In some variations, $R_{a2.1}$ is H and each of $R_{a2.2}$, $R_{b2.1}$, and $R_{b2.2}$ is CH₃, and $R_{a2.3}$ and $R_{b2.3}$ are . In some variations, each of $R_{a2.1}$ and $R_{a2.2}$ is H and each of $R_{b2.1}$ and $R_{b2.2}$ is CH₃, and $R_{a2.3}$ and $R_{b2.3}$ are .

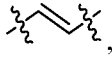
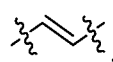
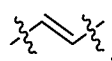
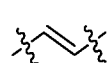
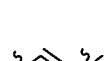
[222] In some variations, each of $R_{a2.1}$, $R_{b2.1}$, $R_{a2.2}$, and $R_{b2.2}$, is H and $R_{a2.3}$ and $R_{b2.3}$ are . In some variations, each of $R_{a2.1}$, $R_{b2.1}$, $R_{a2.2}$, and $R_{b2.2}$, is CH₃ and $R_{a2.3}$ and $R_{b2.3}$ are . In some variations, $R_{a2.1}$ is H and each of $R_{a2.2}$, $R_{b2.1}$, and $R_{b2.2}$ is CH₃, and $R_{a2.3}$ and $R_{b2.3}$ are . In some variations, each of $R_{a2.1}$ and $R_{a2.2}$ is H and each of $R_{b2.1}$ and $R_{b2.2}$ is CH₃, and $R_{a2.3}$ and $R_{b2.3}$ are .

[223] In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is H. In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is CH₃. In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ is H, and $R_{b2.3}$ is CH₃. In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is H. In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is CH₃. In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ is H, and $R_{b2.3}$ is CH₃.

[224] In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is H. In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is CH₃. In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are ,

$R_{a2.3}$ is H, and $R_{b2.3}$ is CH_3 . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is H. In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is CH_3 . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ is H, and $R_{b2.3}$ is CH_3 .

[225] In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is H. In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is CH_3 . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ is H, and $R_{b2.3}$ is CH_3 . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is H. In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is CH_3 . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ is H, and $R_{b2.3}$ is CH_3 .

[226] In some variations, $R_{a2.1}$ and $R_{b2.1}$ and $R_{a2.2}$ and $R_{b2.2}$ together are , and each of $R_{a2.3}$ and $R_{b2.3}$ is H. In some variations, $R_{a2.1}$ and $R_{b2.1}$ and $R_{a2.2}$ and $R_{b2.2}$ together are , and each of $R_{a2.3}$ and $R_{b2.3}$ is CH_3 . In some variations, $R_{a2.1}$ and $R_{b2.1}$ and $R_{a2.2}$ and $R_{b2.2}$ together are , $R_{a2.3}$ is H, and $R_{b2.3}$ is CH_3 . In some variations, $R_{a2.1}$ and $R_{b2.1}$ and $R_{a2.2}$ and $R_{b2.2}$ together are , and $R_{a2.3}$ and $R_{b2.3}$ are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ and $R_{a2.2}$ and $R_{b2.2}$ together are , and $R_{a2.3}$ and $R_{b2.3}$ are .

Variations of formulae (Ic)-(Ic.63) in which w is 1, l_1 is 1, 2, 3, or 4 and l_2 is 4

[227] In variations of formulae (Ic)-(Ic.63) in which l_1 is 4, the four instances of R_{a2} and R_{b2} are indicated as $R_{a2.1}$ and $R_{b2.1}$; $R_{a2.2}$ and $R_{b2.2}$; $R_{a2.3}$ and $R_{b2.3}$; and $R_{a2.4}$ and $R_{b2.4}$, respectively.

[228] In some variations, each of $R_{a2.1}$, R_{b2} , $R_{a2.2}$, R_{b2} , $R_{a2.3}$, $R_{b2.3}$, $R_{a2.4}$, and $R_{b2.4}$ is H. In some variations, each of $R_{a2.1}$, R_{b2} , $R_{a2.2}$, R_{b2} , $R_{a2.3}$, $R_{b2.3}$, $R_{a2.4}$, and $R_{b2.4}$ is CH_3 . In some variations, each of $R_{a2.1}$, R_{b2} , $R_{a2.2}$, R_{b2} , $R_{a2.3}$, and $R_{b2.3}$ is H and each of $R_{a2.4}$ and $R_{b2.4}$ is CH_3 . In some variations, each of $R_{a2.1}$, R_{b2} , $R_{a2.2}$, and R_{b2} is H and each of $R_{a2.3}$, $R_{b2.3}$, $R_{a2.4}$, and $R_{b2.4}$ is CH_3 . In some variations, each of $R_{a2.1}$, R_{b2} , $R_{a2.2}$, R_{b2} , $R_{a2.3}$, and $R_{b2.3}$ is CH_3 and each of $R_{a2.4}$ and $R_{b2.4}$ is H.

[229] In some variations, each of $R_{a2.1}$, $R_{a2.2}$, and $R_{a2.3}$ is H and each of R_{b2} , R_{b2} , and $R_{b2.3}$ is CH_3 . In some variations, $R_{a2.1}$ is H, R_{b2} is CH_3 , and each of $R_{a2.2}$, R_{b2} , $R_{a2.3}$, and $R_{b2.3}$ is CH_3 . In some variations, $R_{a2.1}$ is H, R_{b2} is CH_3 , and each of $R_{a2.2}$, R_{b2} , $R_{a2.3}$, and $R_{b2.3}$ is H. In some variations, each of $R_{a2.1}$ and $R_{a2.2}$ is H, each of R_{b2} and R_{b2} is CH_3 , and each of $R_{a2.3}$ and $R_{b2.3}$ is H. In some variations, each of $R_{a2.1}$ and $R_{a2.2}$ is H, each of R_{b2} and R_{b2} is CH_3 , and each of $R_{a2.3}$ and $R_{b2.3}$ is CH_3 .

[230] In some variations, $R_{a2.1}$ and R_{b2} are H, $R_{a2.2}$ and R_{b2} are H, $R_{a2.3}$ and $R_{b2.3}$ are H, and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are H, $R_{a2.2}$ and R_{b2} are H, $R_{a2.3}$ and $R_{b2.3}$ are CH_3 , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are H, $R_{a2.2}$ and R_{b2} are CH_3 , $R_{a2.3}$ and $R_{b2.3}$ are CH_3 , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are CH_3 , $R_{a2.2}$ and R_{b2} are CH_3 , $R_{a2.3}$ and $R_{b2.3}$ are CH_3 , and $R_{a2.4}$ and $R_{b2.4}$ are .

[231] In some variations, $R_{a2.1}$ and R_{b2} are H, $R_{a2.2}$ and R_{b2} are H, $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are H, $R_{a2.2}$ and R_{b2} are CH_3 , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are CH_3 , $R_{a2.2}$ and R_{b2} are CH_3 , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ is H, R_{b2} is CH_3 , $R_{a2.2}$ and R_{b2} are CH_3 , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ is H, R_{b2} is CH_3 , $R_{a2.2}$ is H, R_{b2} is CH_3 , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are .

[232] In some variations, $R_{a2.1}$ and R_{b2} are H, $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are CH₃, $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ is H, R_{b2} is CH₃, $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are .

[233] In some variations, $R_{a2.1}$ and R_{b2} are H, $R_{a2.2}$ and R_{b2} are H, $R_{a2.3}$ and $R_{b2.3}$ are H, and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are H, $R_{a2.2}$ and R_{b2} are H, $R_{a2.3}$ and $R_{b2.3}$ are CH₃, and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are H, $R_{a2.2}$ and R_{b2} are CH₃, $R_{a2.3}$ and $R_{b2.3}$ are CH₃, and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are CH₃, $R_{a2.2}$ and R_{b2} are CH₃, $R_{a2.3}$ and $R_{b2.3}$ are CH₃, and $R_{a2.4}$ and $R_{b2.4}$ are .

[234] In some variations, $R_{a2.1}$ and R_{b2} are H, $R_{a2.2}$ and R_{b2} are H, $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are H, $R_{a2.2}$ and R_{b2} are CH₃, $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are CH₃, $R_{a2.2}$ and R_{b2} are CH₃, $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ is H, R_{b2} is CH₃, $R_{a2.2}$ and R_{b2} are CH₃, $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ is H, R_{b2} is CH₃, $R_{a2.2}$ is H, R_{b2} is CH₃, $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are .

[235] In some variations, $R_{a2.1}$ and R_{b2} are H, $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are CH₃, $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ is H, R_{b2} is CH₃, $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are .

[236] In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are H, $R_{a2.3}$ and $R_{b2.3}$ are H, and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are CH₃, $R_{a2.3}$ and $R_{b2.3}$ are CH₃, and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are H, $R_{a2.3}$ and $R_{b2.3}$ are CH₃, and $R_{a2.4}$ and $R_{b2.4}$ are .

[237] In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are H, and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are CH₃, and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are CH₃, and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are H, and $R_{a2.4}$ and $R_{b2.4}$ are .

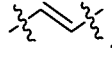
[238] In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are .

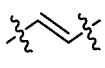
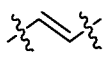
[239] In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are H, and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are CH₃, and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are CH₃, and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are H, and $R_{a2.4}$ and $R_{b2.4}$ are .

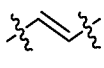
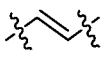
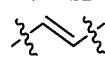
[240] In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are .

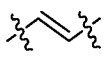
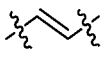
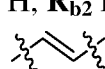
[241] In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are H, and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are CH₃, and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are CH₃, and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are H, and $R_{a2.4}$ and $R_{b2.4}$ are .

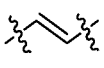
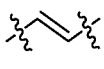
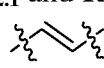
[242] In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are .

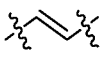
[243] In some variations, $R_{a2.1}$ and R_{b2} are H, $R_{a2.2}$ and R_{b2} are H, and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are . In some variations, $R_{a2.1}$ and R_{b2} are H, $R_{a2.2}$ and R_{b2} are CH₃,

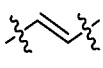
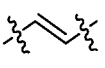
and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are . In some variations, $R_{a2.1}$ and $R_{a2.2}$ are H, R_{b2} and R_{b2} are CH₃, and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are .

[244] In some variations, $R_{a2.1}$ and R_{b2} are H, $R_{a2.2}$ and R_{b2} are , and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are . In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are CH₃, and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are . In some variations, $R_{a2.1}$ is H, R_{b2} is CH₃, $R_{a2.2}$ and R_{b2} are , and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are .

[245] In some variations, $R_{a2.1}$ and R_{b2} are H, $R_{a2.2}$ and R_{b2} are , and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are . In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are CH₃, and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are . In some variations, $R_{a2.1}$ is H, R_{b2} is CH₃, $R_{a2.2}$ and R_{b2} are , and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are .

[246] In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are , and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are . In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are , and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are . In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are , and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are .

[247] In some variations, $R_{a2.1}$ and R_{b2} are , $R_{a2.2}$ and R_{b2} are , and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are .

[248] In some variations, $R_{a2.1}$ and R_{b2} and $R_{a2.2}$ and R_{b2} together are , and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are .

the variations described in this paragraph, o_1 is 2. In some of the variations described in this paragraph, o_1 is 3. In some of the variations described in this paragraph, o_1 is 4.

[252] In some variations of formulae (Ic)-(Ic.63) in which w is 2, l_1 is 3. In some variations in which l_1 is 3, a first instance of l_2 is 0. In some variations in which l_1 is 3, a first instance of l_2 is 2. In some variations in which l_1 is 3, a first instance of l_2 is 3. In some variations in which l_1 is 3, a first instance of l_2 is 4. In some of the variations described in this paragraph, a second instance of l_2 is 0. In some of the variations described in this paragraph, a second instance of l_2 is 1. In some of the variations described in this paragraph, a second instance of l_2 is 2. In some of the variations described in this paragraph, a second instance of l_2 is 3. In some of the variations described in this paragraph, a second instance of l_2 is 4. In some of the variations described in this paragraph, o_1 is 0. In some of the variations described in this paragraph, o_1 is 1. In some of the variations described in this paragraph, o_1 is 2. In some of the variations described in this paragraph, o_1 is 3. In some of the variations described in this paragraph, o_1 is 4.

[253] In some variations of formulae (Ic)-(Ic.63) in which w is 2, l_1 is 4. In some variations in which l_1 is 4, a first instance of l_2 is 0. In some variations in which l_1 is 4, a first instance of l_2 is 2. In some variations in which l_1 is 4, a first instance of l_2 is 3. In some variations in which l_1 is 4, a first instance of l_2 is 4. In some of the variations described in this paragraph, a second instance of l_2 is 0. In some of the variations described in this paragraph, a second instance of l_2 is 1. In some of the variations described in this paragraph, a second instance of l_2 is 2. In some of the variations described in this paragraph, a second instance of l_2 is 3. In some of the variations described in this paragraph, a second instance of l_2 is 4. In some of the variations described in this paragraph, o_1 is 0. In some of the variations described in this paragraph, o_1 is 1. In some of the variations described in this paragraph, o_1 is 2. In some of the variations described in this paragraph, o_1 is 3. In some of the variations described in this paragraph, o_1 is 4.

[254] In some of the variations described in the paragraphs above, a first instance of o_2 is 0. In some of the variations described in the paragraphs above, a first instance of o_2 is 1. In some of the variations described in the paragraphs above, a first instance of o_2 is 2. In some of the variations described in the paragraphs above, a first instance of o_2 is 3. In some of the variations described in the paragraphs above, a first instance of o_2 is 4.

[255] In some of the variations described in the paragraphs above, a second instance of o_2 is 0. In some of the variations described in the paragraphs above, a second instance of o_2 is 1. In some of the variations described in the paragraphs above, a second instance of o_2 is 2. In some of the

variations described in the paragraphs above, a second instance of o_2 is 3. In some of the variations described in the paragraphs above, a second instance of o_2 is 4.

[256] In some variations of formulae (Ic)-(Ic.63) in which w is 2, the two respective instances of R_{c2} and R_{d2} are distinguished in the description below as R_{c2} and R_{d2} and $R_{c2'}$ and $R_{d2'}$, respectively.

Variations of formulae (Ic)-(Ic.63) in which w is 2, o_1 is 1, 2, 3, or 4 as described above; a first o_2 is 1, 2, 3, or 4 as described above; and a second instance of o_2 is 1

[257] In some variations, $R_{c2'}$ and $R_{d2'}$ are both H. In some variations, $R_{c2'}$ is H and $R_{d2'}$ is CH_3 .

In some variations, $R_{c2'}$ and $R_{d2'}$ are both CH_3 . In some variations, $R_{c2'}$ and $R_{d2'}$ are . In

some variations, $R_{c2'}$ and $R_{d2'}$ are .

Variations of formulae (Ic)-(Ic.63) in which w is 2, o_1 is 1, 2, 3, or 4 as described above; a first o_2 is 1, 2, 3, or 4 as described above; and a second instance of o_2 is 2

[258] In variations of formulae (Ic)-(Ic.63) described in the paragraphs above in which o_1 is 2, the two instances of $R_{c2'}$ and $R_{d2'}$ are indicated as $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$, respectively.

[259] In some variations, each of $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ is H. In some variations, each of $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ is CH_3 . In some variations, each of $R_{c2.1'}$ and $R_{c2.2'}$ is H and each of $R_{d2.1'}$ and $R_{d2.2'}$ is CH_3 . In some variations, each of $R_{c2.1'}$, $R_{c2.2'}$, and $R_{d2.1'}$ is H and $R_{d2.2'}$ is CH_3 .

[260] In some variations, each of $R_{c2.1'}$ and $R_{d2.1'}$ is H and $R_{c2.2'}$ and $R_{d2.2'}$ are . In some

variations, each of $R_{c2.1'}$ and $R_{d2.1'}$ is H and $R_{c2.2'}$ and $R_{d2.2'}$ are . In some variations, each of

$R_{c2.1'}$ and $R_{d2.1'}$ is CH_3 and $R_{c2.2'}$ and $R_{d2.2'}$ are . In some variations, each of $R_{c2.1'}$ and $R_{d2.1'}$

is CH_3 and $R_{c2.2'}$ and $R_{d2.2'}$ are .

[261] In some variations, $R_{c2.1'}$ is H, $R_{d2.1'}$ is CH₃, and $R_{c2.2'}$ and $R_{d2.2'}$ are . In some variations, $R_{c2.1'}$ is H, $R_{d2.1'}$ is CH₃, and $R_{c2.2'}$ and $R_{d2.2'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ together are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are  and $R_{c2.2'}$ and $R_{d2.2'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are  and $R_{c2.2'}$ and $R_{d2.2'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are  and $R_{c2.2'}$ and $R_{d2.2'}$ are .

Variations of formulae (Ic)-(Ic.63) in which w is 2, o_1 is 1, 2, 3, or 4 as described above; a first o_2 is 1, 2, 3, or 4 as described above; and a second instance of o_2 is 3

[262] In variations, of formulae (Ic)-(Ic.63) in which o_1 is 3, the three instances of R_c and R_d are indicated as $R_{c2.1'}$ and $R_{d2.1'}$; $R_{c2.2'}$ and $R_{d2.2'}$; and $R_{c2.3'}$ and $R_{d2.3'}$, respectively.

[263] In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, $R_{d2.2'}$, $R_{c2.3'}$, and $R_{d2.3'}$ is H. In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, $R_{d2.2'}$, $R_{c2.3'}$, and $R_{d2.3'}$ is CH₃. In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, and $R_{d2.2'}$, is H and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH₃. In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, and $R_{d2.2'}$, is CH₃ and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ is H and each of $R_{c2.2'}$, $R_{c2.3'}$, $R_{d2.1'}$, $R_{d2.2'}$, and $R_{d2.3'}$ is CH₃. In some variations, each of $R_{c2.1'}$ and $R_{c2.2'}$ is H and each of $R_{c2.3'}$, $R_{d2.1'}$, $R_{d2.2'}$, and $R_{d2.3'}$ is CH₃. In some variations, each of $R_{c2.1'}$, $R_{c2.2'}$, and $R_{c2.3'}$ is H and each of $R_{d2.1'}$, $R_{d2.2'}$, and $R_{d2.3'}$ is CH₃.

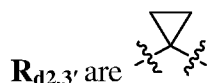
[264] In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, and $R_{d2.2'}$, is H and $R_{c2.3'}$ and $R_{d2.3'}$ are



. In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, and $R_{d2.2'}$, is CH₃ and $R_{c2.3'}$ and $R_{d2.3'}$ are



. In some variations, $R_{c2.1'}$ is H and each of $R_{c2.2'}$, $R_{d2.1'}$, and $R_{d2.2'}$ is CH₃, and $R_{c2.3'}$ and



$R_{d2.3'}$ are . In some variations, each of $R_{c2.1'}$ and $R_{c2.2'}$ is H and each of $R_{d2.1'}$ and $R_{d2.2'}$ is

CH₃, and $R_{c2.3'}$ and $R_{d2.3'}$ are .

[265] In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, and $R_{d2.2'}$, is H and $R_{c2.3'}$ and $R_{d2.3'}$ are



. In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, and $R_{d2.2'}$, is CH₃ and $R_{c2.3'}$ and $R_{d2.3'}$ are

. In some variations, $R_{c2.1'}$ is H and each of $R_{c2.2'}$, $R_{d2.1'}$, and $R_{d2.2'}$ is CH_3 , and $R_{c2.3'}$ and

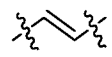
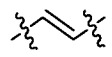
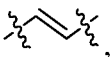
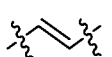
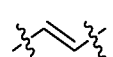
$R_{d2.3'}$ are . In some variations, each of $R_{c2.1'}$ and $R_{c2.2'}$ is H and each of $R_{d2.1'}$ and $R_{d2.2'}$ is

CH_3 , and $R_{c2.3'}$ and $R_{d2.3'}$ are .

[266] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH_3 . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ is H, and $R_{d2.3'}$ is CH_3 . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH_3 . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ is H, and $R_{d2.3'}$ is CH_3 .

[267] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH_3 . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ is H, and $R_{d2.3'}$ is CH_3 . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH_3 . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ is H, and $R_{d2.3'}$ is CH_3 .

[268] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH₃. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ is H, and $R_{d2.3'}$ is CH₃. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH₃. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ is H, and $R_{d2.3'}$ is CH₃.

[269] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ together are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ together are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH₃. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ together are , $R_{c2.3'}$ is H, and $R_{d2.3'}$ is CH₃. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ together are , and $R_{c2.3'}$ and $R_{d2.3'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ together are , and $R_{c2.3'}$ and $R_{d2.3'}$ are .

Variations of formulae (Ic)-(Ic.63) in which w is 2, o_I is 1, 2, 3, or 4 as described above; a first o_2 is 1, 2, 3, or 4 as described above; and a second instance of o_2 is 4

[270] In variations of formulae (Ic)-(Ic.63) in which o_I is 4, the four instances of R_{c2} and R_{d2} are indicated as $R_{c2.1'}$ and $R_{d2.1'}$; $R_{c2.2'}$ and $R_{d2.2'}$; $R_{c2.3'}$ and $R_{d2.3'}$; and $R_{c2.4'}$ and $R_{d2.4'}$, respectively.

[271] In some variations, each of $R_{c2.1'}$, R_{d2} , $R_{c2.2'}$, R_{d2} , $R_{c2.3'}$, $R_{d2.3'}$, $R_{c2.4'}$, and $R_{d2.4'}$ is H. In some variations, each of $R_{c2.1'}$, R_{d2} , $R_{c2.2'}$, R_{d2} , $R_{c2.3'}$, $R_{d2.3'}$, $R_{c2.4'}$, and $R_{d2.4'}$ is CH₃. In some variations, each of $R_{c2.1'}$, R_{d2} , $R_{c2.2'}$, R_{d2} , $R_{c2.3'}$, and $R_{d2.3'}$ is H and each of $R_{c2.4'}$ and $R_{d2.4'}$ is CH₃. In some variations, each of $R_{c2.1'}$, R_{d2} , $R_{c2.2'}$, and R_{d2} is H and each of $R_{c2.3'}$, $R_{d2.3'}$, $R_{c2.4'}$, and $R_{d2.4'}$ is CH₃.

$R_{d2.4'}$ is CH_3 . In some variations, each of $R_{c2.1'}$, R_{d2} , $R_{c2.2'}$, R_{d2} , $R_{c2.3'}$, and $R_{d2.3'}$ is CH_3 and each of $R_{c2.4'}$ and $R_{d2.4'}$ is H.

[272] In some variations, each of $R_{c2.1'}$, $R_{c2.2'}$, and $R_{c2.3'}$ is H and each of R_{d2} , R_{d2} , and $R_{d2.3'}$ is CH_3 . In some variations, $R_{c2.1'}$ is H, R_{d2} is CH_3 , and each of $R_{c2.2'}$, R_{d2} , $R_{c2.3'}$, and $R_{d2.3'}$ is CH_3 . In some variations, $R_{c2.1'}$ is H, R_{d2} is CH_3 , and each of $R_{c2.2'}$, R_{d2} , $R_{c2.3'}$, and $R_{d2.3'}$ is H. In some variations, each of $R_{c2.1'}$ and $R_{c2.2'}$ is H, each of R_{d2} and R_{d2} is CH_3 , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, each of $R_{c2.1'}$ and $R_{c2.2'}$ is H, each of R_{d2} and R_{d2} is CH_3 , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH_3 .

[273] In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are H, $R_{c2.3'}$ and $R_{d2.3'}$ are H, and

$R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are H, $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are CH_3 , $R_{c2.2'}$ and R_{d2} are CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

[274] In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are H, $R_{c2.3'}$ and $R_{d2.3'}$ are ,

and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are CH_3 ,

$R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

In some variations, $R_{c2.1'}$ and R_{d2} are CH_3 , $R_{c2.2'}$ and R_{d2} are CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

In some variations, $R_{c2.1'}$ is H, R_{d2} is CH_3 , $R_{c2.2'}$ and R_{d2} are CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

In some variations, $R_{c2.1'}$ is H, R_{d2} is CH_3 , $R_{c2.2'}$ is H, R_{d2} is CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are ,

and $R_{c2.4'}$ and $R_{d2.4'}$ are .

[275] In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are CH_3 , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ is H, R_{d2} is CH_3 , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

[276] In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are H, $R_{c2.3'}$ and $R_{d2.3'}$ are H, and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are H, $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are CH_3 , $R_{c2.2'}$ and R_{d2} are CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

[277] In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are H, $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are CH_3 , $R_{c2.2'}$ and R_{d2} are CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ is H, R_{d2} is CH_3 , $R_{c2.2'}$ and R_{d2} are CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$

and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ is H, R_{d2} is CH_3 , $R_{c2.2'}$ is H, R_{d2} is CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

[278] In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are CH_3 , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ is H, R_{d2} is CH_3 , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

[279] In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are H, $R_{c2.3'}$ and $R_{d2.3'}$ are H, and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

[280] In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are H, and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In

some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are H, and $R_{c2.4'}$ and $R_{d2.4'}$ are .

[281] In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

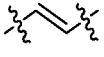
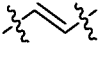
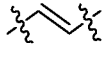
[282] In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are H, and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are H, and $R_{c2.4'}$ and $R_{d2.4'}$ are .

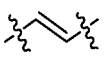
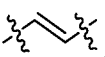
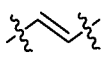
[283] In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

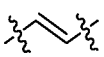
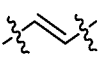
[284] In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are H, and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2}

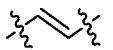
are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are H, and $R_{c2.4'}$ and $R_{d2.4'}$ are .

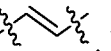
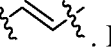
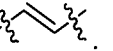
[285] In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

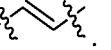
[286] In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are H, and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are . In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are CH_3 , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are . In some variations, $R_{c2.1'}$ and $R_{c2.2'}$ are H, R_{d2} and R_{d2} are CH_3 , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are .

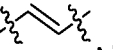
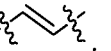
[287] In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are CH_3 , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are . In some variations, $R_{c2.1'}$ is H, R_{d2} is CH_3 , $R_{c2.2'}$ and R_{d2} are , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are .

[288] In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are CH_3 , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are . In some variations, $R_{c2.1'}$

is H, R_{d2} is CH_3 , $R_{c2.2'}$ and R_{d2} are , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are .

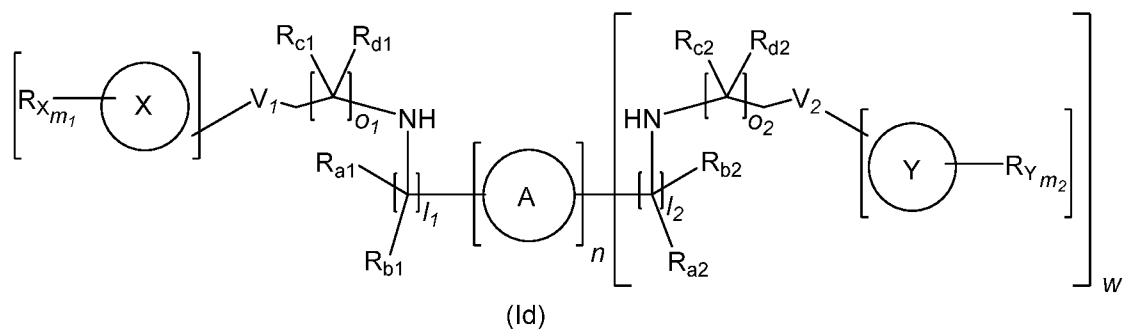
[289] In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are .

[290] In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are .

[291] In some variations, $R_{c2.1'}$ and R_{d2} and $R_{c2.2'}$ and R_{d2} together are , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are .

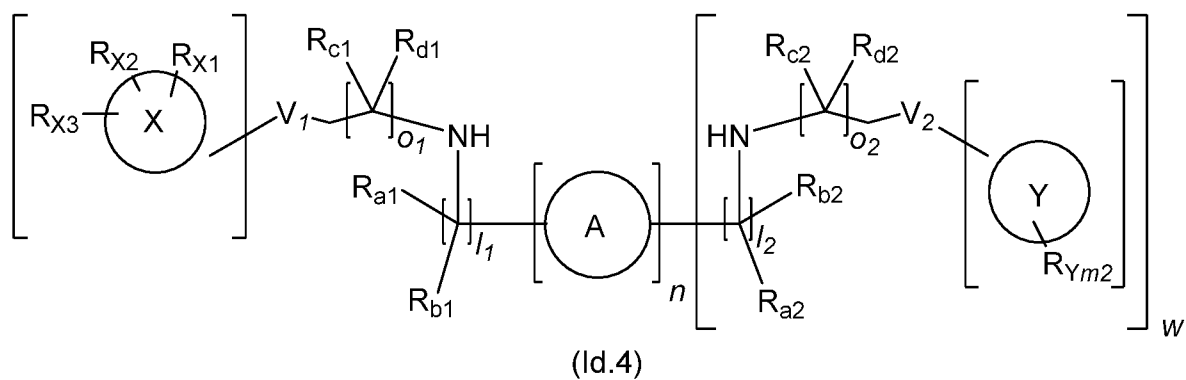
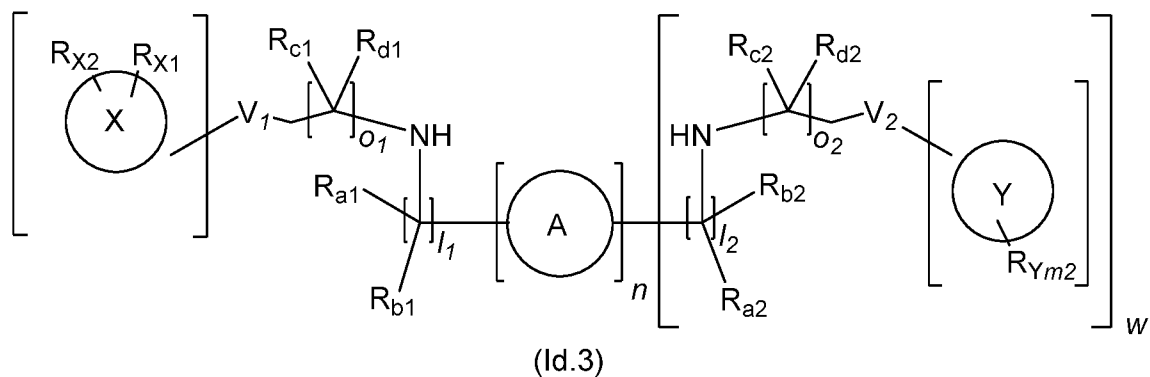
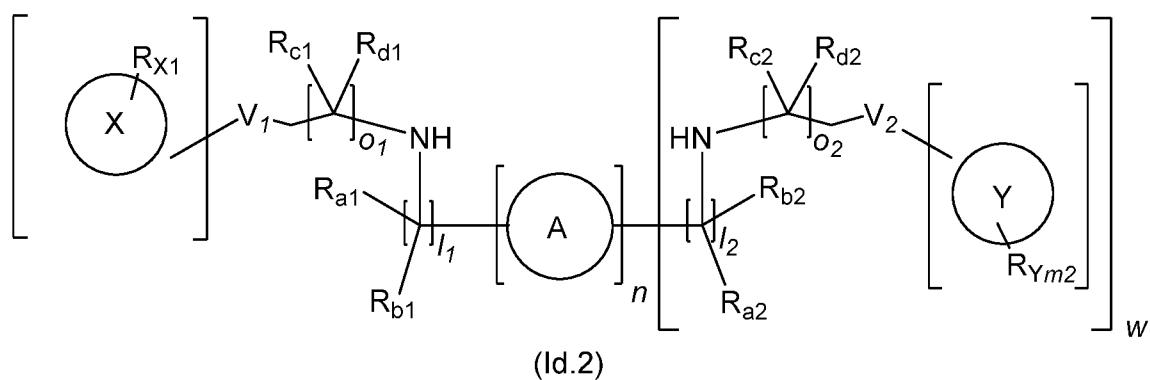
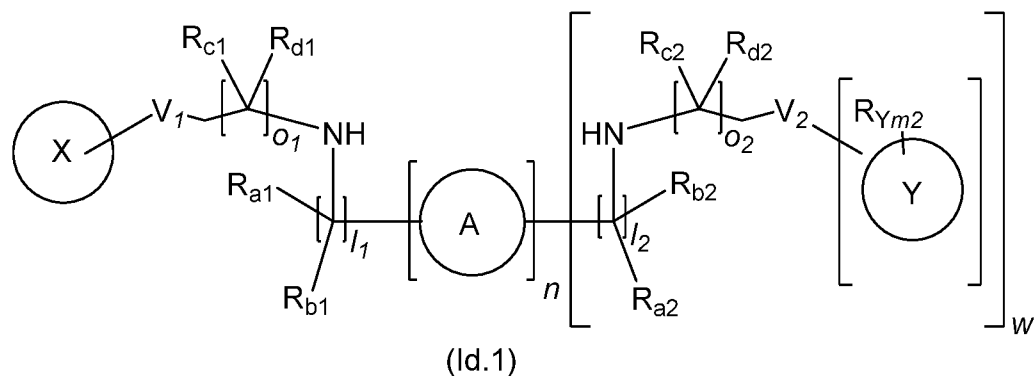
Compounds of Formula (Id)

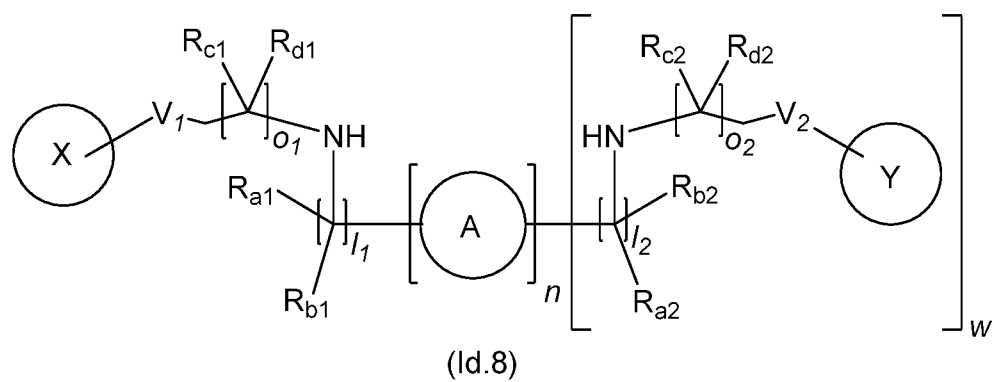
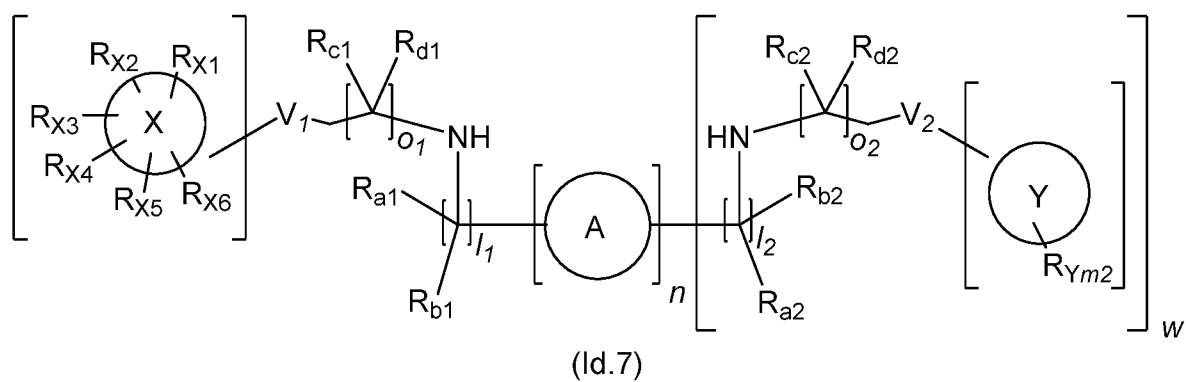
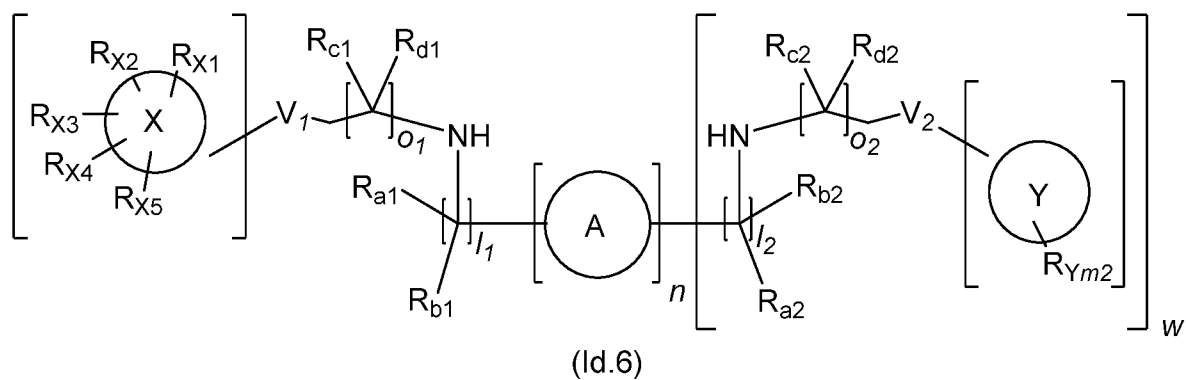
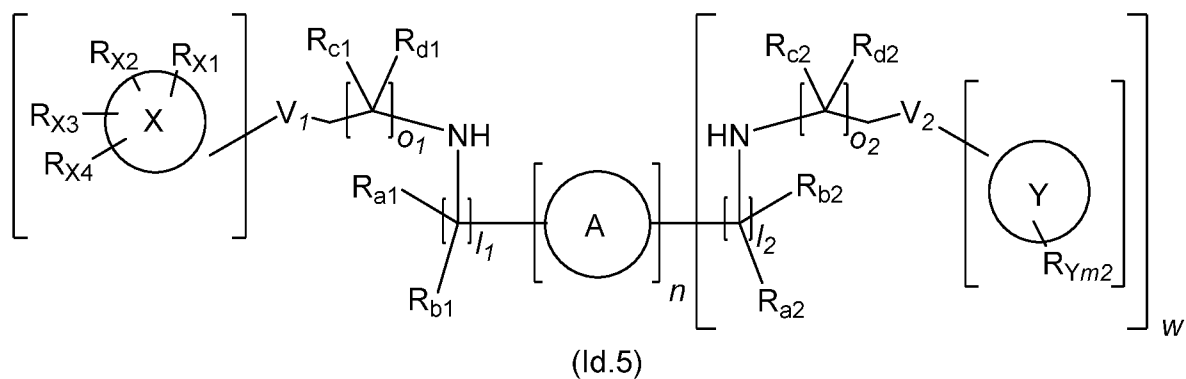
[292] Some compounds fall within formula (Id), which comprises linker (d):

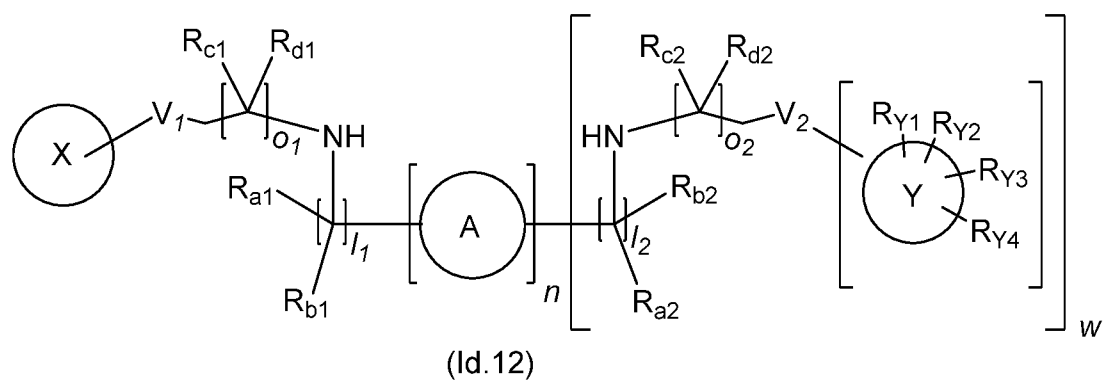
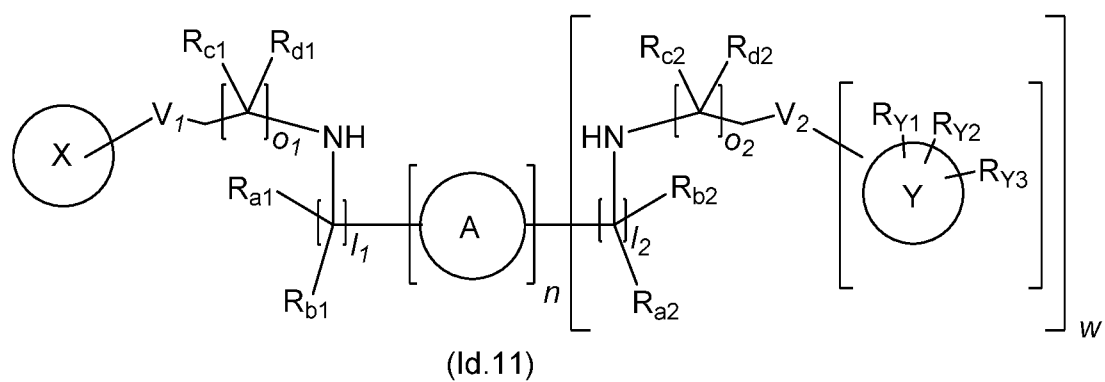
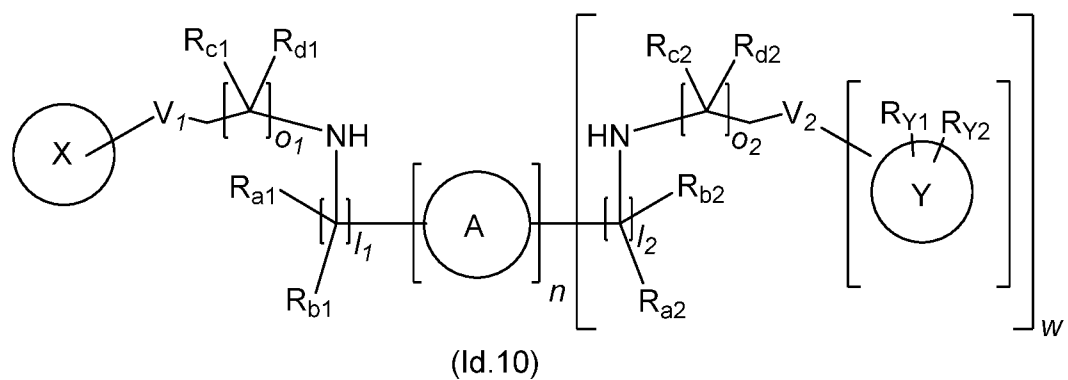
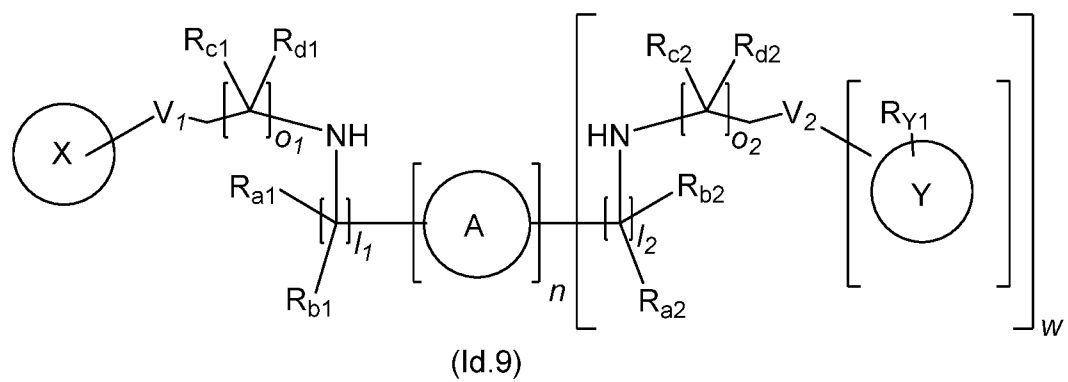


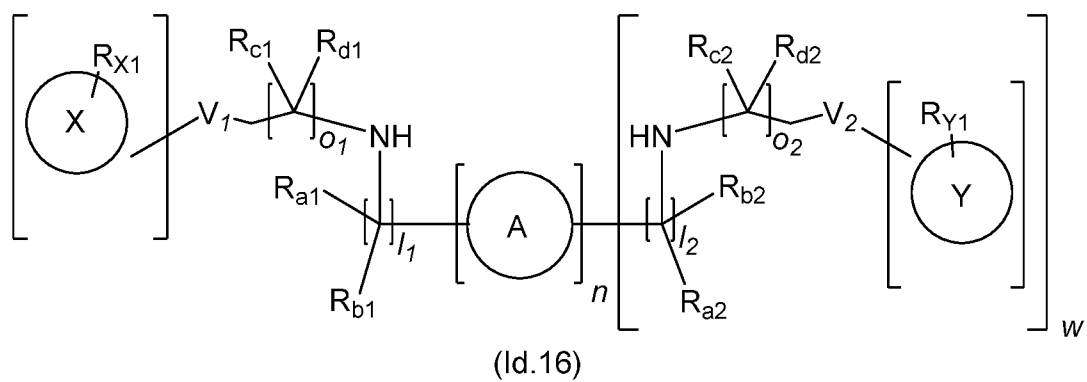
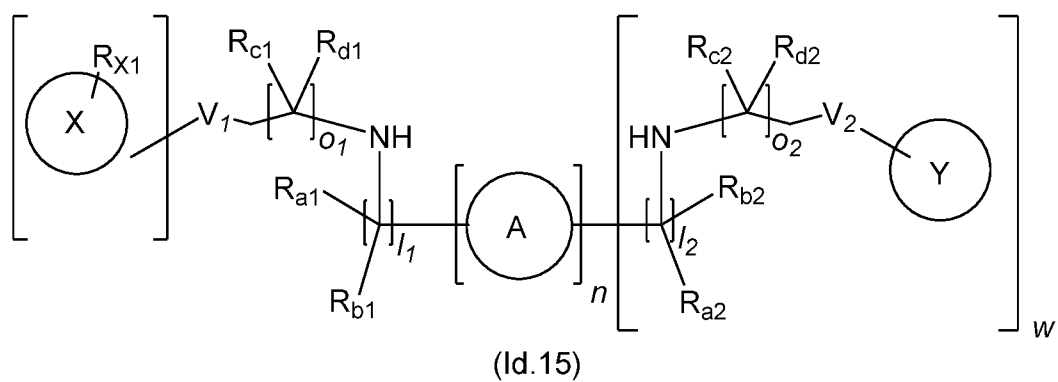
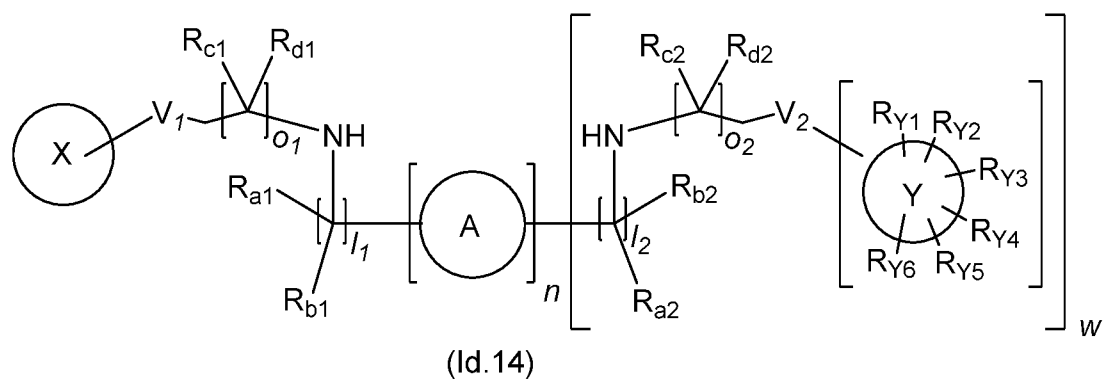
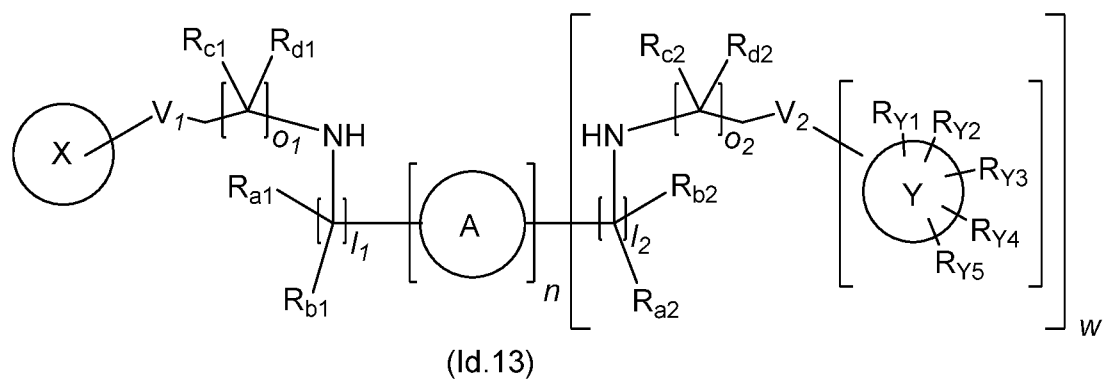
X , Y , R_X , R_Y , R , m_1 , m_2 , V_1 , V_2 , R_Z , l_1 , l_2 , o_1 , o_2 , w , n , ring A, R_{a1} , R_{b1} , R_{a2} , R_{b2} , R_{c1} , R_{c2} , R_{d1} , and R_{d2} are as defined above for formula (I).

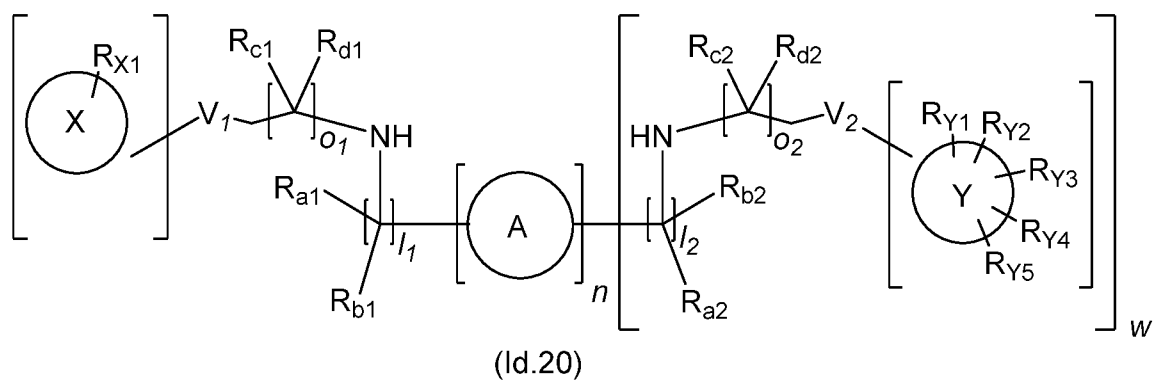
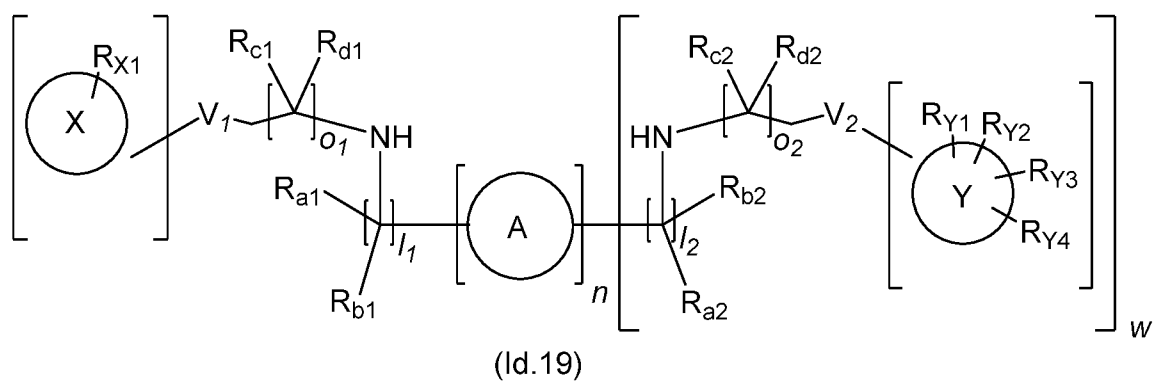
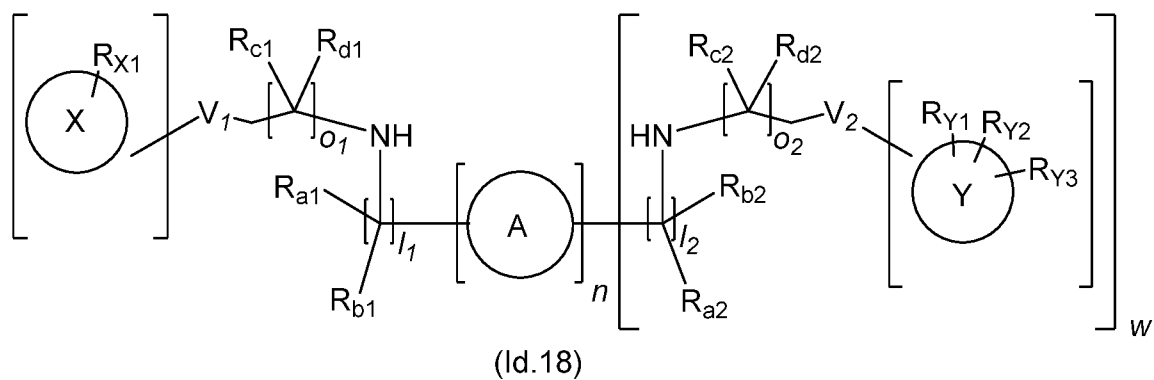
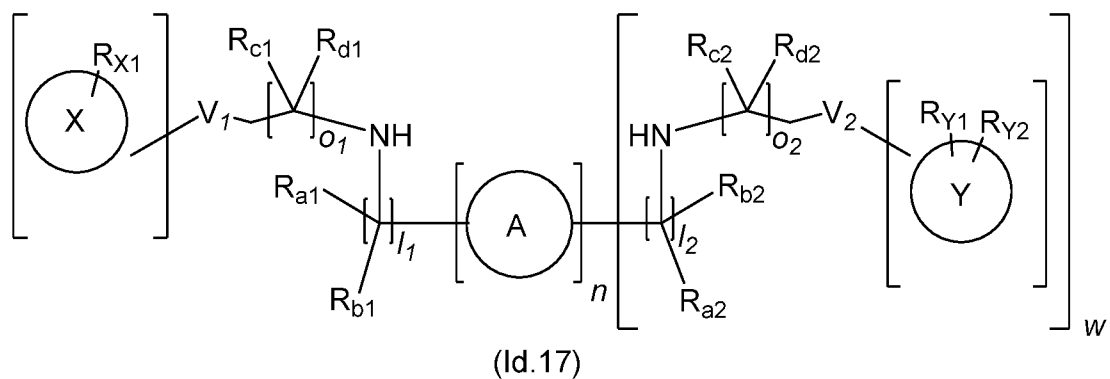
[293] In some variations, compounds of formula (Id) fall within one or more of formulae (Id.1)-(Id.63), shown below.

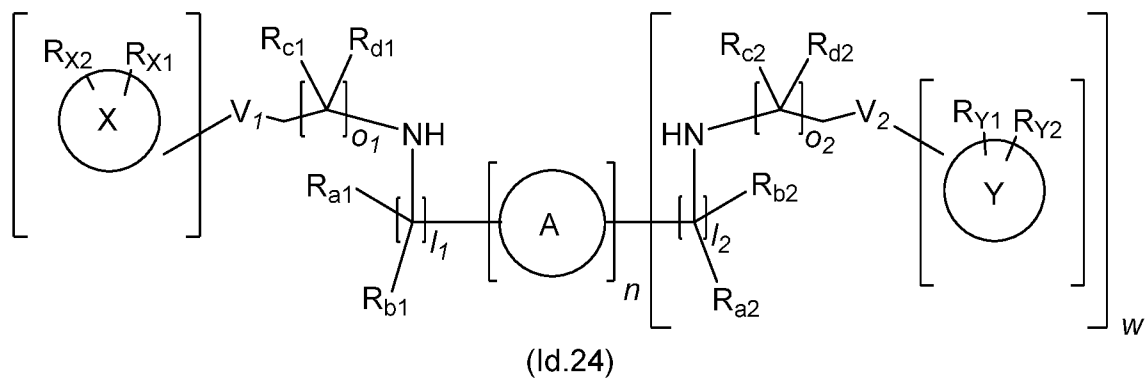
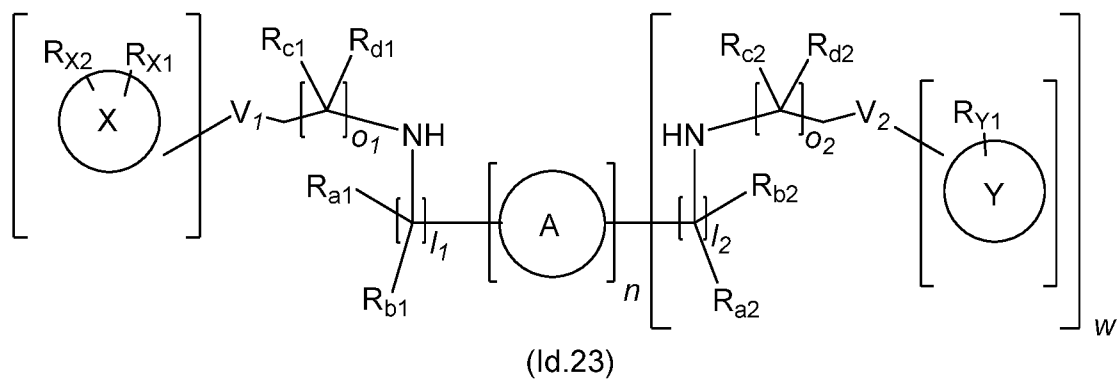
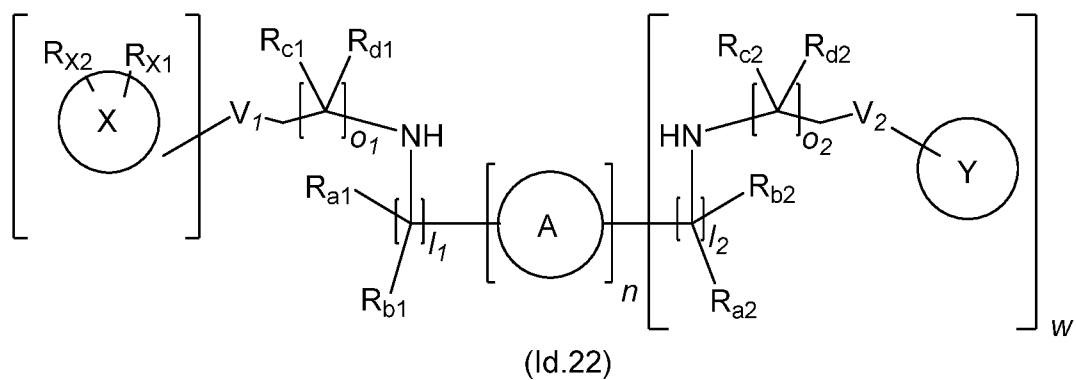
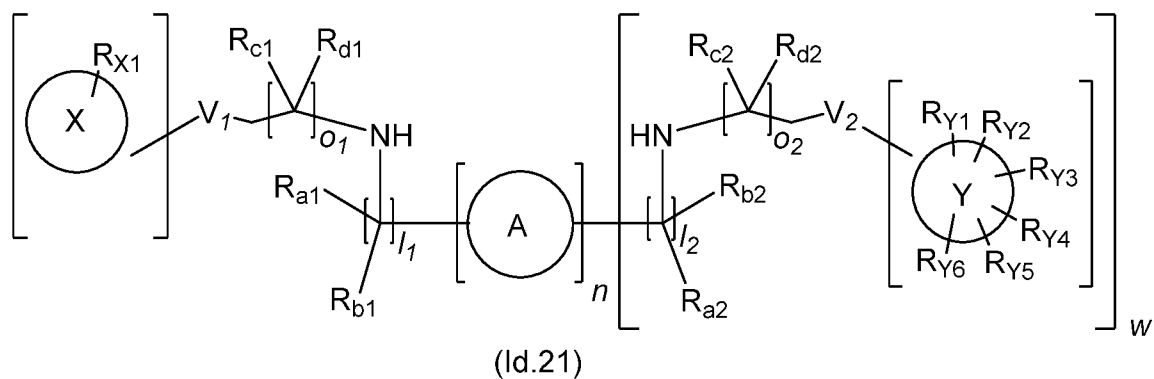








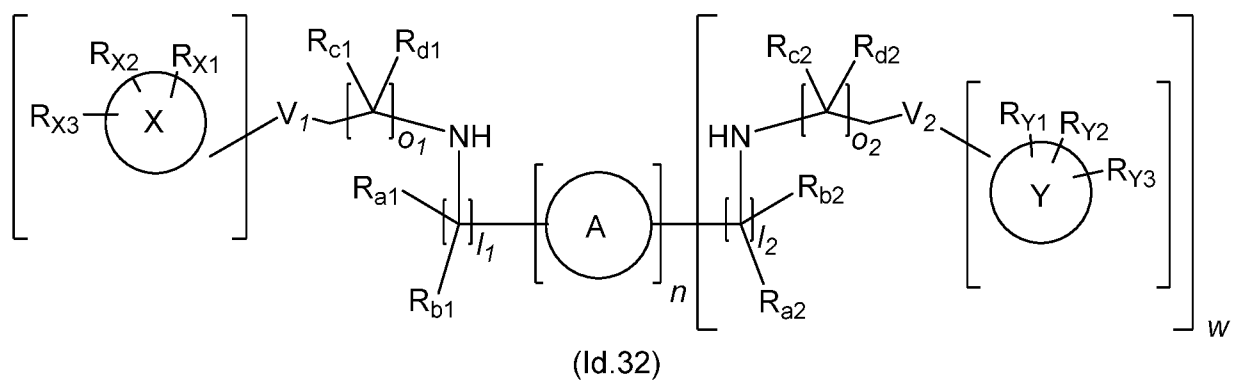
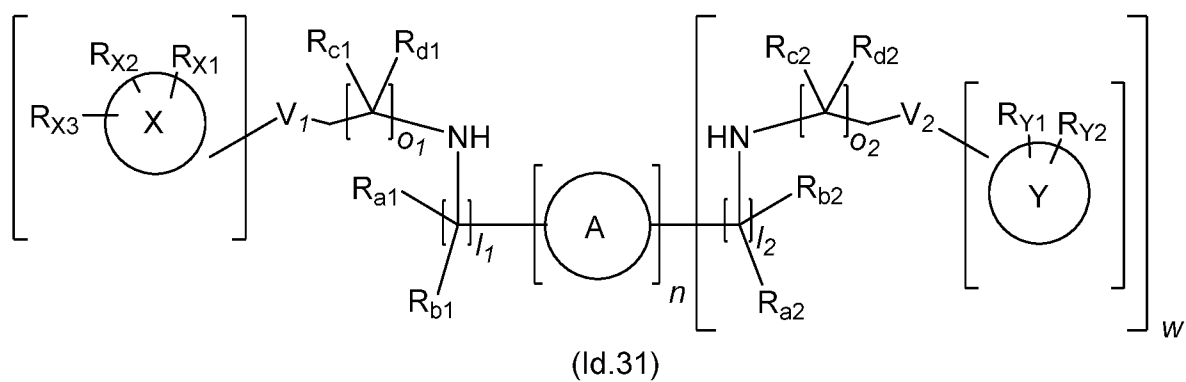
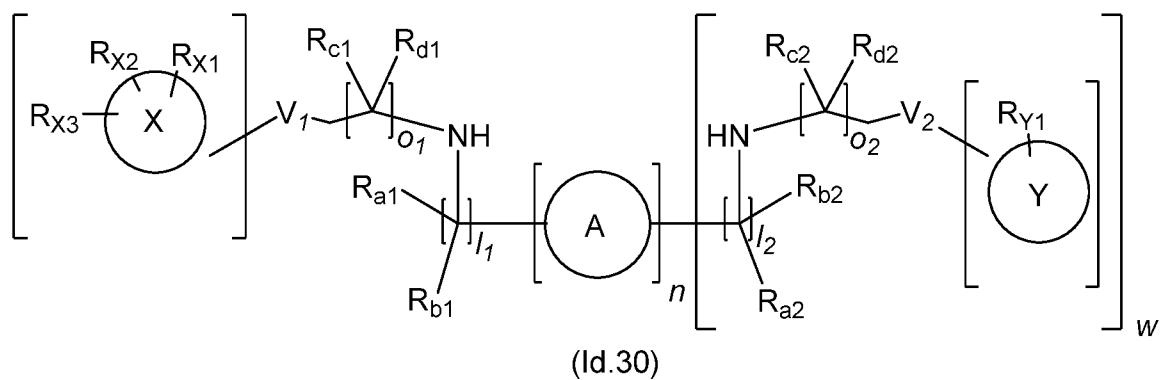
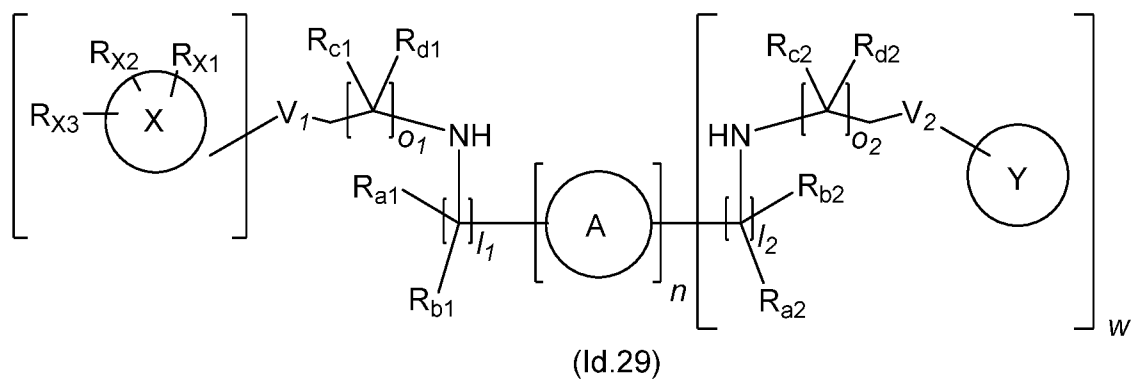


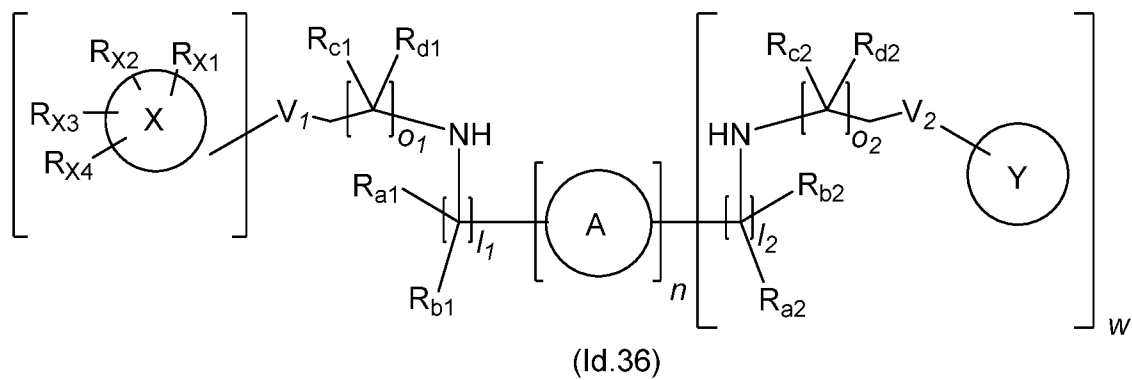
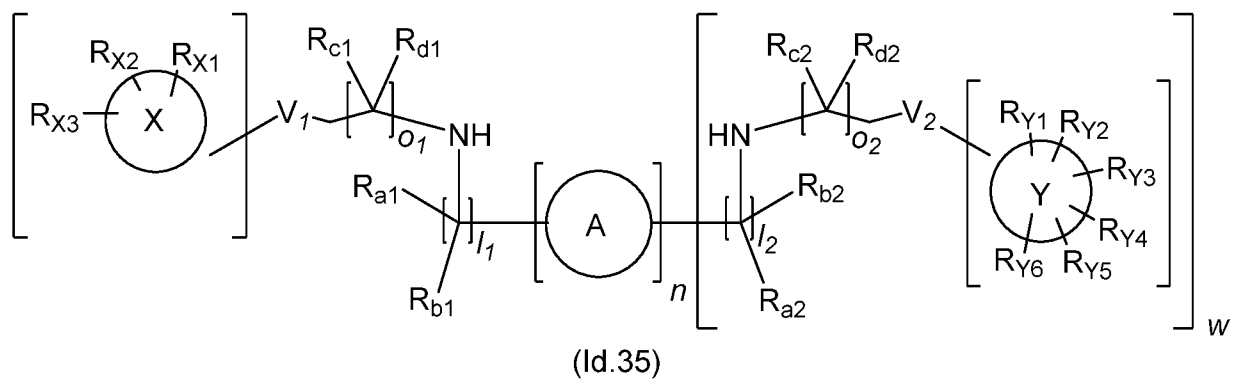
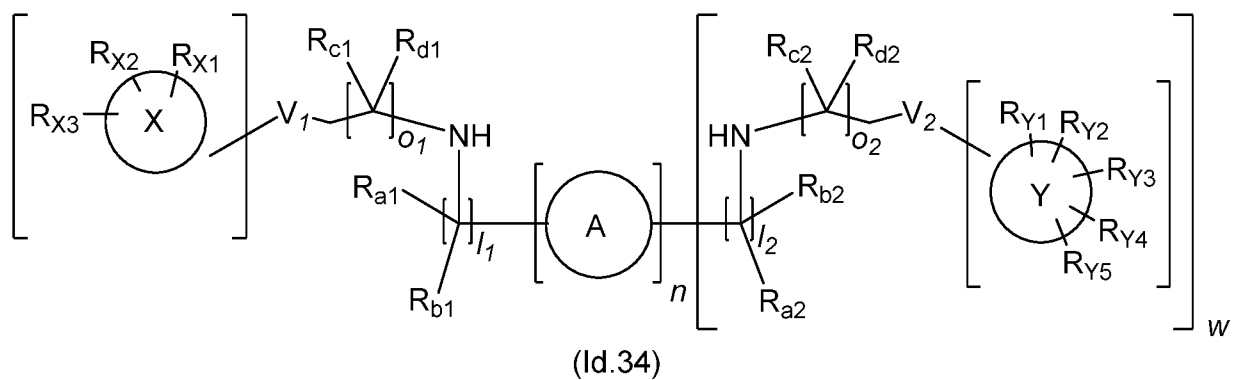
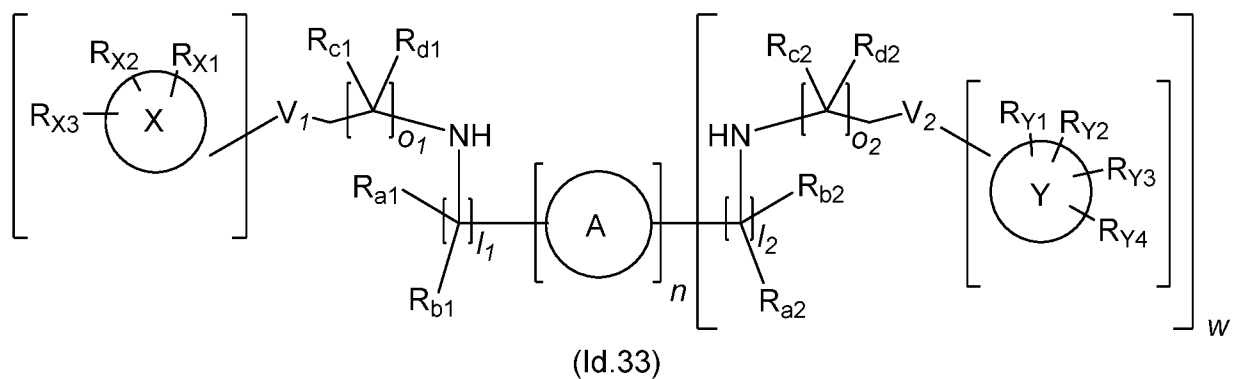


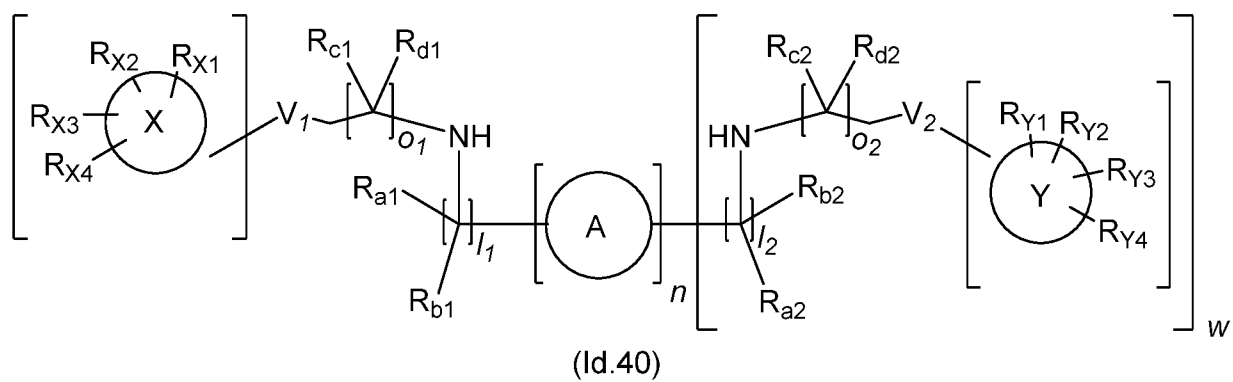
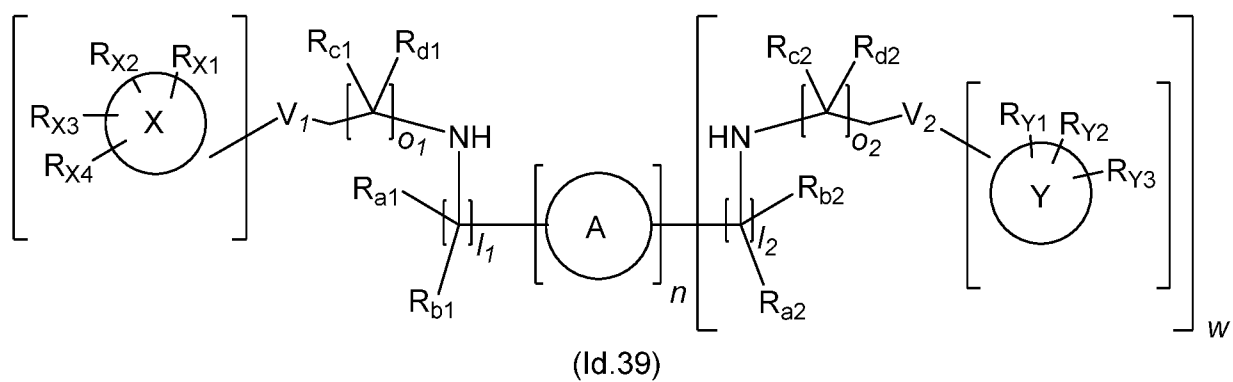
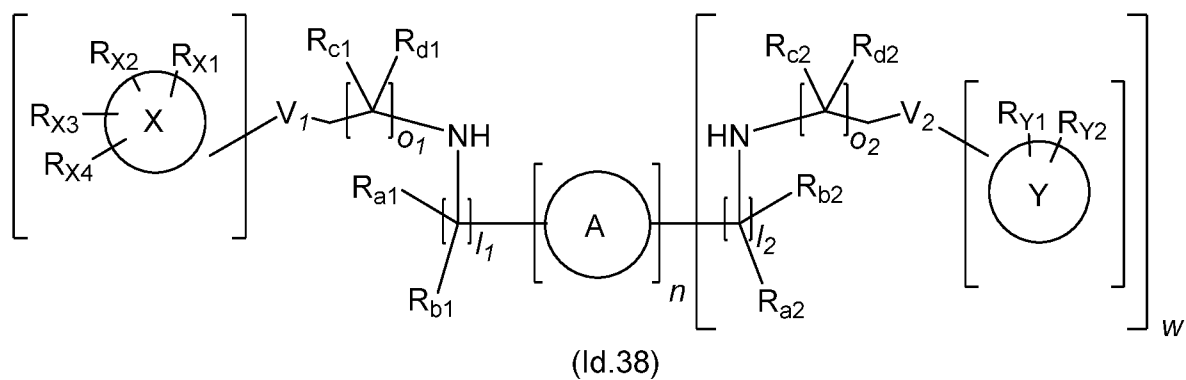
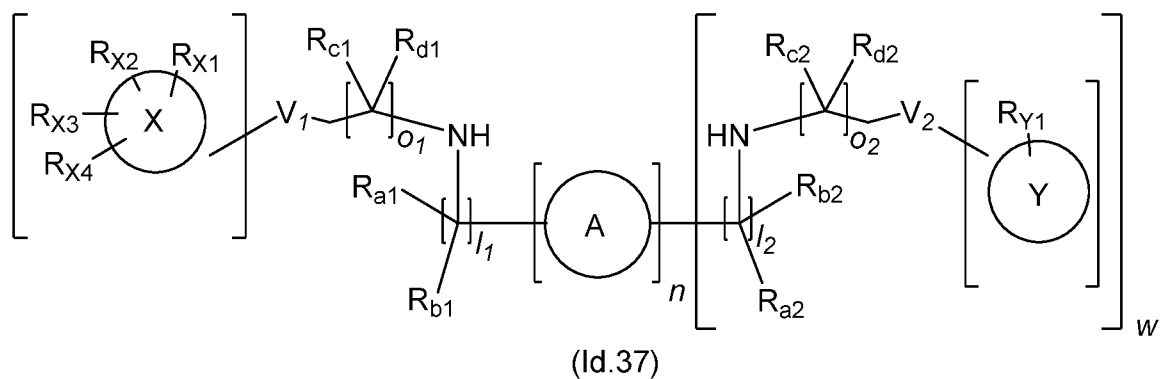
$$\left[\begin{array}{c} \text{R}_{X2} \quad \text{R}_{X1} \\ \text{X} \\ \text{V}_1 - \left[\begin{array}{c} \text{R}_{C1} \quad \text{R}_{D1} \\ \text{O}_1 \text{NH} \\ \text{R}_{A1} \quad \text{R}_{B1} \\ | \quad | \\ \text{I}_1 \end{array} \right] - \left[\text{A} \right]_n - \left[\begin{array}{c} \text{R}_{C2} \quad \text{R}_{D2} \\ \text{HN} \\ \text{R}_{B2} \quad \text{R}_{A2} \\ | \quad | \\ \text{I}_2 \end{array} \right] - \text{V}_2 - \left[\begin{array}{c} \text{R}_{Y1} \quad \text{R}_{Y2} \\ \text{Y} \\ \text{R}_{Y3} \end{array} \right] \end{array} \right]_w \quad (\text{Id.25})$$
$$\left[\begin{array}{c} \left[\begin{array}{c} R_{X2} \quad R_{X1} \\ \text{X} \end{array} \right] V_1 \left[\begin{array}{c} R_{C1} \quad R_{D1} \\ \text{O}_1 \end{array} \right] \text{NH} \\ \left[\begin{array}{c} R_{A1} \quad R_{B1} \\ I_1 \end{array} \right] \text{---} \left[\text{A} \right]_n \text{---} \left[\begin{array}{c} R_{B2} \quad R_{A2} \\ I_2 \end{array} \right] \text{HN} \\ V_2 \left[\begin{array}{c} R_{C2} \quad R_{D2} \\ \text{O}_2 \end{array} \right] \left[\begin{array}{c} R_{Y1} \quad R_{Y2} \\ R_{Y3} \quad R_{Y4} \\ \text{Y} \end{array} \right] \end{array} \right]_w$$

(Id.26)

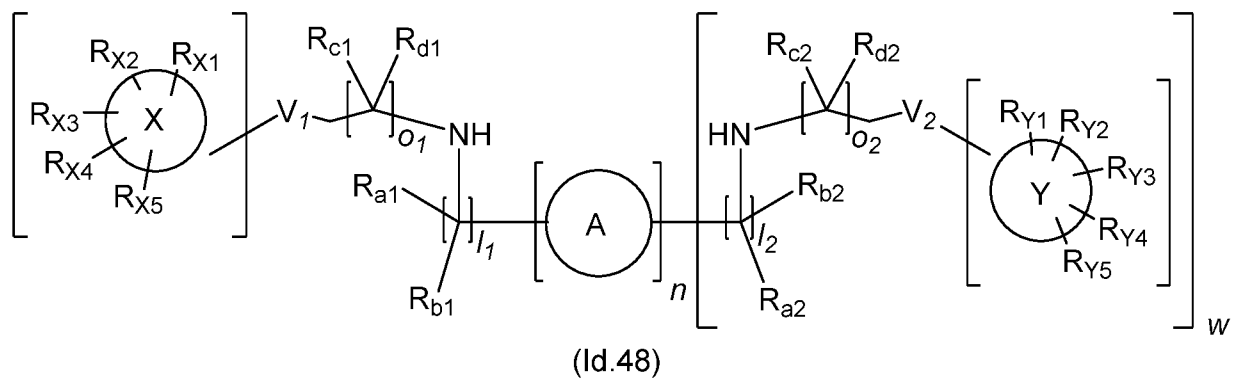
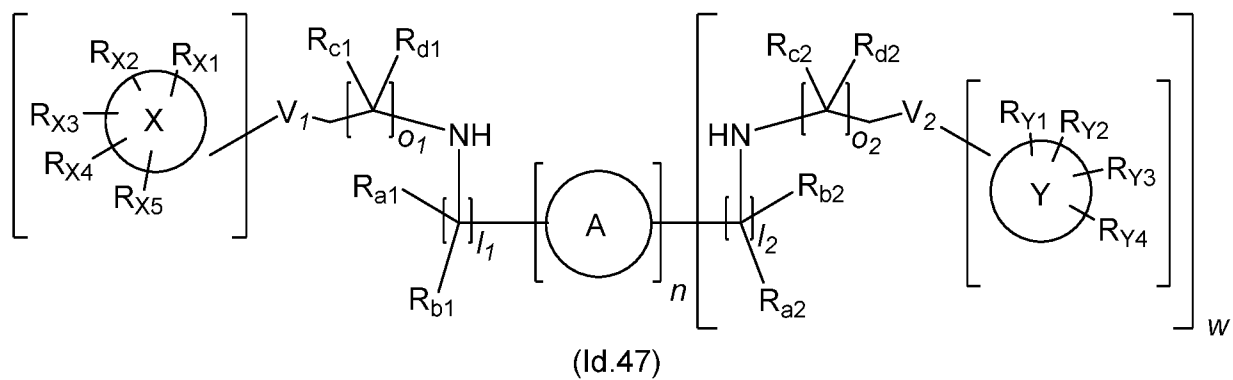
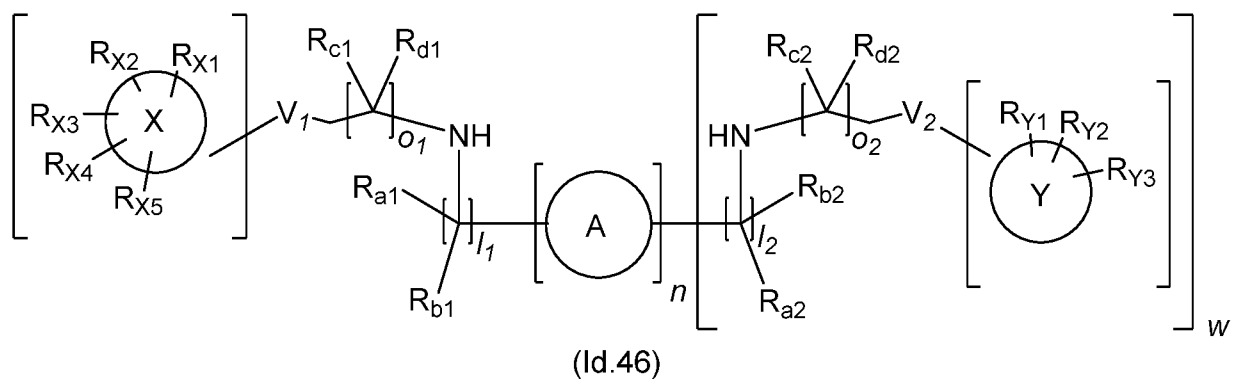
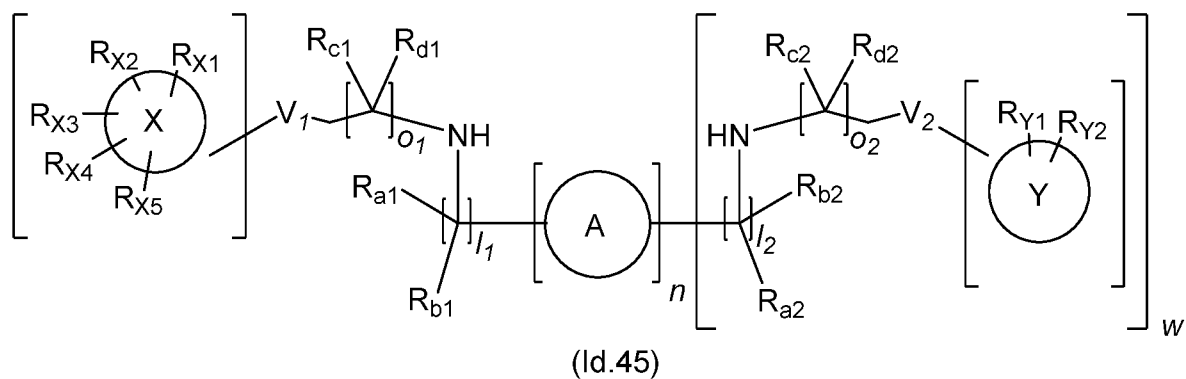
$$\left[\begin{array}{c} \text{R}_{X2} \quad \text{R}_{X1} \\ \text{X} \\ \text{V}_1 - \left[\begin{array}{c} \text{R}_{c1} \quad \text{R}_{d1} \\ \text{O}_1 \\ \text{NH} \end{array} \right] - \left[\begin{array}{c} \text{R}_{a1} \quad \text{R}_{b1} \\ | \quad | \\ \text{I}_1 \end{array} \right] - \left[\text{A} \right]_n - \left[\begin{array}{c} \text{R}_{b2} \quad \text{R}_{a2} \\ | \quad | \\ \text{I}_2 \end{array} \right] - \text{HN} - \left[\begin{array}{c} \text{R}_{c2} \quad \text{R}_{d2} \\ \text{O}_2 \\ \text{V}_2 - \left[\begin{array}{c} \text{R}_{Y1} \quad \text{R}_{Y2} \\ \text{Y} \\ \text{R}_{Y3} \quad \text{R}_{Y4} \\ \text{R}_{Y5} \end{array} \right] \end{array} \right] \end{array} \right]_w \quad (\text{Id.27})$$
$$\left[\begin{array}{c} \text{R}_{X2} \quad \text{R}_{X1} \\ \text{X} \end{array} \right] \text{V}_1 \left[\begin{array}{c} \text{R}_{C1} \quad \text{R}_{D1} \\ \text{O}_1 \quad \text{NH} \\ \text{R}_{A1} \quad \text{R}_{B1} \end{array} \right] \left[\text{I}_1 \right] \left[\text{A} \right]_n \left[\begin{array}{c} \text{R}_{C2} \quad \text{R}_{D2} \\ \text{HN} \quad \text{O}_2 \\ \text{R}_{B2} \quad \text{R}_{A2} \end{array} \right] \text{V}_2 \left[\begin{array}{c} \text{R}_{Y1} \quad \text{R}_{Y2} \\ \text{Y} \\ \text{R}_{Y3} \quad \text{R}_{Y4} \\ \text{R}_{Y6} \quad \text{R}_{Y5} \end{array} \right] \quad (Id.28)$$

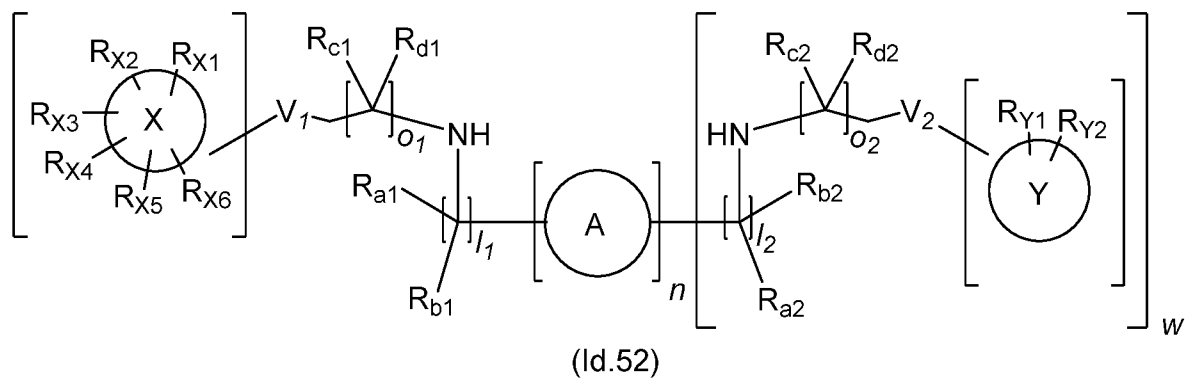
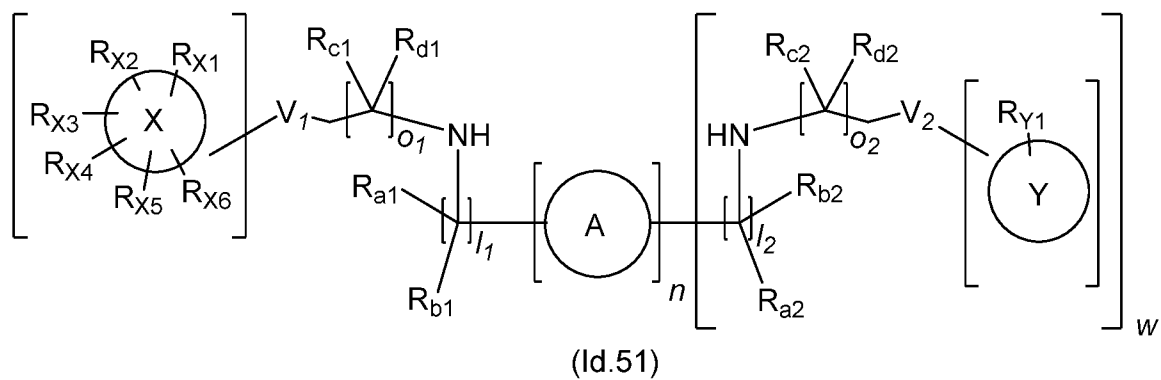
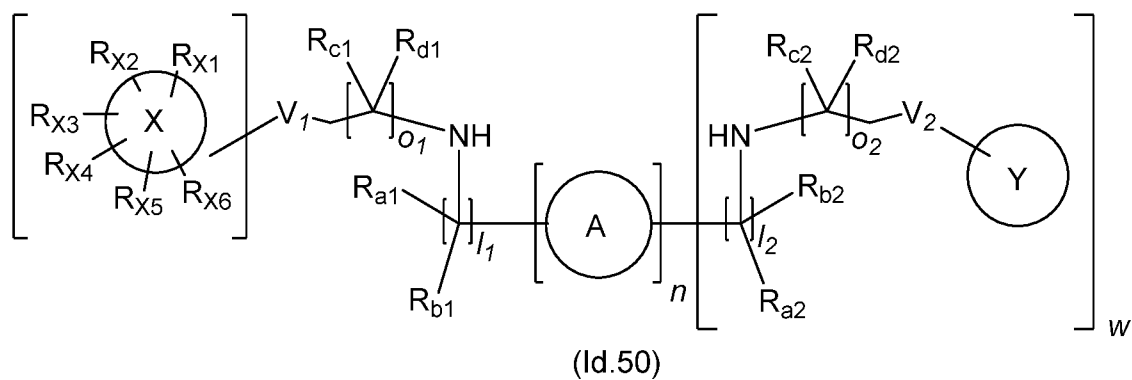
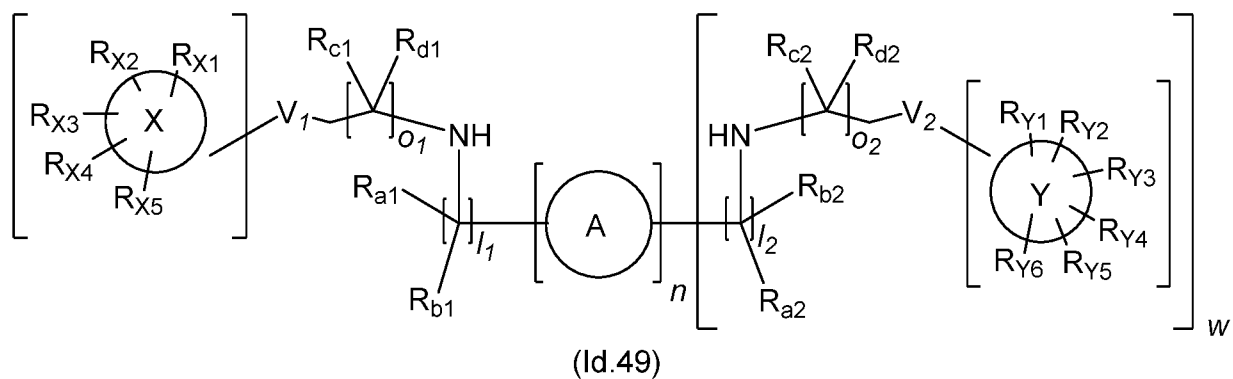


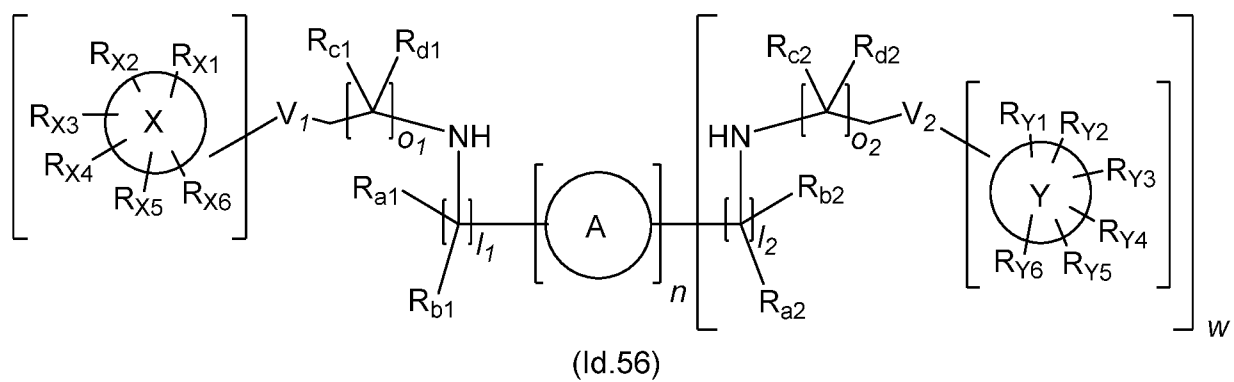
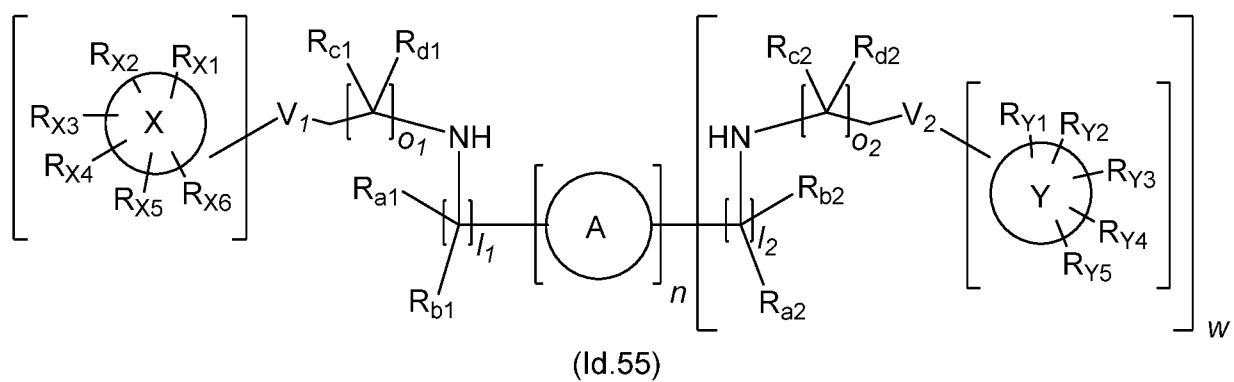
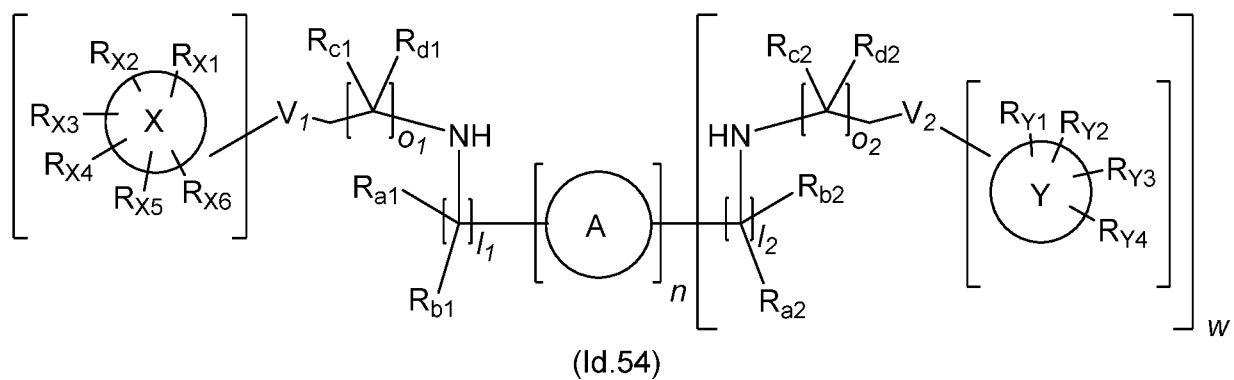
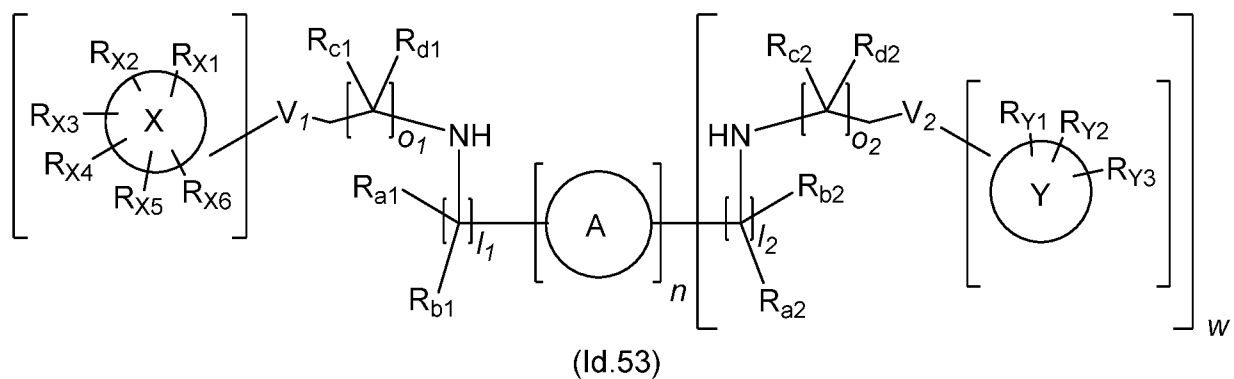


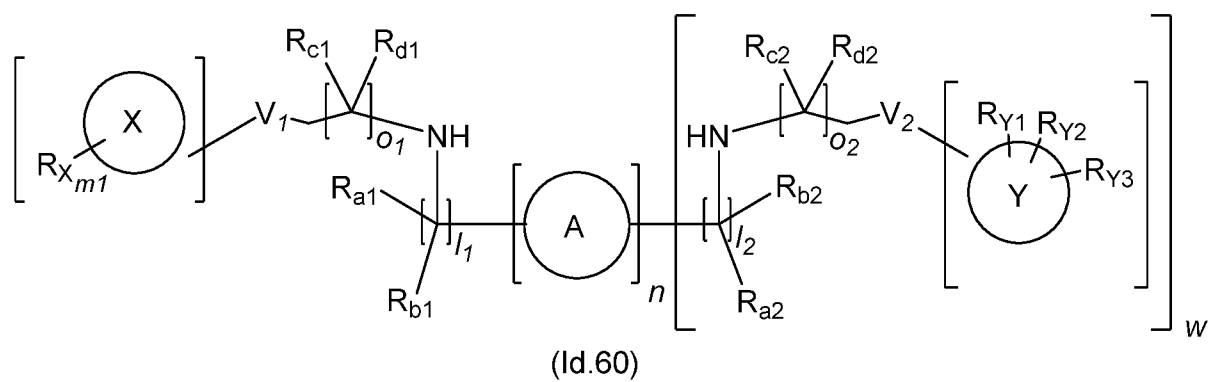
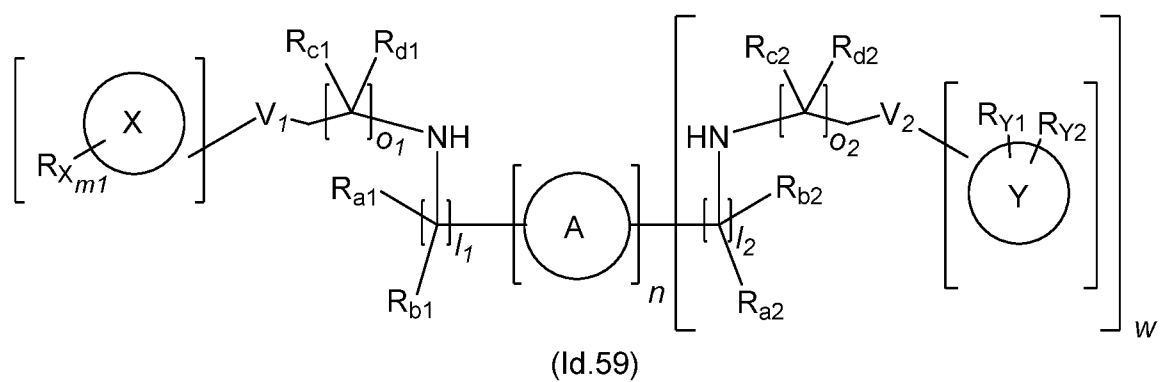
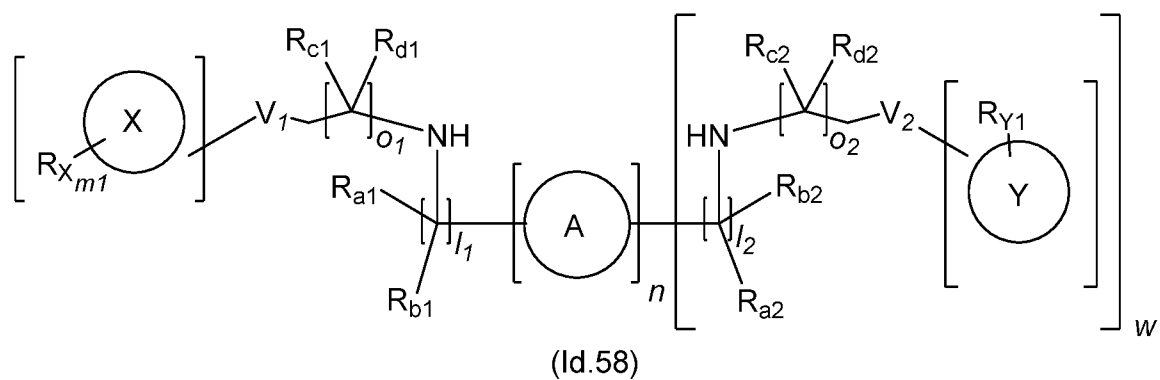
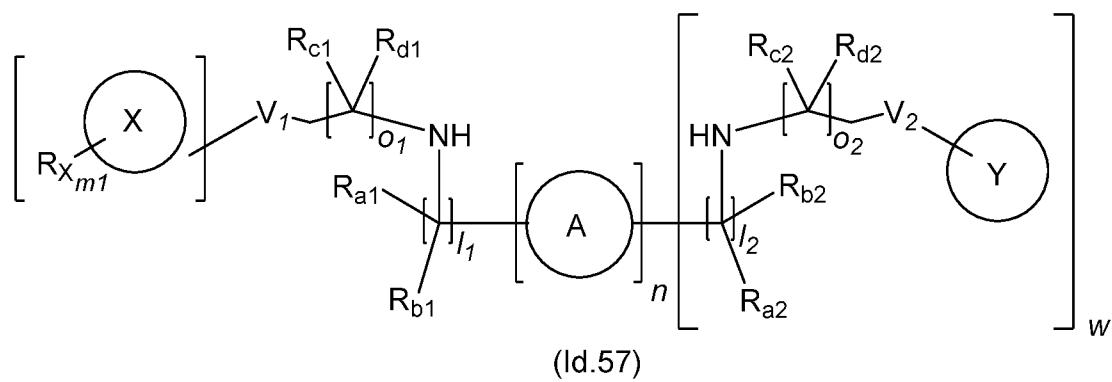


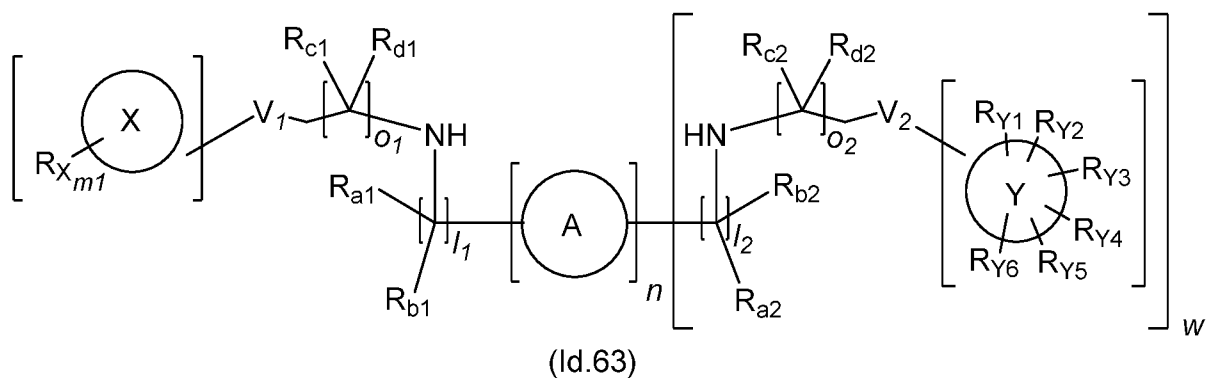
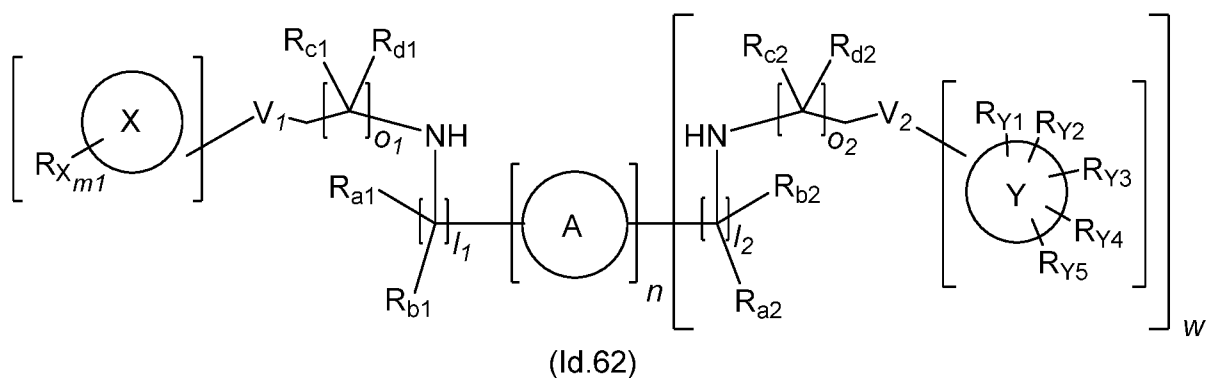
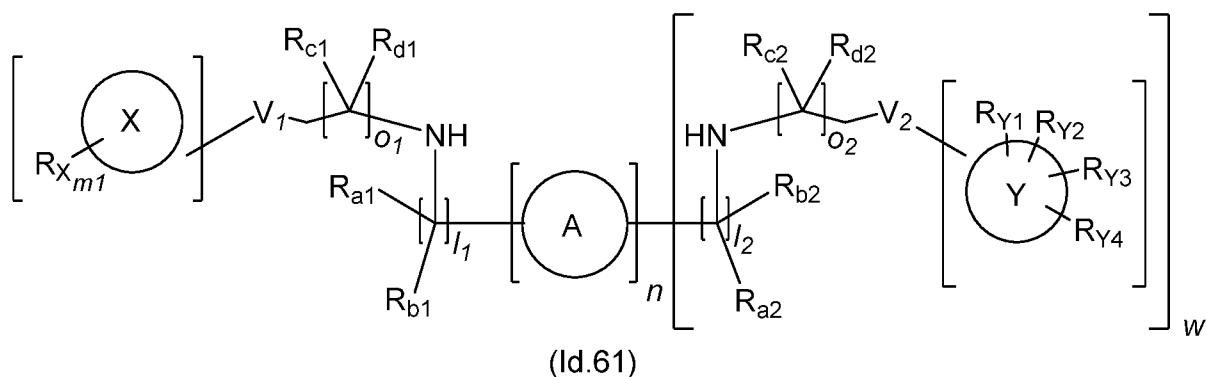












Variations of formulae (Id-Id.63) in which w is 1

[294] In some variations of formulae (Id)-(Id.63) in which w is 1, l_1 is 0. In some variations in which l_1 is 0, l_2 is 0. In some variations in which l_1 is 0, l_2 is 2. In some variations in which l_1 is 0, l_2 is 3. In some variations in which l_1 is 0, l_2 is 4. In some of the variations described in this paragraph, o_1 is 0. In some of the variations described in this paragraph, o_1 is 1. In some of the variations described in this paragraph, o_1 is 2. In some of the variations described in this paragraph, o_1 is 3. In some of the variations described in this paragraph, o_1 is 4.

[295] In some variations of formulae (Id)-(Id.63) in which w is 1, l_1 is 1. In some variations in which l_1 is 1, l_2 is 0. In some variations in which l_1 is 1, l_2 is 2. In some variations in which l_1 is 1, l_2 is 3. In some variations in which l_1 is 1, l_2 is 4. In some of the variations described in this

paragraph, $\mathbf{o}_1$ is 0. In some of the variations described in this paragraph, $\mathbf{o}_1$ is 1. In some of the variations described in this paragraph, $\mathbf{o}_1$ is 2. In some of the variations described in this paragraph, $\mathbf{o}_1$ is 3. In some of the variations described in this paragraph, $\mathbf{o}_1$ is 4.

[296] In some variations of formulae (Id)-(Id.63) in which w is 1, l_1 is 2. In some variations in which l_1 is 2, l_2 is 0. In some variations in which l_1 is 2, l_2 is 2. In some variations in which l_1 is 2, l_2 is 3. In some variations in which l_1 is 2, l_2 is 4. In some of the variations described in this paragraph, $\mathbf{o}_1$ is 0. In some of the variations described in this paragraph, $\mathbf{o}_1$ is 1. In some of the variations described in this paragraph, $\mathbf{o}_1$ is 2. In some of the variations described in this paragraph, $\mathbf{o}_1$ is 3. In some of the variations described in this paragraph, $\mathbf{o}_1$ is 4.

[297] In some variations of formulae (Id)-(Id.63) in which w is 1, l_1 is 3. In some variations in which l_1 is 3, l_2 is 0. In some variations in which l_1 is 3, l_2 is 2. In some variations in which l_1 is 3, l_2 is 3. In some variations in which l_1 is 3, l_2 is 4. In some of the variations described in this paragraph, $\mathbf{o}_1$ is 0. In some of the variations described in this paragraph, $\mathbf{o}_1$ is 1. In some of the variations described in this paragraph, $\mathbf{o}_1$ is 2. In some of the variations described in this paragraph, $\mathbf{o}_1$ is 3. In some of the variations described in this paragraph, $\mathbf{o}_1$ is 4.

[298] In some variations of formulae (Id)-(Id.63) in which w is 1, l_1 is 4. In some variations in which l_1 is 4, l_2 is 0. In some variations in which l_1 is 4, l_2 is 2. In some variations in which l_1 is 3, l_2 is 3. In some variations in which l_1 is 4, l_2 is 4. In some of the variations described in this paragraph, $\mathbf{o}_1$ is 0. In some of the variations described in this paragraph, $\mathbf{o}_1$ is 1. In some of the variations described in this paragraph, $\mathbf{o}_1$ is 2. In some of the variations described in this paragraph, $\mathbf{o}_1$ is 3. In some of the variations described in this paragraph, $\mathbf{o}_1$ is 4.

[299] In some of the variations described in the paragraphs above, $\mathbf{o}_2$ is 0. In some of the variations described in the paragraphs above, $\mathbf{o}_2$ is 1. In some of the variations described in the paragraphs above, $\mathbf{o}_2$ is 2. In some of the variations described in the paragraphs above, $\mathbf{o}_2$ is 3. In some of the variations described in the paragraphs above, $\mathbf{o}_2$ is 4.

Variations of formulae (Id)-(Id.63) in which w is 1 and l_1 is 1

[300] In some variations of formulae (Id)-(Id.63), l_1 is 1.

[301] In some variations, R_{a1} and R_{b1} are both H. In some variations, R_{a1} is H and R_{b1} is CH_3 .

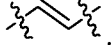
In some variations, R_{a1} and R_{b1} are both CH_3 . In some variations, R_{a1} and R_{b1} are . In

some variations, R_{a1} and R_{b1} are .

Variations of formulae (Id)-(Id.63) in which w is 1 and l_I is 2

[302] In variations of formulae (Id)-(Id.63) described in the paragraphs above in which l_I is 2, the two instances of R_{a1} and R_{b1} are indicated as $R_{a1.1}$ and $R_{b1.1}$ and $R_{a1.2}$ and $R_{b1.2}$, respectively.

[303] In some variations, each of $R_{a1.1}$ and $R_{b1.1}$ and $R_{a1.2}$ and $R_{b1.2}$ is H. In some variations, each of $R_{a1.1}$ and $R_{b1.1}$ and $R_{a1.2}$ and $R_{b1.2}$ is CH_3 . In some variations, each of $R_{a1.1}$ and $R_{a1.2}$ is H and each of $R_{b1.1}$ and $R_{b1.2}$ is CH_3 . In some variations, each of $R_{a1.1}$, $R_{a1.2}$, and $R_{b1.1}$ is H and $R_{b1.2}$ is CH_3 .

[304] In some variations, each of $R_{a1.1}$ and $R_{b1.1}$ is H and $R_{a1.2}$ and $R_{b1.2}$ are . In some variations, each of $R_{a1.1}$ and $R_{b1.1}$ is H and $R_{a1.2}$ and $R_{b1.2}$ are . In some variations, each of $R_{a1.1}$ and $R_{b1.1}$ is CH_3 and $R_{a1.2}$ and $R_{b1.2}$ are . In some variations, each of $R_{a1.1}$ and $R_{b1.1}$ is CH_3 and $R_{a1.2}$ and $R_{b1.2}$ are . In some variations, $R_{a1.1}$ is H, $R_{b1.1}$ is CH_3 , and $R_{a1.2}$ and $R_{b1.2}$ are . In some variations, $R_{a1.1}$ is H, $R_{b1.1}$ is CH_3 , and $R_{a1.2}$ and $R_{b1.2}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ and $R_{a1.2}$ and $R_{b1.2}$ together are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are  $R_{a1.2}$ and $R_{b1.2}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , and $R_{a1.2}$ and $R_{b1.2}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , and $R_{a1.2}$ and $R_{b1.2}$ are .

Variations of formulae (Id)-(Id.63) in which w is 1 and l_I is 3

[305] In variations, of formulae (Id)-(Id.63) in which l_I is 3, the three instances of R_a and R_b are indicated as $R_{a1.1}$ and $R_{b1.1}$; $R_{a1.2}$ and $R_{b1.2}$; and $R_{a1.3}$ and $R_{b1.3}$, respectively.

[306] In some variations, each of $R_{a1.1}$, $R_{b1.1}$, $R_{a1.2}$, $R_{b1.2}$, $R_{a1.3}$, and $R_{b1.3}$ is H. In some variations, each of $R_{a1.1}$, $R_{b1.1}$, $R_{a1.2}$, $R_{b1.2}$, $R_{a1.3}$, and $R_{b1.3}$ is CH₃. In some variations, each of $R_{a1.1}$, $R_{b1.1}$, $R_{a1.2}$, and $R_{b1.2}$, is H and each of $R_{a1.3}$ and $R_{b1.3}$ is CH₃. In some variations, each of $R_{a1.1}$, $R_{b1.1}$, $R_{a1.2}$, and $R_{b1.2}$, is CH₃ and each of $R_{a1.3}$ and $R_{b1.3}$ is H. In some variations, $R_{a1.1}$ is H and each of $R_{a1.2}$, $R_{a1.3}$, $R_{b1.1}$, $R_{b1.2}$, and $R_{b1.3}$ is CH₃. In some variations, each of $R_{a1.1}$ and $R_{a1.2}$ is H and each of $R_{a1.3}$, $R_{b1.1}$, $R_{b1.2}$, and $R_{b1.3}$ is CH₃. In some variations, each of $R_{a1.1}$, $R_{a1.2}$, and $R_{a1.3}$ is H and each of $R_{b1.1}$, $R_{b1.2}$, and $R_{b1.3}$ is CH₃

[307] In some variations, each of $R_{a1.1}$, $R_{b1.1}$, $R_{a1.2}$, and $R_{b1.2}$, is H and $R_{a1.3}$ and $R_{b1.3}$ are . In some variations, each of $R_{a1.1}$, $R_{b1.1}$, $R_{a1.2}$, and $R_{b1.2}$, is CH₃ and $R_{a1.3}$ and $R_{b1.3}$ are . In some variations, $R_{a1.1}$ is H and each of $R_{a1.2}$, $R_{b1.1}$, and $R_{b1.2}$ is CH₃, and $R_{a1.3}$ and $R_{b1.3}$ are . In some variations, each of $R_{a1.1}$ and $R_{a1.2}$ is H and each of $R_{b1.1}$ and $R_{b1.2}$ is CH₃, and $R_{a1.3}$ and $R_{b1.3}$ are .

[308] In some variations, each of $R_{a1.1}$, $R_{b1.1}$, $R_{a1.2}$, and $R_{b1.2}$, is H and $R_{a1.3}$ and $R_{b1.3}$ are . In some variations, each of $R_{a1.1}$, $R_{b1.1}$, $R_{a1.2}$, and $R_{b1.2}$, is CH₃ and $R_{a1.3}$ and $R_{b1.3}$ are . In some variations, $R_{a1.1}$ is H and each of $R_{a1.2}$, $R_{b1.1}$, and $R_{b1.2}$ is CH₃, and $R_{a1.3}$ and $R_{b1.3}$ are . In some variations, each of $R_{a1.1}$ and $R_{a1.2}$ is H and each of $R_{b1.1}$ and $R_{b1.2}$ is CH₃, and $R_{a1.3}$ and $R_{b1.3}$ are .

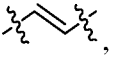
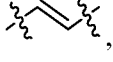
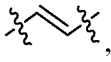
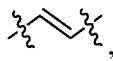
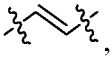
[309] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , and each of $R_{a1.3}$ and $R_{b1.3}$ is H. In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , and each of $R_{a1.3}$ and $R_{b1.3}$ is CH₃. In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ is H, and $R_{b1.3}$ is CH₃. In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are

, and each of **R_{a1.3}** and **R_{b1.3}** is H. In some variations, **R_{a1.1}** and **R_{b1.1}** are , **R_{a1.2}** and **R_{b1.2}** are , and each of **R_{a1.3}** and **R_{b1.3}** is CH₃. In some variations, **R_{a1.1}** and **R_{b1.1}** are , **R_{a1.2}** and **R_{b1.2}** are , **R_{a1.3}** is H, and **R_{b1.3}** is CH₃.

[310] In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are , and each of $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ is H. In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are , and each of $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ is CH_3 . In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are , $\mathbf{R}_{a1.3}$ is H, and $\mathbf{R}_{b1.3}$ is CH_3 . In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are , and each of $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ is H. In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are , and each of $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ is CH_3 . In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are , $\mathbf{R}_{a1.3}$ is H, and $\mathbf{R}_{b1.3}$ is CH_3 .

[311] In some variations, **R_{a1.1}** and **R_{b1.1}** are , **R_{a1.2}** and **R_{b1.2}** are , and each of **R_{a1.3}** and **R_{b1.3}** is H. In some variations, **R_{a1.1}** and **R_{b1.1}** are , **R_{a1.2}** and **R_{b1.2}** are , and each of **R_{a1.3}** and **R_{b1.3}** is CH₃. In some variations, **R_{a1.1}** and **R_{b1.1}** are , **R_{a1.2}** and **R_{b1.2}** are , **R_{a1.3}** is H, and **R_{b1.3}** is CH₃. In some variations, **R_{a1.1}** and **R_{b1.1}** are , **R_{a1.2}** and **R_{b1.2}** are , and each of **R_{a1.3}** and **R_{b1.3}** is H. In some variations, **R_{a1.1}** and **R_{b1.1}** are , **R_{a1.2}** and **R_{b1.2}** are , and each of **R_{a1.3}** and **R_{b1.3}** is H.

$\text{R}_{b1.2}$ are , and each of $\text{R}_{a1.3}$ and $\text{R}_{b1.3}$ is CH_3 . In some variations, $\text{R}_{a1.1}$ and $\text{R}_{b1.1}$ are , $\text{R}_{a1.2}$ and $\text{R}_{b1.2}$ are , $\text{R}_{a1.3}$ is H, and $\text{R}_{b1.3}$ is CH_3 .

[312] In some variations, $\text{R}_{a1.1}$ and $\text{R}_{b1.1}$ and $\text{R}_{a1.2}$ and $\text{R}_{b1.2}$ together are , and each of $\text{R}_{a1.3}$ and $\text{R}_{b1.3}$ is H. In some variations, $\text{R}_{a1.1}$ and $\text{R}_{b1.1}$ and $\text{R}_{a1.2}$ and $\text{R}_{b1.2}$ together are , and each of $\text{R}_{a1.3}$ and $\text{R}_{b1.3}$ is CH_3 . In some variations, $\text{R}_{a1.1}$ and $\text{R}_{b1.1}$ and $\text{R}_{a1.2}$ and $\text{R}_{b1.2}$ together are , $\text{R}_{a1.3}$ is H, and $\text{R}_{b1.3}$ is CH_3 . In some variations, $\text{R}_{a1.1}$ and $\text{R}_{b1.1}$ and $\text{R}_{a1.2}$ and $\text{R}_{b1.2}$ together are , and $\text{R}_{a1.3}$ and $\text{R}_{b1.3}$ are . In some variations, $\text{R}_{a1.1}$ and $\text{R}_{b1.1}$ and $\text{R}_{a1.2}$ and $\text{R}_{b1.2}$ together are , and $\text{R}_{a1.3}$ and $\text{R}_{b1.3}$ are .

Variations of formulae (Id)-(Id.63) in which w is 1 and l_I is 4

[313] In variations of formulae (Id)-(Id.63) in which l_I is 4, the four instances of R_{a1} and R_{b1} are indicated as $\text{R}_{a1.1}$ and $\text{R}_{b1.1}$; $\text{R}_{a1.2}$ and $\text{R}_{b1.2}$; $\text{R}_{a1.3}$ and $\text{R}_{b1.3}$; and $\text{R}_{a1.4}$ and $\text{R}_{b1.4}$, respectively.

[314] In variations of formulae (Id)-(Id.63) in which l_I is 4, the four instances of R_{a1} and R_{b1} are indicated as $\text{R}_{a1.1}$ and $\text{R}_{b1.1}$; $\text{R}_{a1.2}$ and $\text{R}_{b1.2}$; $\text{R}_{a1.3}$ and $\text{R}_{b1.3}$; and $\text{R}_{a1.4}$ and $\text{R}_{b1.4}$, respectively. In some variations, each of $\text{R}_{a1.1}$, $\text{R}_{b1.1}$, $\text{R}_{a1.2}$, $\text{R}_{b1.2}$, $\text{R}_{a1.3}$, $\text{R}_{b1.3}$, $\text{R}_{a1.4}$, and $\text{R}_{b1.4}$ is H. In some variations, each of $\text{R}_{a1.1}$, $\text{R}_{b1.1}$, $\text{R}_{a1.2}$, $\text{R}_{b1.2}$, $\text{R}_{a1.3}$, $\text{R}_{b1.3}$, $\text{R}_{a1.4}$, and $\text{R}_{b1.4}$ is CH_3 . In some variations, each of $\text{R}_{a1.1}$, $\text{R}_{b1.1}$, $\text{R}_{a1.2}$, $\text{R}_{b1.2}$, $\text{R}_{a1.3}$, and $\text{R}_{b1.3}$ is H and each of $\text{R}_{a1.4}$ and $\text{R}_{b1.4}$ is CH_3 . In some variations, each of $\text{R}_{a1.1}$, $\text{R}_{b1.1}$, $\text{R}_{a1.2}$, and $\text{R}_{b1.2}$ is H and each of $\text{R}_{a1.3}$, $\text{R}_{b1.3}$, $\text{R}_{a1.4}$, and $\text{R}_{b1.4}$ is CH_3 . In some variations, each of $\text{R}_{a1.1}$, $\text{R}_{b1.1}$, $\text{R}_{a1.2}$, $\text{R}_{b1.2}$, $\text{R}_{a1.3}$, and $\text{R}_{b1.3}$ is CH_3 and each of $\text{R}_{a1.4}$ and $\text{R}_{b1.4}$ is H.

[315] In some variations, each of $\text{R}_{a1.1}$, $\text{R}_{a1.2}$, and $\text{R}_{a1.3}$ is H and each of R_{b1} , R_{b2} , and $\text{R}_{b1.3}$ is CH_3 . In some variations, $\text{R}_{a1.1}$ is H, $\text{R}_{b1.1}$ is CH_3 , and each of $\text{R}_{a1.2}$, $\text{R}_{b1.2}$, $\text{R}_{a1.3}$, and $\text{R}_{b1.3}$ is CH_3 . In some variations, $\text{R}_{a1.1}$ is H, $\text{R}_{b1.1}$ is CH_3 , and each of $\text{R}_{a1.2}$, $\text{R}_{b1.2}$, $\text{R}_{a1.3}$, and $\text{R}_{b1.3}$ is H. In some variations, each of $\text{R}_{a1.1}$ and $\text{R}_{a1.2}$ is H, each of $\text{R}_{b1.1}$ and $\text{R}_{b1.2}$ is CH_3 , and each of $\text{R}_{a1.3}$ and $\text{R}_{b1.3}$ is H. In some variations, each of $\text{R}_{a1.1}$ and $\text{R}_{a1.2}$ is H, each of $\text{R}_{b1.1}$ and $\text{R}_{b1.2}$ is CH_3 , and each of $\text{R}_{a1.3}$ and $\text{R}_{b1.3}$ is CH_3 .

[316] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are H, $R_{a1.3}$ and $R_{b1.3}$ are H, and

$R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are H, $R_{a1.3}$ and $R_{b1.3}$ are CH₃, and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are CH₃, $R_{a1.3}$ and $R_{b1.3}$ are CH₃, and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are CH₃, $R_{a1.2}$ and $R_{b1.2}$ are CH₃, $R_{a1.3}$ and $R_{b1.3}$ are CH₃, and $R_{a1.4}$ and $R_{b1.4}$ are .

[317] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are H, $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are CH₃, $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are CH₃, $R_{a1.2}$ and $R_{b1.2}$ are CH₃, $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ is H, $R_{b1.1}$ is CH₃, $R_{a1.2}$ and $R_{b1.2}$ are CH₃, $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ is H, $R_{b1.1}$ is CH₃, $R_{a1.2}$ is H, $R_{b1.2}$ is CH₃, $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are .

[318] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are CH₃, $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ is H, $R_{b1.1}$ is CH₃, $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are .

[319] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are H, $R_{a1.3}$ and $R_{b1.3}$ are H, and

$R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are H, $R_{a1.3}$ and $R_{b1.3}$ are CH₃, and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$

and $R_{b1.2}$ are CH_3 , $R_{a1.3}$ and $R_{b1.3}$ are CH_3 , and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are CH_3 , $R_{a1.2}$ and $R_{b1.2}$ are CH_3 , $R_{a1.3}$ and $R_{b1.3}$ are CH_3 , and $R_{a1.4}$ and $R_{b1.4}$ are .

[320] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are H, $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are CH_3 , $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are CH_3 , $R_{a1.2}$ and $R_{b1.2}$ are CH_3 , $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ is H, $R_{b1.1}$ is CH_3 , $R_{a1.2}$ and $R_{b1.2}$ are CH_3 , $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ is H, $R_{b1.1}$ is CH_3 , $R_{a1.2}$ is H, $R_{b1.2}$ is CH_3 , $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are .

[321] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are CH_3 , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ is H, $R_{b1.1}$ is CH_3 , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are .

[322] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are H, $R_{a1.3}$ and $R_{b1.3}$ are H, and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are

CH_3 , $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are CH_3 , and $\mathbf{R}_{a1.4}$ and $\mathbf{R}_{b1.4}$ are . In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are H, $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are CH_3 , and $\mathbf{R}_{a1.4}$ and $\mathbf{R}_{b1.4}$ are .

[323] In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are , $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are H, and $\mathbf{R}_{a1.4}$ and $\mathbf{R}_{b1.4}$ are . In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are , $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are CH_3 , and $\mathbf{R}_{a1.4}$ and $\mathbf{R}_{b1.4}$ are . In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are , $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are CH_3 , and $\mathbf{R}_{a1.4}$ and $\mathbf{R}_{b1.4}$ are . In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are , $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are H, and $\mathbf{R}_{a1.4}$ and $\mathbf{R}_{b1.4}$ are .

[324] In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are , $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are , and $\mathbf{R}_{a1.4}$ and $\mathbf{R}_{b1.4}$ are .

[325] In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are , $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are H, and $\mathbf{R}_{a1.4}$ and $\mathbf{R}_{b1.4}$ are . In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are , $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are CH_3 , and $\mathbf{R}_{a1.4}$ and $\mathbf{R}_{b1.4}$ are . In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are , $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are CH_3 , and $\mathbf{R}_{a1.4}$ and $\mathbf{R}_{b1.4}$ are . In some variations, $\mathbf{R}_{a1.1}$ and $\mathbf{R}_{b1.1}$ are , $\mathbf{R}_{a1.2}$ and $\mathbf{R}_{b1.2}$ are , $\mathbf{R}_{a1.3}$ and $\mathbf{R}_{b1.3}$ are H, and $\mathbf{R}_{a1.4}$ and $\mathbf{R}_{b1.4}$ are .

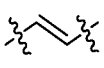
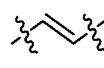
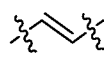
[326] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are .

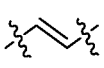
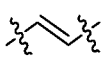
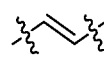
[327] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are H, and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are CH₃, and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are CH₃, and $R_{a1.4}$ and $R_{b1.4}$ are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are H, and $R_{a1.4}$ and $R_{b1.4}$ are .

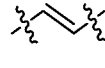
[328] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , $R_{a1.3}$ and $R_{b1.3}$ are , and $R_{a1.4}$ and $R_{b1.4}$ are .

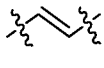
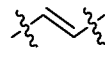
[329] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are H, and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are CH₃, and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are CH₃, and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are .

[330] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are , and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are CH₃, and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are . In some variations, $R_{a1.1}$ is H, $R_{b1.1}$ is CH₃, $R_{a1.2}$ and $R_{b1.2}$ are , and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are .

[331] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are H, $R_{a1.2}$ and $R_{b1.2}$ are , and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are CH₃, and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are . In some variations, $R_{a1.1}$ is H, $R_{b1.1}$ is CH₃, $R_{a1.2}$ and $R_{b1.2}$ are , and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are .

[332] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are . In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are .

[333] In some variations, $R_{a1.1}$ and $R_{b1.1}$ are , $R_{a1.2}$ and $R_{b1.2}$ are , and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are .

[334] In some variations, $R_{a1.1}$ and $R_{b1.1}$ and $R_{a1.2}$ and $R_{b1.2}$ together are , and $R_{a1.3}$ and $R_{b1.3}$ and $R_{a1.4}$ and $R_{b1.4}$ together are .

Variations of formulae (Id)-(Id.63) in which w is 1 and l_1 is 1, 2, 3, or 4 and l_2 is 1

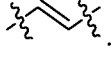
[335] In some variations, R_{a2} and R_{b2} are both H. In some variations, R_{a2} is H and R_{b2} is CH₃.

In some variations, R_{a2} and R_{b2} are both CH₃. In some variations, R_{a2} and R_{b2} are . In some variations, R_{a2} and R_{b2} are .

Variations of formulae (Id)-(Id.63) in which w is 1 and l_1 is 1, 2, 3, or 4 as described above, and l_2 is 2

[336] In variations of formulae (Id)-(Id.63) described in the paragraphs above in which l_1 is 2, the two instances of R_{a2} and R_{b2} are indicated as $R_{a2.1}$ and $R_{b2.1}$ and $R_{a2.2}$ and $R_{b2.2}$, respectively.

[337] In some variations, each of $R_{a2.1}$ and $R_{b2.1}$ and $R_{a2.2}$ and $R_{b2.2}$ is H. In some variations, each of $R_{a2.1}$ and $R_{b2.1}$ and $R_{a2.2}$ and $R_{b2.2}$ is CH_3 . In some variations, each of $R_{a2.1}$ and $R_{a2.2}$ is H and each of $R_{b2.1}$ and $R_{b2.2}$ is CH_3 . In some variations, each of $R_{a2.1}$, $R_{a2.2}$, and $R_{b2.1}$ is H and $R_{b2.2}$ is CH_3 .

[338] In some variations, each of $R_{a2.1}$ and $R_{b2.1}$ is H and $R_{a2.2}$ and $R_{b2.2}$ are . In some variations, each of $R_{a2.1}$ and $R_{b2.1}$ is H and $R_{a2.2}$ and $R_{b2.2}$ are . In some variations, each of $R_{a2.1}$ and $R_{b2.1}$ is CH_3 and $R_{a2.2}$ and $R_{b2.2}$ are . In some variations, each of $R_{a2.1}$ and $R_{b2.1}$ is CH_3 and $R_{a2.2}$ and $R_{b2.2}$ are . In some variations, $R_{a2.1}$ is H, $R_{b2.1}$ is CH_3 , and $R_{a2.2}$ and $R_{b2.2}$ are . In some variations, $R_{a2.1}$ is H, $R_{b2.1}$ is CH_3 , and $R_{a2.2}$ and $R_{b2.2}$ are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ and $R_{a2.2}$ and $R_{b2.2}$ together are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are  $R_{a2.2}$ and $R_{b2.2}$ are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , and $R_{a2.2}$ and $R_{b2.2}$ are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , and $R_{a2.2}$ and $R_{b2.2}$ are .

Variations of formulae (Id)-(Id.63) in which w is 1 and l_1 is 1, 2, 3, or 4 and l_2 is 3

[339] In variations, of formulae (Id)-(Id.63) in which l_1 is 3, the three instances of R_a and R_b are indicated as $R_{a2.1}$ and $R_{b2.1}$; $R_{a2.2}$ and $R_{b2.2}$; and $R_{a2.3}$ and $R_{b2.3}$, respectively.

[340] In some variations, each of $R_{a2.1}$, $R_{b2.1}$, $R_{a2.2}$, $R_{b2.2}$, $R_{a2.3}$, and $R_{b2.3}$ is H. In some variations, each of $R_{a2.1}$, $R_{b2.1}$, $R_{a2.2}$, $R_{b2.2}$, $R_{a2.3}$, and $R_{b2.3}$ is CH_3 . In some variations, each of $R_{a2.1}$, $R_{b2.1}$, $R_{a2.2}$, and $R_{b2.2}$, is H and each of $R_{a2.3}$ and $R_{b2.3}$ is CH_3 . In some variations, each of $R_{a2.1}$, $R_{b2.1}$, $R_{a2.2}$, and $R_{b2.2}$, is CH_3 and each of $R_{a2.3}$ and $R_{b2.3}$ is H. In some variations, $R_{a2.1}$ is H and each of $R_{a2.2}$, $R_{a2.3}$, $R_{b2.1}$, $R_{b2.2}$, and $R_{b2.3}$ is CH_3 . In some variations, each of $R_{a2.1}$ and $R_{a2.2}$ is H and each of $R_{a2.3}$, $R_{b2.1}$, $R_{b2.2}$, and $R_{b2.3}$ is CH_3 . In some variations, each of $R_{a2.1}$, $R_{a2.2}$, and $R_{a2.3}$ is H and each of $R_{b2.1}$, $R_{b2.2}$, and $R_{b2.3}$ is CH_3 .

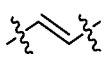
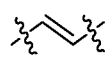
[341] In some variations, each of $R_{a2.1}$, $R_{b2.1}$, $R_{a2.2}$, and $R_{b2.2}$, is H and $R_{a2.3}$ and $R_{b2.3}$ are . In some variations, each of $R_{a2.1}$, $R_{b2.1}$, $R_{a2.2}$, and $R_{b2.2}$, is CH₃ and $R_{a2.3}$ and $R_{b2.3}$ are . In some variations, $R_{a2.1}$ is H and each of $R_{a2.2}$, $R_{b2.1}$, and $R_{b2.2}$ is CH₃, and $R_{a2.3}$ and $R_{b2.3}$ are . In some variations, each of $R_{a2.1}$ and $R_{a2.2}$ is H and each of $R_{b2.1}$ and $R_{b2.2}$ is CH₃, and $R_{a2.3}$ and $R_{b2.3}$ are .

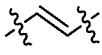
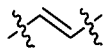
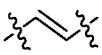
[342] In some variations, each of $R_{a2.1}$, $R_{b2.1}$, $R_{a2.2}$, and $R_{b2.2}$, is H and $R_{a2.3}$ and $R_{b2.3}$ are . In some variations, each of $R_{a2.1}$, $R_{b2.1}$, $R_{a2.2}$, and $R_{b2.2}$, is CH₃ and $R_{a2.3}$ and $R_{b2.3}$ are . In some variations, $R_{a2.1}$ is H and each of $R_{a2.2}$, $R_{b2.1}$, and $R_{b2.2}$ is CH₃, and $R_{a2.3}$ and $R_{b2.3}$ are . In some variations, each of $R_{a2.1}$ and $R_{a2.2}$ is H and each of $R_{b2.1}$ and $R_{b2.2}$ is CH₃, and $R_{a2.3}$ and $R_{b2.3}$ are .

[343] In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is H. In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is CH₃. In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ is H, and $R_{b2.3}$ is CH₃. In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is H. In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is CH₃. In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ is H, and $R_{b2.3}$ is CH₃.

[344] In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is H. In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is CH_3 . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ is H, and $R_{b2.3}$ is CH_3 . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is H. In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is CH_3 . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ is H, and $R_{b2.3}$ is CH_3 .

[345] In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is H. In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is CH_3 . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ is H, and $R_{b2.3}$ is CH_3 . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is H. In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and each of $R_{a2.3}$ and $R_{b2.3}$ is CH_3 . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ is H, and $R_{b2.3}$ is CH_3 .

[346] In some variations, $R_{a2.1}$ and $R_{b2.1}$ and $R_{a2.2}$ and $R_{b2.2}$ together are , and each of $R_{a2.3}$ and $R_{b2.3}$ is H. In some variations, $R_{a2.1}$ and $R_{b2.1}$ and $R_{a2.2}$ and $R_{b2.2}$ together are , and each of $R_{a2.3}$ and $R_{b2.3}$ is CH_3 . In some variations, $R_{a2.1}$ and $R_{b2.1}$ and $R_{a2.2}$ and $R_{b2.2}$ together are

are , $\mathbf{R}_{a2.3}$ is H, and $\mathbf{R}_{b2.3}$ is CH₃. In some variations, $\mathbf{R}_{a2.1}$ and $\mathbf{R}_{b2.1}$ and $\mathbf{R}_{a2.2}$ and $\mathbf{R}_{b2.2}$ together are , and $\mathbf{R}_{a2.3}$ and $\mathbf{R}_{b2.3}$ are . In some variations, $\mathbf{R}_{a2.1}$ and $\mathbf{R}_{b2.1}$ and $\mathbf{R}_{a2.2}$ and $\mathbf{R}_{b2.2}$ together are , and $\mathbf{R}_{a2.3}$ and $\mathbf{R}_{b2.3}$ are .

**Variations of formulae (Id)-(Id.63) in which w is 1
and l_1 is 1, 2, 3, or 4 as described above, and l_2 is 3**

[347] In variations of formulae (Id)-(Id.63) in which l_1 is 4, the four instances of $\mathbf{R}_{a2}$ and $\mathbf{R}_{b2}$ are indicated as $\mathbf{R}_{a2.1}$ and $\mathbf{R}_{b2.1}$; $\mathbf{R}_{a2.2}$ and $\mathbf{R}_{b2.2}$; $\mathbf{R}_{a2.3}$ and $\mathbf{R}_{b2.3}$; and $\mathbf{R}_{a2.4}$ and $\mathbf{R}_{b2.4}$, respectively.

[348] In some variations, each of $\mathbf{R}_{a2.1}$, $\mathbf{R}_{b2.1}$, $\mathbf{R}_{a2.2}$, $\mathbf{R}_{b2.2}$, $\mathbf{R}_{a2.3}$, $\mathbf{R}_{b2.3}$, $\mathbf{R}_{a2.4}$, and $\mathbf{R}_{b2.4}$ is H. In some variations, each of $\mathbf{R}_{a2.1}$, $\mathbf{R}_{b2.1}$, $\mathbf{R}_{a2.2}$, $\mathbf{R}_{b2.2}$, $\mathbf{R}_{a2.3}$, $\mathbf{R}_{b2.3}$, $\mathbf{R}_{a2.4}$, and $\mathbf{R}_{b2.4}$ is CH₃. In some variations, each of $\mathbf{R}_{a2.1}$, $\mathbf{R}_{b2.1}$, $\mathbf{R}_{a2.2}$, $\mathbf{R}_{b2.2}$, $\mathbf{R}_{a2.3}$, and $\mathbf{R}_{b2.3}$ is H and each of $\mathbf{R}_{a2.4}$ and $\mathbf{R}_{b2.4}$ is CH₃. In some variations, each of $\mathbf{R}_{a2.1}$, $\mathbf{R}_{b2.1}$, $\mathbf{R}_{a2.2}$, and $\mathbf{R}_{b2.2}$ is H and each of $\mathbf{R}_{a2.3}$, $\mathbf{R}_{b2.3}$, $\mathbf{R}_{a2.4}$, and $\mathbf{R}_{b2.4}$ is CH₃. In some variations, each of $\mathbf{R}_{a2.1}$, $\mathbf{R}_{b2.1}$, $\mathbf{R}_{a2.2}$, $\mathbf{R}_{b2.2}$, $\mathbf{R}_{a2.3}$, and $\mathbf{R}_{b2.3}$ is CH₃ and each of $\mathbf{R}_{a2.4}$ and $\mathbf{R}_{b2.4}$ is H.

[349] In some variations, each of $\mathbf{R}_{a2.1}$, $\mathbf{R}_{a2.2}$, and $\mathbf{R}_{a2.3}$ is H and each of $\mathbf{R}_{b2.1}$, $\mathbf{R}_{b2.2}$, and $\mathbf{R}_{b2.3}$ is CH₃. In some variations, $\mathbf{R}_{a2.1}$ is H, $\mathbf{R}_{b2.1}$ is CH₃, and each of $\mathbf{R}_{a2.2}$, $\mathbf{R}_{b2.2}$, $\mathbf{R}_{a2.3}$, and $\mathbf{R}_{b2.3}$ is CH₃. In some variations, $\mathbf{R}_{a2.1}$ is H, $\mathbf{R}_{b2.1}$ is CH₃, and each of $\mathbf{R}_{a2.2}$, $\mathbf{R}_{b2.2}$, $\mathbf{R}_{a2.3}$, and $\mathbf{R}_{b2.3}$ is H. In some variations, each of $\mathbf{R}_{a2.1}$ and $\mathbf{R}_{a2.2}$ is H, each of $\mathbf{R}_{b2.1}$ and $\mathbf{R}_{b2.2}$ is CH₃, and each of $\mathbf{R}_{a2.3}$ and $\mathbf{R}_{b2.3}$ is H. In some variations, each of $\mathbf{R}_{a2.1}$ and $\mathbf{R}_{a2.2}$ is H, each of $\mathbf{R}_{b2.1}$ and $\mathbf{R}_{b2.2}$ is CH₃, and each of $\mathbf{R}_{a2.3}$ and $\mathbf{R}_{b2.3}$ is CH₃.

[350] In some variations, $\mathbf{R}_{a2.1}$ and $\mathbf{R}_{b2.1}$ are H, $\mathbf{R}_{a2.2}$ and $\mathbf{R}_{b2.2}$ are H, $\mathbf{R}_{a2.3}$ and $\mathbf{R}_{b2.3}$ are H, and

$\mathbf{R}_{a2.4}$ and $\mathbf{R}_{b2.4}$ are . In some variations, $\mathbf{R}_{a2.1}$ and $\mathbf{R}_{b2.1}$ are H, $\mathbf{R}_{a2.2}$ and $\mathbf{R}_{b2.2}$ are H, $\mathbf{R}_{a2.3}$ and $\mathbf{R}_{b2.3}$ are CH₃, and $\mathbf{R}_{a2.4}$ and $\mathbf{R}_{b2.4}$ are . In some variations, $\mathbf{R}_{a2.1}$ and $\mathbf{R}_{b2.1}$ are H, $\mathbf{R}_{a2.2}$ and $\mathbf{R}_{b2.2}$ are CH₃, $\mathbf{R}_{a2.3}$ and $\mathbf{R}_{b2.3}$ are CH₃, and $\mathbf{R}_{a2.4}$ and $\mathbf{R}_{b2.4}$ are . In some variations, $\mathbf{R}_{a2.1}$ and $\mathbf{R}_{b2.1}$ are CH₃, $\mathbf{R}_{a2.2}$ and $\mathbf{R}_{b2.2}$ are CH₃, $\mathbf{R}_{a2.3}$ and $\mathbf{R}_{b2.3}$ are CH₃, and $\mathbf{R}_{a2.4}$ and $\mathbf{R}_{b2.4}$ are .

[351] In some variations, $R_{a2.1}$ and $R_{b2.1}$ are H, $R_{a2.2}$ and $R_{b2.2}$ are H, $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are H, $R_{a2.2}$ and $R_{b2.2}$ are CH₃, $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are CH₃, $R_{a2.2}$ and $R_{b2.2}$ are CH₃, $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ is H, $R_{b2.1}$ is CH₃, $R_{a2.2}$ and $R_{b2.2}$ are CH₃, $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ is H, $R_{b2.1}$ is CH₃, $R_{a2.2}$ is H, $R_{b2.2}$ is CH₃, $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are .

[352] In some variations, $R_{a2.1}$ and $R_{b2.1}$ are H, $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are CH₃, $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ is H, $R_{b2.1}$ is CH₃, $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are .

[353] In some variations, $R_{a2.1}$ and $R_{b2.1}$ are H, $R_{a2.2}$ and $R_{b2.2}$ are H, $R_{a2.3}$ and $R_{b2.3}$ are H, and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are H, $R_{a2.2}$ and $R_{b2.2}$ are H, $R_{a2.3}$ and $R_{b2.3}$ are CH₃, and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are H, $R_{a2.2}$ and $R_{b2.2}$ are CH₃, $R_{a2.3}$ and $R_{b2.3}$ are CH₃, and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are CH₃, $R_{a2.2}$ and $R_{b2.2}$ are CH₃, $R_{a2.3}$ and $R_{b2.3}$ are CH₃, and $R_{a2.4}$ and $R_{b2.4}$ are .

[354] In some variations, $R_{a2.1}$ and $R_{b2.1}$ are H, $R_{a2.2}$ and $R_{b2.2}$ are H, $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are H, $R_{a2.2}$ and $R_{b2.2}$ are CH₃, $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are CH₃, $R_{a2.2}$ and $R_{b2.2}$ are CH₃, $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ is H, $R_{b2.1}$ is CH₃, $R_{a2.2}$ and $R_{b2.2}$ are CH₃, $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ is H, $R_{b2.1}$ is CH₃, $R_{a2.2}$ is H, $R_{b2.2}$ is CH₃, $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are .

[355] In some variations, $R_{a2.1}$ and $R_{b2.1}$ are H, $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are CH₃, $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ is H, $R_{b2.1}$ is CH₃, $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are .

[356] In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are H, $R_{a2.3}$ and $R_{b2.3}$ are H, and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are

CH₃, **R**_{a2.3} and **R**_{b2.3} are CH₃, and **R**_{a2.4} and **R**_{b2.4} are . In some variations, **R**_{a2.1} and **R**_{b2.1} are , **R**_{a2.2} and **R**_{b2.2} are H, **R**_{a2.3} and **R**_{b2.3} are CH₃, and **R**_{a2.4} and **R**_{b2.4} are .

[357] In some variations, **R**_{a2.1} and **R**_{b2.1} are , **R**_{a2.2} and **R**_{b2.2} are , **R**_{a2.3} and **R**_{b2.3} are H, and **R**_{a2.4} and **R**_{b2.4} are . In some variations, **R**_{a2.1} and **R**_{b2.1} are , **R**_{a2.2} and **R**_{b2.2} are , **R**_{a2.3} and **R**_{b2.3} are CH₃, and **R**_{a2.4} and **R**_{b2.4} are . In some variations, **R**_{a2.1} and **R**_{b2.1} are , **R**_{a2.2} and **R**_{b2.2} are , **R**_{a2.3} and **R**_{b2.3} are CH₃, and **R**_{a2.4} and **R**_{b2.4} are . In some variations, **R**_{a2.1} and **R**_{b2.1} are , **R**_{a2.2} and **R**_{b2.2} are , **R**_{a2.3} and **R**_{b2.3} are H, and **R**_{a2.4} and **R**_{b2.4} are .

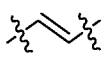
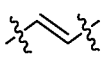
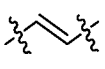
[358] In some variations, **R**_{a2.1} and **R**_{b2.1} are , **R**_{a2.2} and **R**_{b2.2} are , **R**_{a2.3} and **R**_{b2.3} are , and **R**_{a2.4} and **R**_{b2.4} are .

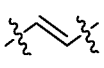
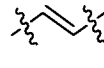
[359] In some variations, **R**_{a2.1} and **R**_{b2.1} are , **R**_{a2.2} and **R**_{b2.2} are , **R**_{a2.3} and **R**_{b2.3} are H, and **R**_{a2.4} and **R**_{b2.4} are . In some variations, **R**_{a2.1} and **R**_{b2.1} are , **R**_{a2.2} and **R**_{b2.2} are , **R**_{a2.3} and **R**_{b2.3} are CH₃, and **R**_{a2.4} and **R**_{b2.4} are . In some variations, **R**_{a2.1} and **R**_{b2.1} are , **R**_{a2.2} and **R**_{b2.2} are , **R**_{a2.3} and **R**_{b2.3} are CH₃, and **R**_{a2.4} and **R**_{b2.4} are . In some variations, **R**_{a2.1} and **R**_{b2.1} are , **R**_{a2.2} and **R**_{b2.2} are , **R**_{a2.3} and **R**_{b2.3} are H, and **R**_{a2.4} and **R**_{b2.4} are .

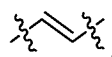
[360] In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are .

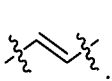
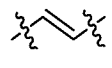
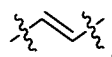
[361] In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ and $R_{b2.3}$ are H, and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ and $R_{b2.3}$ are CH₃, and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ and $R_{b2.3}$ are CH₃, and $R_{a2.4}$ and $R_{b2.4}$ are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ and $R_{b2.3}$ are H, and $R_{a2.4}$ and $R_{b2.4}$ are .

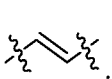
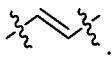
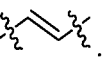
[362] In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , $R_{a2.3}$ and $R_{b2.3}$ are , and $R_{a2.4}$ and $R_{b2.4}$ are .

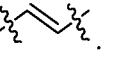
[363] In some variations, $R_{a2.1}$ and $R_{b2.1}$ are H, $R_{a2.2}$ and $R_{b2.2}$ are H, and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are H, $R_{a2.2}$ and $R_{b2.2}$ are CH₃, and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are H, $R_{a2.2}$ and $R_{b2.2}$ are CH₃, and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are .

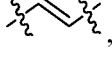
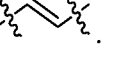
[364] In some variations, $R_{a2.1}$ and $R_{b2.1}$ are H, $R_{a2.2}$ and $R_{b2.2}$ are , and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are CH₃, and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are . In some variations,

$R_{a2.1}$ is H, $R_{b2.1}$ is CH₃, $R_{a2.2}$ and $R_{b2.2}$ are , and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are .

[365] In some variations, $R_{a2.1}$ and $R_{b2.1}$ are H, $R_{a2.2}$ and $R_{b2.2}$ are , and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are CH₃, and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are . In some variations, $R_{a2.1}$ is H, $R_{b2.1}$ is CH₃, $R_{a2.2}$ and $R_{b2.2}$ are , and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are .

[366] In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are . In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are .

[367] In some variations, $R_{a2.1}$ and $R_{b2.1}$ are , $R_{a2.2}$ and $R_{b2.2}$ are , and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are .

[368] In some variations, $R_{a2.1}$ and $R_{b2.1}$ and $R_{a2.2}$ and $R_{b2.2}$ together are , and $R_{a2.3}$ and $R_{b2.3}$ and $R_{a2.4}$ and $R_{b2.4}$ together are .

**Variations of formulae (Id)-(Id.63) in which w is 1,
 l_1 is 1, 2, 3, or 4, and l_2 is 1, 2, 3, or 4 as described above, and o_1 is 1**

[369] In some variations of formulae (Id)-(Id.63) described in the paragraphs above, o_1 is 1.

[370] In some variations, R_{c1} and R_{d1} are both H. In some variations, R_{c1} is H and R_{d1} is CH_3 .

In some variations, R_{c1} and R_{d1} are both CH_3 . In some variations, R_{c1} and R_{d1} are . In

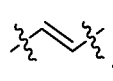
some variations, R_{c1} and R_{d1} are .

**Variations of formulae (Id)-(Id.63) in which w is 1,
 l_1 is 1, 2, 3, or 4, and l_2 is 1, 2, 3, or 4 as described above, and o_1 is 2**

[371] In variations of formulae (Id)-(Id.63) described in the paragraphs above in which o_1 is 2, the two instances of R_{c1} and R_{d1} are indicated as $R_{c1.1}$ and $R_{d1.1}$ and $R_{c1.2}$ and $R_{d1.2}$, respectively.

[372] In some variations, each of $R_{c1.1}$ and $R_{d1.1}$ and $R_{c1.2}$ and $R_{d1.2}$ is H. In some variations, each of $R_{c1.1}$ and $R_{d1.1}$ and $R_{c1.2}$ and $R_{d1.2}$ is CH_3 . In some variations, each of $R_{c1.1}$ and $R_{c1.2}$ is H and each of $R_{d1.1}$ and $R_{d1.2}$ is CH_3 . In some variations, each of $R_{c1.1}$, $R_{c1.2}$, and $R_{d1.1}$ is H and $R_{d1.2}$ is CH_3 .

[373] In some variations, each of $R_{c1.1}$ and $R_{d1.1}$ is H and $R_{c1.2}$ and $R_{d1.2}$ are . In some variations, each of $R_{c1.1}$ and $R_{d1.1}$ is H and $R_{c1.2}$ and $R_{d1.2}$ are . In some variations, each of $R_{c1.1}$ and $R_{d1.1}$ is CH_3 and $R_{c1.2}$ and $R_{d1.2}$ are . In some variations, each of $R_{c1.1}$ and $R_{d1.1}$ is CH_3 and $R_{c1.2}$ and $R_{d1.2}$ are .

[374] In some variations, $R_{c1.1}$ is H, $R_{d1.1}$ is CH_3 , and $R_{c1.2}$ and $R_{d1.2}$ are . In some variations, $R_{c1.1}$ is H, $R_{d1.1}$ is CH_3 , and $R_{c1.2}$ and $R_{d1.2}$ are . In some variations, $R_{c1.1}$ and $R_{d1.1}$ and $R_{c1.2}$ and $R_{d1.2}$ together are . In some variations, $R_{c1.1}$ and $R_{d1.1}$ are  $R_{c1.2}$ and $R_{d1.2}$ are . In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , and $R_{c1.2}$ and $R_{d1.2}$ are . In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , and $R_{c1.2}$ and $R_{d1.2}$ are .

**Variations of formulae (Id)-(Id.63) in which w is 1,
 l_1 is 1, 2, 3, or 4, and l_2 is 1, 2, 3, or 4 as described above, and o_1 is 3**

[375] In variations, of formulae (Id)-(Id.63) in which o_1 is 3, the three instances of R_c and R_d are indicated as $R_{c1.1}$ and $R_{d1.1}$; $R_{c1.2}$ and $R_{d1.2}$; and $R_{c1.3}$ and $R_{d1.3}$, respectively.

[376] In some variations, each of $R_{c1.1}$, $R_{d1.1}$, $R_{c1.2}$, $R_{d1.2}$, $R_{c1.3}$, and $R_{d1.3}$ is H. In some variations, each of $R_{c1.1}$, $R_{d1.1}$, $R_{c1.2}$, $R_{d1.2}$, $R_{c1.3}$, and $R_{d1.3}$ is CH₃. In some variations, each of $R_{c1.1}$, $R_{d1.1}$, $R_{c1.2}$, and $R_{d1.2}$, is H and each of $R_{c1.3}$ and $R_{d1.3}$ is CH₃. In some variations, each of $R_{c1.1}$, $R_{d1.1}$, $R_{c1.2}$, and $R_{d1.2}$, is CH₃ and each of $R_{c1.3}$ and $R_{d1.3}$ is H. In some variations, $R_{c1.1}$ is H and each of $R_{c1.2}$, $R_{c1.3}$, $R_{d1.1}$, $R_{d1.2}$, and $R_{d1.3}$ is CH₃. In some variations, each of $R_{c1.1}$ and $R_{c1.2}$ is H and each of $R_{c1.3}$, $R_{d1.1}$, $R_{d1.2}$, and $R_{d1.3}$ is CH₃. In some variations, each of $R_{c1.1}$, $R_{c1.2}$, and $R_{c1.3}$ is H and each of $R_{d1.1}$, $R_{d1.2}$, and $R_{d1.3}$ is CH₃.

[377] In some variations, each of $R_{c1.1}$, $R_{d1.1}$, $R_{c1.2}$, and $R_{d1.2}$, is H and $R_{c1.3}$ and $R_{d1.3}$ are .

In some variations, each of $R_{c1.1}$, $R_{d1.1}$, $R_{c1.2}$, and $R_{d1.2}$, is CH₃ and $R_{c1.3}$ and $R_{d1.3}$ are . In some variations, $R_{c1.1}$ is H and each of $R_{c1.2}$, $R_{d1.1}$, and $R_{d1.2}$ is CH₃, and $R_{c1.3}$ and $R_{d1.3}$ are

. In some variations, each of $R_{c1.1}$ and $R_{c1.2}$ is H and each of $R_{d1.1}$ and $R_{d1.2}$ is CH₃, and $R_{c1.3}$ and $R_{d1.3}$ are .

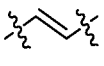
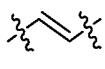
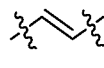
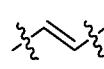
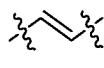
[378] In some variations, each of $R_{c1.1}$, $R_{d1.1}$, $R_{c1.2}$, and $R_{d1.2}$, is H and $R_{c1.3}$ and $R_{d1.3}$ are .

In some variations, each of $R_{c1.1}$, $R_{d1.1}$, $R_{c1.2}$, and $R_{d1.2}$, is CH₃ and $R_{c1.3}$ and $R_{d1.3}$ are . In some variations, $R_{c1.1}$ is H and each of $R_{c1.2}$, $R_{d1.1}$, and $R_{d1.2}$ is CH₃, and $R_{c1.3}$ and $R_{d1.3}$ are . In some variations, each of $R_{c1.1}$ and $R_{c1.2}$ is H and each of $R_{d1.1}$ and $R_{d1.2}$ is CH₃, and $R_{c1.3}$ and

$R_{d1.3}$ are .

[379] In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , $R_{c1.2}$ and $R_{d1.2}$ are , and each of $R_{c1.3}$ and $R_{d1.3}$ is H. In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , $R_{c1.2}$ and $R_{d1.2}$ are , and each

$R_{d1.2}$ are , and each of $R_{c1.3}$ and $R_{d1.3}$ is CH_3 . In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , $R_{c1.2}$ and $R_{d1.2}$ are , $R_{c1.3}$ is H, and $R_{d1.3}$ is CH_3 .

[382] In some variations, $R_{c1.1}$ and $R_{d1.1}$ and $R_{c1.2}$ and $R_{d1.2}$ together are , and each of $R_{c1.3}$ and $R_{d1.3}$ is H. In some variations, $R_{c1.1}$ and $R_{d1.1}$ and $R_{c1.2}$ and $R_{d1.2}$ together are , and each of $R_{c1.3}$ and $R_{d1.3}$ is CH_3 . In some variations, $R_{c1.1}$ and $R_{d1.1}$ and $R_{c1.2}$ and $R_{d1.2}$ together are , $R_{c1.3}$ is H, and $R_{d1.3}$ is CH_3 . In some variations, $R_{c1.1}$ and $R_{d1.1}$ and $R_{c1.2}$ and $R_{d1.2}$ together are , and $R_{c1.3}$ and $R_{d1.3}$ are . In some variations, $R_{c1.1}$ and $R_{d1.1}$ and $R_{c1.2}$ and $R_{d1.2}$ together are , and $R_{c1.3}$ and $R_{d1.3}$ are .

**Variations of formulae (Id)-(Id.63) in which w is 1,
 l_1 is 1, 2, 3, or 4, and l_2 is 1, 2, 3, or 4 as described above, and o_I is 4**

[383] In variations of formulae (Id)-(Id.63) in which o_I is 4, the four instances of R_{c1} and R_{d1} are indicated as $R_{c1.1}$ and $R_{d1.1}$; $R_{c1.2}$ and $R_{d1.2}$; $R_{c1.3}$ and $R_{d1.3}$; and $R_{c1.4}$ and $R_{d1.4}$, respectively.

[384] In some variations, each of $R_{c1.1}$, R_{d1} , $R_{c1.2}$, R_{d2} , $R_{c1.3}$, $R_{d1.3}$, $R_{c1.4}$, and $R_{d1.4}$ is H. In some variations, each of $R_{c1.1}$, R_{d1} , $R_{c1.2}$, R_{d2} , $R_{c1.3}$, $R_{d1.3}$, $R_{c1.4}$, and $R_{d1.4}$ is CH_3 . In some variations, each of $R_{c1.1}$, R_{d1} , $R_{c1.2}$, R_{d2} , $R_{c1.3}$, and $R_{d1.3}$ is H and each of $R_{c1.4}$ and $R_{d1.4}$ is CH_3 . In some variations, each of $R_{c1.1}$, R_{d1} , $R_{c1.2}$, and R_{d2} is H and each of $R_{c1.3}$, $R_{d1.3}$, $R_{c1.4}$, and $R_{d1.4}$ is CH_3 . In some variations, each of $R_{c1.1}$, R_{d1} , $R_{c1.2}$, R_{d2} , $R_{c1.3}$, and $R_{d1.3}$ is CH_3 and each of $R_{c1.4}$ and $R_{d1.4}$ is H.

[385] In some variations, each of $R_{c1.1}$, $R_{c1.2}$, and $R_{c1.3}$ is H and each of R_{d1} , R_{d2} , and $R_{d1.3}$ is CH_3 . In some variations, $R_{c1.1}$ is H, R_{d1} is CH_3 , and each of $R_{c1.2}$, R_{d2} , $R_{c1.3}$, and $R_{d1.3}$ is CH_3 . In some variations, $R_{c1.1}$ is H, R_{d1} is CH_3 , and each of $R_{c1.2}$, R_{d2} , $R_{c1.3}$, and $R_{d1.3}$ is H. In some variations, each of $R_{c1.1}$ and $R_{c1.2}$ is H, each of R_{d1} and R_{d2} is CH_3 , and each of $R_{c1.3}$ and $R_{d1.3}$ is H. In some variations, each of $R_{c1.1}$ and $R_{c1.2}$ is H, each of R_{d1} and R_{d2} is CH_3 , and each of $R_{c1.3}$ and $R_{d1.3}$ is CH_3 .

[386] In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{d2} are H, $R_{c1.3}$ and $R_{d1.3}$ are H, and

$R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{d2} are H, $R_{c1.3}$ and

$R_{d1.3}$ are CH₃, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and

R_{d2} are CH₃, $R_{c1.3}$ and $R_{d1.3}$ are CH₃, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and

R_{d1} are CH₃, $R_{c1.2}$ and R_{d2} are CH₃, $R_{c1.3}$ and $R_{d1.3}$ are CH₃, and $R_{c1.4}$ and $R_{d1.4}$ are .

[387] In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{d2} are H, $R_{c1.3}$ and $R_{d1.3}$ are ,

and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{d2} are CH₃,

$R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are

CH₃, $R_{c1.2}$ and R_{d2} are CH₃, $R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are . In some

variations, $R_{c1.1}$ is H, R_{d1} is CH₃, $R_{c1.2}$ and R_{d2} are CH₃, $R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and

$R_{d1.4}$ are . In some variations, $R_{c1.1}$ is H, R_{d1} is CH₃, $R_{c1.2}$ is H, R_{d2} is CH₃, $R_{c1.3}$ and $R_{d1.3}$

are , and $R_{c1.4}$ and $R_{d1.4}$ are .

[388] In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{d2} are , $R_{c1.3}$ and $R_{d1.3}$ are

, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are CH₃, $R_{c1.2}$ and R_{d2} are

, $R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ is H,

R_{d1} is CH₃, $R_{c1.2}$ and R_{d2} are , $R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are . In

some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{d2} are , $R_{c1.3}$ and $R_{d1.3}$ are , and

$R_{c1.4}$ and $R_{d1.4}$ are .

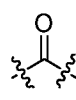
[389] In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{d2} are H, $R_{c1.3}$ and $R_{d1.3}$ are H, and

$R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{d2} are H, $R_{c1.3}$ and

$R_{d1.3}$ are CH₃, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and

R_{d2} are CH₃, $R_{c1.3}$ and $R_{d1.3}$ are CH₃, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and

R_{d1} are CH₃, $R_{c1.2}$ and R_{d2} are CH₃, $R_{c1.3}$ and $R_{d1.3}$ are CH₃, and $R_{c1.4}$ and $R_{d1.4}$ are .

[390] In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{d2} are H, $R_{c1.3}$ and $R_{d1.3}$ are , and

$R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{d2} are CH₃, $R_{c1.3}$

and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are CH₃, $R_{c1.2}$

and R_{d2} are CH₃, $R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$

is H, R_{d1} is CH₃, $R_{c1.2}$ and R_{d2} are CH₃, $R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are .

In some variations, $R_{c1.1}$ is H, R_{d1} is CH₃, $R_{c1.2}$ is H, R_{d2} is CH₃, $R_{c1.3}$ and $R_{d1.3}$ are , and

$R_{c1.4}$ and $R_{d1.4}$ are .

[391] In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{d2} are , $R_{c1.3}$ and $R_{d1.3}$ are ,

and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are CH₃, $R_{c1.2}$ and R_{d2} are ,

$R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ is H, R_{d1} is CH₃,

$R_{c1.2}$ and R_{d2} are , $R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are . In some

variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{d2} are , $R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are .

[392] In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{d2} are H, $R_{c1.3}$ and $R_{d1.3}$ are H, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{d2} are CH₃, $R_{c1.3}$ and $R_{d1.3}$ are CH₃, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{d2} are H, $R_{c1.3}$ and $R_{d1.3}$ are CH₃, and $R_{c1.4}$ and $R_{d1.4}$ are .

[393] In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{d2} are , $R_{c1.3}$ and $R_{d1.3}$ are H, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{d2} are , $R_{c1.3}$ and $R_{d1.3}$ are CH₃, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{d2} are , $R_{c1.3}$ and $R_{d1.3}$ are CH₃, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{d2} are , $R_{c1.3}$ and $R_{d1.3}$ are H, and $R_{c1.4}$ and $R_{d1.4}$ are .

[394] In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{d2} are , $R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are .

[395] In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{d2} are , $R_{c1.3}$ and $R_{d1.3}$ are H, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{d2} are

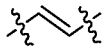
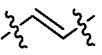
, $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ are CH_3 , and $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$ are . In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1}$ are , $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d2}$ are , $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ are CH_3 , and $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$ are . In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1}$ are , $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d2}$ are , $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ are H, and $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$ are .

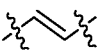
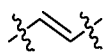
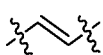
[396] In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1}$ are , $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d2}$ are , $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ are , and $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$ are .

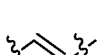
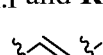
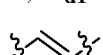
[397] In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1}$ are , $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d2}$ are , $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ are H, and $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$ are . In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1}$ are , $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d2}$ are , $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ are CH_3 , and $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$ are . In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1}$ are , $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d2}$ are , $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ are CH_3 , and $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$ are . In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1}$ are , $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d2}$ are , $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ are H, and $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$ are .

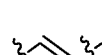
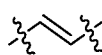
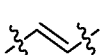
[398] In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1}$ are , $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d2}$ are , $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ are , and $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$ are .

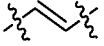
[399] In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1}$ are H, $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d2}$ are H, and $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ and $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$ together are . In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1}$ are H, $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d2}$ are CH_3 ,

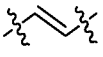
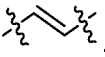
and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are . In some variations, $R_{c1.1}$ and $R_{c1.2}$ are H, R_{d1} and R_{d2} are CH₃, and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are .

[400] In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{d2} are , and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{d2} are CH₃, and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are . In some variations, $R_{c1.1}$ is H, R_{d1} is CH₃, $R_{c1.2}$ and R_{d2} are , and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are .

[401] In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{d2} are , and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{d2} are CH₃, and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are . In some variations, $R_{c1.1}$ is H, R_{d1} is CH₃, $R_{c1.2}$ and R_{d2} are , and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are .

[402] In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{d2} are , and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{d2} are , and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{d2} are , and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are .

[403] In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{d2} are , and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are .

[404] In some variations, $R_{c1.1}$ and R_{d1} and $R_{c1.2}$ and R_{d2} together are , and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are .

Variations of formulae (Id)-(Id.63) in which w is 1, l_1 is 1, 2, 3, or 4, l_2 is 1, 2, 3, or 4, o_1 is 1, 2, 3, or 4 as described above, and o_1 is 1

[405] In some variations, R_{c2} and R_{d2} are both H. In some variations, R_{c2} is H and R_{d2} is CH_3 .

In some variations, R_{c2} and R_{d2} are both CH_3 . In some variations, R_{c2} and R_{d2} are . In some variations, R_{c2} and R_{d2} are .

Variations of formulae (Id)-(Id.63) in which w is 1, l_1 is 1, 2, 3, or 4, l_2 is 1, 2, 3, or 4, o_1 is 1, 2, 3, or 4 as described above, and o_1 is 2

[406] In variations of formulae (Id)-(Id.63) described in the paragraphs above in which o_1 is 2, the two instances of R_{c2} and R_{d2} are indicated as $R_{c2.1}$ and $R_{d2.1}$ and $R_{c2.2}$ and $R_{d2.2}$, respectively.

[407] In some variations, each of $R_{c2.1}$ and $R_{d2.1}$ and $R_{c2.2}$ and $R_{d2.2}$ is H. In some variations, each of $R_{c2.1}$ and $R_{d2.1}$ and $R_{c2.2}$ and $R_{d2.2}$ is CH_3 . In some variations, each of $R_{c2.1}$ and $R_{c2.2}$ is H and each of $R_{d2.1}$ and $R_{d2.2}$ is CH_3 . In some variations, each of $R_{c2.1}$, $R_{c2.2}$, and $R_{d2.1}$ is H and $R_{d2.2}$ is CH_3 .

[408] In some variations, each of $R_{c2.1}$ and $R_{d2.1}$ is H and $R_{c2.2}$ and $R_{d2.2}$ are . In some variations, each of $R_{c2.1}$ and $R_{d2.1}$ is H and $R_{c2.2}$ and $R_{d2.2}$ are . In some variations, each of $R_{c2.1}$ and $R_{d2.1}$ is CH_3 and $R_{c2.2}$ and $R_{d2.2}$ are . In some variations, each of $R_{c2.1}$ and $R_{d2.1}$ is CH_3 and $R_{c2.2}$ and $R_{d2.2}$ are .

some variations, $R_{c2.1}$ is H, $R_{d2.1}$ is CH₃, and $R_{c2.2}$ and $R_{d2.2}$ are . In some variations, $R_{c2.1}$ is H, $R_{d2.1}$ is CH₃, and $R_{c2.2}$ and $R_{d2.2}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ and $R_{c2.2}$ and $R_{d2.2}$ together are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are  $R_{c2.2}$ and $R_{d2.2}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , and $R_{c2.2}$ and $R_{d2.2}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , and $R_{c2.2}$ and $R_{d2.2}$ are .

Variations of formulae (Id)-(Id.63) in which w is 1, l_1 is 1, 2, 3, or 4, l_2 is 1, 2, 3, or 4, o_1 is 1, 2, 3, or 4 as described above, and o_1 is 3

[409] In variations, of formulae (Id)-(Id.63) in which o_1 is 3, the three instances of R_c and R_d are indicated as $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; and $R_{c2.3}$ and $R_{d2.3}$, respectively.

[410] In some variations, each of $R_{c2.1}$, $R_{d2.1}$, $R_{c2.2}$, $R_{d2.2}$, $R_{c2.3}$, and $R_{d2.3}$ is H. In some variations, each of $R_{c2.1}$, $R_{d2.1}$, $R_{c2.2}$, $R_{d2.2}$, $R_{c2.3}$, and $R_{d2.3}$ is CH₃. In some variations, each of $R_{c2.1}$, $R_{d2.1}$, $R_{c2.2}$, and $R_{d2.2}$, is H and each of $R_{c2.3}$ and $R_{d2.3}$ is CH₃. In some variations, each of $R_{c2.1}$, $R_{d2.1}$, $R_{c2.2}$, and $R_{d2.2}$, is CH₃ and each of $R_{c2.3}$ and $R_{d2.3}$ is H. In some variations, $R_{c2.1}$ is H and each of $R_{c2.2}$, $R_{c2.3}$, $R_{d2.1}$, $R_{d2.2}$, and $R_{d2.3}$ is CH₃. In some variations, each of $R_{c2.1}$ and $R_{c2.2}$ is H and each of $R_{c2.3}$, $R_{d2.1}$, $R_{d2.2}$, and $R_{d2.3}$ is CH₃. In some variations, each of $R_{c2.1}$, $R_{c2.2}$, and $R_{c2.3}$ is H and each of $R_{d2.1}$, $R_{d2.2}$, and $R_{d2.3}$ is CH₃.

[411] In some variations, each of $R_{c2.1}$, $R_{d2.1}$, $R_{c2.2}$, and $R_{d2.2}$, is H and $R_{c2.3}$ and $R_{d2.3}$ are .

In some variations, each of $R_{c2.1}$, $R_{d2.1}$, $R_{c2.2}$, and $R_{d2.2}$, is CH₃ and $R_{c2.3}$ and $R_{d2.3}$ are . In some variations, $R_{c2.1}$ is H and each of $R_{c2.2}$, $R_{d2.1}$, and $R_{d2.2}$ is CH₃, and $R_{c2.3}$ and $R_{d2.3}$ are

. In some variations, each of $R_{c2.1}$ and $R_{c2.2}$ is H and each of $R_{d2.1}$ and $R_{d2.2}$ is CH₃, and $R_{c2.3}$ and $R_{d2.3}$ are .

[412] In some variations, each of $R_{c2.1}$, $R_{d2.1}$, $R_{c2.2}$, and $R_{d2.2}$, is H and $R_{c2.3}$ and $R_{d2.3}$ are .

In some variations, each of $R_{c2.1}$, $R_{d2.1}$, $R_{c2.2}$, and $R_{d2.2}$, is CH_3 and $R_{c2.3}$ and $R_{d2.3}$ are .

some variations, $R_{c2.1}$ is H and each of $R_{c2.2}$, $R_{d2.1}$, and $R_{d2.2}$ is CH_3 , and $R_{c2.3}$ and $R_{d2.3}$ are . In some variations, each of $R_{c2.1}$ and $R_{c2.2}$ is H and each of $R_{d2.1}$ and $R_{d2.2}$ is CH_3 , and $R_{c2.3}$ and

$R_{d2.3}$ are .

[413] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and each of $R_{c2.3}$

and $R_{d2.3}$ is H. In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and each

of $R_{c2.3}$ and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are ,

$R_{c2.3}$ is H, and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are

, and each of $R_{c2.3}$ and $R_{d2.3}$ is H. In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and

$R_{d2.2}$ are , and each of $R_{c2.3}$ and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are ,

$R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ is H, and $R_{d2.3}$ is CH_3 .

[414] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and each of $R_{c2.3}$

and $R_{d2.3}$ is H. In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and each

of $R_{c2.3}$ and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are ,

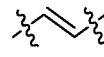
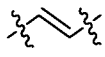
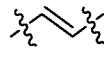
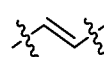
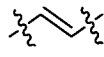
$R_{c2.3}$ is H, and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are

, and each of $R_{c2.3}$ and $R_{d2.3}$ is H. In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and

$R_{d2.2}$ are , and each of $R_{c2.3}$ and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are ,

$R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ is H, and $R_{d2.3}$ is CH_3 .

[415] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and each of $R_{c2.3}$ and $R_{d2.3}$ is H. In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and each of $R_{c2.3}$ and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ is H, and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and each of $R_{c2.3}$ and $R_{d2.3}$ is H. In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and each of $R_{c2.3}$ and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ is H, and $R_{d2.3}$ is CH_3 .

[416] In some variations, $R_{c2.1}$ and $R_{d2.1}$ and $R_{c2.2}$ and $R_{d2.2}$ together are , and each of $R_{c2.3}$ and $R_{d2.3}$ is H. In some variations, $R_{c2.1}$ and $R_{d2.1}$ and $R_{c2.2}$ and $R_{d2.2}$ together are , and each of $R_{c2.3}$ and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ and $R_{d2.1}$ and $R_{c2.2}$ and $R_{d2.2}$ together are , $R_{c2.3}$ is H, and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ and $R_{d2.1}$ and $R_{c2.2}$ and $R_{d2.2}$ together are , and $R_{c2.3}$ and $R_{d2.3}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ and $R_{c2.2}$ and $R_{d2.2}$ together are , and $R_{c2.3}$ and $R_{d2.3}$ are .

Variations of formulae (Id)-(Id.63) in which w is 1, l_I is 1, 2, 3, or 4, l_2 is 1, 2, 3, or 4, o_I is 1, 2, 3, or 4 as described above, and o_I is 4

[417] In variations of formulae (Id)-(Id.63) in which o_I is 4, the four instances of R_{c2} and R_{d2} are indicated as $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; and $R_{c2.4}$ and $R_{d2.4}$, respectively.

[418] In some variations, each of $R_{c2.1}$, R_{d2} , $R_{c2.2}$, R_{d2} , $R_{c2.3}$, $R_{d2.3}$, $R_{c2.4}$, and $R_{d2.4}$ is H. In some variations, each of $R_{c2.1}$, R_{d2} , $R_{c2.2}$, R_{d2} , $R_{c2.3}$, $R_{d2.3}$, $R_{c2.4}$, and $R_{d2.4}$ is CH_3 . In some variations, each of $R_{c2.1}$, R_{d2} , $R_{c2.2}$, R_{d2} , $R_{c2.3}$, and $R_{d2.3}$ is H and each of $R_{c2.4}$ and $R_{d2.4}$ is CH_3 . In some variations, each of $R_{c2.1}$, R_{d2} , $R_{c2.2}$, and R_{d2} is H and each of $R_{c2.3}$, $R_{d2.3}$, $R_{c2.4}$, and $R_{d2.4}$ is CH_3 . In some variations, each of $R_{c2.1}$, R_{d2} , $R_{c2.2}$, R_{d2} , $R_{c2.3}$, and $R_{d2.3}$ is CH_3 and each of $R_{c2.4}$ and $R_{d2.4}$ is H.

[419] In some variations, each of $R_{c2.1}$, $R_{c2.2}$, and $R_{c2.3}$ is H and each of R_{d2} , R_{d2} , and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ is H, R_{d2} is CH_3 , and each of $R_{c2.2}$, R_{d2} , $R_{c2.3}$, and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ is H, R_{d2} is CH_3 , and each of $R_{c2.2}$, R_{d2} , $R_{c2.3}$, and $R_{d2.3}$ is H. In some variations, each of $R_{c2.1}$ and $R_{c2.2}$ is H, each of R_{d2} and R_{d2} is CH_3 , and each of $R_{c2.3}$ and $R_{d2.3}$ is H. In some variations, each of $R_{c2.1}$ and $R_{c2.2}$ is H, each of R_{d2} and R_{d2} is CH_3 , and each of $R_{c2.3}$ and $R_{d2.3}$ is CH_3 .

[420] In some variations, $R_{c2.1}$ and R_{d2} are H, $R_{c2.2}$ and R_{d2} are H, $R_{c2.3}$ and $R_{d2.3}$ are H, and

$R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are H, $R_{c2.2}$ and R_{d2} are H, $R_{c2.3}$ and

$R_{d2.3}$ are CH_3 , and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are H, $R_{c2.2}$ and

R_{d2} are CH_3 , $R_{c2.3}$ and $R_{d2.3}$ are CH_3 , and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and

R_{d2} are CH_3 , $R_{c2.2}$ and R_{d2} are CH_3 , $R_{c2.3}$ and $R_{d2.3}$ are CH_3 , and $R_{c2.4}$ and $R_{d2.4}$ are .

[421] In some variations, $R_{c2.1}$ and R_{d2} are H, $R_{c2.2}$ and R_{d2} are H, $R_{c2.3}$ and $R_{d2.3}$ are ,

and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are H, $R_{c2.2}$ and R_{d2} are CH_3 ,

$R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are

CH_3 , $R_{c2.2}$ and R_{d2} are CH_3 , $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are . In some

variations, $R_{c2.1}$ is H, R_{d2} is CH_3 , $R_{c2.2}$ and R_{d2} are CH_3 , $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and

$R_{d2.4}$ are . In some variations, $R_{c2.1}$ is H, R_{d2} is CH_3 , $R_{c2.2}$ is H, R_{d2} is CH_3 , $R_{c2.3}$ and $R_{d2.3}$

are , and $R_{c2.4}$ and $R_{d2.4}$ are .

[422] In some variations, $R_{c2.1}$ and R_{d2} are H, $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are CH₃, $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ is H, R_{d2} is CH₃, $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are .

[423] In some variations, $R_{c2.1}$ and R_{d2} are H, $R_{c2.2}$ and R_{d2} are H, $R_{c2.3}$ and $R_{d2.3}$ are H, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are H, $R_{c2.2}$ and R_{d2} are H, $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are H, $R_{c2.2}$ and R_{d2} are CH₃, $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are CH₃, $R_{c2.2}$ and R_{d2} are CH₃, $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $R_{c2.4}$ and $R_{d2.4}$ are .

[424] In some variations, $R_{c2.1}$ and R_{d2} are H, $R_{c2.2}$ and R_{d2} are H, $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are H, $R_{c2.2}$ and R_{d2} are CH₃, $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are CH₃, $R_{c2.2}$ and R_{d2} are CH₃, $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ is H, R_{d2} is CH₃, $R_{c2.2}$ and R_{d2} are CH₃, $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are .

In some variations, $R_{c2.1}$ is H, R_{d2} is CH₃, $R_{c2.2}$ is H, R_{d2} is CH₃, $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are .

[425] In some variations, $R_{c2.1}$ and R_{d2} are H, $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are CH₃, $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ is H, R_{d2} is CH₃, $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are .

[426] In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are H, $R_{c2.3}$ and $R_{d2.3}$ are H, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are CH₃, $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are H, $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $R_{c2.4}$ and $R_{d2.4}$ are .

[427] In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are H, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $R_{c2.4}$ and $R_{d2.4}$ are . In

some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are H, and $R_{c2.4}$ and $R_{d2.4}$ are .

[428] In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are .

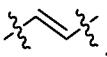
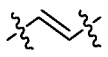
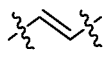
[429] In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are H, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are H, and $R_{c2.4}$ and $R_{d2.4}$ are .

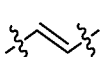
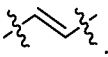
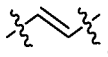
[430] In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are .

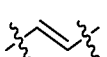
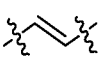
[431] In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are H, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are

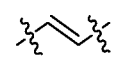
, $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are CH_3 , and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are H, and $R_{c2.4}$ and $R_{d2.4}$ are .

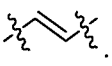
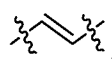
[432] In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are , $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are .

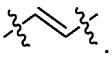
[433] In some variations, $R_{c2.1}$ and R_{d2} are H, $R_{c2.2}$ and R_{d2} are H, and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are . In some variations, $R_{c2.1}$ and R_{d2} are H, $R_{c2.2}$ and R_{d2} are CH_3 , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are . In some variations, $R_{c2.1}$ and $R_{c2.2}$ are H, R_{d2} and R_{d2} are CH_3 , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are .

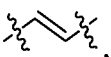
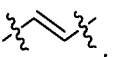
[434] In some variations, $R_{c2.1}$ and R_{d2} are H, $R_{c2.2}$ and R_{d2} are , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are . In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are CH_3 , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are . In some variations, $R_{c2.1}$ is H, R_{d2} is CH_3 , $R_{c2.2}$ and R_{d2} are , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are .

[435] In some variations, $R_{c2.1}$ and R_{d2} are H, $R_{c2.2}$ and R_{d2} are , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are . In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are CH_3 , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are . In some variations, $R_{c2.1}$ is

H, R_{d2} is CH_3 , $R_{c2.2}$ and R_{d2} are , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are .

[436] In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are . In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are . In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are .

[437] In some variations, $R_{c2.1}$ and R_{d2} are , $R_{c2.2}$ and R_{d2} are , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are .

[438] In some variations, $R_{c2.1}$ and R_{d2} and $R_{c2.2}$ and R_{d2} together are , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are .

Variations of formulae (Id-Id.63) in which w is 2

[439] In some variations of formulae (Id)-(Id.63) in which w is 2, l_1 is 0. In some variations in which l_1 is 0, a first instance of l_2 is 0. In some variations in which l_1 is 0, a first instance of l_2 is 2. In some variations in which l_1 is 0, a first instance of l_2 is 3. In some variations in which l_1 is 0, a first instance of l_2 is 4. In some of the variations described in this paragraph, a second instance of l_2 is 0. In some of the variations described in this paragraph, a second instance of l_2 is 1. In some of the variations described in this paragraph, a second instance of l_2 is 2. In some of the variations described in this paragraph, a second instance of l_2 is 3. In some of the variations described in this paragraph, a second instance of l_2 is 4. In some of the variations described in this paragraph, o_1 is 0. In some of the variations described in this paragraph, o_1 is 1. In some of the variations described in this paragraph, o_1 is 2. In some of the variations described in this paragraph, o_1 is 3. In some of the variations described in this paragraph, o_1 is 4.

[442] In some variations of formulae (Id)-(Id.63) in which w is 2, l_1 is 3. In some variations in which l_1 is 3, a first instance of l_2 is 0. In some variations in which l_1 is 3, a first instance of l_2 is 2. In some variations in which l_1 is 3, a first instance of l_2 is 3. In some variations in which l_1 is 3, a first instance of l_2 is 4. In some of the variations described in this paragraph, a second instance of l_2 is 0. In some of the variations described in this paragraph, a second instance of l_2 is 1. In some of the variations described in this paragraph, a second instance of l_2 is 2. In some of the variations described in this paragraph, a second instance of l_2 is 3. In some of the variations described in this paragraph, a second instance of l_2 is 4. In some of the variations described in this paragraph, o_1 is 0. In some of the variations described in this paragraph, o_1 is 1. In some of the variations described in this paragraph, o_1 is 2. In some of the variations described in this paragraph, o_1 is 3. In some of the variations described in this paragraph, o_1 is 4.

[443] In some variations of formulae (Id)-(Id.63) in which w is 2, l_1 is 4. In some variations in which l_1 is 4, a first instance of l_2 is 0. In some variations in which l_1 is 4, a first instance of l_2 is 2. In some variations in which l_1 is 4, a first instance of l_2 is 3. In some variations in which l_1 is 4, a first instance of l_2 is 4. In some of the variations described in this paragraph, a second instance of l_2 is 0. In some of the variations described in this paragraph, a second instance of l_2 is 1. In some of the variations described in this paragraph, a second instance of l_2 is 2. In some of the variations described in this paragraph, a second instance of l_2 is 3. In some of the variations described in this paragraph, a second instance of l_2 is 4. In some of the variations described in this paragraph, o_1 is 0. In some of the variations described in this paragraph, o_1 is 1. In some of the variations described in this paragraph, o_1 is 2. In some of the variations described in this paragraph, o_1 is 3. In some of the variations described in this paragraph, o_1 is 4.

[444] In some of the variations described in the paragraphs above, a first instance of o_2 is 0. In some of the variations described in the paragraphs above, a first instance of o_2 is 1. In some of the variations described in the paragraphs above, a first instance of o_2 is 2. In some of the variations described in the paragraphs above, a first instance of o_2 is 3. In some of the variations described in the paragraphs above, a first instance of o_2 is 4.

[445] In some of the variations described in the paragraphs above, a second instance of o_2 is 0. In some of the variations described in the paragraphs above, a second instance of o_2 is 1. In some of the variations described in the paragraphs above, a second instance of o_2 is 2. In some of the variations described in the paragraphs above, a second instance of o_2 is 3. In some of the variations described in the paragraphs above, a second instance of o_2 is 4.

[446] In some variations of formulae (Id)-(Id.63) in which w is 2, the two respective instances of R_{c2} and R_{d2} are distinguished in the description below as R_{c2} and R_{d2} and $R_{c2'}$ and $R_{d2'}$, respectively.

Variations of formulae (Id)-(Id.63) in which w is 2, o_1 is 1, 2, 3, or 4 as described above; a first o_2 is 1, 2, 3, or 4 as described above; and a second instance of o_2 is 1

[447] In some variations, $R_{c2'}$ and $R_{d2'}$ are both H. In some variations, $R_{c2'}$ is H and $R_{d2'}$ is CH₃.

In some variations, $R_{c2'}$ and $R_{d2'}$ are both CH₃. In some variations, $R_{c2'}$ and $R_{d2'}$ are . In

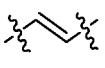
some variations, $R_{c2'}$ and $R_{d2'}$ are .

Variations of formulae (Id)-(Id-.63) in which w is 2, o_1 is 1, 2, 3, or 4 as described above; a first o_2 is 1, 2, 3, or 4 as described above; and a second instance of o_2 is 2

[448] In variations of formulae (Id)-(Id.63) described in the paragraphs above in which o_1 is 2, the two instances of $R_{c2'}$ and $R_{d2'}$ are indicated as $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$, respectively.

[449] In some variations, each of $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ is H. In some variations, each of $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ is CH_3 . In some variations, each of $R_{c2.1'}$ and $R_{c2.2'}$ is H and each of $R_{d2.1'}$ and $R_{d2.2'}$ is CH_3 . In some variations, each of $R_{c2.1'}$, $R_{c2.2'}$, and $R_{d2.1'}$ is H and $R_{d2.2'}$ is CH_3 .

[450] In some variations, each of $R_{c2.1'}$ and $R_{d2.1'}$ is H and $R_{c2.2'}$ and $R_{d2.2'}$ are . In some variations, each of $R_{c2.1'}$ and $R_{d2.1'}$ is H and $R_{c2.2'}$ and $R_{d2.2'}$ are . In some variations, each of $R_{c2.1'}$ and $R_{d2.1'}$ is CH_3 and $R_{c2.2'}$ and $R_{d2.2'}$ are . In some variations, each of $R_{c2.1'}$ and $R_{d2.1'}$ is CH_3 and $R_{c2.2'}$ and $R_{d2.2'}$ are .

[451] In some variations, $R_{c2.1'}$ is H, $R_{d2.1'}$ is CH_3 , and $R_{c2.2'}$ and $R_{d2.2'}$ are . In some variations, $R_{c2.1'}$ is H, $R_{d2.1'}$ is CH_3 , and $R_{c2.2'}$ and $R_{d2.2'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ together are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are  and $R_{c2.2'}$ and $R_{d2.2'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are  and $R_{c2.2'}$ and $R_{d2.2'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are  and $R_{c2.2'}$ and $R_{d2.2'}$ are .

Variations of formulae (Id)-(Id-.63) in which w is 2, o_1 is 1, 2, 3, or 4 as described above; a first o_2 is 1, 2, 3, or 4 as described above; and a second instance of o_2 is 3

[452] In variations, of formulae (Id)-(Id.63) in which o_1 is 3, the three instances of R_c and R_d are indicated as $R_{c2.1'}$ and $R_{d2.1'}$; $R_{c2.2'}$ and $R_{d2.2'}$; and $R_{c2.3'}$ and $R_{d2.3'}$, respectively.

[453] In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, $R_{d2.2'}$, $R_{c2.3'}$, and $R_{d2.3'}$ is H. In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, $R_{d2.2'}$, $R_{c2.3'}$, and $R_{d2.3'}$ is CH_3 . In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, and $R_{d2.2'}$ is H and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH_3 . In some variations, each of

$R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, and $R_{d2.2'}$, is CH_3 and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ is H and each of $R_{c2.2'}$, $R_{c2.3'}$, $R_{d2.1'}$, $R_{d2.2'}$, and $R_{d2.3'}$ is CH_3 . In some variations, each of $R_{c2.1'}$ and $R_{c2.2'}$ is H and each of $R_{c2.3'}$, $R_{d2.1'}$, $R_{d2.2'}$, and $R_{d2.3'}$ is CH_3 . In some variations, each of $R_{c2.1'}$, $R_{c2.2'}$, and $R_{c2.3'}$ is H and each of $R_{d2.1'}$, $R_{d2.2'}$, and $R_{d2.3'}$ is CH_3 .

[454] In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, and $R_{d2.2'}$, is H and $R_{c2.3'}$ and $R_{d2.3'}$ are



. In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, and $R_{d2.2'}$, is CH_3 and $R_{c2.3'}$ and $R_{d2.3'}$ are



. In some variations, $R_{c2.1'}$ is H and each of $R_{c2.2'}$, $R_{d2.1'}$, and $R_{d2.2'}$ is CH_3 , and $R_{c2.3'}$ and

$R_{d2.3'}$ are . In some variations, each of $R_{c2.1'}$ and $R_{c2.2'}$ is H and each of $R_{d2.1'}$ and $R_{d2.2'}$ is

CH_3 , and $R_{c2.3'}$ and $R_{d2.3'}$ are .

[455] In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, and $R_{d2.2'}$, is H and $R_{c2.3'}$ and $R_{d2.3'}$ are



. In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, and $R_{d2.2'}$, is CH_3 and $R_{c2.3'}$ and $R_{d2.3'}$ are



. In some variations, $R_{c2.1'}$ is H and each of $R_{c2.2'}$, $R_{d2.1'}$, and $R_{d2.2'}$ is CH_3 , and $R_{c2.3'}$ and

$R_{d2.3'}$ are . In some variations, each of $R_{c2.1'}$ and $R_{c2.2'}$ is H and each of $R_{d2.1'}$ and $R_{d2.2'}$ is

CH_3 , and $R_{c2.3'}$ and $R_{d2.3'}$ are .

[456] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of

$R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are ,

and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH_3 . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and

$R_{d2.2'}$ are , $R_{c2.3'}$ is H, and $R_{d2.3'}$ is CH_3 . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are ,

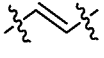
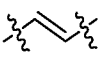
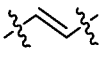
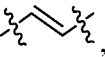
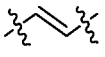
$R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$

are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH_3 . In some variations,

$R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ is H, and $R_{d2.3'}$ is CH_3 .

[457] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH₃. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ is H, and $R_{d2.3'}$ is CH₃. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH₃. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ is H, and $R_{d2.3'}$ is CH₃.

[458] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH₃. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ is H, and $R_{d2.3'}$ is CH₃. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH₃. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ is H, and $R_{d2.3'}$ is CH₃.

[459] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ together are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ together are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH₃. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ together are , $R_{c2.3'}$ is H, and $R_{d2.3'}$ is CH₃. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ together are , and $R_{c2.3'}$ and $R_{d2.3'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ together are , and $R_{c2.3'}$ and $R_{d2.3'}$ are .

Variations of formulae (Id)-(Id.63) in which w is 2, o_1 is 1, 2, 3, or 4 as described above; a first o_2 is 1, 2, 3, or 4 as described above; and a second instance of o_2 is 4

[460] In variations of formulae (Id)-(Id.63) in which o_1 is 4, the four instances of R_{c2} and R_{d2} are indicated as $R_{c2.1'}$ and $R_{d2.1'}$; $R_{c2.2'}$ and $R_{d2.2'}$; $R_{c2.3'}$ and $R_{d2.3'}$; and $R_{c2.4'}$ and $R_{d2.4'}$, respectively.

[461] In some variations, each of $R_{c2.1'}$, R_{d2} , $R_{c2.2'}$, R_{d2} , $R_{c2.3'}$, $R_{d2.3'}$, $R_{c2.4'}$, and $R_{d2.4'}$ is H. In some variations, each of $R_{c2.1'}$, R_{d2} , $R_{c2.2'}$, R_{d2} , $R_{c2.3'}$, $R_{d2.3'}$, $R_{c2.4'}$, and $R_{d2.4'}$ is CH_3 . In some variations, each of $R_{c2.1'}$, R_{d2} , $R_{c2.2'}$, R_{d2} , $R_{c2.3'}$, and $R_{d2.3'}$ is H and each of $R_{c2.4'}$ and $R_{d2.4'}$ is CH_3 . In some variations, each of $R_{c2.1'}$, R_{d2} , $R_{c2.2'}$, and R_{d2} is H and each of $R_{c2.3'}$, $R_{d2.3'}$, $R_{c2.4'}$, and $R_{d2.4'}$ is CH_3 . In some variations, each of $R_{c2.1'}$, R_{d2} , $R_{c2.2'}$, R_{d2} , $R_{c2.3'}$, and $R_{d2.3'}$ is CH_3 and each of $R_{c2.4'}$ and $R_{d2.4'}$ is H.

[462] In some variations, each of $R_{c2.1'}$, $R_{c2.2'}$, and $R_{c2.3'}$ is H and each of R_{d2} , R_{d2} , and $R_{d2.3'}$ is CH_3 . In some variations, $R_{c2.1'}$ is H, R_{d2} is CH_3 , and each of $R_{c2.2'}$, R_{d2} , $R_{c2.3'}$, and $R_{d2.3'}$ is CH_3 . In some variations, $R_{c2.1'}$ is H, R_{d2} is CH_3 , and each of $R_{c2.2'}$, R_{d2} , $R_{c2.3'}$, and $R_{d2.3'}$ is H. In some variations, each of $R_{c2.1'}$ and $R_{c2.2'}$ is H, each of R_{d2} and R_{d2} is CH_3 , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, each of $R_{c2.1'}$ and $R_{c2.2'}$ is H, each of R_{d2} and R_{d2} is CH_3 , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH_3 .

[463] In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are H, $R_{c2.3'}$ and $R_{d2.3'}$ are H, and

$R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are H, $R_{c2.3'}$

and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$

and R_{d2} are CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are CH_3 , $R_{c2.2'}$ and R_{d2} are CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are



[464] In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are H, $R_{c2.3'}$ and $R_{d2.3'}$ are ,

and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are CH_3 ,

$R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are

CH₃', **R**_{c2.2'} and **R**_{d2} are CH₃', **R**_{c2.3'} and **R**_{d2.3'} are , and **R**_{c2.4'} and **R**_{d2.4'} are . In some variations, **R**_{c2.1'} is H, **R**_{d2} is CH₃', **R**_{c2.2'} and **R**_{d2} are CH₃', **R**_{c2.3'} and **R**_{d2.3'} are , and **R**_{c2.4'} and **R**_{d2.4'} are . In some variations, **R**_{c2.1'} is H, **R**_{d2} is CH₃', **R**_{c2.2'} is H, **R**_{d2} is CH₃', **R**_{c2.3'} and **R**_{d2.3'} are , and **R**_{c2.4'} and **R**_{d2.4'} are .

[465] In some variations, **R**_{c2.1'} and **R**_{d2} are H, **R**_{c2.2'} and **R**_{d2} are , **R**_{c2.3'} and **R**_{d2.3'} are , and **R**_{c2.4'} and **R**_{d2.4'} are . In some variations, **R**_{c2.1'} and **R**_{d2} are CH₃', **R**_{c2.2'} and **R**_{d2} are , **R**_{c2.3'} and **R**_{d2.3'} are , and **R**_{c2.4'} and **R**_{d2.4'} are . In some variations, **R**_{c2.1'} is H, **R**_{d2} is CH₃', **R**_{c2.2'} and **R**_{d2} are , **R**_{c2.3'} and **R**_{d2.3'} are , and **R**_{c2.4'} and **R**_{d2.4'} are . In some variations, **R**_{c2.1'} and **R**_{d2} are , **R**_{c2.2'} and **R**_{d2} are , **R**_{c2.3'} and **R**_{d2.3'} are , and **R**_{c2.4'} and **R**_{d2.4'} are .

[466] In some variations, **R**_{c2.1'} and **R**_{d2} are H, **R**_{c2.2'} and **R**_{d2} are H, **R**_{c2.3'} and **R**_{d2.3'} are H, and **R**_{c2.4'} and **R**_{d2.4'} are . In some variations, **R**_{c2.1'} and **R**_{d2} are H, **R**_{c2.2'} and **R**_{d2} are H, **R**_{c2.3'} and **R**_{d2.3'} are CH₃', and **R**_{c2.4'} and **R**_{d2.4'} are . In some variations, **R**_{c2.1'} and **R**_{d2} are H, **R**_{c2.2'} and **R**_{d2} are CH₃', **R**_{c2.3'} and **R**_{d2.3'} are CH₃', and **R**_{c2.4'} and **R**_{d2.4'} are . In some variations, **R**_{c2.1'} and **R**_{d2} are CH₃', **R**_{c2.2'} and **R**_{d2} are CH₃', **R**_{c2.3'} and **R**_{d2.3'} are CH₃', and **R**_{c2.4'} and **R**_{d2.4'} are .

[467] In some variations, **R**_{c2.1'} and **R**_{d2} are H, **R**_{c2.2'} and **R**_{d2} are H, **R**_{c2.3'} and **R**_{d2.3'} are , and **R**_{c2.4'} and **R**_{d2.4'} are . In some variations, **R**_{c2.1'} and **R**_{d2} are H, **R**_{c2.2'} and **R**_{d2} are CH₃', **R**_{c2.3'} and **R**_{d2.3'} are , and **R**_{c2.4'} and **R**_{d2.4'} are . In some variations, **R**_{c2.1'} and **R**_{d2} are CH₃', **R**_{c2.2'} and **R**_{d2} are CH₃', **R**_{c2.3'} and **R**_{d2.3'} are , and **R**_{c2.4'} and **R**_{d2.4'} are . In some

variations, $R_{c2.1'}$ is H, R_{d2} is CH_3 , $R_{c2.2'}$ and R_{d2} are CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ is H, R_{d2} is CH_3 , $R_{c2.2'}$ is H, R_{d2} is CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

[468] In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are CH_3 , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ is H, R_{d2} is CH_3 , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

[469] In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are H, $R_{c2.3'}$ and $R_{d2.3'}$ are H, and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are H, $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

[470] In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are H, and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In

some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are H, and $R_{c2.4'}$ and $R_{d2.4'}$ are .

[471] In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

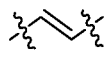
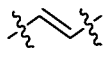
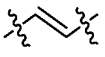
[472] In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are H, and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are H, and $R_{c2.4'}$ and $R_{d2.4'}$ are .

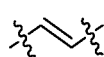
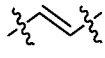
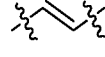
[473] In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

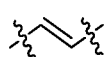
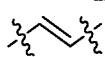
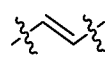
[474] In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are H, and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

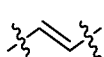
some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are H, and $R_{c2.4'}$ and $R_{d2.4'}$ are .

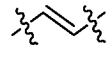
[475] In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

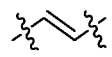
[476] In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are H, and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are . In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are CH_3 , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are . In some variations, $R_{c2.1'}$ and $R_{c2.2'}$ are H, R_{d2} and R_{d2} are CH_3 , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are .

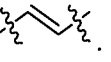
[477] In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are CH_3 , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are . In some variations, $R_{c2.1'}$ is H, R_{d2} is CH_3 , $R_{c2.2'}$ and R_{d2} are , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are .

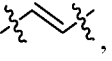
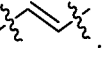
[478] In some variations, $R_{c2.1'}$ and R_{d2} are H, $R_{c2.2'}$ and R_{d2} are , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are CH_3 , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are . In some variations, $R_{c2.1'}$ is H, R_{d2} is CH_3 , $R_{c2.2'}$ and R_{d2} are , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are .

[479] In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are . In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and

R_{d2} are , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are . In some variations,

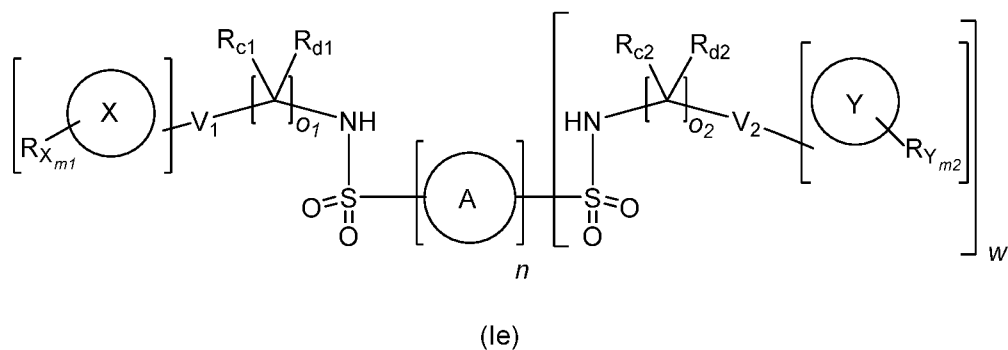
$R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are .

[480] In some variations, $R_{c2.1'}$ and R_{d2} are , $R_{c2.2'}$ and R_{d2} are , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are .

[481] In some variations, $R_{c2.1'}$ and R_{d2} and $R_{c2.2'}$ and R_{d2} together are , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are .

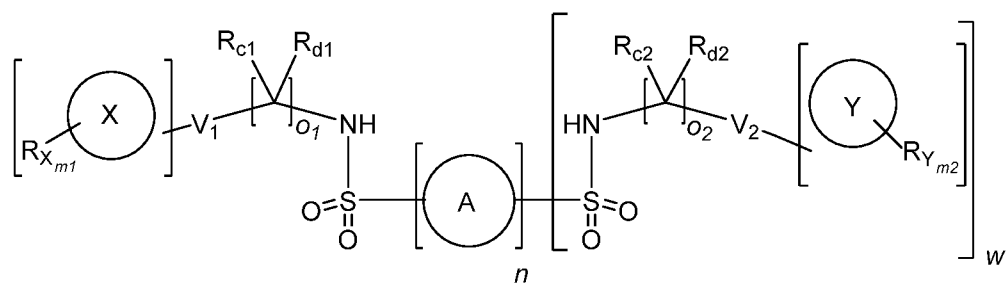
Compounds of formula (Ie)

[482] In some variations, compounds of formula (I) fall within formula (Ie):

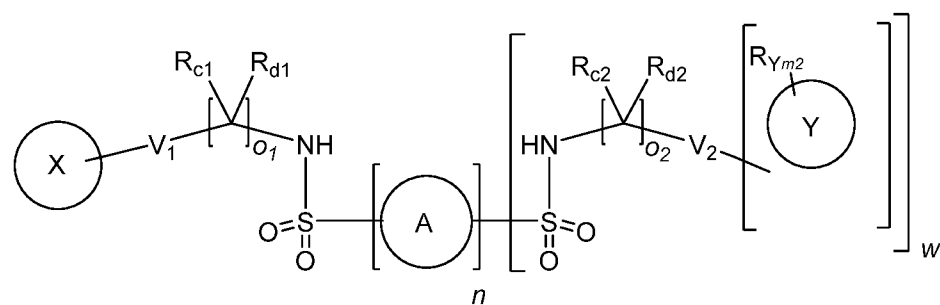


wherein: X , Y , R_X , R_Y , R , m_1 , m_2 , V_1 , V_2 , R_Z , n , o_1 , o_2 , w , ring A , R_{c1} , R_{d1} , R_{c2} , and R_{d2} are as defined above for formula (I).

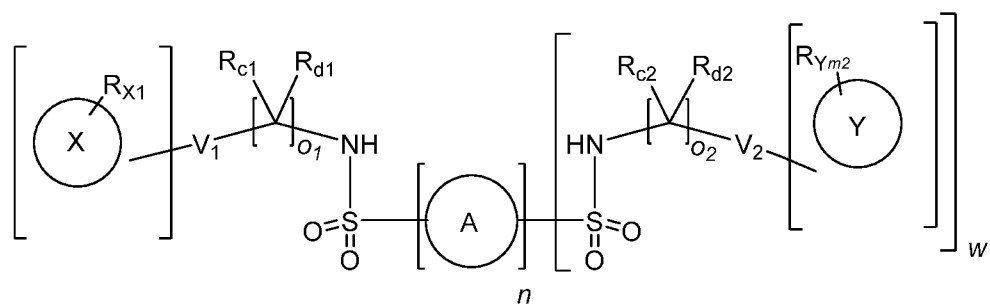
[483] In some variations, compounds of formula (Ie) fall within one or more of formulae (Ie.1)-(Ie.63), shown below.



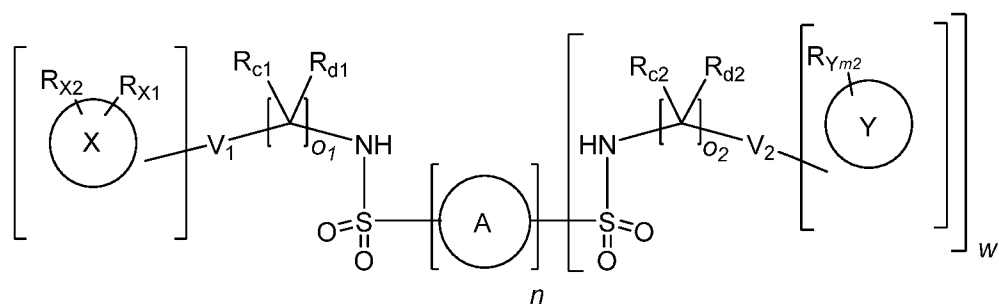
(Ie)



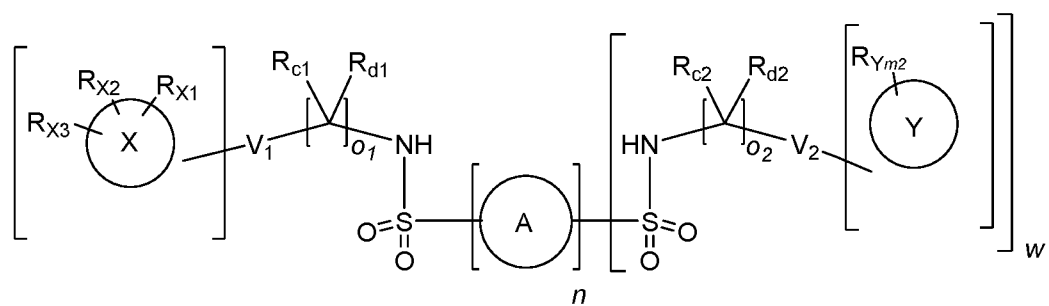
(Ie.1)



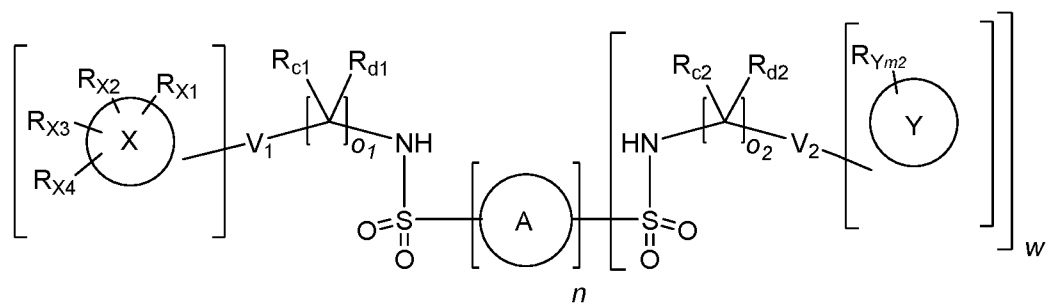
(Ie.2)



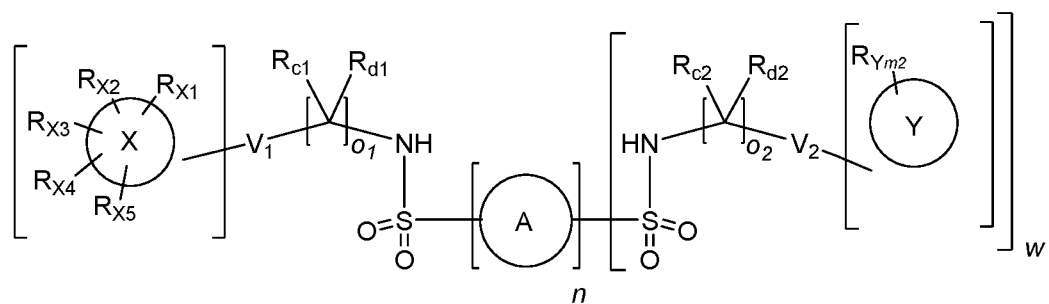
(Ie.3)



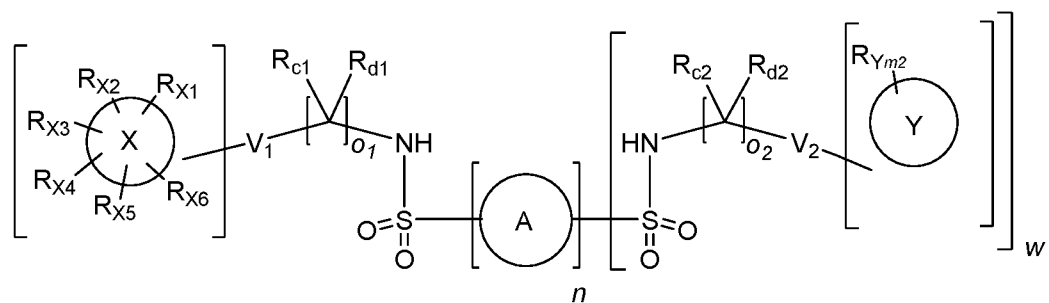
(Ie.4)



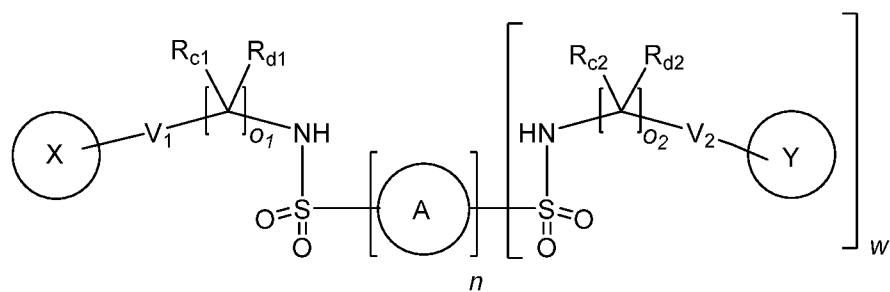
(Ie.5)



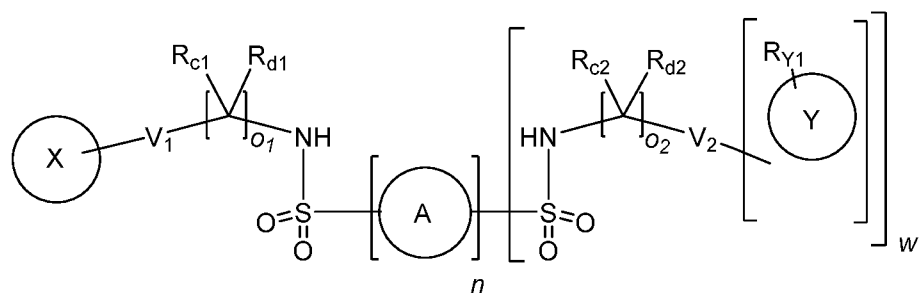
(Ie.6)



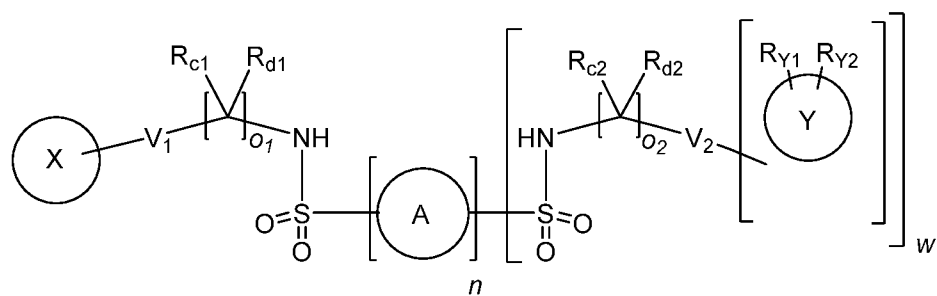
(Ie.7)



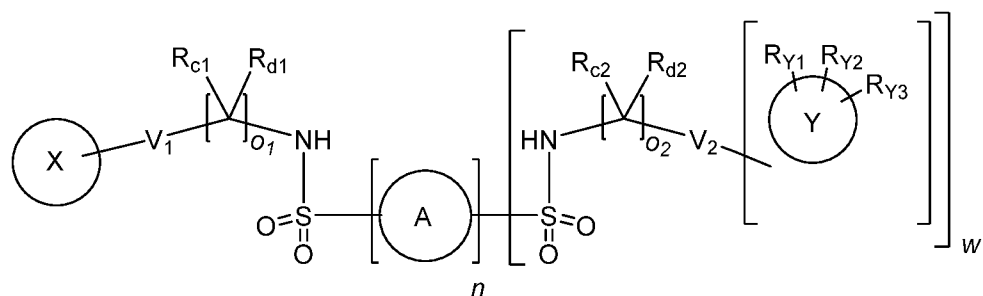
(Ie.8)



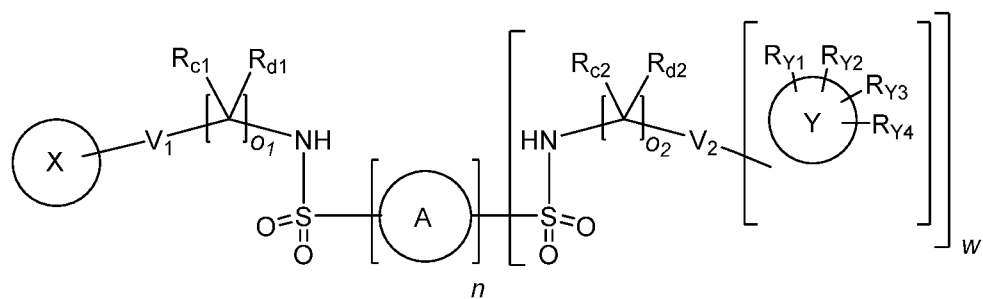
(Ie.9)



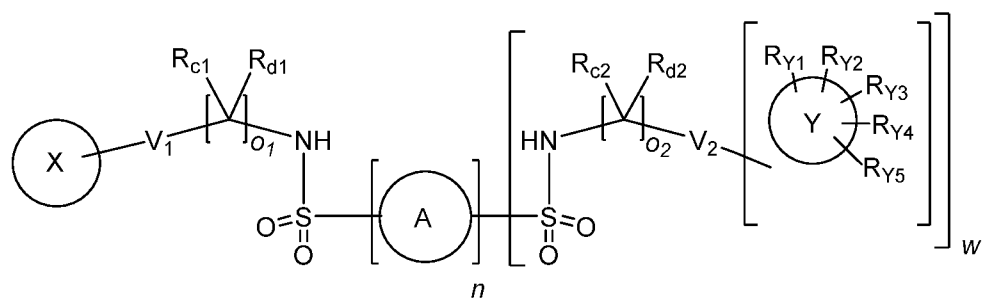
(Ie.10)



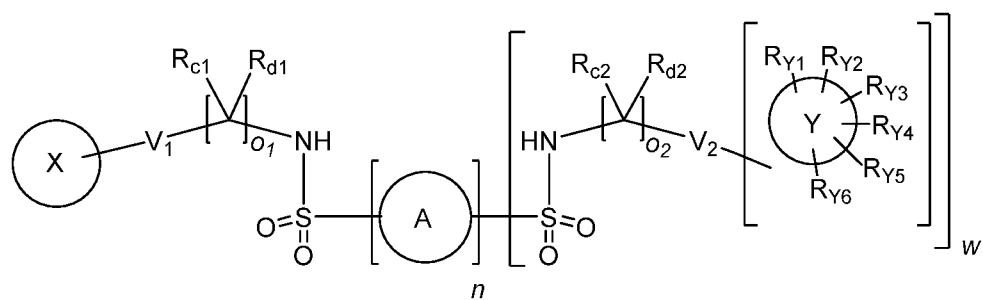
(Ie.11)



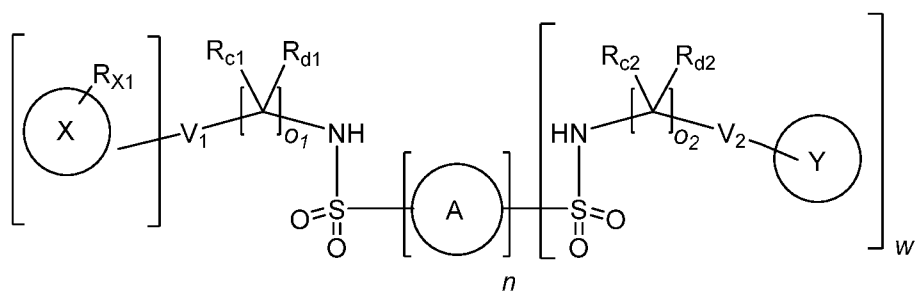
(Ie.12)



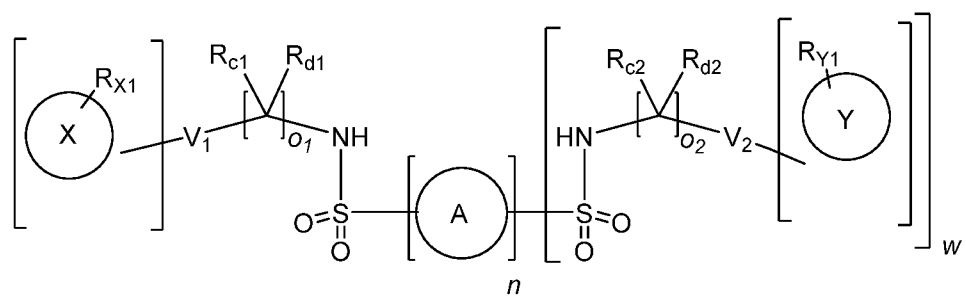
(Ie.13)



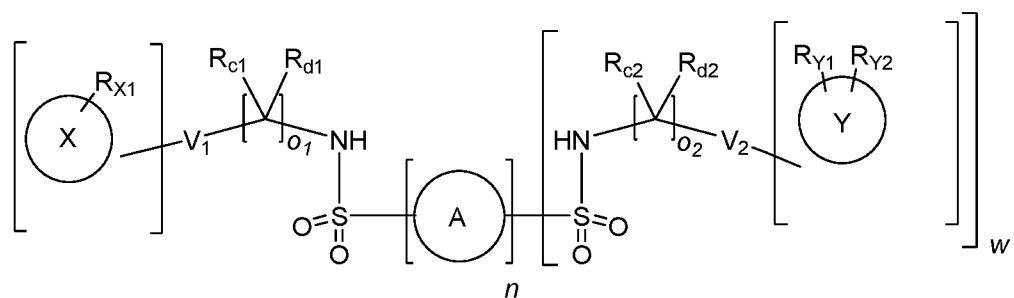
(Ie.14)



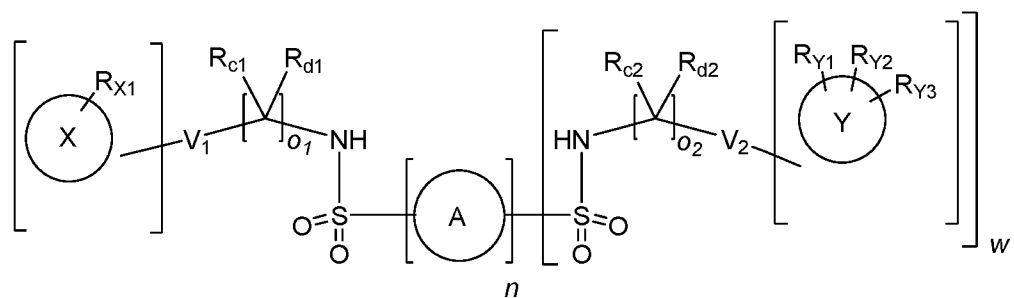
(Ie.15)



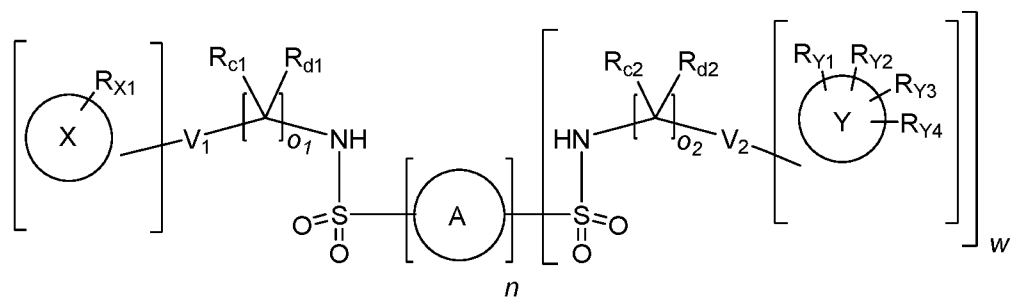
(Ie.16)



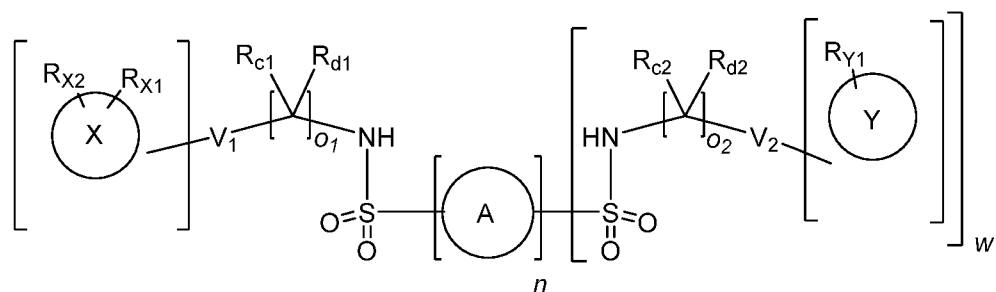
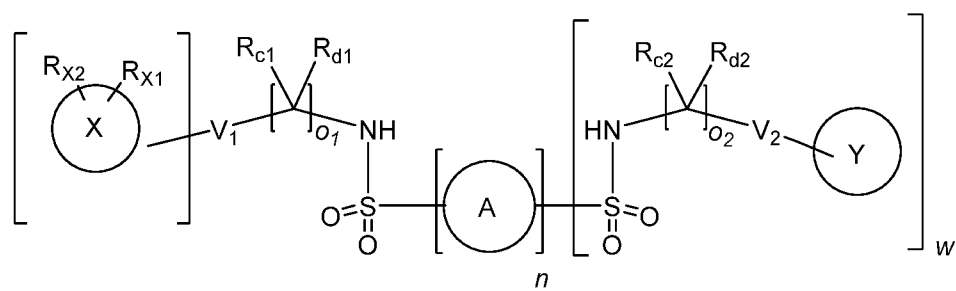
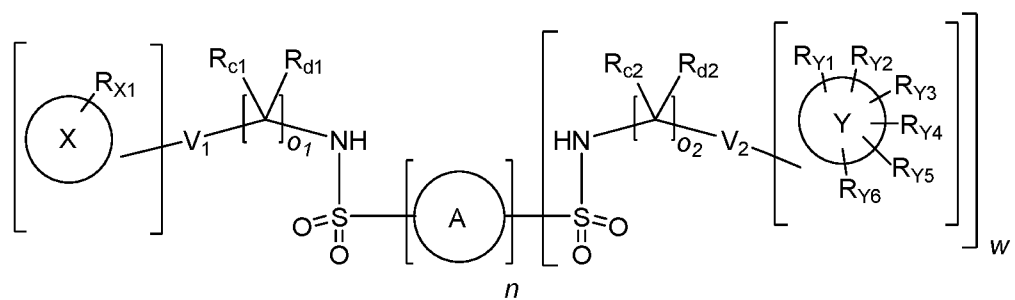
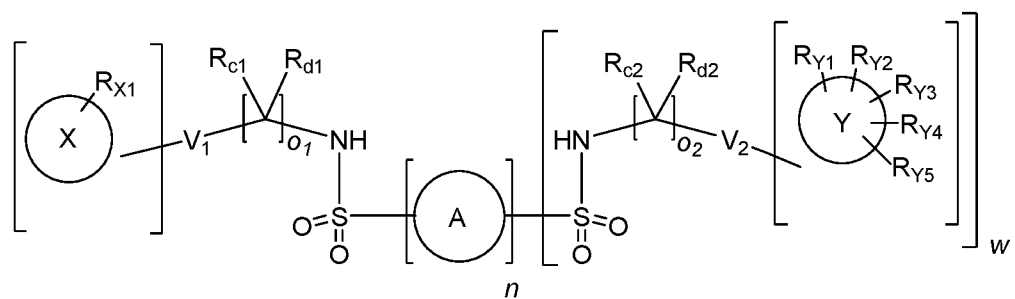
(Ie.17)

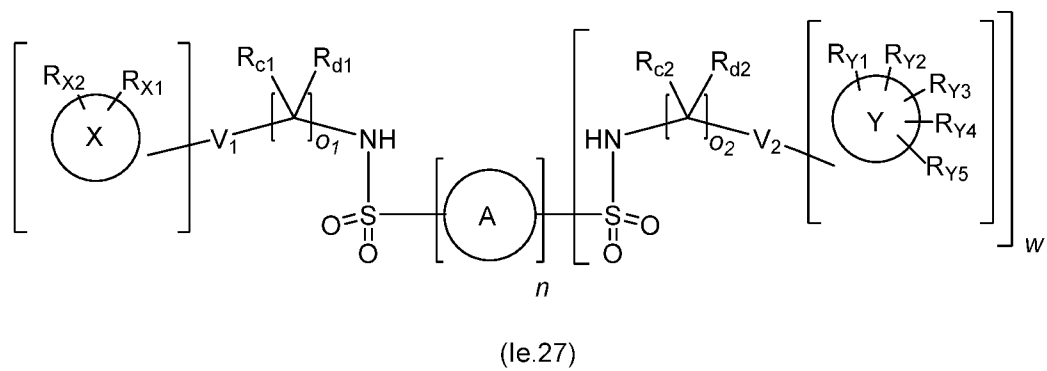
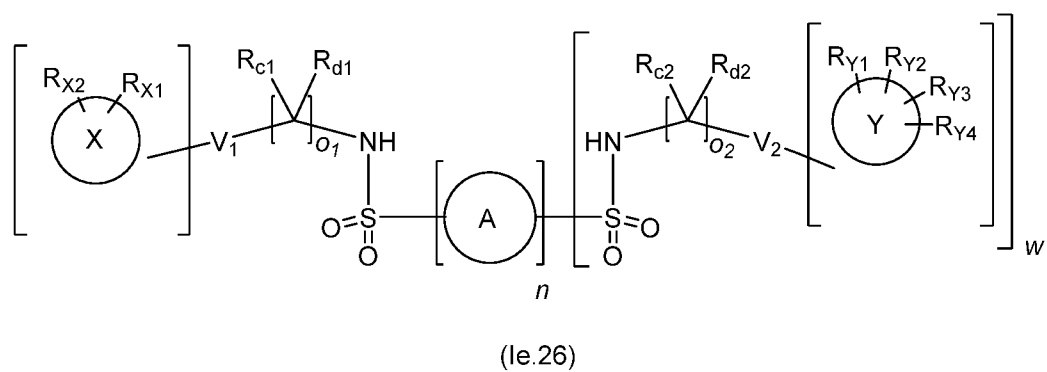
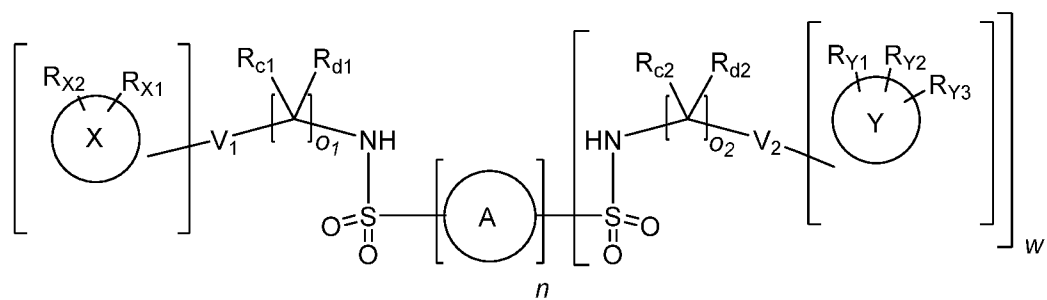
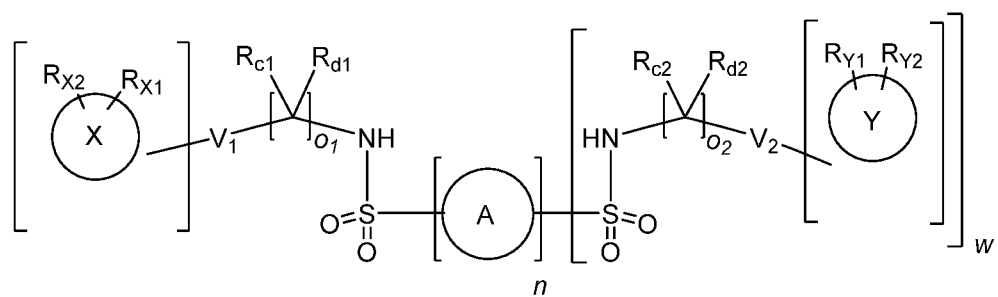


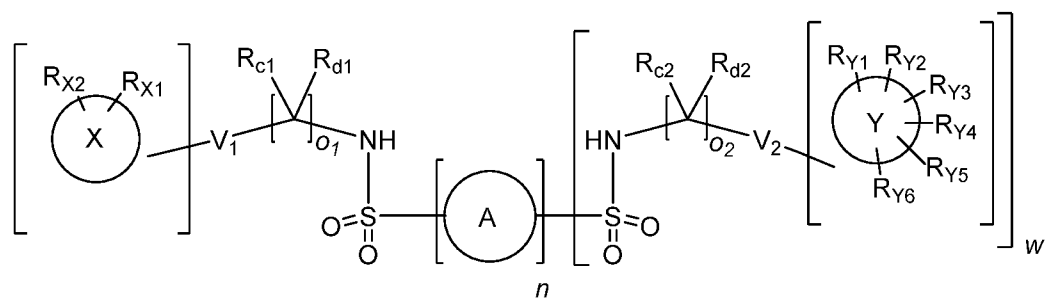
(Ie.18)



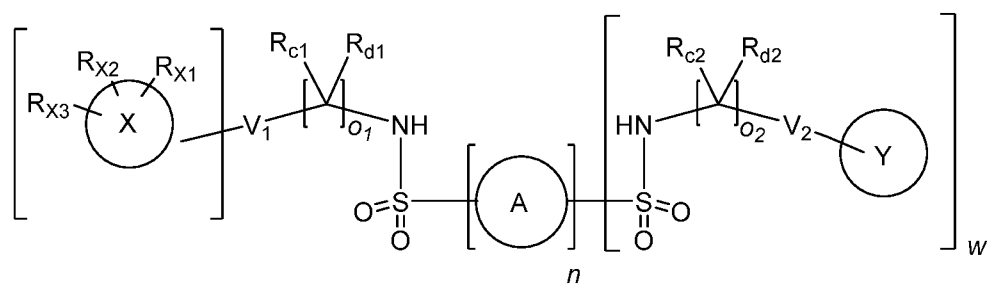
(Ie.19)



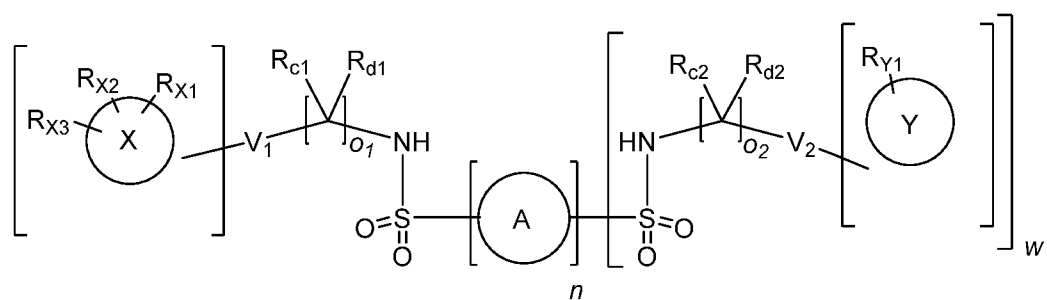




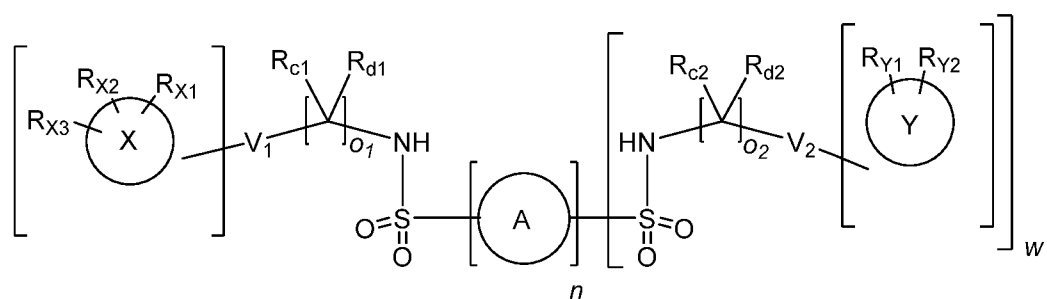
(Ie.28)



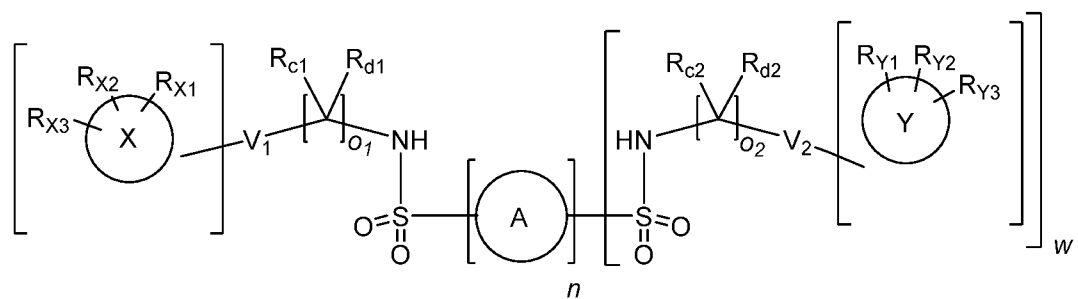
(Ie.29)



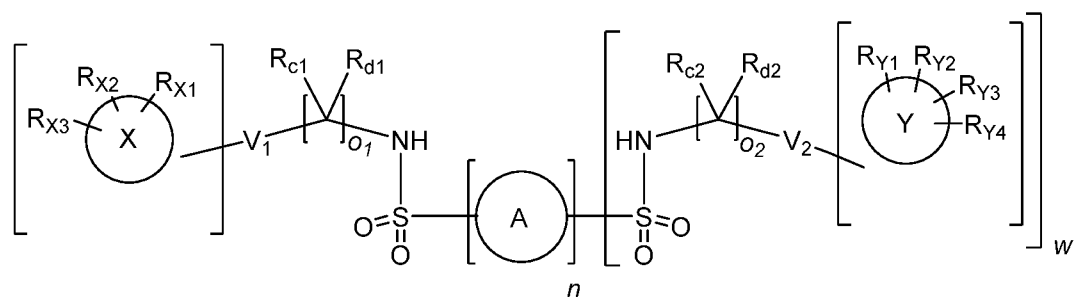
(Ie.30)



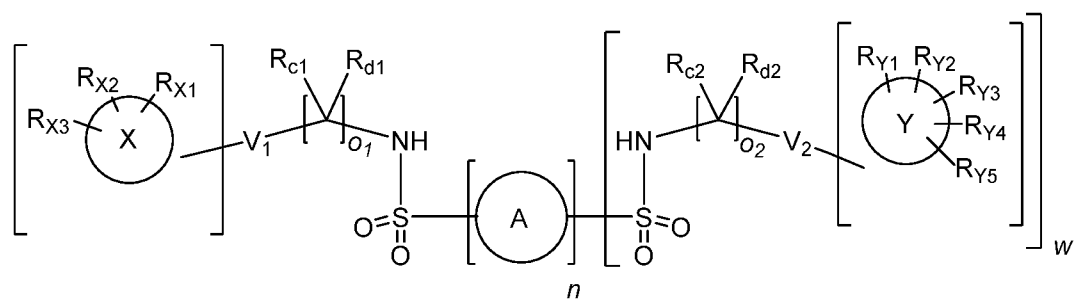
(Ie.31)



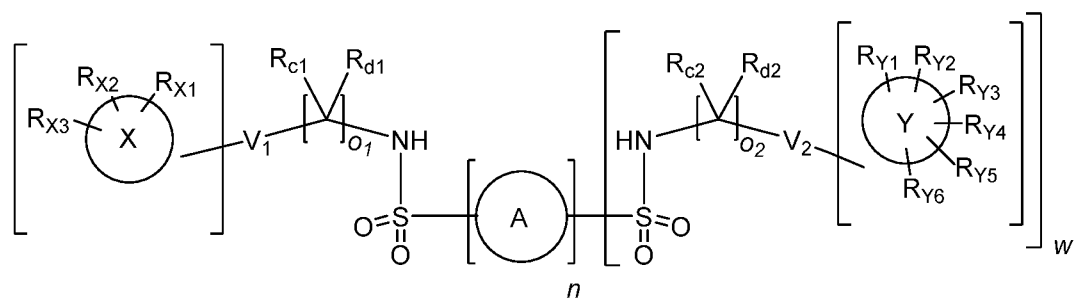
(Ie.32)



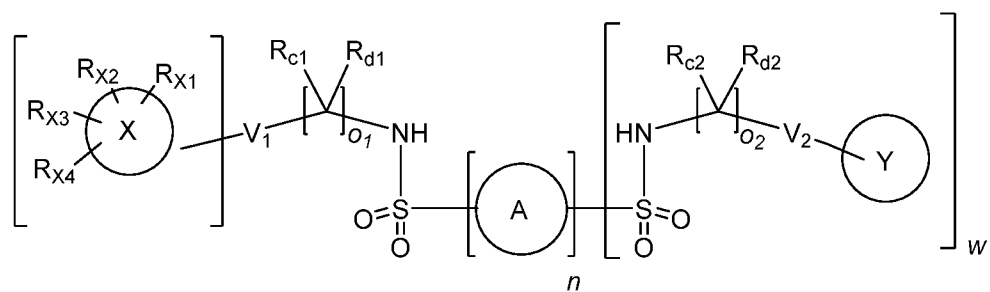
(Ie.33)



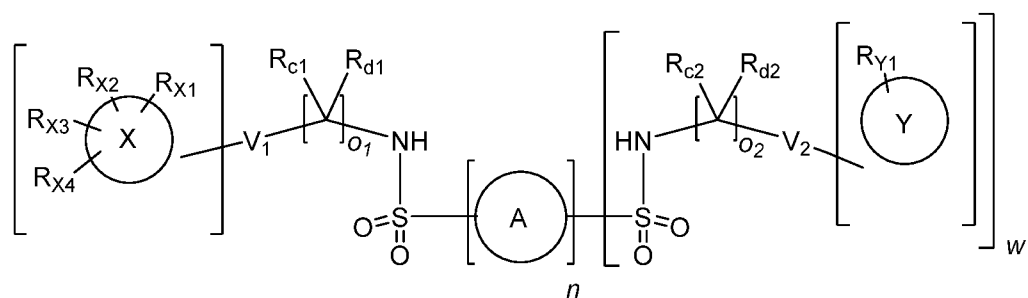
(Ie.34)



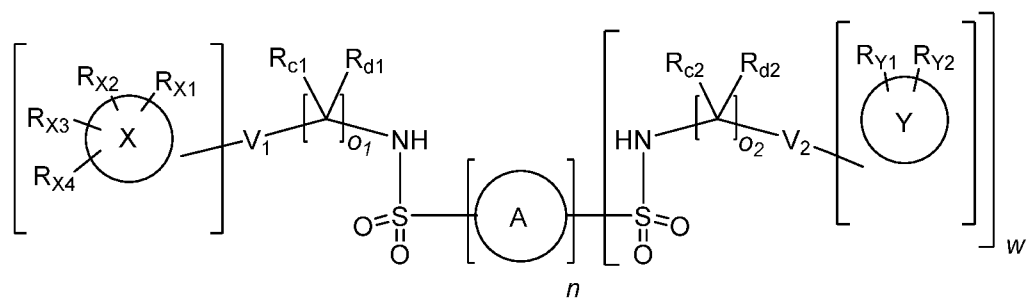
(Ie.35)



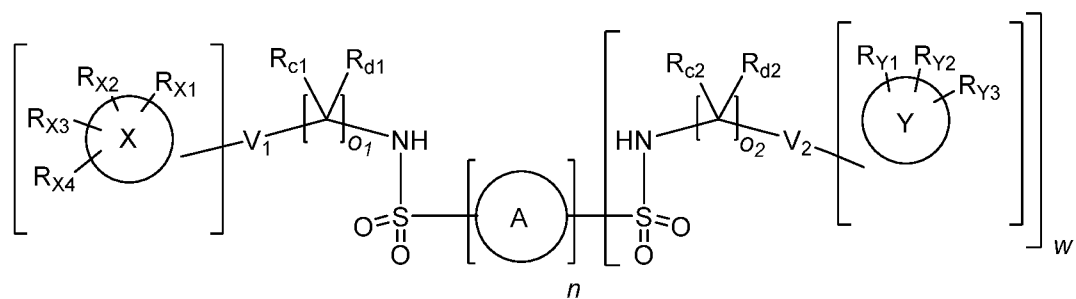
(Ie.36)



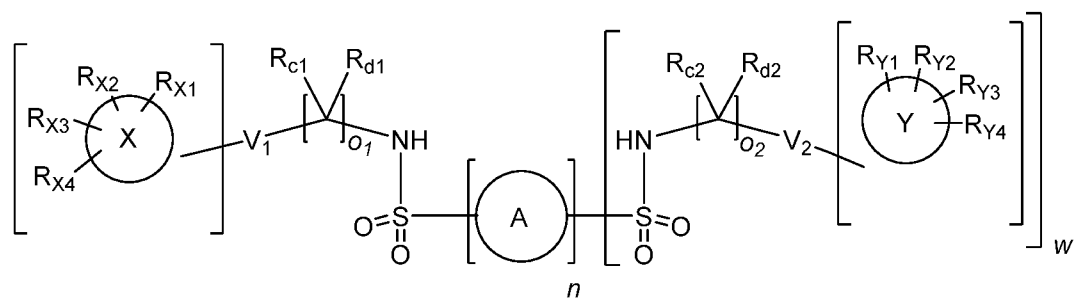
(Ie.37)



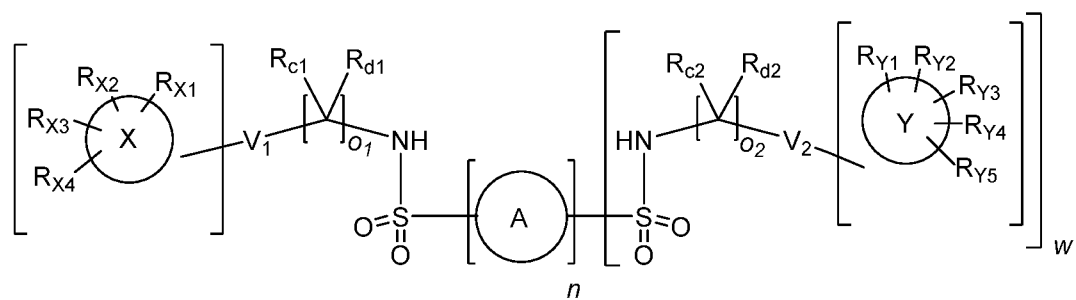
(Ie.38)



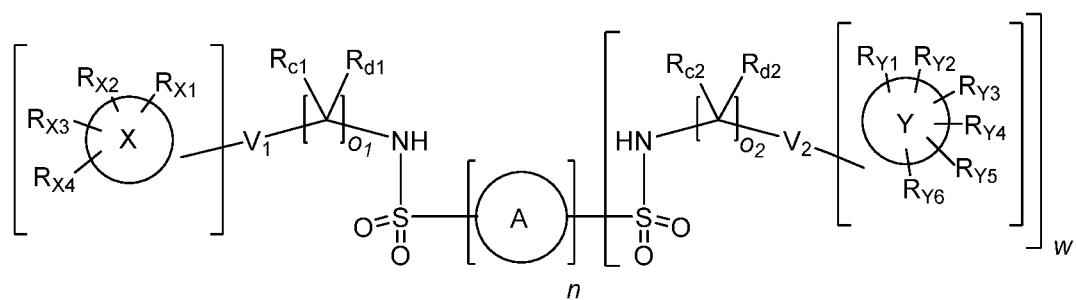
(Ie.39)



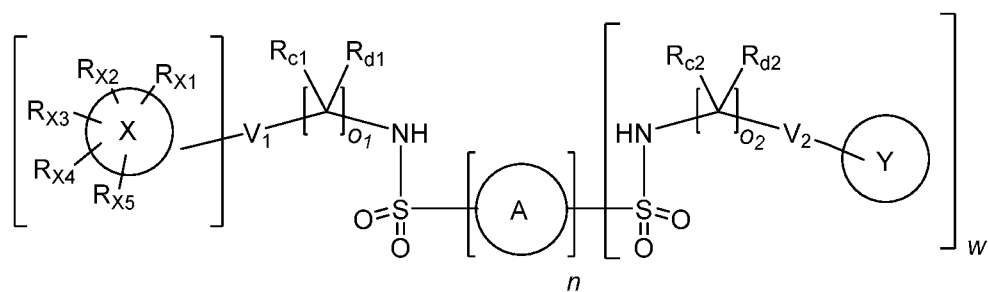
(Ie.40)



(Ie.41)

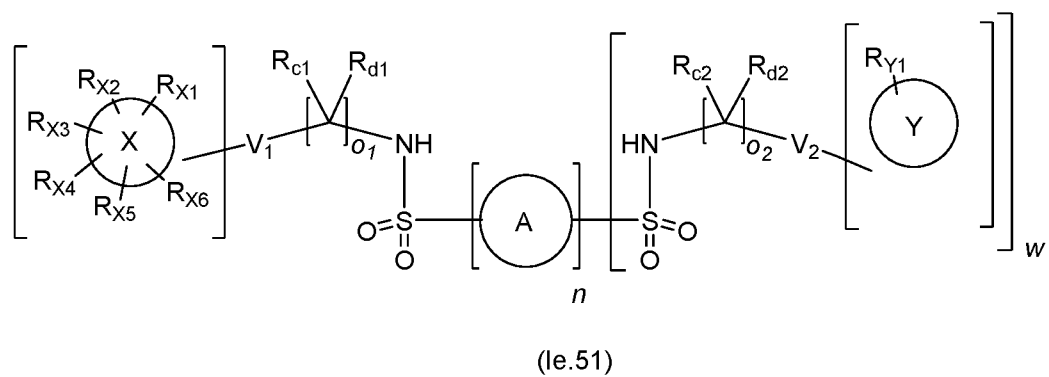
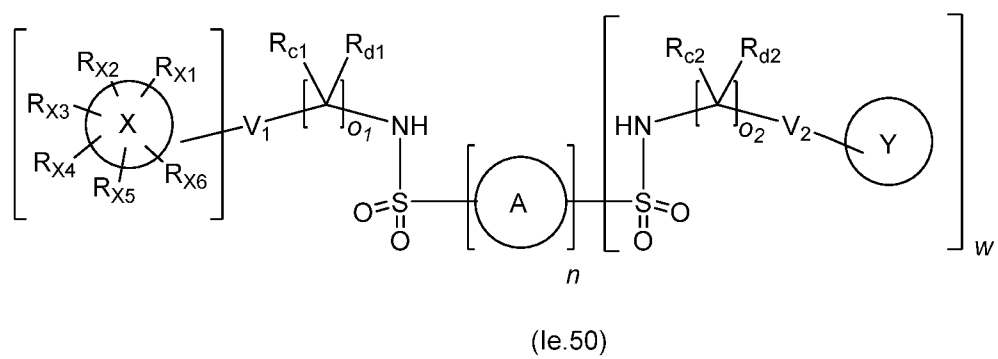
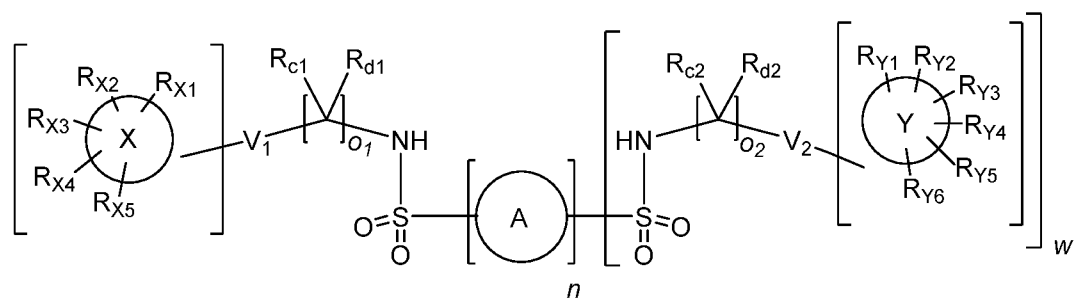
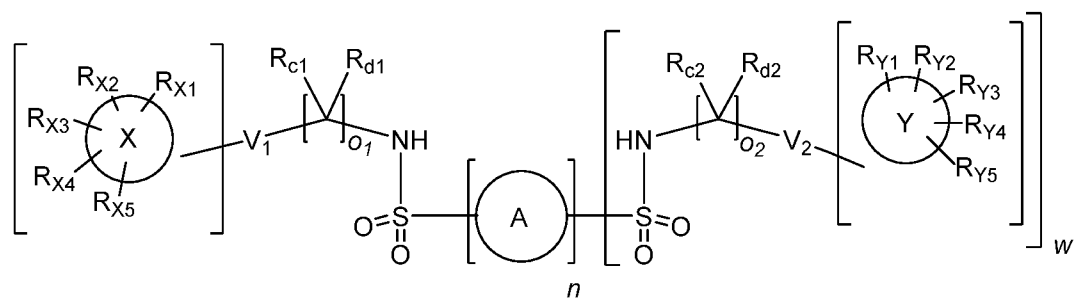


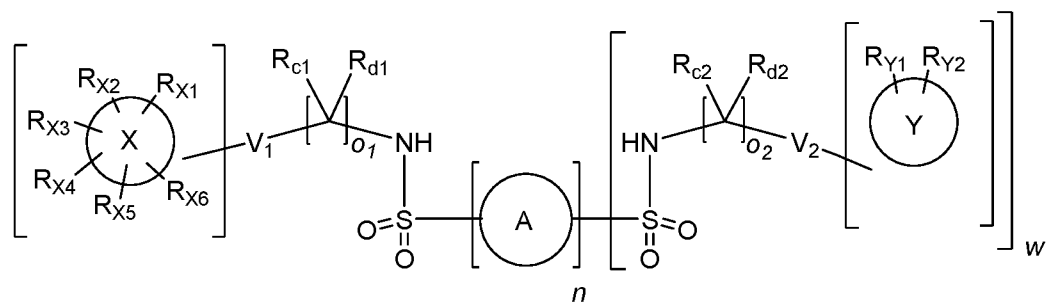
(Ie.42)



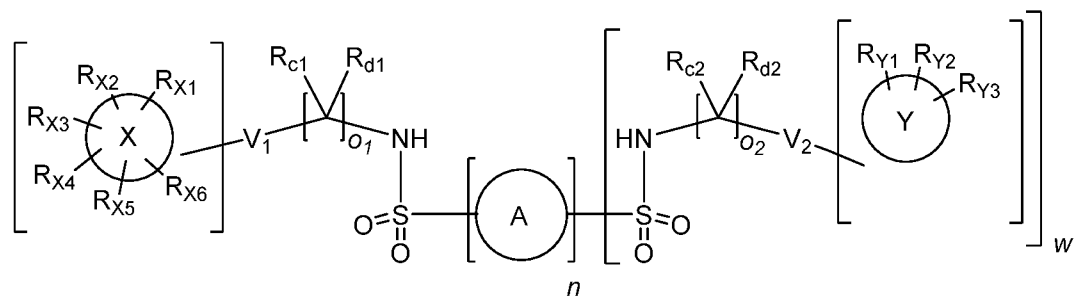
(Ie.43)



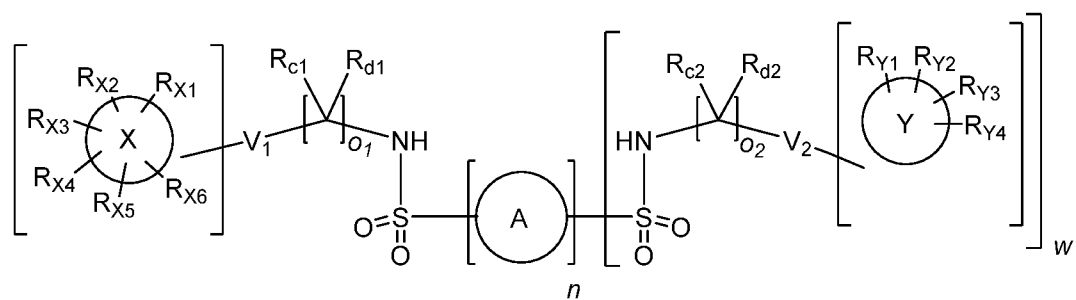




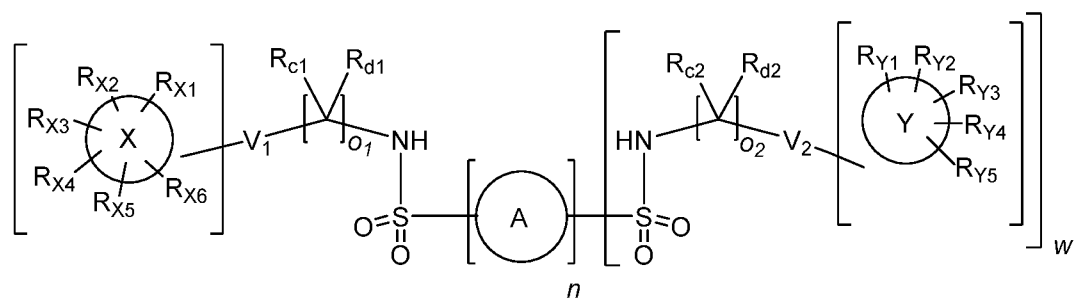
(Ie.52)



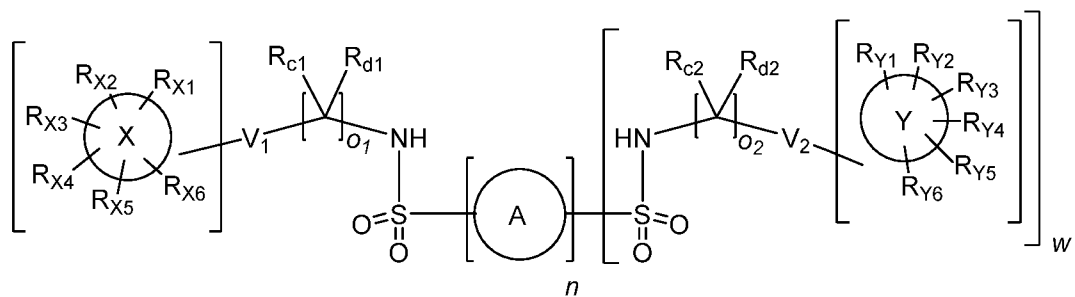
(Ie.53)



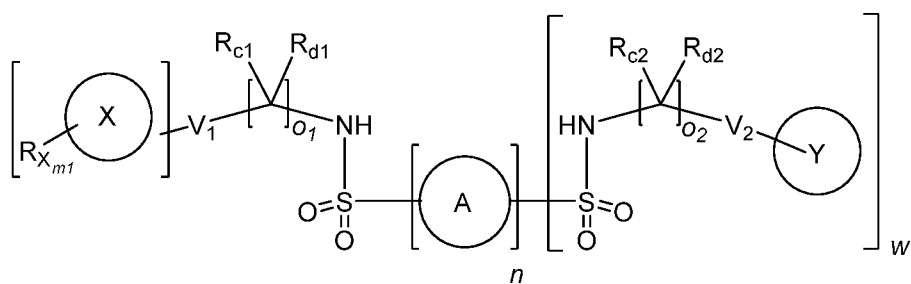
(Ie.54)



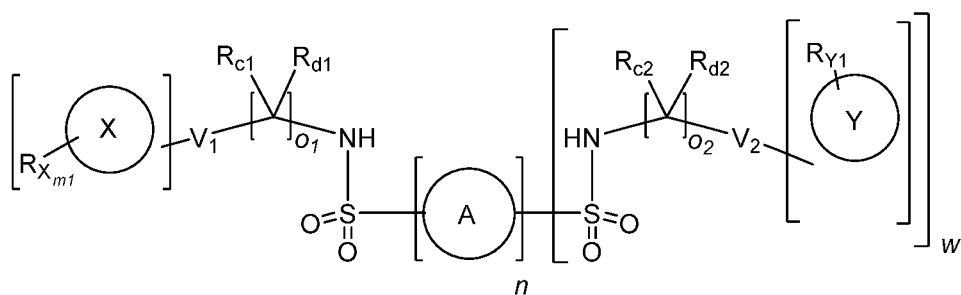
(Ie.55)



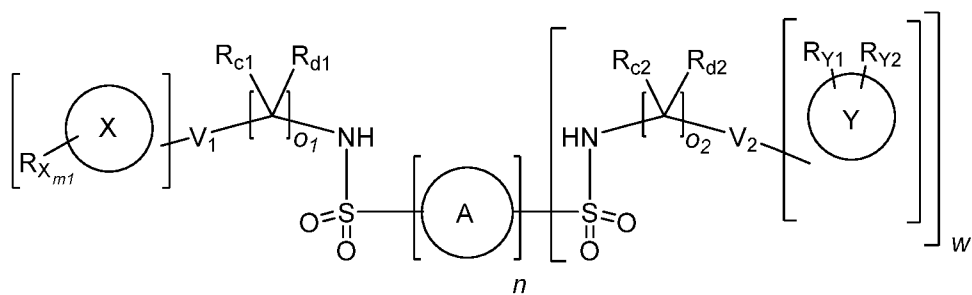
(Ie.56)



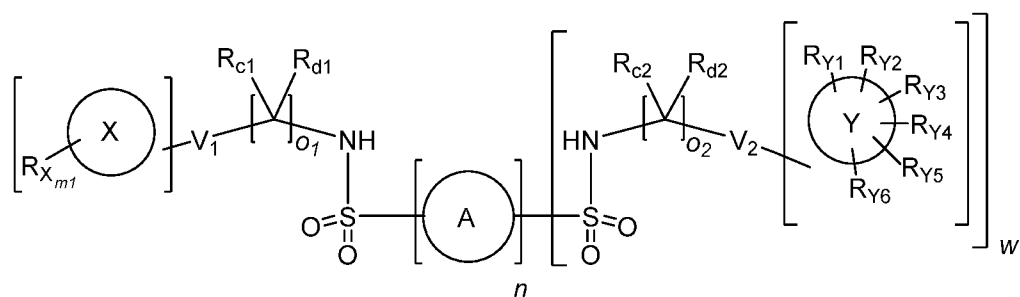
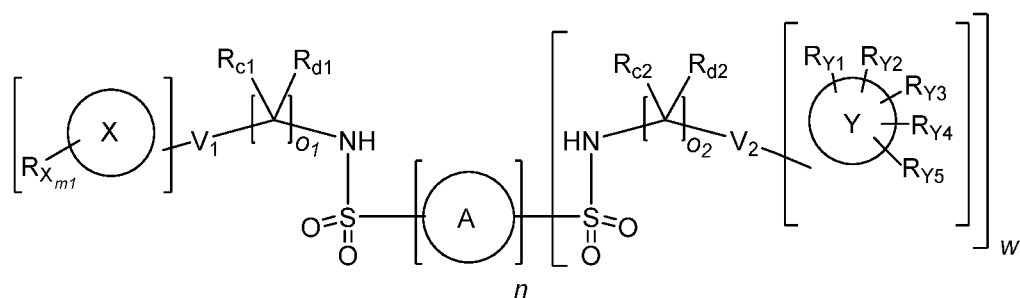
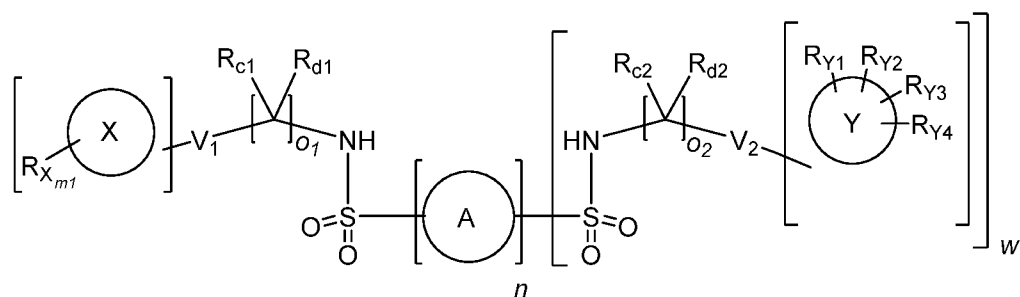
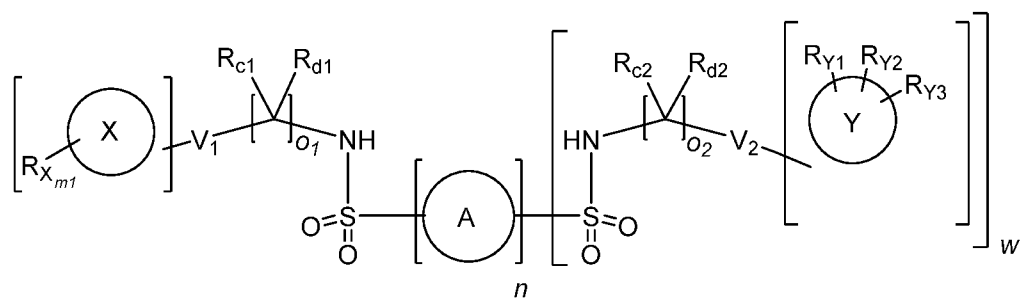
(Ie.57)



(Ie.58)



(Ie.59)



Variations of formulae (Ie)-(I3.63) in which w is 1

[484] In some embodiments of formulae (Ie)-(Ie.63) in which w is 1, o_1 is 1-4, 1-3, 1-2, 2-4, 2-3, 3-4, 1, 2, 3, or 4. In some of these embodiments, o_2 is 1-4, 1-3, 1-2, 2-4, 2-3, 3-4, 1, 2, 3, or 4.

[485] In some embodiments of formulae (Ie)-(Ie.63) in which w is 1, o_2 is 1-4, 1-3, 1-2, 2-4, 2-3, 3-4, 1, 2, 3, or 4.

Variations of formulae (Ie)-(Ie.63) in which w is 1 and o_I is 1

[486] In some variations, R_{c1} and R_{d1} are both H. In some variations, R_{c1} is H and R_{d1} is CH₃.

In some variations, R_{c1} and R_{d1} are both CH₃. In some variations, R_{c1} and R_{d1} are . In

some variations, R_{c1} and R_{d1} are .

Variations of formulae (Ie)-(Ie.63) in which w is 1 and o_I is 2

[487] In variations of formulae (Ie)-(Ie.63) described in the paragraphs above in which o_I is 2, the two instances of R_{c1} and R_{d1} are indicated as $R_{c1.1}$ and $R_{d1.1}$ and $R_{c1.2}$ and $R_{d1.2}$, respectively.

[488] In some variations, each of $R_{c1.1}$ and $R_{d1.1}$ and $R_{c1.2}$ and $R_{d1.2}$ is H. In some variations, each of $R_{c1.1}$ and $R_{d1.1}$ and $R_{c1.2}$ and $R_{d1.2}$ is CH₃. In some variations, each of $R_{c1.1}$ and $R_{c1.2}$ is H and each of $R_{d1.1}$ and $R_{d1.2}$ is CH₃. In some variations, each of $R_{c1.1}$, $R_{c1.2}$, and $R_{d1.1}$ is H and $R_{d1.2}$ is CH₃.

[489] In some variations, each of $R_{c1.1}$ and $R_{d1.1}$ is H and $R_{c1.2}$ and $R_{d1.2}$ are . In some

variations, each of $R_{c1.1}$ and $R_{d1.1}$ is H and $R_{c1.2}$ and $R_{d1.2}$ are . In some variations, each of

$R_{c1.1}$ and $R_{d1.1}$ is CH₃ and $R_{c1.2}$ and $R_{d1.2}$ are . In some variations, each of $R_{c1.1}$ and $R_{d1.1}$ is

CH₃ and $R_{c1.2}$ and $R_{d1.2}$ are .

[490] In some variations, $R_{c1.1}$ is H, $R_{d1.1}$ is CH₃, and $R_{c1.2}$ and $R_{d1.2}$ are . In some

variations, $R_{c1.1}$ is H, $R_{d1.1}$ is CH₃, and $R_{c1.2}$ and $R_{d1.2}$ are . In some variations, $R_{c1.1}$ and

$R_{d1.1}$ and $R_{c1.2}$ and $R_{d1.2}$ together are . In some variations, $R_{c1.1}$ and $R_{d1.1}$ are  $R_{c1.2}$

and $\mathbf{R}_{d1.2}$ are . In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$ are , and $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d1.2}$ are .

In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$ are , and $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d1.2}$ are .

Variations of formulae (Ie)-(Ie.63) in which w is 1 and o_I is 3

[491] In variations, of formulae (Ie)-(Ie.63) in which o_I is 3, the three instances of $\mathbf{R}_c$ and $\mathbf{R}_b$ are indicated as $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$; $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d1.2}$; and $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$, respectively.

[492] In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{c1.2}$, $\mathbf{R}_{d1.2}$, $\mathbf{R}_{c1.3}$, and $\mathbf{R}_{d1.3}$ is H. In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{c1.2}$, $\mathbf{R}_{d1.2}$, $\mathbf{R}_{c1.3}$, and $\mathbf{R}_{d1.3}$ is CH_3 . In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{c1.2}$, and $\mathbf{R}_{d1.2}$, is H and each of $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ is CH_3 . In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{c1.2}$, and $\mathbf{R}_{d1.2}$, is CH_3 and each of $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ is H. In some variations, $\mathbf{R}_{c1.1}$ is H and each of $\mathbf{R}_{c1.2}$, $\mathbf{R}_{c1.3}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{d1.2}$, and $\mathbf{R}_{d1.3}$ is CH_3 . In some variations, each of $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{c1.2}$ is H and each of $\mathbf{R}_{c1.3}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{d1.2}$, and $\mathbf{R}_{d1.3}$ is CH_3 . In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{c1.2}$, and $\mathbf{R}_{c1.3}$ is H and each of $\mathbf{R}_{d1.1}$, $\mathbf{R}_{d1.2}$, and $\mathbf{R}_{d1.3}$ is CH_3 .

[493] In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{c1.2}$, and $\mathbf{R}_{d1.2}$, is H and $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ are .

In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{c1.2}$, and $\mathbf{R}_{d1.2}$, is CH_3 and $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ are . In some variations, $\mathbf{R}_{c1.1}$ is H and each of $\mathbf{R}_{c1.2}$, $\mathbf{R}_{d1.1}$, and $\mathbf{R}_{d1.2}$ is CH_3 , and $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ are

. In some variations, each of $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{c1.2}$ is H and each of $\mathbf{R}_{d1.1}$ and $\mathbf{R}_{d1.2}$ is CH_3 , and

$\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ are .

[494] In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{c1.2}$, and $\mathbf{R}_{d1.2}$, is H and $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ are .

In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{c1.2}$, and $\mathbf{R}_{d1.2}$, is CH_3 and $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ are . In

some variations, $\mathbf{R}_{c1.1}$ is H and each of $\mathbf{R}_{c1.2}$, $\mathbf{R}_{d1.1}$, and $\mathbf{R}_{d1.2}$ is CH_3 , and $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ are . In some variations, each of $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{c1.2}$ is H and each of $\mathbf{R}_{d1.1}$ and $\mathbf{R}_{d1.2}$ is CH_3 , and $\mathbf{R}_{c1.3}$ and

$\mathbf{R}_{d1.3}$ are .

[495] In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , $R_{c1.2}$ and $R_{d1.2}$ are , and each of $R_{c1.3}$ and $R_{d1.3}$ is H. In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , $R_{c1.2}$ and $R_{d1.2}$ are , and each of $R_{c1.3}$ and $R_{d1.3}$ is CH₃. In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , $R_{c1.2}$ and $R_{d1.2}$ are , $R_{c1.3}$ is H, and $R_{d1.3}$ is CH₃. In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , $R_{c1.2}$ and $R_{d1.2}$ are , and each of $R_{c1.3}$ and $R_{d1.3}$ is H. In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , $R_{c1.2}$ and $R_{d1.2}$ are , and each of $R_{c1.3}$ and $R_{d1.3}$ is CH₃. In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , $R_{c1.2}$ and $R_{d1.2}$ are , $R_{c1.3}$ is H, and $R_{d1.3}$ is CH₃.

[496] In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , $R_{c1.2}$ and $R_{d1.2}$ are , and each of $R_{c1.3}$ and $R_{d1.3}$ is H. In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , $R_{c1.2}$ and $R_{d1.2}$ are , and each of $R_{c1.3}$ and $R_{d1.3}$ is CH₃. In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , $R_{c1.2}$ and $R_{d1.2}$ are , $R_{c1.3}$ is H, and $R_{d1.3}$ is CH₃. In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , $R_{c1.2}$ and $R_{d1.2}$ are , and each of $R_{c1.3}$ and $R_{d1.3}$ is H. In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , $R_{c1.2}$ and $R_{d1.2}$ are , and each of $R_{c1.3}$ and $R_{d1.3}$ is CH₃. In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , $R_{c1.2}$ and $R_{d1.2}$ are , $R_{c1.3}$ is H, and $R_{d1.3}$ is CH₃.

[497] In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , $R_{c1.2}$ and $R_{d1.2}$ are , and each of $R_{c1.3}$ and $R_{d1.3}$ is H. In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , $R_{c1.2}$ and $R_{d1.2}$ are , and each of $R_{c1.3}$ and $R_{d1.3}$ is CH₃. In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , $R_{c1.2}$ and $R_{d1.2}$ are ,

$R_{c1.3}$ is H, and $R_{d1.3}$ is CH_3 . In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , $R_{c1.2}$ and $R_{d1.2}$ are , and each of $R_{c1.3}$ and $R_{d1.3}$ is H. In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , $R_{c1.2}$ and $R_{d1.2}$ are , and each of $R_{c1.3}$ and $R_{d1.3}$ is CH_3 . In some variations, $R_{c1.1}$ and $R_{d1.1}$ are , $R_{c1.2}$ and $R_{d1.2}$ are , $R_{c1.3}$ is H, and $R_{d1.3}$ is CH_3 .

[498] In some variations, $R_{c1.1}$ and $R_{d1.1}$ and $R_{c1.2}$ and $R_{d1.2}$ together are , and each of $R_{c1.3}$ and $R_{d1.3}$ is H. In some variations, $R_{c1.1}$ and $R_{d1.1}$ and $R_{c1.2}$ and $R_{d1.2}$ together are , and each of $R_{c1.3}$ and $R_{d1.3}$ is CH_3 . In some variations, $R_{c1.1}$ and $R_{d1.1}$ and $R_{c1.2}$ and $R_{d1.2}$ together are , $R_{c1.3}$ is H, and $R_{d1.3}$ is CH_3 . In some variations, $R_{c1.1}$ and $R_{d1.1}$ and $R_{c1.2}$ and $R_{d1.2}$ together are , and $R_{c1.3}$ and $R_{d1.3}$ are . In some variations, $R_{c1.1}$ and $R_{d1.1}$ and $R_{c1.2}$ and $R_{d1.2}$ together are , and $R_{c1.3}$ and $R_{d1.3}$ are .

Variations of formulae (Ie)-(Ie.63) in which w is 1 and o_I is 4

[499] In variations of formulae (Ie)-(Ie.63) in which o_I is 4, the four instances of R_{c1} and R_{d1} are indicated as $R_{c1.1}$ and $R_{d1.1}$; $R_{c1.2}$ and $R_{d1.2}$; $R_{c1.3}$ and $R_{d1.3}$; and $R_{c1.4}$ and $R_{d1.4}$, respectively.

[500] In some variations, each of $R_{c1.1}$, R_{d1} , $R_{c1.2}$, R_{b2} , $R_{c1.3}$, $R_{d1.3}$, $R_{c1.4}$, and $R_{d1.4}$ is H. In some variations, each of $R_{c1.1}$, R_{d1} , $R_{c1.2}$, R_{b2} , $R_{c1.3}$, $R_{d1.3}$, $R_{c1.4}$, and $R_{d1.4}$ is CH_3 . In some variations, each of $R_{c1.1}$, R_{d1} , $R_{c1.2}$, R_{b2} , $R_{c1.3}$, and $R_{d1.3}$ is H and each of $R_{c1.4}$ and $R_{d1.4}$ is CH_3 . In some variations, each of $R_{c1.1}$, R_{d1} , $R_{c1.2}$, and R_{b2} is H and each of $R_{c1.3}$, $R_{d1.3}$, $R_{c1.4}$, and $R_{d1.4}$ is CH_3 . In some variations, each of $R_{c1.1}$, R_{d1} , $R_{c1.2}$, R_{b2} , $R_{c1.3}$, and $R_{d1.3}$ is CH_3 and each of $R_{c1.4}$ and $R_{d1.4}$ is H.

[501] In some variations, each of $R_{c1.1}$, $R_{c1.2}$, and $R_{c1.3}$ is H and each of R_{d1} , R_{b2} , and $R_{d1.3}$ is CH_3 . In some variations, $R_{c1.1}$ is H, R_{d1} is CH_3 , and each of $R_{c1.2}$, R_{b2} , $R_{c1.3}$, and $R_{d1.3}$ is CH_3 . In some variations, $R_{c1.1}$ is H, R_{d1} is CH_3 , and each of $R_{c1.2}$, R_{b2} , $R_{c1.3}$, and $R_{d1.3}$ is H. In some variations, each of $R_{c1.1}$ and $R_{c1.2}$ is H, each of R_{d1} and R_{b2} is CH_3 , and each of $R_{c1.3}$ and $R_{d1.3}$ is

H. In some variations, each of $R_{c1.1}$ and $R_{c1.2}$ is H, each of R_{d1} and R_{b2} is CH_3 , and each of $R_{c1.3}$ and $R_{d1.3}$ is CH_3 .

[502] In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{b2} are H, $R_{c1.3}$ and $R_{d1.3}$ are H, and

$R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{b2} are H, $R_{c1.3}$ and

$R_{d1.3}$ are CH_3 , and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and

R_{b2} are CH_3 , $R_{c1.3}$ and $R_{d1.3}$ are CH_3 , and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and

R_{d1} are CH_3 , $R_{c1.2}$ and R_{b2} are CH_3 , $R_{c1.3}$ and $R_{d1.3}$ are CH_3 , and $R_{c1.4}$ and $R_{d1.4}$ are .

[503] In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{b2} are H, $R_{c1.3}$ and $R_{d1.3}$ are ,

and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{b2} are CH_3 ,

$R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are

CH_3 , $R_{c1.2}$ and R_{b2} are CH_3 , $R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are . In some

variations, $R_{c1.1}$ is H, R_{d1} is CH_3 , $R_{c1.2}$ and R_{b2} are CH_3 , $R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and

$R_{d1.4}$ are . In some variations, $R_{c1.1}$ is H, R_{d1} is CH_3 , $R_{c1.2}$ is H, R_{b2} is CH_3 , $R_{c1.3}$ and $R_{d1.3}$

are , and $R_{c1.4}$ and $R_{d1.4}$ are .

[504] In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{b2} are , $R_{c1.3}$ and $R_{d1.3}$ are

, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are CH_3 , $R_{c1.2}$ and R_{b2} are

, $R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ is H,

R_{d1} is CH_3 , $R_{c1.2}$ and R_{b2} are , $R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are . In

some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are , $R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are .

[505] In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{b2} are H, $R_{c1.3}$ and $R_{d1.3}$ are H, and

$R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{b2} are H, $R_{c1.3}$ and

$R_{d1.3}$ are CH₃, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and

R_{b2} are CH₃, $R_{c1.3}$ and $R_{d1.3}$ are CH₃, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and

R_{d1} are CH₃, $R_{c1.2}$ and R_{b2} are CH₃, $R_{c1.3}$ and $R_{d1.3}$ are CH₃, and $R_{c1.4}$ and $R_{d1.4}$ are .

[506] In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{b2} are H, $R_{c1.3}$ and $R_{d1.3}$ are , and

$R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{b2} are CH₃, $R_{c1.3}$

and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are CH₃, $R_{c1.2}$

and R_{b2} are CH₃, $R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$

is H, R_{d1} is CH₃, $R_{c1.2}$ and R_{b2} are CH₃, $R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are .

In some variations, $R_{c1.1}$ is H, R_{d1} is CH₃, $R_{c1.2}$ is H, R_{b2} is CH₃, $R_{c1.3}$ and $R_{d1.3}$ are , and

$R_{c1.4}$ and $R_{d1.4}$ are .

[507] In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{b2} are , $R_{c1.3}$ and $R_{d1.3}$ are ,

and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are CH₃, $R_{c1.2}$ and R_{b2} are ,

$R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ is H, R_{d1} is CH₃, $R_{c1.2}$ and R_{b2} are , $R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are , $R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are .

[508] In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are H, $R_{c1.3}$ and $R_{d1.3}$ are H, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are CH₃, $R_{c1.3}$ and $R_{d1.3}$ are CH₃, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are H, $R_{c1.3}$ and $R_{d1.3}$ are CH₃, and $R_{c1.4}$ and $R_{d1.4}$ are .

[509] In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are , $R_{c1.3}$ and $R_{d1.3}$ are H, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are , $R_{c1.3}$ and $R_{d1.3}$ are CH₃, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are , $R_{c1.3}$ and $R_{d1.3}$ are CH₃, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are , $R_{c1.3}$ and $R_{d1.3}$ are H, and $R_{c1.4}$ and $R_{d1.4}$ are .

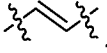
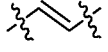
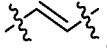
[510] In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are , $R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are .

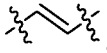
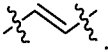
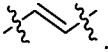
[511] In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are , $R_{c1.3}$ and $R_{d1.3}$ are H, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are , $R_{c1.3}$ and $R_{d1.3}$ are CH₃, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are , $R_{c1.3}$ and $R_{d1.3}$ are CH₃, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are , $R_{c1.3}$ and $R_{d1.3}$ are H, and $R_{c1.4}$ and $R_{d1.4}$ are .

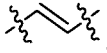
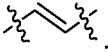
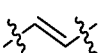
[512] In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are , $R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are .

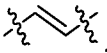
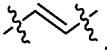
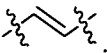
[513] In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are , $R_{c1.3}$ and $R_{d1.3}$ are H, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are , $R_{c1.3}$ and $R_{d1.3}$ are CH₃, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are , $R_{c1.3}$ and $R_{d1.3}$ are CH₃, and $R_{c1.4}$ and $R_{d1.4}$ are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are , $R_{c1.3}$ and $R_{d1.3}$ are H, and $R_{c1.4}$ and $R_{d1.4}$ are .

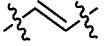
[514] In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are , $R_{c1.3}$ and $R_{d1.3}$ are , and $R_{c1.4}$ and $R_{d1.4}$ are .

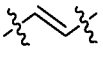
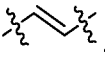
[515] In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{b2} are H, and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are . In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{b2} are CH₃, and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are . In some variations, $R_{c1.1}$ and $R_{c1.2}$ are H, R_{d1} and R_{b2} are CH₃, and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are .

[516] In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{b2} are , and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are CH₃, and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are . In some variations, $R_{c1.1}$ is H, R_{d1} is CH₃, $R_{c1.2}$ and R_{b2} are , and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are .

[517] In some variations, $R_{c1.1}$ and R_{d1} are H, $R_{c1.2}$ and R_{b2} are , and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are CH₃, and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are . In some variations, $R_{c1.1}$ is H, R_{d1} is CH₃, $R_{c1.2}$ and R_{b2} are , and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are .

[518] In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are , and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are , and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are . In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are , and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are .

[519] In some variations, $R_{c1.1}$ and R_{d1} are , $R_{c1.2}$ and R_{b2} are , and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are .

[520] In some variations, $R_{c1.1}$ and R_{d1} and $R_{c1.2}$ and R_{b2} together are , and $R_{c1.3}$ and $R_{d1.3}$ and $R_{c1.4}$ and $R_{d1.4}$ together are .

**Variations of formulae (Ie)-(Ie.63) in which w is 1
and o_I is 1, 2, 3, or 4 as described above, and o_2 is 1**

[521] In some variations, R_{c2} and R_{d2} are both H. In some variations, R_{c2} is H and R_{d2} is CH_3 .

In some variations, R_{c2} and R_{d2} are both CH_3 . In some variations, R_{c2} and R_{d2} are . In some variations, R_{c2} and R_{d2} are .

**Variations of formulae (Ie)-(Ie.63) in which w is 1 and o_I is 1, 2, 3, or 4 as described above,
and o_2 is 2**

[522] In variations of formulae (Ie)-(Ie.63) described in the paragraphs above in which o_I is 2, the two instances of R_{c2} and R_{d2} are indicated as $R_{c2.1}$ and $R_{d2.1}$ and $R_{c2.2}$ and $R_{d2.2}$, respectively.

[523] In some variations, each of $R_{c2.1}$ and $R_{d2.1}$ and $R_{c2.2}$ and $R_{d2.2}$ is H. In some variations, each of $R_{c2.1}$ and $R_{d2.1}$ and $R_{c2.2}$ and $R_{d2.2}$ is CH_3 . In some variations, each of $R_{c2.1}$ and $R_{c2.2}$ is H and each of $R_{d2.1}$ and $R_{d2.2}$ is CH_3 . In some variations, each of $R_{c2.1}$, $R_{c2.2}$, and $R_{d2.1}$ is H and $R_{d2.2}$ is CH_3 .

[524] In some variations, each of $R_{c2.1}$ and $R_{d2.1}$ is H and $R_{c2.2}$ and $R_{d2.2}$ are . In some variations, each of $R_{c2.1}$ and $R_{d2.1}$ is H and $R_{c2.2}$ and $R_{d2.2}$ are . In some variations, each of $R_{c2.1}$ and $R_{d2.1}$ is CH_3 and $R_{c2.2}$ and $R_{d2.2}$ are . In some variations, each of $R_{c2.1}$ and $R_{d2.1}$ is CH_3 and $R_{c2.2}$ and $R_{d2.2}$ are . In some variations, $R_{c2.1}$ is H, $R_{d2.1}$ is CH_3 , and $R_{c2.2}$ and $R_{d2.2}$ are . In some variations, $R_{c2.1}$ is H, $R_{d2.1}$ is CH_3 , and $R_{c2.2}$ and $R_{d2.2}$ are . In some

variations, $\mathbf{R}_{c2.1}$ and $\mathbf{R}_{d2.1}$ and $\mathbf{R}_{c2.2}$ and $\mathbf{R}_{d2.2}$ together are . In some variations, $\mathbf{R}_{c2.1}$ and $\mathbf{R}_{d2.1}$ are  $\mathbf{R}_{c2.2}$ and $\mathbf{R}_{d2.2}$ are . In some variations, $\mathbf{R}_{c2.1}$ and $\mathbf{R}_{d2.1}$ are , and $\mathbf{R}_{c2.2}$ and $\mathbf{R}_{d2.2}$ are . In some variations, $\mathbf{R}_{c2.1}$ and $\mathbf{R}_{d2.1}$ are , and $\mathbf{R}_{c2.2}$ and $\mathbf{R}_{d2.2}$ are .

Variations of formulae (Ie)-(Ie.63) in which w is 1 and o_1 is 1, 2, 3, or 4 as described above, and o_2 is 3

[525] In variations, of formulae (Ie)-(Ie.63) in which o_1 is 3, the three instances of $\mathbf{R}_c$ and $\mathbf{R}_d$ are indicated as $\mathbf{R}_{c2.1}$ and $\mathbf{R}_{d2.1}$; $\mathbf{R}_{c2.2}$ and $\mathbf{R}_{d2.2}$; and $\mathbf{R}_{c2.3}$ and $\mathbf{R}_{d2.3}$, respectively.

[526] In some variations, each of $\mathbf{R}_{c2.1}$, $\mathbf{R}_{d2.1}$, $\mathbf{R}_{c2.2}$, $\mathbf{R}_{d2.2}$, $\mathbf{R}_{c2.3}$, and $\mathbf{R}_{d2.3}$ is H. In some variations, each of $\mathbf{R}_{c2.1}$, $\mathbf{R}_{d2.1}$, $\mathbf{R}_{c2.2}$, $\mathbf{R}_{d2.2}$, $\mathbf{R}_{c2.3}$, and $\mathbf{R}_{d2.3}$ is CH_3 . In some variations, each of $\mathbf{R}_{c2.1}$, $\mathbf{R}_{d2.1}$, $\mathbf{R}_{c2.2}$, and $\mathbf{R}_{d2.2}$, is H and each of $\mathbf{R}_{c2.3}$ and $\mathbf{R}_{d2.3}$ is CH_3 . In some variations, each of $\mathbf{R}_{c2.1}$, $\mathbf{R}_{d2.1}$, $\mathbf{R}_{c2.2}$, and $\mathbf{R}_{d2.2}$, is CH_3 and each of $\mathbf{R}_{c2.3}$ and $\mathbf{R}_{d2.3}$ is H. In some variations, each of $\mathbf{R}_{c2.1}$ and $\mathbf{R}_{c2.2}$ is H and each of $\mathbf{R}_{c2.3}$, $\mathbf{R}_{d2.1}$, $\mathbf{R}_{d2.2}$, and $\mathbf{R}_{d2.3}$ is CH_3 . In some variations, each of $\mathbf{R}_{c2.1}$ and $\mathbf{R}_{c2.2}$ is H and each of $\mathbf{R}_{c2.3}$, $\mathbf{R}_{d2.1}$, $\mathbf{R}_{d2.2}$, and $\mathbf{R}_{d2.3}$ is CH_3 . In some variations, each of $\mathbf{R}_{c2.1}$, $\mathbf{R}_{c2.2}$, and $\mathbf{R}_{c2.3}$ is H and each of $\mathbf{R}_{d2.1}$, $\mathbf{R}_{d2.2}$, and $\mathbf{R}_{d2.3}$ is CH_3 .

[527] In some variations, each of $\mathbf{R}_{c2.1}$, $\mathbf{R}_{d2.1}$, $\mathbf{R}_{c2.2}$, and $\mathbf{R}_{d2.2}$, is H and $\mathbf{R}_{c2.3}$ and $\mathbf{R}_{d2.3}$ are .

In some variations, each of $\mathbf{R}_{c2.1}$, $\mathbf{R}_{d2.1}$, $\mathbf{R}_{c2.2}$, and $\mathbf{R}_{d2.2}$, is CH_3 and $\mathbf{R}_{c2.3}$ and $\mathbf{R}_{d2.3}$ are . In some variations, $\mathbf{R}_{c2.1}$ is H and each of $\mathbf{R}_{c2.2}$, $\mathbf{R}_{d2.1}$, and $\mathbf{R}_{d2.2}$ is CH_3 , and $\mathbf{R}_{c2.3}$ and $\mathbf{R}_{d2.3}$ are

. In some variations, each of $\mathbf{R}_{c2.1}$ and $\mathbf{R}_{c2.2}$ is H and each of $\mathbf{R}_{d2.1}$ and $\mathbf{R}_{d2.2}$ is CH_3 , and

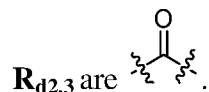
$\mathbf{R}_{c2.3}$ and $\mathbf{R}_{d2.3}$ are .

[528] In some variations, each of $\mathbf{R}_{c2.1}$, $\mathbf{R}_{d2.1}$, $\mathbf{R}_{c2.2}$, and $\mathbf{R}_{d2.2}$, is H and $\mathbf{R}_{c2.3}$ and $\mathbf{R}_{d2.3}$ are .

In some variations, each of $\mathbf{R}_{c2.1}$, $\mathbf{R}_{d2.1}$, $\mathbf{R}_{c2.2}$, and $\mathbf{R}_{d2.2}$, is CH_3 and $\mathbf{R}_{c2.3}$ and $\mathbf{R}_{d2.3}$ are . In

some variations, $\mathbf{R}_{c2.1}$ is H and each of $\mathbf{R}_{c2.2}$, $\mathbf{R}_{d2.1}$, and $\mathbf{R}_{d2.2}$ is CH_3 , and $\mathbf{R}_{c2.3}$ and $\mathbf{R}_{d2.3}$ are .

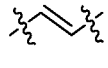
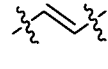
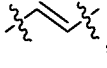
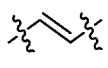
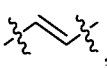
. In some variations, each of $R_{c2.1}$ and $R_{c2.2}$ is H and each of $R_{d2.1}$ and $R_{d2.2}$ is CH_3 , and $R_{c2.3}$ and



[529] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and each of $R_{c2.3}$ and $R_{d2.3}$ is H. In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and each of $R_{c2.3}$ and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ is H, and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and each of $R_{c2.3}$ and $R_{d2.3}$ is H. In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and each of $R_{c2.3}$ and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ is H, and $R_{d2.3}$ is CH_3 .

[530] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and each of $R_{c2.3}$ and $R_{d2.3}$ is H. In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and each of $R_{c2.3}$ and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ is H, and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and each of $R_{c2.3}$ and $R_{d2.3}$ is H. In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and each of $R_{c2.3}$ and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ is H, and $R_{d2.3}$ is CH_3 .

[531] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and each of $R_{c2.3}$ and $R_{d2.3}$ is H. In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and each of $R_{c2.3}$ and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ is H, and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and each of $R_{c2.3}$ and $R_{d2.3}$ is H. In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and each of $R_{c2.3}$ and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ is H, and $R_{d2.3}$ is CH_3 .

[532] In some variations, $R_{c2.1}$ and $R_{d2.1}$ and $R_{c2.2}$ and $R_{d2.2}$ together are , and each of $R_{c2.3}$ and $R_{d2.3}$ is H. In some variations, $R_{c2.1}$ and $R_{d2.1}$ and $R_{c2.2}$ and $R_{d2.2}$ together are , and each of $R_{c2.3}$ and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ and $R_{d2.1}$ and $R_{c2.2}$ and $R_{d2.2}$ together are , $R_{c2.3}$ is H, and $R_{d2.3}$ is CH_3 . In some variations, $R_{c2.1}$ and $R_{d2.1}$ and $R_{c2.2}$ and $R_{d2.2}$ together are , and $R_{c2.3}$ and $R_{d2.3}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ and $R_{c2.2}$ and $R_{d2.2}$ together are , and $R_{c2.3}$ and $R_{d2.3}$ are .

Variations of formulae (Ie)-(Ie.63) in which w is 1 and o_I is 1, 2, 3, or 4 as described above, and o_2 is 4

[533] In variations of formulae (Ie)-(Ie.63) in which o_I is 4, the four instances of R_{c2} and R_{d2} are indicated as $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; and $R_{c2.4}$ and $R_{d2.4}$, respectively.

[534] In some variations, each of $R_{c2.1}$, $R_{d2.1}$, $R_{c2.2}$, $R_{d2.2}$, $R_{c2.3}$, $R_{d2.3}$, $R_{c2.4}$, and $R_{d2.4}$ is H. In some variations, each of $R_{c2.1}$, $R_{d2.1}$, $R_{c2.2}$, $R_{d2.2}$, $R_{c2.3}$, $R_{d2.3}$, $R_{c2.4}$, and $R_{d2.4}$ is CH_3 . In some variations, each of $R_{c2.1}$, $R_{d2.1}$, $R_{c2.2}$, $R_{d2.2}$, $R_{c2.3}$, and $R_{d2.3}$ is H and each of $R_{c2.4}$ and $R_{d2.4}$ is CH_3 . In some variations, each of $R_{c2.1}$, $R_{d2.1}$, $R_{c2.2}$, and $R_{d2.2}$ is H and each of $R_{c2.3}$, $R_{d2.3}$, $R_{c2.4}$, and $R_{d2.4}$

is CH₃. In some variations, each of **R**_{c2.1}, **R**_{d2.1}, **R**_{c2.2}, **R**_{d2}, **R**_{c2.3}, and **R**_{d2.3} is CH₃ and each of **R**_{c2.4} and **R**_{d2.4} is H.

[535] In some variations, each of **R**_{c2.1}, **R**_{c2.2}, and **R**_{c2.3} is H and each of **R**_{d2.1}, **R**_{d2.2}, and **R**_{d2.3} is CH₃. In some variations, **R**_{c2.1} is H, **R**_{d2.1} is CH₃, and each of **R**_{c2.2}, **R**_{d2.2}, **R**_{c2.3}, and **R**_{d2.3} is CH₃. In some variations, **R**_{c2.1} is H, **R**_{d2.1} is CH₃, and each of **R**_{c2.2}, **R**_{d2.2}, **R**_{c2.3}, and **R**_{d2.3} is H. In some variations, each of **R**_{c2.1} and **R**_{c2.2} is H, each of **R**_{d2.1} and **R**_{d2.2} is CH₃, and each of **R**_{c2.3} and **R**_{d2.3} is H. In some variations, each of **R**_{c2.1} and **R**_{c2.2} is H, each of **R**_{d2.1} and **R**_{d2.2} is CH₃, and each of **R**_{c2.3} and **R**_{d2.3} is CH₃.

[536] In some variations, **R**_{c2.1} and **R**_{d2.1} are H, **R**_{c2.2} and **R**_{d2.2} are H, **R**_{c2.3} and **R**_{d2.3} are H, and

R_{c2.4} and **R**_{d2.4} are . In some variations, **R**_{c2.1} and **R**_{d2.1} are H, **R**_{c2.2} and **R**_{d2.2} are H, **R**_{c2.3} and **R**_{d2.3} are CH₃, and **R**_{c2.4} and **R**_{d2.4} are . In some variations, **R**_{c2.1} and **R**_{d2.1} are H, **R**_{c2.2} and **R**_{d2.2} are CH₃, **R**_{c2.3} and **R**_{d2.3} are CH₃, and **R**_{c2.4} and **R**_{d2.4} are . In some variations, **R**_{c2.1} and **R**_{d2.1} are CH₃, **R**_{c2.2} and **R**_{d2.2} are CH₃, **R**_{c2.3} and **R**_{d2.3} are CH₃, and **R**_{c2.4} and **R**_{d2.4} are .

[537] In some variations, **R**_{c2.1} and **R**_{d2.1} are H, **R**_{c2.2} and **R**_{d2.2} are H, **R**_{c2.3} and **R**_{d2.3} are ,

and **R**_{c2.4} and **R**_{d2.4} are . In some variations, **R**_{c2.1} and **R**_{d2.1} are H, **R**_{c2.2} and **R**_{d2.2} are CH₃,

R_{c2.3} and **R**_{d2.3} are , and **R**_{c2.4} and **R**_{d2.4} are . In some variations, **R**_{c2.1} and **R**_{d2.1} are

CH₃, **R**_{c2.2} and **R**_{d2.2} are CH₃, **R**_{c2.3} and **R**_{d2.3} are , and **R**_{c2.4} and **R**_{d2.4} are .

In some variations, **R**_{c2.1} is H, **R**_{d2.1} is CH₃, **R**_{c2.2} and **R**_{d2.2} are CH₃, **R**_{c2.3} and **R**_{d2.3} are , and **R**_{c2.4}

and **R**_{d2.4} are . In some variations, **R**_{c2.1} is H, **R**_{d2.1} is CH₃, **R**_{c2.2} is H, **R**_{d2.2} is CH₃, **R**_{c2.3} and

R_{d2.3} are , and **R**_{c2.4} and **R**_{d2.4} are .

[538] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are H, $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are CH₃, $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ is H, $R_{d2.1}$ is CH₃, $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are .

[539] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are H, $R_{c2.2}$ and $R_{d2.2}$ are H, $R_{c2.3}$ and $R_{d2.3}$ are H, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are H, $R_{c2.2}$ and $R_{d2.2}$ are H, $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are H, $R_{c2.2}$ and $R_{d2.2}$ are CH₃, $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are CH₃, $R_{c2.2}$ and $R_{d2.2}$ are CH₃, $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $R_{c2.4}$ and $R_{d2.4}$ are .

[540] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are H, $R_{c2.2}$ and $R_{d2.2}$ are H, $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are H, $R_{c2.2}$ and $R_{d2.2}$ are CH₃, $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are CH₃, $R_{c2.2}$ and $R_{d2.2}$ are CH₃, $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ is H, $R_{d2.1}$ is CH₃, $R_{c2.2}$ and $R_{d2.2}$ are CH₃, $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are .

$R_{d2.4}$ are . In some variations, $R_{c2.1}$ is H, $R_{d2.1}$ is CH₃, $R_{c2.2}$ is H, $R_{d2.2}$ is CH₃, $R_{c2.3}$ and

$R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are .

[541] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are H, $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ and $R_{d2.3}$ are

, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are CH₃, $R_{c2.2}$ and $R_{d2.2}$

are , $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ is H,

$R_{d2.1}$ is CH₃, $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are . In

some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ and $R_{d2.3}$ are , and

$R_{c2.4}$ and $R_{d2.4}$ are .

[542] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are H, $R_{c2.3}$ and $R_{d2.3}$ are H,

and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are

CH₃, $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are

, $R_{c2.2}$ and $R_{d2.2}$ are H, $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $R_{c2.4}$ and $R_{d2.4}$ are .

[543] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ and $R_{d2.3}$ are

H, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are

, $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$

are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $R_{c2.4}$ and $R_{d2.4}$ are . In

some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ and $R_{d2.3}$ are H, and $R_{c2.4}$ and $R_{d2.4}$ are .

[544] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are .

[545] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ and $R_{d2.3}$ are H, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ and $R_{d2.3}$ are H, and $R_{c2.4}$ and $R_{d2.4}$ are .

[546] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ and $R_{d2.3}$ are , and $R_{c2.4}$ and $R_{d2.4}$ are .

[547] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ and $R_{d2.3}$ are H, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$

are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ and $R_{d2.3}$ are CH_3 , and $R_{c2.4}$ and $R_{d2.4}$ are . In

some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ and $R_{d2.3}$ are H, and

$R_{c2.4}$ and $R_{d2.4}$ are .

[548] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , $R_{c2.3}$ and $R_{d2.3}$ are

, and $R_{c2.4}$ and $R_{d2.4}$ are .

[549] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are H, $R_{c2.2}$ and $R_{d2.2}$ are H, and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are H, $R_{c2.2}$ and $R_{d2.2}$ are CH_3 , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are H, $R_{c2.2}$ and $R_{d2.2}$ are CH_3 , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are .

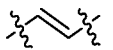
[550] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are H, $R_{c2.2}$ and $R_{d2.2}$ are , and $R_{c2.3}$ and $R_{d2.3}$ and

$R_{c2.4}$ and $R_{d2.4}$ together are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are CH_3 , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are .

In some variations, $R_{c2.1}$ is H, $R_{d2.1}$ is CH_3 , $R_{c2.2}$ and $R_{d2.2}$ are , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are .

[551] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are H, $R_{c2.2}$ and $R_{d2.2}$ are , and $R_{c2.3}$ and $R_{d2.3}$ and

$R_{c2.4}$ and $R_{d2.4}$ together are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are CH_3 , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are .

H, $R_{d2.1}$ is CH_3 , $R_{c2.2}$ and $R_{d2.2}$ are , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are .

[552] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are .

[553] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are .

[554] In some variations, $R_{c2.1}$ and $R_{d2.1}$ and $R_{c2.2}$ and $R_{d2.2}$ together are , and $R_{c2.3}$ and $R_{d2.3}$ and $R_{c2.4}$ and $R_{d2.4}$ together are .

Variations of formulae (Ie)-(Ie.63) in which w is 2

[555] In some variations of formulae (Ie)-(Ie.63), w is 2 and the two respective instances of R_{c2} and R_{d2} are distinguished in the description below as R_{c2} and R_{d2} and $R_{c2'}$ and $R_{d2'}$, respectively.

Variations of formulae (Ie)-(Ie.63) in which w is 2, o_1 is 1, 2, 3, or 4 as described above; a first o_2 is 1, 2, 3, or 4 as described above; and a second instance of o_2 is 1

[556] In some variations, $R_{c2'}$ and $R_{d2'}$ are both H. In some variations, $R_{c2'}$ is H and $R_{d2'}$ is CH_3 .

In some variations, $R_{c2'}$ and $R_{d2'}$ are both CH_3 . In some variations, $R_{c2'}$ and $R_{d2'}$ are . In

some variations, $R_{c2'}$ and $R_{d2'}$ are .

Variations of formulae (Ie)-(Ie.63) in which w is 2, o_1 is 1, 2, 3, or 4 as described above; a first o_2 is 1, 2, 3, or 4 as described above; and a second instance of o_2 is 2

[557] In variations of formulae (Ie)-(Ie.63) described in the paragraphs above in which o_1 is 2, the two instances of $R_{c2'}$ and $R_{d2'}$ are indicated as $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$, respectively.

[558] In some variations, each of $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ is H. In some variations, each of $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ is CH_3 . In some variations, each of $R_{c2.1'}$ and $R_{c2.2'}$ is H and each of $R_{d2.1'}$ and $R_{d2.2'}$ is CH_3 . In some variations, each of $R_{c2.1'}$, $R_{c2.2'}$, and $R_{d2.1'}$ is H and $R_{d2.2'}$ is CH_3 .

[559] In some variations, each of $R_{c2.1'}$ and $R_{d2.1'}$ is H and $R_{c2.2'}$ and $R_{d2.2'}$ are . In some variations, each of $R_{c2.1'}$ and $R_{d2.1'}$ is H and $R_{c2.2'}$ and $R_{d2.2'}$ are . In some variations, each of $R_{c2.1'}$ and $R_{d2.1'}$ is CH_3 and $R_{c2.2'}$ and $R_{d2.2'}$ are . In some variations, each of $R_{c2.1'}$ and $R_{d2.1'}$ is CH_3 and $R_{c2.2'}$ and $R_{d2.2'}$ are .

[560] In some variations, $R_{c2.1'}$ is H, $R_{d2.1'}$ is CH_3 , and $R_{c2.2'}$ and $R_{d2.2'}$ are . In some variations, $R_{c2.1'}$ is H, $R_{d2.1'}$ is CH_3 , and $R_{c2.2'}$ and $R_{d2.2'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ together are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are . $R_{c2.2'}$ and $R_{d2.2'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , and $R_{c2.2'}$ and $R_{d2.2'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , and $R_{c2.2'}$ and $R_{d2.2'}$ are .

Variations of formulae (Ie)-(Ie.63) in which w is 2, o_1 is 1, 2, 3, or 4 as described above; a first o_2 is 1, 2, 3, or 4 as described above; and a second instance of o_2 is 3

[561] In variations, of formulae (Ie)-(Ie.63) in which o_1 is 3, the three instances of R_c and R_d are indicated as $R_{c2.1'}$ and $R_{d2.1'}$; $R_{c2.2'}$ and $R_{d2.2'}$; and $R_{c2.3'}$ and $R_{d2.3'}$, respectively.

[562] In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, $R_{d2.2'}$, $R_{c2.3'}$, and $R_{d2.3'}$ is H. In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, $R_{d2.2'}$, $R_{c2.3'}$, and $R_{d2.3'}$ is CH₃. In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, and $R_{d2.2'}$, is H and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH₃. In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, and $R_{d2.2'}$, is CH₃ and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ is H and each of $R_{c2.2'}$, $R_{c2.3'}$, $R_{d2.1'}$, $R_{d2.2'}$, and $R_{d2.3'}$ is CH₃. In some variations, each of $R_{c2.1'}$ and $R_{c2.2'}$ is H and each of $R_{c2.3'}$, $R_{d2.1'}$, $R_{d2.2'}$, and $R_{d2.3'}$ is CH₃. In some variations, each of $R_{c2.1'}$, $R_{c2.2'}$, and $R_{c2.3'}$ is H and each of $R_{d2.1'}$, $R_{d2.2'}$, and $R_{d2.3'}$ is CH₃.

[563] In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, and $R_{d2.2'}$, is H and $R_{c2.3'}$ and $R_{d2.3'}$ are



. In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, and $R_{d2.2'}$, is CH₃ and $R_{c2.3'}$ and $R_{d2.3'}$ are



. In some variations, $R_{c2.1'}$ is H and each of $R_{c2.2'}$, $R_{d2.1'}$, and $R_{d2.2'}$ is CH₃, and $R_{c2.3'}$ and

$R_{d2.3'}$ are . In some variations, each of $R_{c2.1'}$ and $R_{c2.2'}$ is H and each of $R_{d2.1'}$ and $R_{d2.2'}$ is

CH₃, and $R_{c2.3'}$ and $R_{d2.3'}$ are .

[564] In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, and $R_{d2.2'}$, is H and $R_{c2.3'}$ and $R_{d2.3'}$ are



. In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, and $R_{d2.2'}$, is CH₃ and $R_{c2.3'}$ and $R_{d2.3'}$ are



. In some variations, $R_{c2.1'}$ is H and each of $R_{c2.2'}$, $R_{d2.1'}$, and $R_{d2.2'}$ is CH₃, and $R_{c2.3'}$ and

$R_{d2.3'}$ are . In some variations, each of $R_{c2.1'}$ and $R_{c2.2'}$ is H and each of $R_{d2.1'}$ and $R_{d2.2'}$ is

CH₃, and $R_{c2.3'}$ and $R_{d2.3'}$ are .

[565] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of

$R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are ,

and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH₃. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and

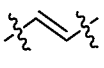
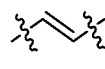
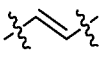
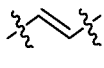
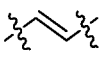
$R_{d2.2'}$ are , $R_{c2.3'}$ is H, and $R_{d2.3'}$ is CH₃. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are ,

$R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH₃. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ is H, and $R_{d2.3'}$ is CH₃.

[566] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH₃. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ is H, and $R_{d2.3'}$ is CH₃. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH₃. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ is H, and $R_{d2.3'}$ is CH₃.

[567] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH₃. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ is H, and $R_{d2.3'}$ is CH₃. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are ,

$R_{c2.2'}$ and $R_{d2.2'}$ are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH_3 . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ is H, and $R_{d2.3'}$ is CH_3 .

[568] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ together are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ together are , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH_3 . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ together are , $R_{c2.3'}$ is H, and $R_{d2.3'}$ is CH_3 . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ together are , and $R_{c2.3'}$ and $R_{d2.3'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ together are , and $R_{c2.3'}$ and $R_{d2.3'}$ are .

Variations of formulae (Ie)-(Ie.63) in which w is 2, o_1 is 1, 2, 3, or 4 as described above; a first o_2 is 1, 2, 3, or 4 as described above; and a second instance of o_2 is 4

[569] In variations of formulae (Ie)-(Ie.63) in which o_1 is 4, the four instances of R_{c2} and R_{d2} are indicated as $R_{c2.1'}$ and $R_{d2.1'}$; $R_{c2.2'}$ and $R_{d2.2'}$; $R_{c2.3'}$ and $R_{d2.3'}$; and $R_{c2.4'}$ and $R_{d2.4'}$, respectively.

[570] In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, $R_{d2.2'}$, $R_{c2.3'}$, $R_{d2.3'}$, $R_{c2.4'}$, and $R_{d2.4'}$ is H. In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, $R_{d2.2'}$, $R_{c2.3'}$, $R_{d2.3'}$, $R_{c2.4'}$, and $R_{d2.4'}$ is CH_3 . In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, $R_{d2.2'}$, $R_{c2.3'}$, and $R_{d2.3'}$ is H and each of $R_{c2.4'}$ and $R_{d2.4'}$ is CH_3 . In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, and $R_{d2.2'}$ is H and each of $R_{c2.3'}$, $R_{d2.3'}$, $R_{c2.4'}$, and $R_{d2.4'}$ is CH_3 . In some variations, each of $R_{c2.1'}$, $R_{d2.1'}$, $R_{c2.2'}$, $R_{d2.2'}$, $R_{c2.3'}$, and $R_{d2.3'}$ is CH_3 and each of $R_{c2.4'}$ and $R_{d2.4'}$ is H.

[571] In some variations, each of $R_{c2.1'}$, $R_{c2.2'}$, and $R_{c2.3'}$ is H and each of $R_{d2.1'}$, $R_{d2.2'}$, and $R_{d2.3'}$ is CH_3 . In some variations, $R_{c2.1'}$ is H, $R_{d2.1'}$ is CH_3 , and each of $R_{c2.2'}$, $R_{d2.2'}$, $R_{c2.3'}$, and $R_{d2.3'}$ is CH_3 . In some variations, $R_{c2.1'}$ is H, $R_{d2.1'}$ is CH_3 , and each of $R_{c2.2'}$, $R_{d2.2'}$, $R_{c2.3'}$, and $R_{d2.3'}$ is H. In some variations, each of $R_{c2.1'}$ and $R_{c2.2'}$ is H, each of $R_{d2.1'}$ and $R_{d2.2'}$ is CH_3 , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is H. In some variations, each of $R_{c2.1'}$ and $R_{c2.2'}$ is H, each of $R_{d2.1'}$ and $R_{d2.2'}$ is CH_3 , and each of $R_{c2.3'}$ and $R_{d2.3'}$ is CH_3 .

[572] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are H, $R_{c2.2'}$ and $R_{d2.2'}$ are H, $R_{c2.3'}$ and $R_{d2.3'}$ are H,

and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are H, $R_{c2.2'}$ and $R_{d2.2'}$ are H,

$R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are

H, $R_{c2.2'}$ and $R_{d2.2'}$ are CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are CH_3 , $R_{c2.2'}$ and $R_{d2.2'}$ are CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$

and $R_{d2.4'}$ are .

[573] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are H, $R_{c2.2'}$ and $R_{d2.2'}$ are H, $R_{c2.3'}$ and $R_{d2.3'}$ are

, and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are H, $R_{c2.2'}$ and $R_{d2.2'}$

are CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and

$R_{d2.1'}$ are CH_3 , $R_{c2.2'}$ and $R_{d2.2'}$ are CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are

. In some variations, $R_{c2.1'}$ is H, $R_{d2.1'}$ is CH_3 , $R_{c2.2'}$ and $R_{d2.2'}$ are CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are

, and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ is H, $R_{d2.1'}$ is CH_3 , $R_{c2.2'}$ is H,

$R_{d2.2'}$ is CH_3 , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

[574] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are H, $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are

, and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are CH_3 , $R_{c2.2'}$ and

$R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations,

$R_{c2.1'}$ is H, $R_{d2.1'}$ is CH_3 , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and

$R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$

and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

[575] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are H, $R_{c2.2'}$ and $R_{d2.2'}$ are H, $R_{c2.3'}$ and $R_{d2.3'}$ are H,

and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are H, $R_{c2.2'}$ and $R_{d2.2'}$ are H,

$R_{c2.3'}$ and $R_{d2.3'}$ are CH₃, and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are

H, $R_{c2.2'}$ and $R_{d2.2'}$ are CH₃, $R_{c2.3'}$ and $R_{d2.3'}$ are CH₃, and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are CH₃, $R_{c2.2'}$ and $R_{d2.2'}$ are CH₃, $R_{c2.3'}$ and $R_{d2.3'}$ are CH₃, and $R_{c2.4'}$

and $R_{d2.4'}$ are .

[576] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are H, $R_{c2.2'}$ and $R_{d2.2'}$ are H, $R_{c2.3'}$ and $R_{d2.3'}$ are 

, and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are H, $R_{c2.2'}$ and $R_{d2.2'}$ are

CH₃, $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and

$R_{d2.1'}$ are CH₃, $R_{c2.2'}$ and $R_{d2.2'}$ are CH₃, $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

In some variations, $R_{c2.1'}$ is H, $R_{d2.1'}$ is CH₃, $R_{c2.2'}$ and $R_{d2.2'}$ are CH₃, $R_{c2.3'}$ and $R_{d2.3'}$ are ,

and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ is H, $R_{d2.1'}$ is CH₃, $R_{c2.2'}$ is H, $R_{d2.2'}$ is

CH₃, $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

[577] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are H, $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are

, and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are CH₃, $R_{c2.2'}$ and $R_{d2.2'}$

are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ is

H, $R_{d2.1'}$ is CH₃, $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are

. In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

[578] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are H, $R_{c2.3'}$ and $R_{d2.3'}$ are H, and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are H, $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

[579] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are H, and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are H, and $R_{c2.4'}$ and $R_{d2.4'}$ are .

[580] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

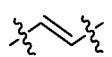
[581] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are H, and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are

$R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are H, and $R_{c2.4'}$ and $R_{d2.4'}$ are .

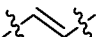
[582] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

[583] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are H, and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are CH_3 , and $R_{c2.4'}$ and $R_{d2.4'}$ are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are H, and $R_{c2.4'}$ and $R_{d2.4'}$ are .

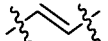
[584] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , $R_{c2.3'}$ and $R_{d2.3'}$ are , and $R_{c2.4'}$ and $R_{d2.4'}$ are .

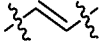
[585] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are H, $R_{c2.2'}$ and $R_{d2.2'}$ are H, and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are . In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are H, $R_{c2.2'}$ and $R_{d2.2'}$

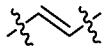
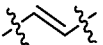
are CH₃', and **R**_{c2.3'} and **R**_{d2.3'} and **R**_{c2.4'} and **R**_{d2.4'} together are . In some variations, **R**_{c2.1'} and **R**_{c2.2'} are H, **R**_{d2.1'} and **R**_{d2.2'} are CH₃', and **R**_{c2.3'} and **R**_{d2.3'} and **R**_{c2.4'} and **R**_{d2.4'} together are .

[586] In some variations, $\mathbf{R}_{c2.1'}$ and $\mathbf{R}_{d2.1'}$ are H, $\mathbf{R}_{c2.2'}$ and $\mathbf{R}_{d2.2'}$ are , and $\mathbf{R}_{c2.3'}$ and $\mathbf{R}_{d2.3'}$ and $\mathbf{R}_{c2.4'}$ and $\mathbf{R}_{d2.4'}$ together are . In some variations, $\mathbf{R}_{c2.1'}$ and $\mathbf{R}_{d2.1'}$ are , $\mathbf{R}_{c2.2'}$ and $\mathbf{R}_{d2.2'}$ are CH_3 , and $\mathbf{R}_{c2.3'}$ and $\mathbf{R}_{d2.3'}$ and $\mathbf{R}_{c2.4'}$ and $\mathbf{R}_{d2.4'}$ together are . In some variations, $\mathbf{R}_{c2.1'}$ is H, $\mathbf{R}_{d2.1'}$ is CH_3 , $\mathbf{R}_{c2.2'}$ and $\mathbf{R}_{d2.2'}$ are , and $\mathbf{R}_{c2.3'}$ and $\mathbf{R}_{d2.3'}$ and $\mathbf{R}_{c2.4'}$ and $\mathbf{R}_{d2.4'}$ together are .

[587] In some variations, **R_{c2.1}'** and **R_{d2.1}'** are H, **R_{c2.2}'** and **R_{d2.2}'** are , and **R_{c2.3}'** and **R_{d2.3}'** are , and **R_{c2.4}'** and **R_{d2.4}'** together are . In some variations, **R_{c2.1}'** and **R_{d2.1}'** are , **R_{c2.2}'** and **R_{d2.2}'** are CH₃', and **R_{c2.3}'** and **R_{d2.3}'** and **R_{c2.4}'** and **R_{d2.4}'** together are . In some variations, **R_{c2.1}'** is H, **R_{d2.1}'** is CH₃', **R_{c2.2}'** and **R_{d2.2}'** are , and **R_{c2.3}'** and **R_{d2.3}'** and **R_{c2.4}'** and **R_{d2.4}'** together are .

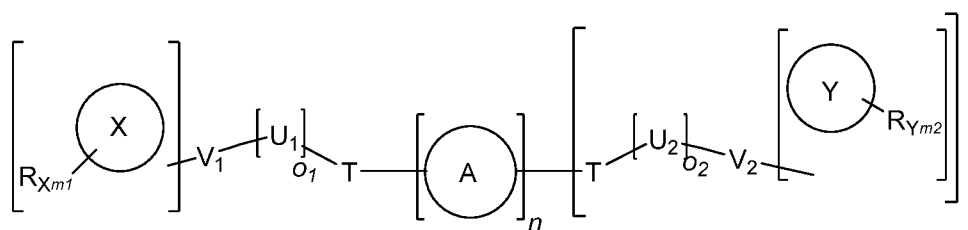
[588] In some variations, $\mathbf{R}_{c2.1'}$ and $\mathbf{R}_{d2.1'}$ are , $\mathbf{R}_{c2.2'}$ and $\mathbf{R}_{d2.2'}$ are , and $\mathbf{R}_{c2.3'}$ and $\mathbf{R}_{d2.3'}$ and $\mathbf{R}_{c2.4'}$ and $\mathbf{R}_{d2.4'}$ together are . In some variations, $\mathbf{R}_{c2.1'}$ and $\mathbf{R}_{d2.1'}$ are , $\mathbf{R}_{c2.2'}$ and $\mathbf{R}_{d2.2'}$ are , and $\mathbf{R}_{c2.3'}$ and $\mathbf{R}_{d2.3'}$ and $\mathbf{R}_{c2.4'}$ and $\mathbf{R}_{d2.4'}$ together are . In some variations, $\mathbf{R}_{c2.1'}$ and $\mathbf{R}_{d2.1'}$ are , $\mathbf{R}_{c2.2'}$ and $\mathbf{R}_{d2.2'}$ are , and $\mathbf{R}_{c2.3'}$ and $\mathbf{R}_{d2.3'}$ and $\mathbf{R}_{c2.4'}$ and $\mathbf{R}_{d2.4'}$ together are .

[589] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ are , $R_{c2.2'}$ and $R_{d2.2'}$ are , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are .

[590] In some variations, $R_{c2.1'}$ and $R_{d2.1'}$ and $R_{c2.2'}$ and $R_{d2.2'}$ together are , and $R_{c2.3'}$ and $R_{d2.3'}$ and $R_{c2.4'}$ and $R_{d2.4'}$ together are .

Compounds of formula (If)

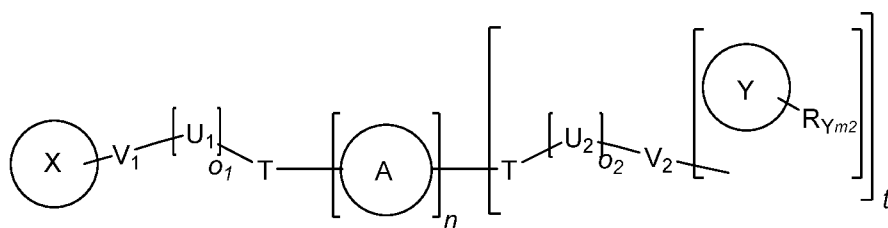
[591] In some variations, compounds of formula (I) fall within formula (If):



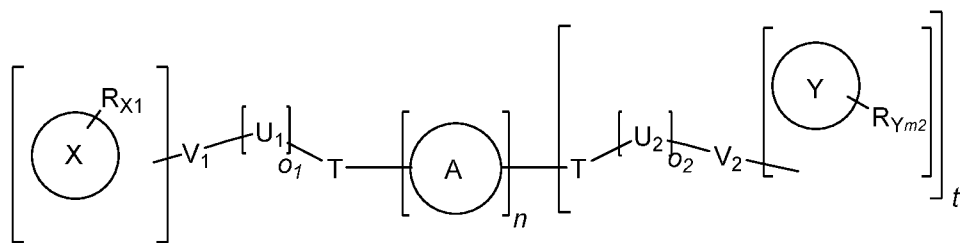
(If)

wherein: X , Y , R_X , R_Y , R , m_1 , m_2 , V_1 , V_2 , R_Z , n , o_1 , o_2 , t , ring A , T , U_1 , R_{c1} , R_{d1} , and U_2 are as defined above for formula (I).

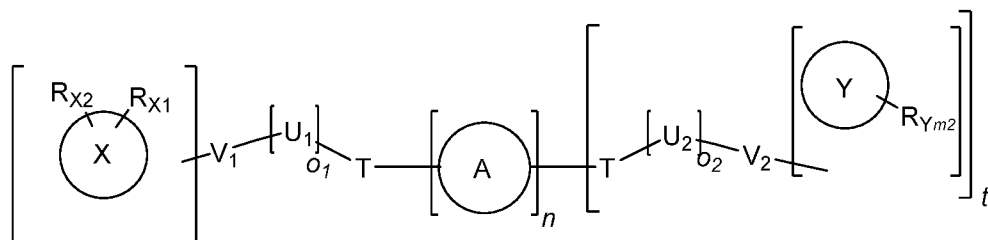
[592] In some variations, compounds of formula (If) fall within one or more of formulae (If.1)-(If.63), shown below.



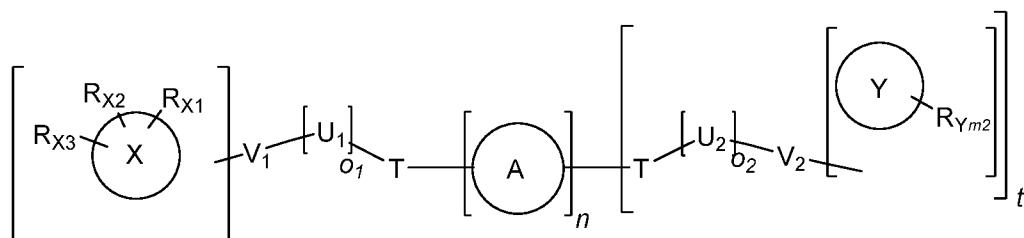
(If.1)



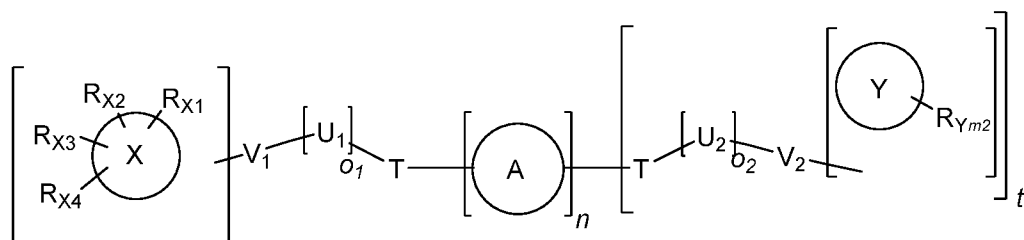
(If.2)



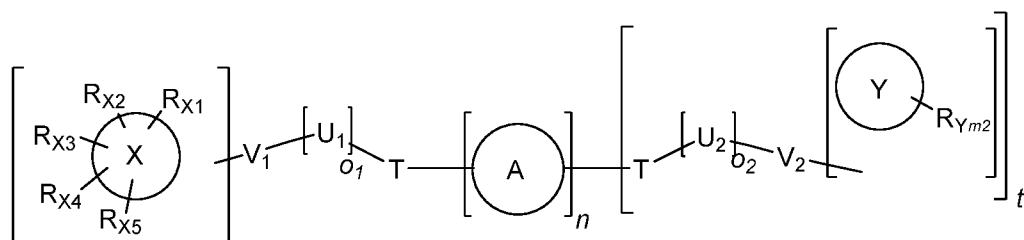
(If.3)



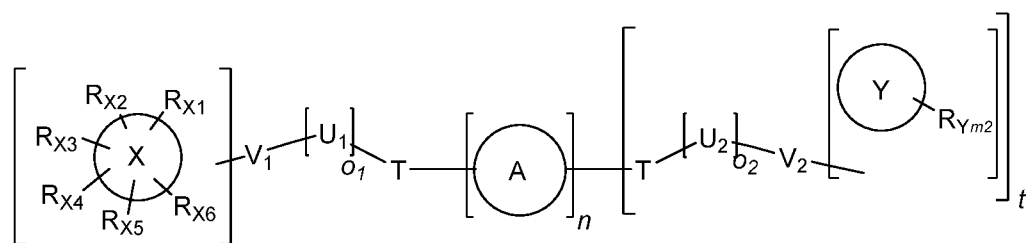
(If.4)



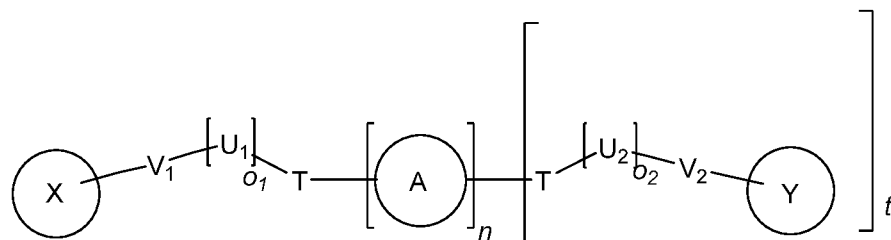
(If.5)



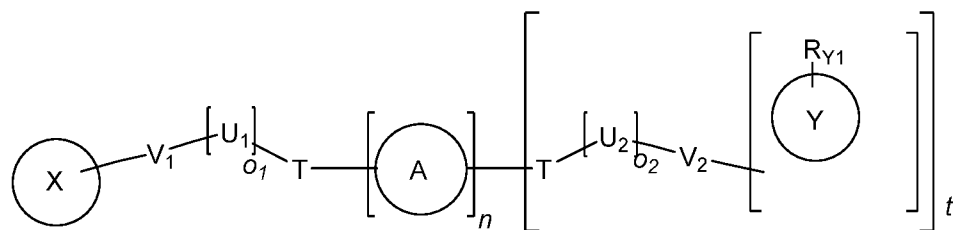
(If.6)



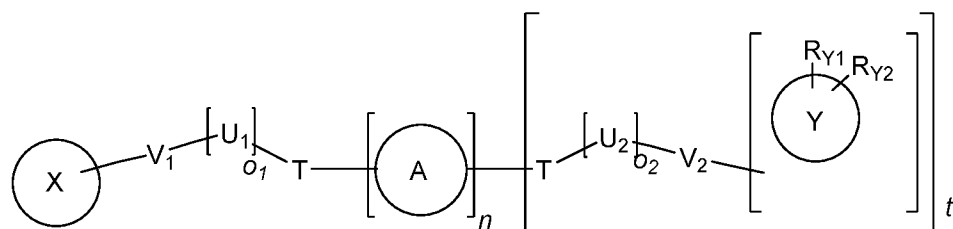
(If.7)



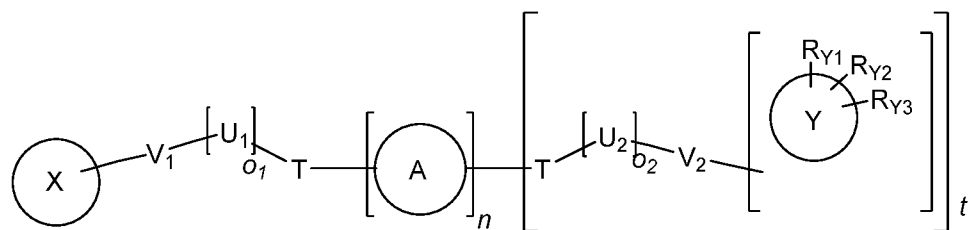
(If.8)



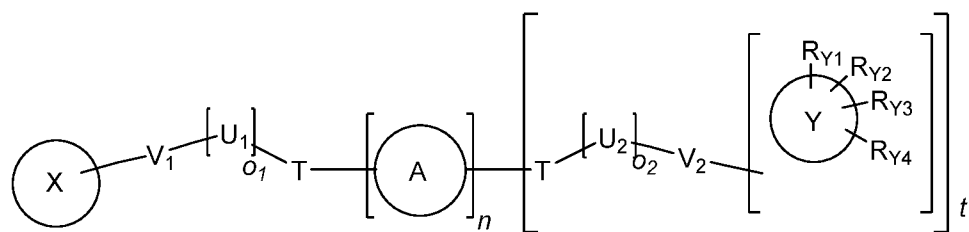
(If.9)



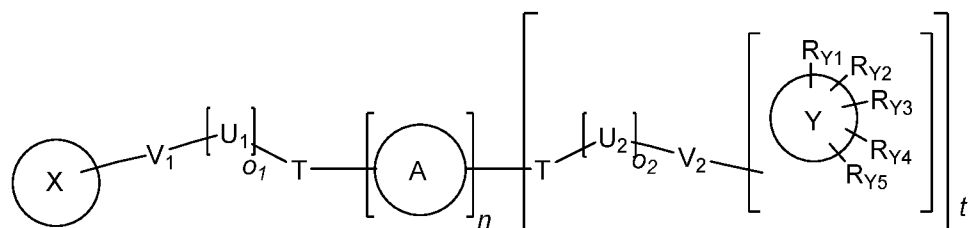
(If.10)



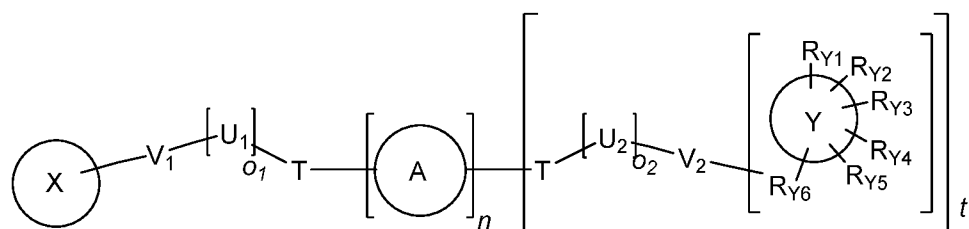
(If.11)



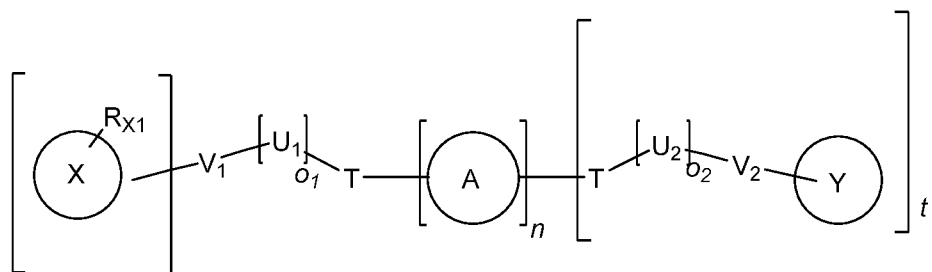
(If.12)



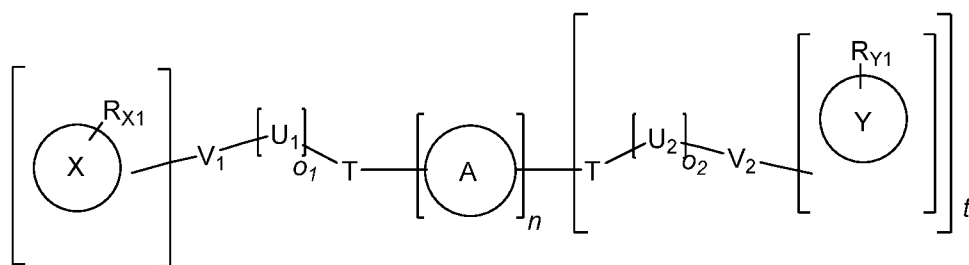
(If.13)



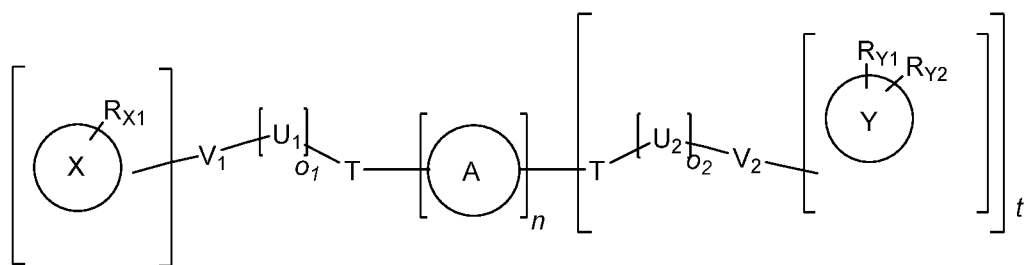
(If.14)



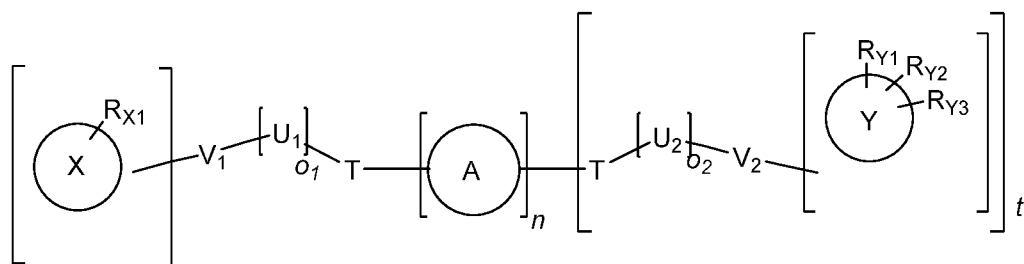
(If.15)



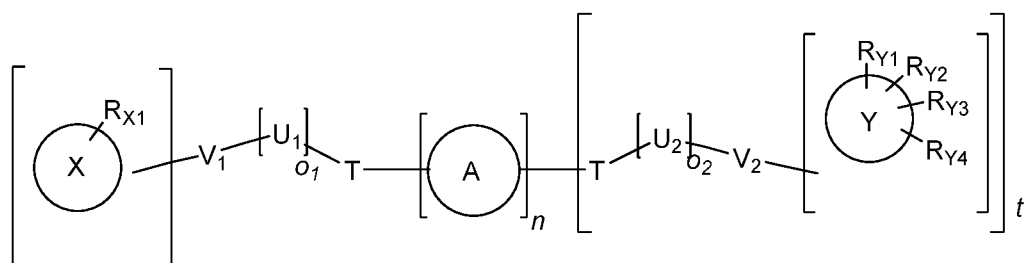
(If.16)



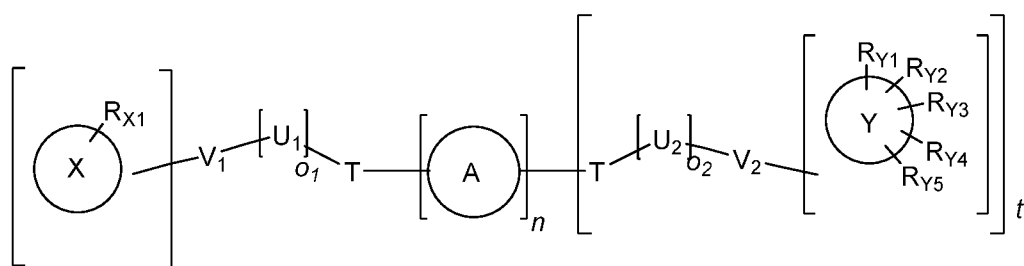
(If.17)



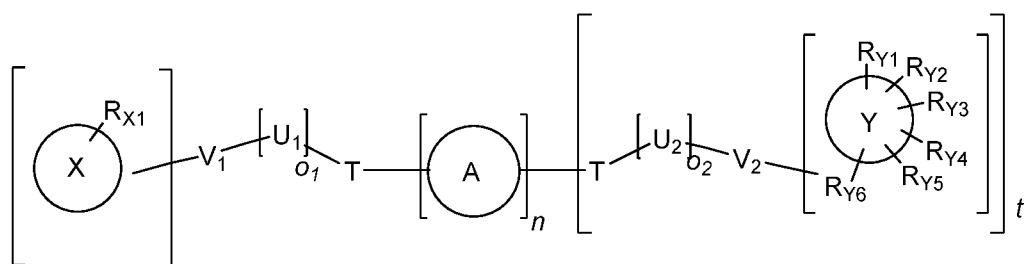
(If.18)



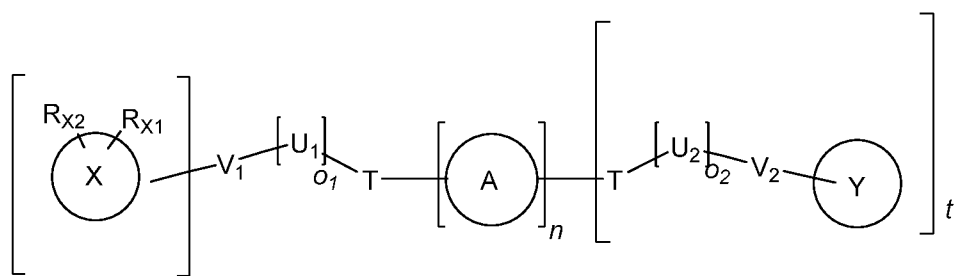
(If.19)



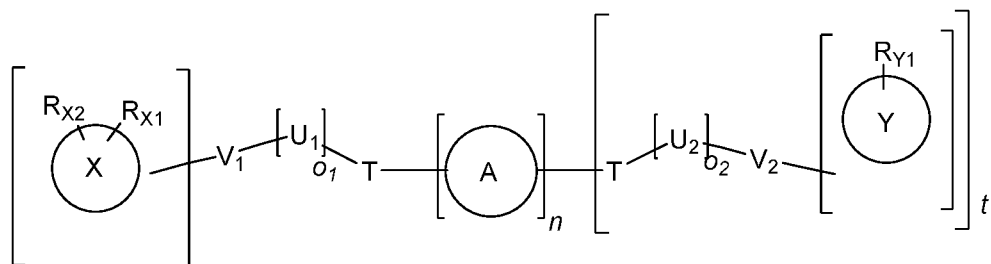
(If.20)



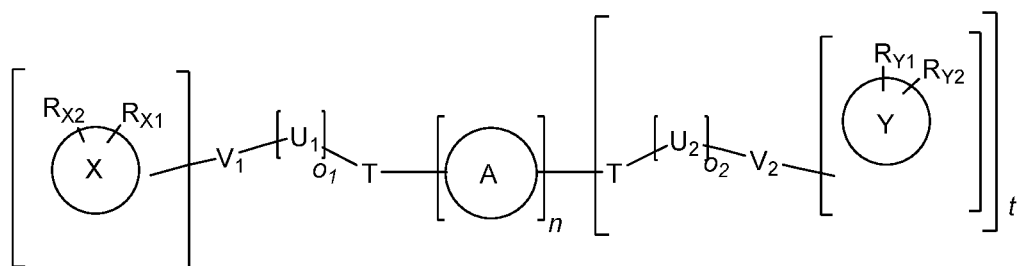
(If.21)



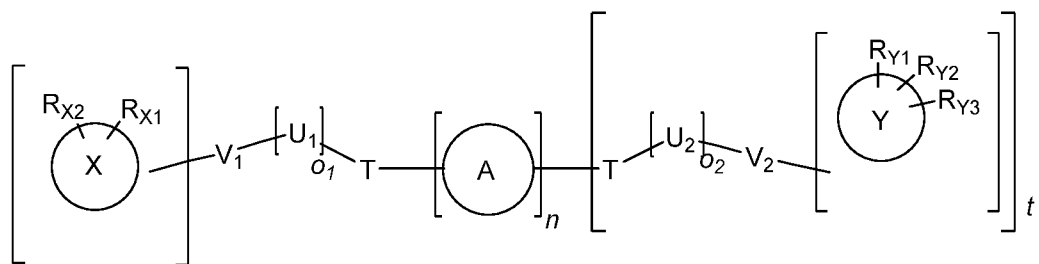
(If.22)



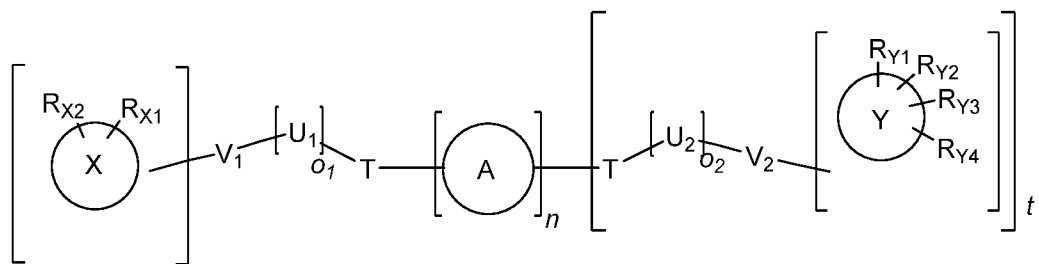
(If.23)



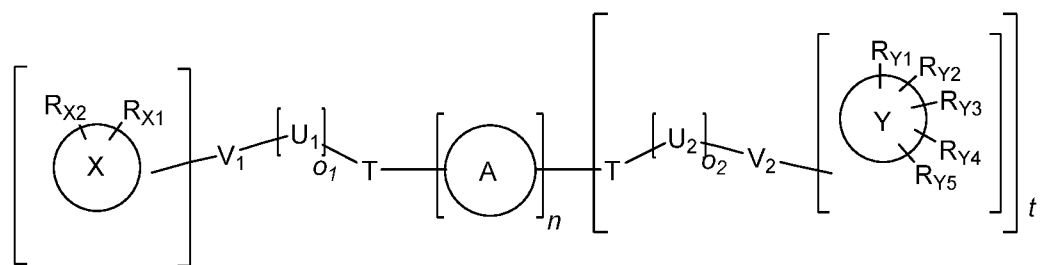
(If.24)



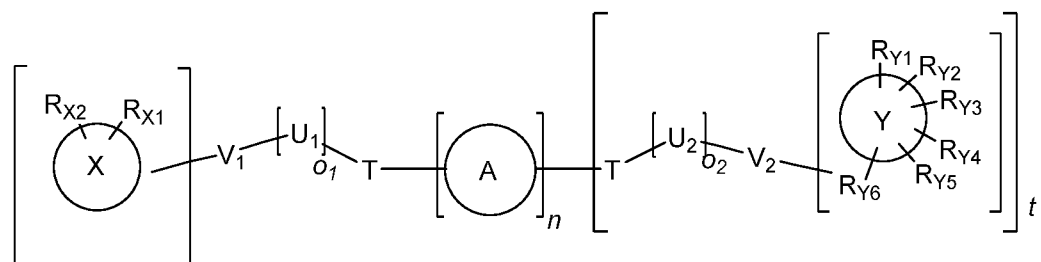
(If.25)



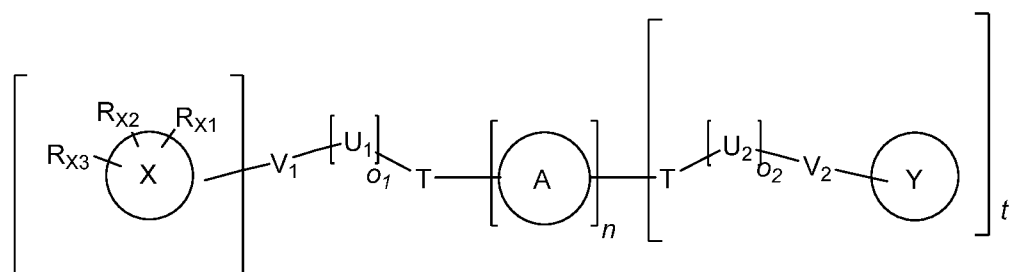
(If.26)



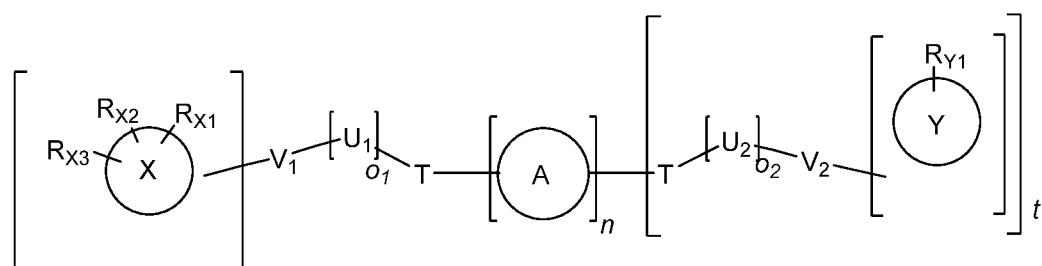
(If.27)



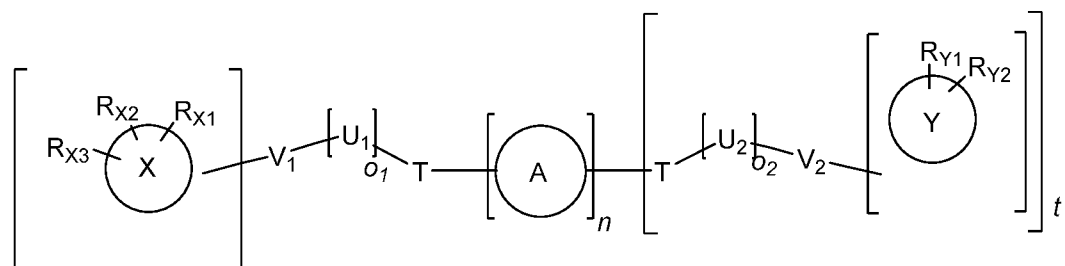
(If.28)



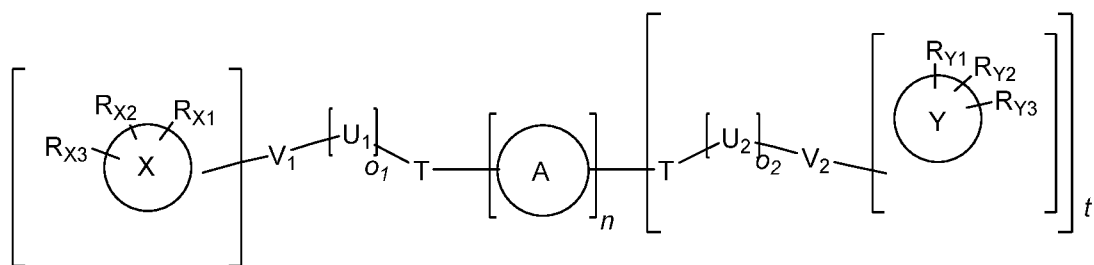
(If.29)



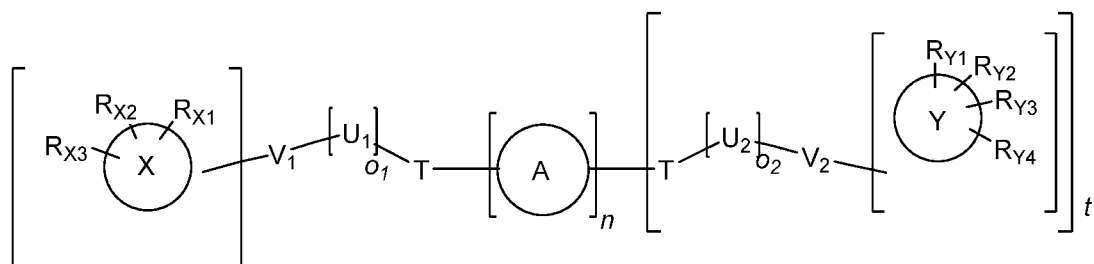
(If.30)



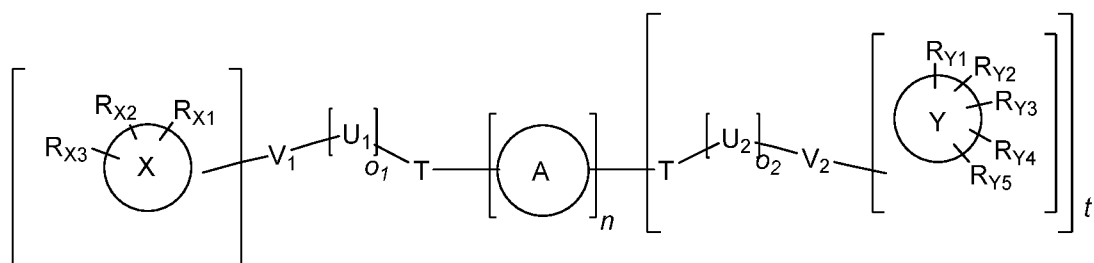
(If.31)



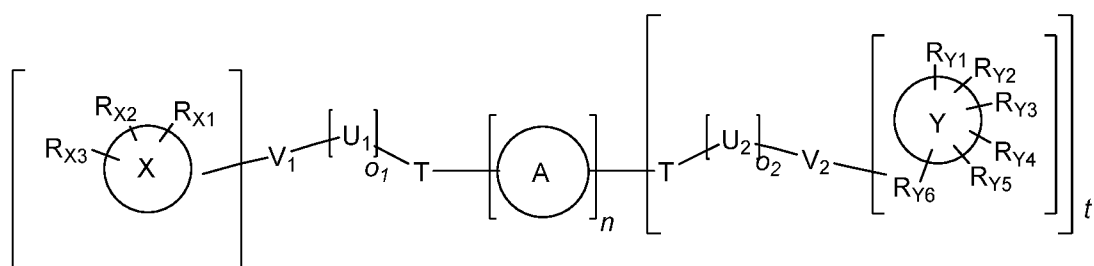
(If.32)



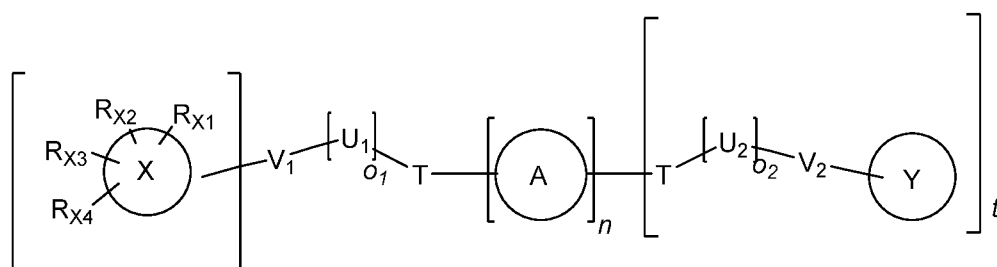
(If.33)



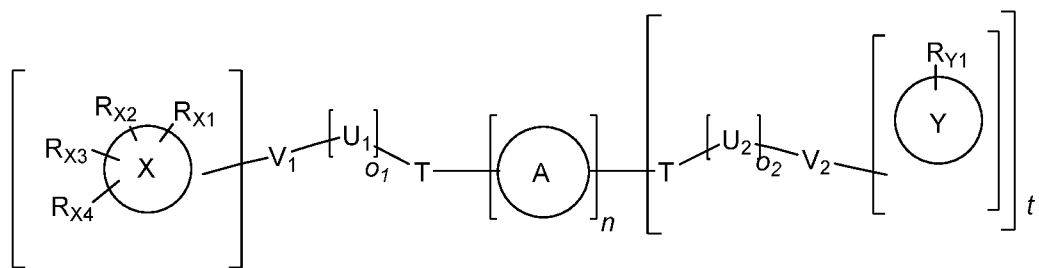
(If.34)



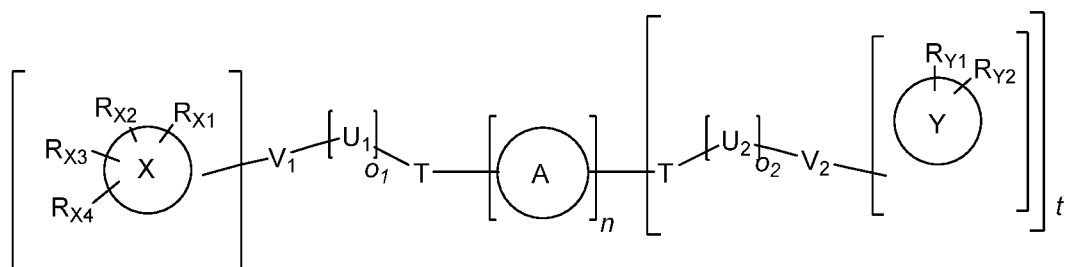
(If.35)



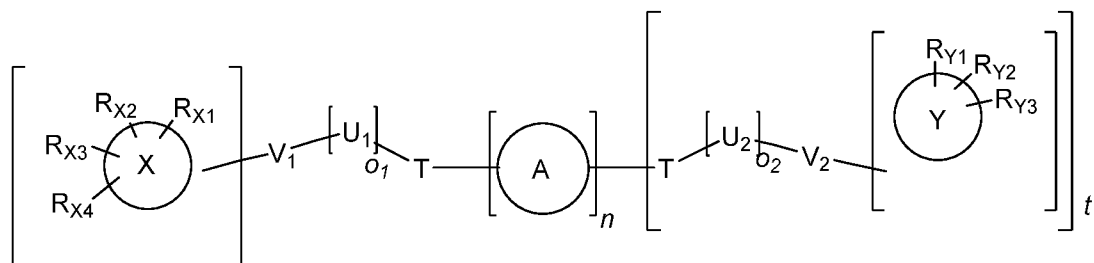
(If.36)



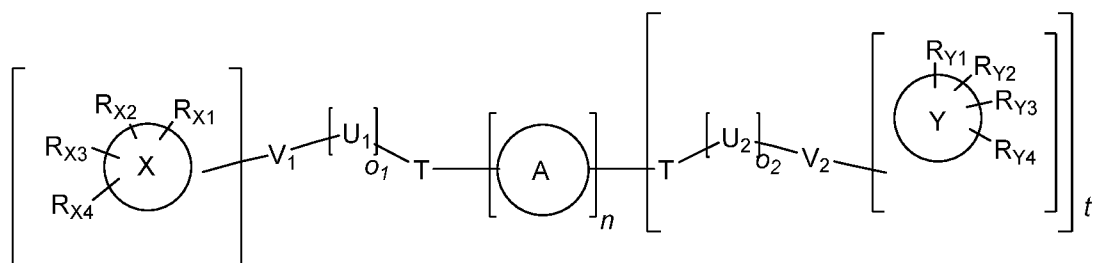
(If.37)



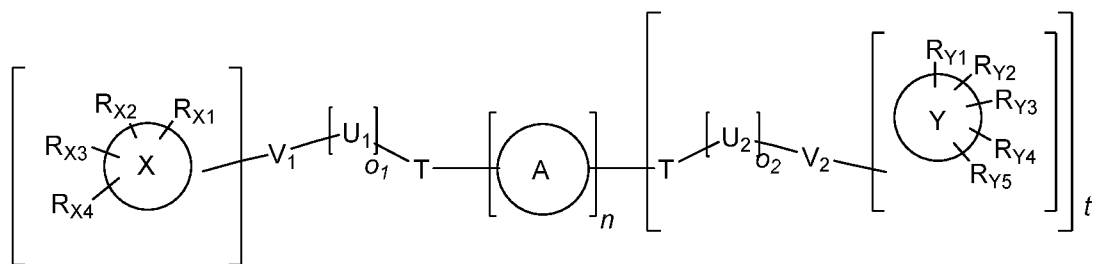
(If.38)



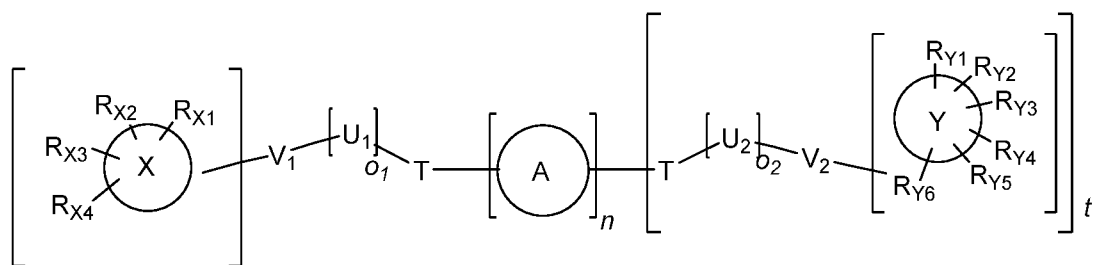
(If.39)



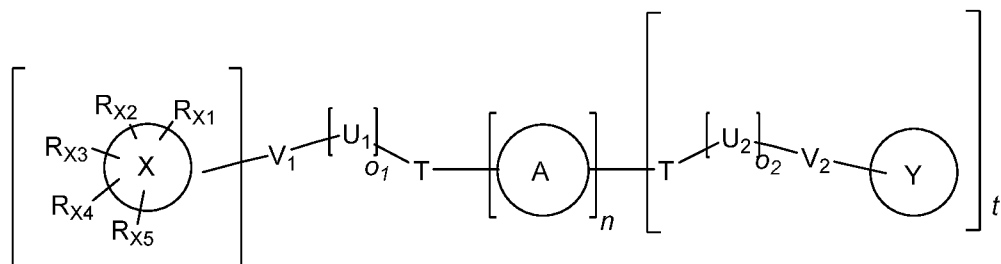
(If.40)



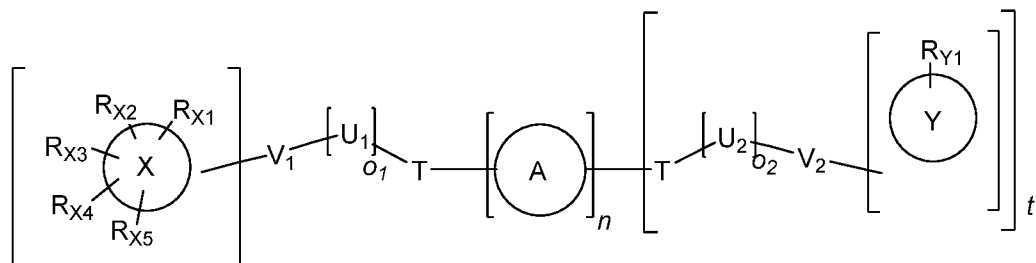
(If.41)



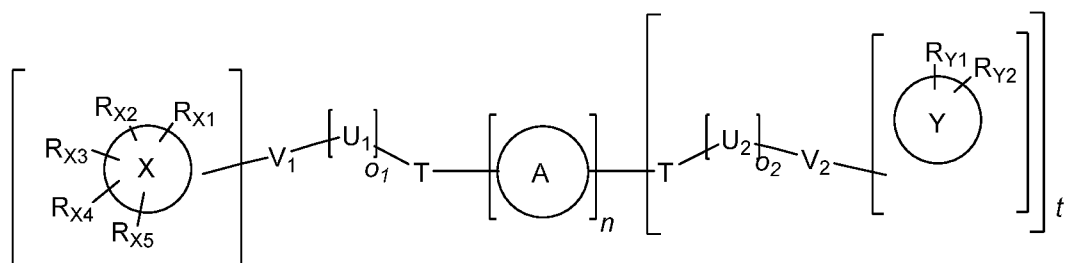
(If.42)



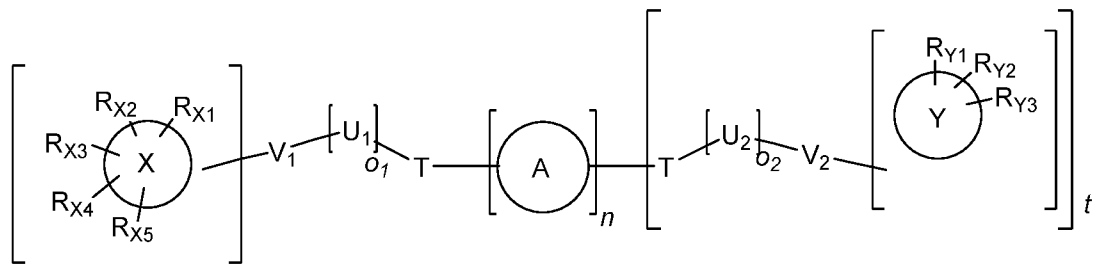
(If.43)



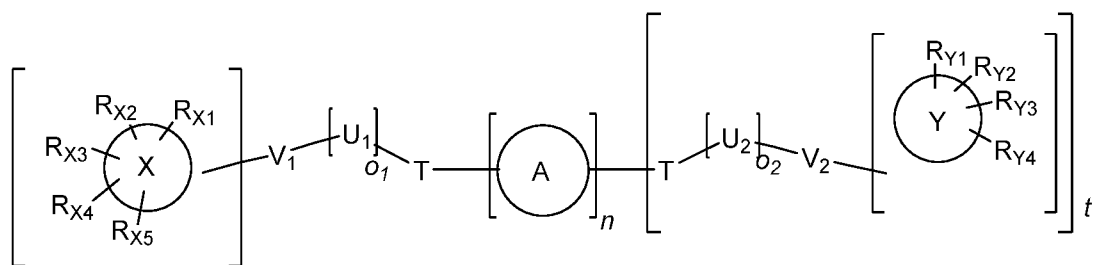
(If.44)



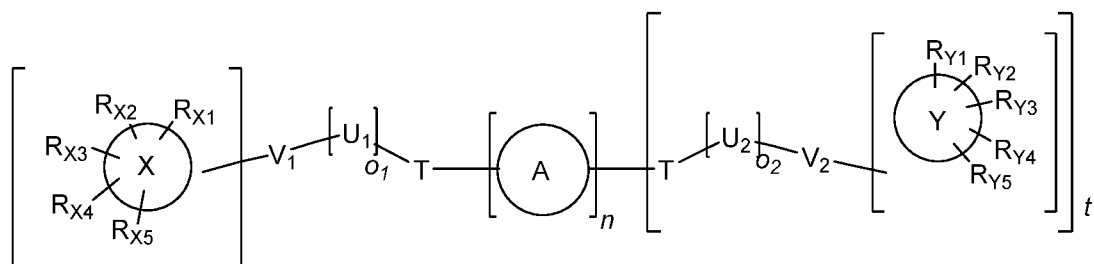
(If.45)



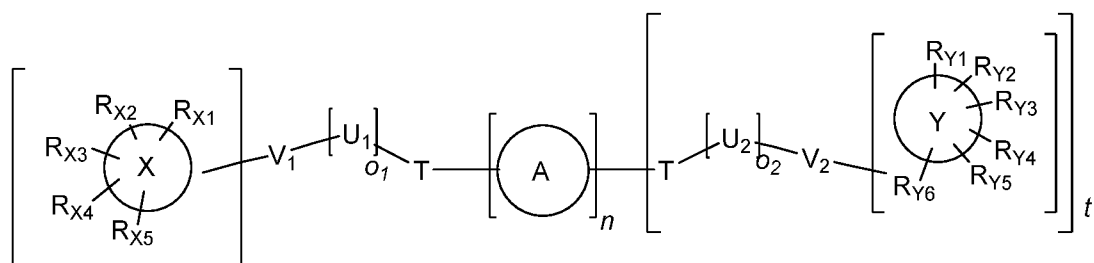
(If.46)



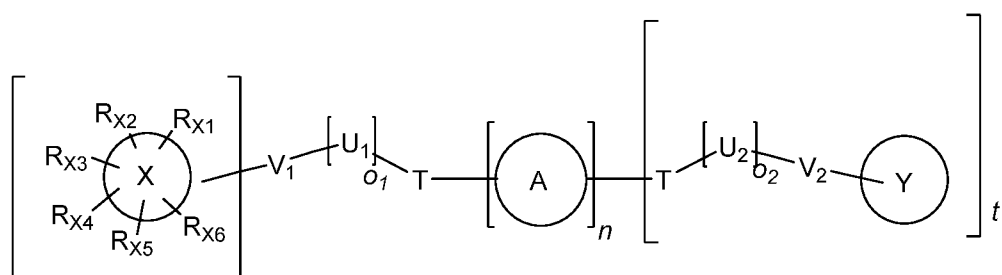
(If.47)



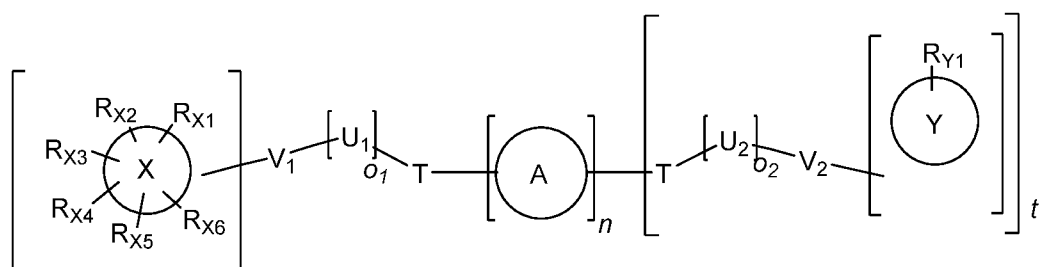
(If.48)



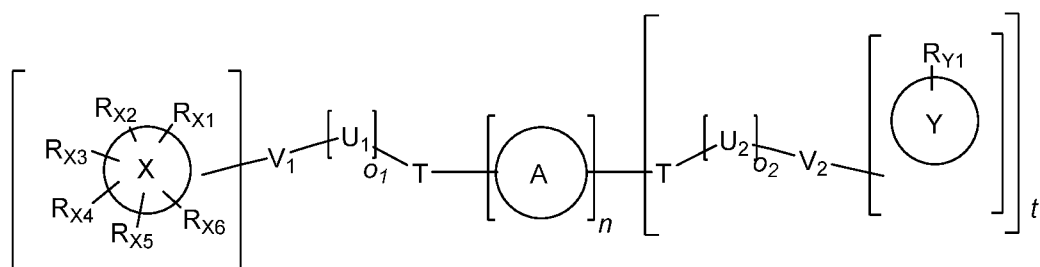
(If.49)



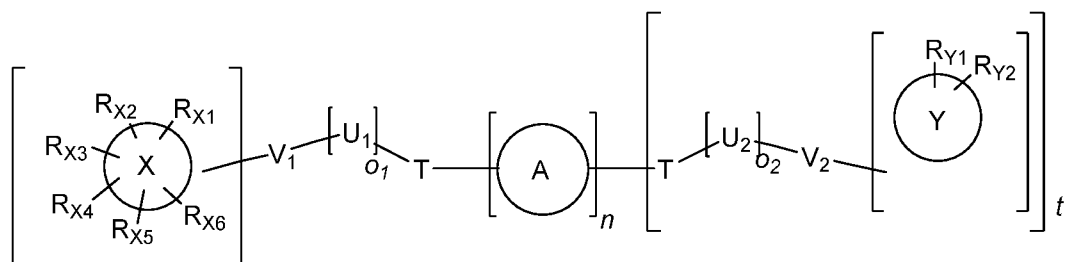
(If.50)



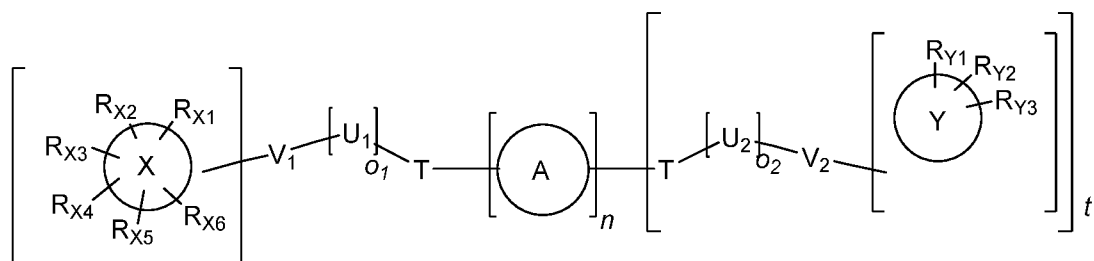
(If.51)



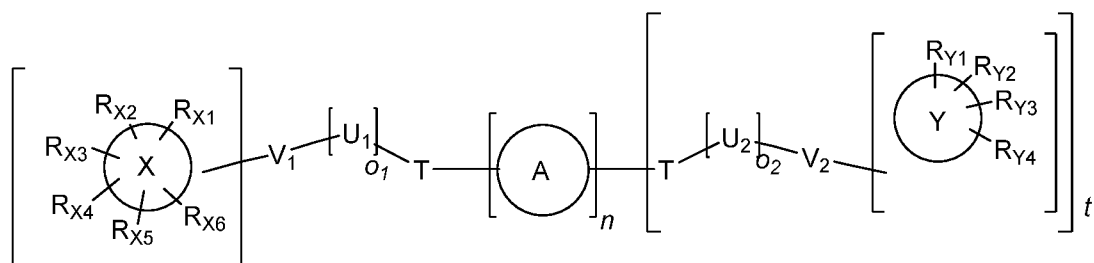
(If.51)



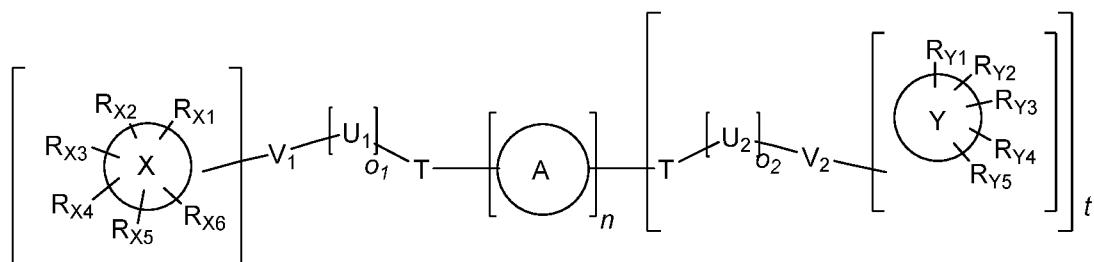
(If.52)



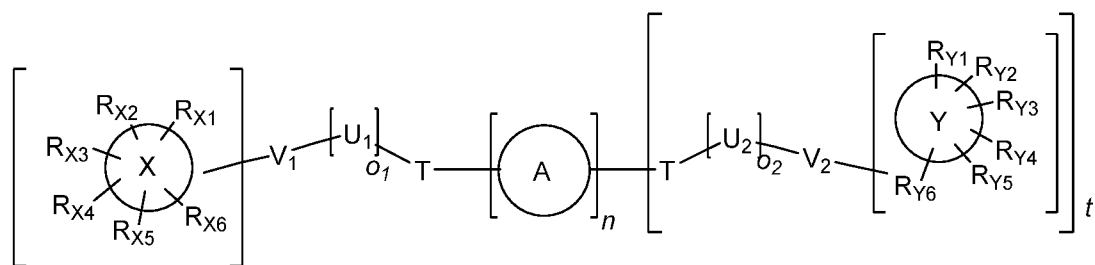
(If.53)



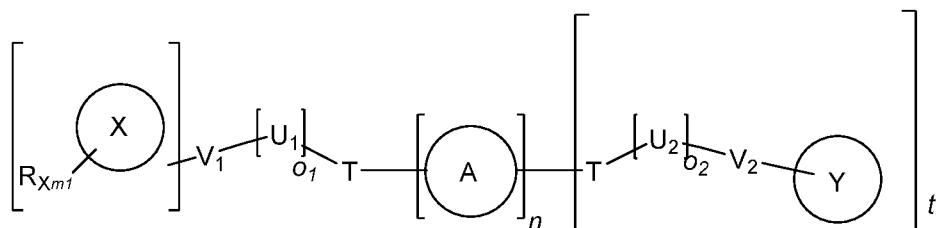
(If.54)



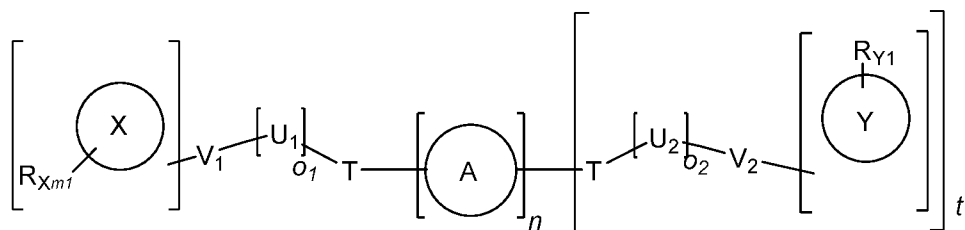
(If.55)



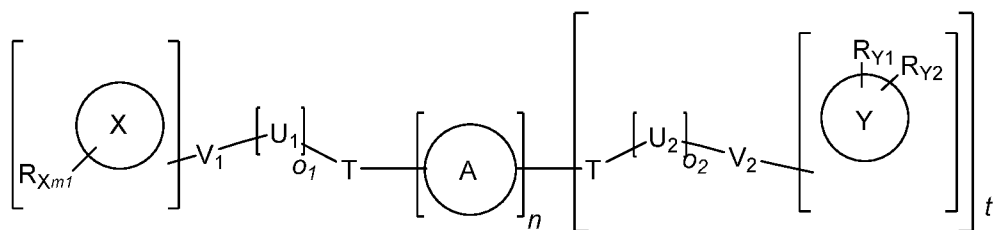
(If.56)



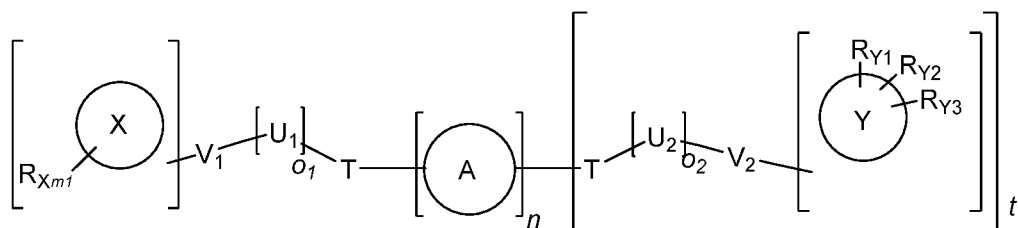
(If.57)



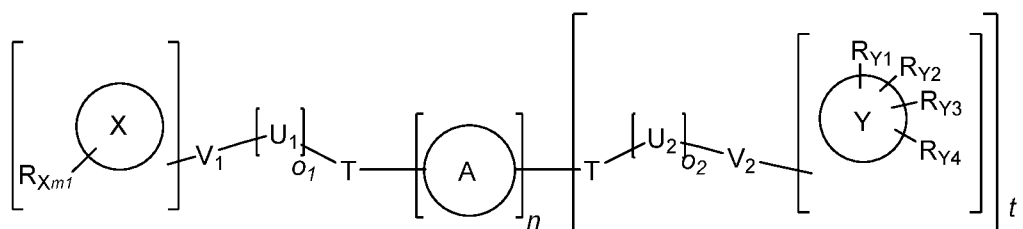
(If.58)



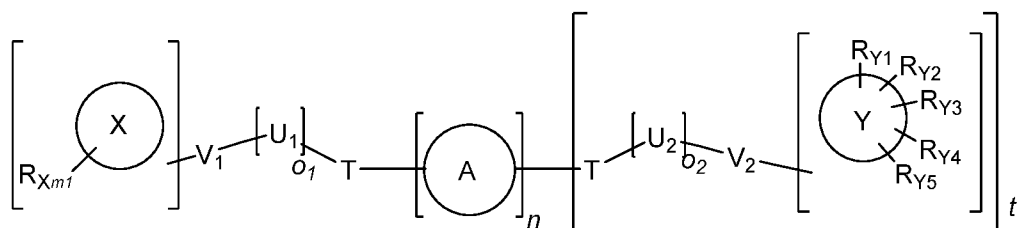
(If.59)



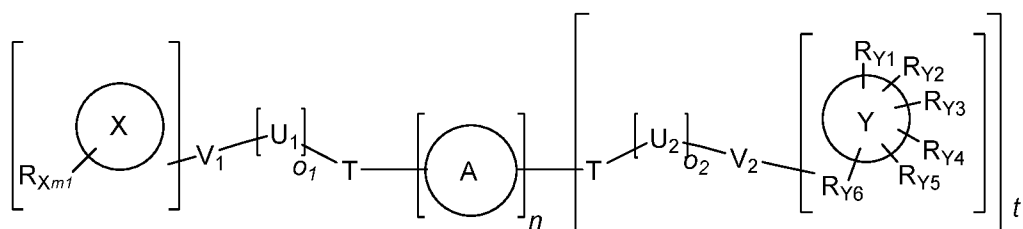
(If.60)



(If.61)



(If.62)



(If.63)

Variations of formulae (If)-(If.63) in which t is 1

[593] In some variations of formulae (If)-(If.63), **T** is $-\text{C}(=\text{O})\text{NH}-$. In some variations of formulae (If)-(If.63), **T** is $-\text{NH}(\text{C}=\text{O})-$. In some variations of formulae (If)-(If.63), **T** is $-\text{C}(=\text{O})-$. In some variations of formulae (If)-(If.63), **T** is $-\text{S}-$. In some variations of formulae (If)-(If.63), **T** is $-\text{O}-$. In some variations of formulae (If)-(If.63), **T** is $-\text{NH}-$. In some variations of formulae (If)-(If.63), **T** is $-\text{S}(=\text{O})-$. In some variations of formulae (If)-(If.63), **T** is $-\text{S}(=\text{O})_2\text{NH}-$. In some variations of formulae (If)-(If.63), **T** is $-\text{NHS}(=\text{O})_2-$.

[594] In some of these variations, o_1 is 1-8, 1-7, 1-6, 1-5, 1-4, 1-3, 1-2, 2-8, 2-7, 2-6, 2-5, 2-4, 2-3, 3-8, 3-7, 3-6, 3-5, 3-4, 4-8, 4-7, 4-6, 4-5, 5-8, 5-7, 5-6, 6-8, 6-7, 7-8, 1, 2, 3, 4, 5, 6, 7, or 8.

[595] In some variations of formulae (If)-(If.63) described in the paragraphs above, a first **U**₁ is $-\text{C}(\text{R}_{c1}\text{R}_{d1})-$. In some these variations, a second **U**₁ is $-\text{C}(\text{R}_{c1}\text{R}_{d1})-$. In some these variations, a second **U**₁ is $-\text{N}-$. In some these variations, a second **U**₁ is $-\text{O}-$. In some these variations, a

second $\mathbf{U}_1$ is $-S-$. In some these variations, a third $\mathbf{U}_1$ is $-C(\mathbf{R}_{c1}\mathbf{R}_{d1})-$. In some these variations, a third $\mathbf{U}_1$ is $-N-$. In some these variations, a third $\mathbf{U}_1$ is $-O-$. In some these variations, a third $\mathbf{U}_1$ is $-S-$. In some these variations, a fourth $\mathbf{U}_1$ is $-C(\mathbf{R}_{c1}\mathbf{R}_{d1})-$. In some these variations, a fourth $\mathbf{U}_1$ is $-N-$. In some these variations, a fourth $\mathbf{U}_1$ is $-O-$. In some these variations, a fourth $\mathbf{U}_1$ is $-S-$. In some these variations, a fifth $\mathbf{U}_1$ is $-C(\mathbf{R}_{c1}\mathbf{R}_{d1})-$. In some these variations, a fifth $\mathbf{U}_1$ is $-N-$. In some these variations, a fifth $\mathbf{U}_1$ is $-O-$. In some these variations, a fifth $\mathbf{U}_1$ is $-S-$. In some these variations, a sixth $\mathbf{U}_1$ is $-C(\mathbf{R}_{c1}\mathbf{R}_{d1})-$. In some these variations, a sixth $\mathbf{U}_1$ is $-N-$. In some these variations, a sixth $\mathbf{U}_1$ is $-O-$. In some these variations, a sixth $\mathbf{U}_1$ is $-S-$. In some these variations, a seventh $\mathbf{U}_1$ is $-C(\mathbf{R}_{c1}\mathbf{R}_{d1})-$. In some these variations, a seventh $\mathbf{U}_1$ is $-N-$. In some these variations, a seventh $\mathbf{U}_1$ is $-O-$. In some these variations, a seventh $\mathbf{U}_1$ is $-S-$. In some these variations, an eighth $\mathbf{U}_1$ is $-C(\mathbf{R}_{c1}\mathbf{R}_{d1})-$. In some these variations, an eighth $\mathbf{U}_1$ is $-N-$. In some these variations, an eighth $\mathbf{U}_1$ is $-O-$. In some these variations, an eighth $\mathbf{U}_1$ is $-S-$.

[596] In some variations of formulae (If)-(If.63) described in the paragraphs above, a first $\mathbf{U}_1$ is $-\mathbf{N}-$. In some these variations, a second $\mathbf{U}_1$ is $-\mathbf{C}(\mathbf{R}_{\mathbf{c1}}\mathbf{R}_{\mathbf{d1}})-$. In some these variations, a second $\mathbf{U}_1$ is $-\mathbf{N}-$. In some these variations, a second $\mathbf{U}_1$ is $-\mathbf{O}-$. In some these variations, a second $\mathbf{U}_1$ is $-\mathbf{S}-$. In some these variations, a third $\mathbf{U}_1$ is $-\mathbf{C}(\mathbf{R}_{\mathbf{c1}}\mathbf{R}_{\mathbf{d1}})-$. In some these variations, a third $\mathbf{U}_1$ is $-\mathbf{N}-$. In some these variations, a third $\mathbf{U}_1$ is $-\mathbf{O}-$. In some these variations, a third $\mathbf{U}_1$ is $-\mathbf{S}-$. In some these variations, a fourth $\mathbf{U}_1$ is $-\mathbf{C}(\mathbf{R}_{\mathbf{c1}}\mathbf{R}_{\mathbf{d1}})-$. In some these variations, a fourth $\mathbf{U}_1$ is $-\mathbf{N}-$. In some these variations, a fourth $\mathbf{U}_1$ is $-\mathbf{O}-$. In some these variations, a fourth $\mathbf{U}_1$ is $-\mathbf{S}-$. In some these variations, a fifth $\mathbf{U}_1$ is $-\mathbf{C}(\mathbf{R}_{\mathbf{c1}}\mathbf{R}_{\mathbf{d1}})-$. In some these variations, a fifth $\mathbf{U}_1$ is $-\mathbf{N}-$. In some these variations, a fifth $\mathbf{U}_1$ is $-\mathbf{O}-$. In some these variations, a fifth $\mathbf{U}_1$ is $-\mathbf{S}-$. In some these variations, a sixth $\mathbf{U}_1$ is $-\mathbf{C}(\mathbf{R}_{\mathbf{c1}}\mathbf{R}_{\mathbf{d1}})-$. In some these variations, a sixth $\mathbf{U}_1$ is $-\mathbf{N}-$. In some these variations, a sixth $\mathbf{U}_1$ is $-\mathbf{O}-$. In some these variations, a sixth $\mathbf{U}_1$ is $-\mathbf{S}-$. In some these variations, a seventh $\mathbf{U}_1$ is $-\mathbf{C}(\mathbf{R}_{\mathbf{c1}}\mathbf{R}_{\mathbf{d1}})-$. In some these variations, a seventh $\mathbf{U}_1$ is $-\mathbf{N}-$. In some these variations, a seventh $\mathbf{U}_1$ is $-\mathbf{O}-$. In some these variations, a seventh $\mathbf{U}_1$ is $-\mathbf{S}-$. In some these variations, an eighth $\mathbf{U}_1$ is $-\mathbf{C}(\mathbf{R}_{\mathbf{c1}}\mathbf{R}_{\mathbf{d1}})-$. In some these variations, an eighth $\mathbf{U}_1$ is $-\mathbf{N}-$. In some these variations, an eighth $\mathbf{U}_1$ is $-\mathbf{O}-$. In some these variations, an eighth $\mathbf{U}_1$ is $-\mathbf{S}-$.

[597] In some variations of formulae (If)-(If.63) described in the paragraphs above, a first $\mathbf{U}_1$ is -O-. In some these variations, a second $\mathbf{U}_1$ is $-\mathbf{C}(\mathbf{R}_{\mathbf{cl}}\mathbf{R}_{\mathbf{dl}})$ -. In some these variations, a second $\mathbf{U}_1$ is -N-. In some these variations, a second $\mathbf{U}_1$ is -O-. In some these variations, a second $\mathbf{U}_1$ is -S-. In some these variations, a third $\mathbf{U}_1$ is $-\mathbf{C}(\mathbf{R}_{\mathbf{cl}}\mathbf{R}_{\mathbf{dl}})$ -. In some these variations, a third $\mathbf{U}_1$ is -N-. In some these variations, a third $\mathbf{U}_1$ is -O-. In some these variations, a third $\mathbf{U}_1$ is -S-. In some these variations, a fourth $\mathbf{U}_1$ is $-\mathbf{C}(\mathbf{R}_{\mathbf{cl}}\mathbf{R}_{\mathbf{dl}})$ -. In some these variations, a fourth $\mathbf{U}_1$ is -N-. In some these variations, a fourth $\mathbf{U}_1$ is -O-. In some these variations, a fourth $\mathbf{U}_1$ is -S-. In some these

variations, a fifth U_1 is $-C(R_{c1}R_{d1})$ -. In some these variations, a fifth U_1 is $-N$ -. In some these variations, a fifth U_1 is $-O$ -. In some these variations, a fifth U_1 is $-S$ -. In some these variations, a sixth U_1 is $-C(R_{c1}R_{d1})$ -. In some these variations, a sixth U_1 is $-N$ -. In some these variations, a sixth U_1 is $-O$ -. In some these variations, a sixth U_1 is $-S$ -. In some these variations, a seventh U_1 is $-C(R_{c1}R_{d1})$ -. In some these variations, a seventh U_1 is $-N$ -. In some these variations, a seventh U_1 is $-O$ -. In some these variations, a seventh U_1 is $-S$ -. In some these variations, an eighth U_1 is $-C(R_{c1}R_{d1})$ -. In some these variations, an eighth U_1 is $-N$ -. In some these variations, an eighth U_1 is $-O$ -. In some these variations, an eighth U_1 is $-S$ -.

[598] In some variations of formulae (If)-(If.63) described in the paragraphs above, a first U_1 is $-S$ -. In some these variations, a second U_1 is $-C(R_{c1}R_{d1})$ -. In some these variations, a second U_1 is $-N$ -. In some these variations, a second U_1 is $-O$ -. In some these variations, a second U_1 is $-S$ -. In some these variations, a third U_1 is $-C(R_{c1}R_{d1})$ -. In some these variations, a third U_1 is $-N$ -. In some these variations, a third U_1 is $-O$ -. In some these variations, a third U_1 is $-S$ -. In some these variations, a fourth U_1 is $-C(R_{c1}R_{d1})$ -. In some these variations, a fourth U_1 is $-N$ -. In some these variations, a fourth U_1 is $-O$ -. In some these variations, a fourth U_1 is $-S$ -. In some these variations, a fifth U_1 is $-C(R_{c1}R_{d1})$ -. In some these variations, a fifth U_1 is $-N$ -. In some these variations, a fifth U_1 is $-O$ -. In some these variations, a fifth U_1 is $-S$ -. In some these variations, a sixth U_1 is $-C(R_{c1}R_{d1})$ -. In some these variations, a sixth U_1 is $-N$ -. In some these variations, a sixth U_1 is $-O$ -. In some these variations, a sixth U_1 is $-S$ -. In some these variations, a seventh U_1 is $-C(R_{c1}R_{d1})$ -. In some these variations, a seventh U_1 is $-N$ -. In some these variations, a seventh U_1 is $-O$ -. In some these variations, a seventh U_1 is $-S$ -. In some these variations, an eighth U_1 is $-C(R_{c1}R_{d1})$ -. In some these variations, an eighth U_1 is $-N$ -. In some these variations, an eighth U_1 is $-O$ -. In some these variations, an eighth U_1 is $-S$ -.

[599] In some variations of formulae (If)-(If.63) described in the paragraphs above, σ_2 is 1-8, 1-7, 1-6, 1-5, 1-4, 1-3, 1-2, 2-8, 2-7, 2-6, 2-5, 2-4, 2-3, 3-8, 3-7, 3-6, 3-5, 3-4, 4-8, 4-7, 4-6, 4-5, 5-8, 5-7, 5-6, 6-8, 6-7, 7-8, 1, 2, 3, 4, 5, 6, 7, or 8.

[600] In some variations of formulae (If)-(If.63) described in the paragraphs above, a first U_2 is $-C(R_{c2}R_{d2})$ -. In some these variations, a second U_2 is $-C(R_{c2}R_{d2})$ -. In some these variations, a second U_2 is $-N$ -. In some these variations, a second U_2 is $-O$ -. In some these variations, a second U_2 is $-S$ -. In some these variations, a third U_2 is $-C(R_{c2}R_{d2})$ -. In some these variations, a third U_2 is $-N$ -. In some these variations, a third U_2 is $-O$ -. In some these variations, a third U_2 is $-S$ -. In some these variations, a fourth U_2 is $-C(R_{c2}R_{d2})$ -. In some these variations, a fourth U_2 is $-N$ -. In some these variations, a fourth U_2 is $-O$ -. In some these variations, a fourth U_2 is $-S$ -. In

is $-C(R_{c2}R_{d2})-$. In some these variations, a seventh U_2 is $-N-$. In some these variations, a seventh U_2 is $-O-$. In some these variations, a seventh U_2 is $-S-$. In some these variations, an eighth U_2 is $-C(R_{c2}R_{d2})-$. In some these variations, an eighth U_2 is $-N-$. In some these variations, an eighth U_2 is $-O-$. In some these variations, an eighth U_2 is $-S-$.

[603] In some variations of formulae (If)-(If.63) described in the paragraphs above, a first U_2 is $-S-$. In some these variations, a second U_2 is $-C(R_{c2}R_{d2})-$. In some these variations, a second U_2 is $-N-$. In some these variations, a second U_2 is $-O-$. In some these variations, a second U_2 is $-S-$. In some these variations, a third U_2 is $-C(R_{c2}R_{d2})-$. In some these variations, a third U_2 is $-N-$. In some these variations, a third U_2 is $-O-$. In some these variations, a third U_2 is $-S-$. In some these variations, a fourth U_2 is $-C(R_{c2}R_{d2})-$. In some these variations, a fourth U_2 is $-N-$. In some these variations, a fourth U_2 is $-O-$. In some these variations, a fourth U_2 is $-S-$. In some these variations, a fifth U_2 is $-C(R_{c2}R_{d2})-$. In some these variations, a fifth U_2 is $-N-$. In some these variations, a fifth U_2 is $-O-$. In some these variations, a fifth U_2 is $-S-$. In some these variations, a sixth U_2 is $-C(R_{c2}R_{d2})-$. In some these variations, a sixth U_2 is $-N-$. In some these variations, a sixth U_2 is $-O-$. In some these variations, a sixth U_2 is $-S-$. In some these variations, a seventh U_2 is $-C(R_{c2}R_{d2})-$. In some these variations, a seventh U_2 is $-N-$. In some these variations, a seventh U_2 is $-O-$. In some these variations, a seventh U_2 is $-S-$. In some these variations, an eighth U_2 is $-C(R_{c2}R_{d2})-$. In some these variations, an eighth U_2 is $-N-$. In some these variations, an eighth U_2 is $-O-$. In some these variations, an eighth U_2 is $-S-$.

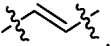
[604] In some variations of formulae (If)-(If.63) described in the paragraphs above in which a first U_1 , a second U_1 , a third U_1 , a fourth U_1 , a fifth U_1 , a sixth U_1 , a seventh U_1 , and/or an eighth U_1 is $-C(R_{c1}R_{d1})-$, R_{c1} and R_{d1} independently are H or CH_3 .

[605] In some variations of formulae (If)-(If.63) described in the paragraphs above in which a first U_1 , a second U_1 , a third U_1 , a fourth U_1 , a fifth U_1 , a sixth U_1 , a seventh U_1 , and/or an eighth

U_1 is $-C(R_{c1}R_{d1})-$, R_{c1} and R_{d1} are .

[606] In some variations of formulae (If)-(If.63) described in the paragraphs above in which a first U_1 , a second U_1 , a third U_1 , a fourth U_1 , a fifth U_1 , a sixth U_1 , a seventh U_1 , and/or an eighth

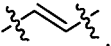
U_1 is $-C(R_{c1}R_{d1})-$, R_{c1} and R_{d1} are .

[607] In some variations of formulae (If)-(If.63) described in the paragraphs above in which a first U_1 , a second U_1 , a third U_1 , a fourth U_1 , a fifth U_1 , a sixth U_1 , a seventh U_1 , and/or an eighth U_1 is $-C(R_{c1}R_{d1})-$, two of $CR_{c1}R_{d1}$ are .

[608] In some variations of formulae (If)-(If.63) described in the paragraphs above in which a first U_2 , a second U_2 , a third U_2 , a fourth U_2 , a fifth U_2 , a sixth U_2 , a seventh U_2 , and/or an eighth U_2 is $-C(R_{c2}R_{d2})-$, R_{c2} and R_{d2} independently are H or CH_3 .

[609] In some variations of formulae (If)-(If.63) described in the paragraphs above in which a first U_2 , a second U_2 , a third U_2 , a fourth U_2 , a fifth U_2 , a sixth U_2 , a seventh U_2 , and/or an eighth U_2 is $-C(R_{c2}R_{d2})-$, R_{c2} and R_{d2} are .

[610] In some variations of formulae (If)-(If.63) described in the paragraphs above in which a first U_2 , a second U_2 , a third U_2 , a fourth U_2 , a fifth U_2 , a sixth U_2 , a seventh U_2 , and/or an eighth U_2 is $-C(R_{c2}R_{d2})-$, R_{c2} and R_{d2} are .

[611] In some variations of formulae (If)-(If.63) described in the paragraphs above in which a first U_2 , a second U_2 , a third U_2 , a fourth U_2 , a fifth U_2 , a sixth U_2 , a seventh U_2 , and/or an eighth U_2 is $-C(R_{c2}R_{d2})-$, two of $CR_{c2}R_{d2}$ are .

Variations of formulae (If)-(If.63) in which t is 1 and o_I is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, and one U_1 is $-C(R_{c1}R_{d1})-$

[612] In some variations, R_{c1} and R_{d1} are both H. In some variations, R_{c1} is H and R_{d1} is CH_3 .

In some variations, R_{c1} and R_{d1} are both CH_3 . In some variations, $-C(R_{c1}R_{d1})-$ is . In some variations, $-C(R_{c1}R_{d1})-$ is .

Variations of formulae (If)-(If.63) in which t is 1 and o_I is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, and two U_1 are $-C(R_{c1}R_{d1})-$

[613] In variations of formulae (If)-(If.63) described in the paragraphs above in which o_1 is 2, the two instances of R_{c1} and R_{d1} are indicated as $R_{c1.1}$ and $R_{d1.1}$ and $R_{c1.2}$ and $R_{d1.2}$, respectively.

[614] In some variations, each of $R_{c1.1}$ and $R_{d1.1}$ and $R_{c1.2}$ and $R_{d1.2}$ is H. In some variations, each of $R_{c1.1}$ and $R_{d1.1}$ and $R_{c1.2}$ and $R_{d1.2}$ is CH_3 . In some variations, each of $R_{c1.1}$ and $R_{c1.2}$ is H

and each of $\mathbf{R}_{d1.1}$ and $\mathbf{R}_{d1.2}$ is CH_3 . In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{c1.2}$, and $\mathbf{R}_{d1.1}$ is H and $\mathbf{R}_{d1.2}$ is CH_3 .

[615] In some variations, each of $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$ is H and $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$ is . In some variations, each of $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$ is H and $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$ is . In some variations, each of $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$ is CH_3 and $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$ is . In some variations, each of $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$ is CH_3 and $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$ is .

[616] In some variations, $\mathbf{R}_{c1.1}$ is H, $\mathbf{R}_{d1.1}$ is CH_3 , and $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$ is . In some variations, $\mathbf{R}_{c1.1}$ is H, $\mathbf{R}_{d1.1}$ is CH_3 , and $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$ is . In some variations, $-\text{C}(\mathbf{R}_{c1.1}\mathbf{R}_{d1.1})-$ is  and $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$ is . In some variations, $-\text{C}(\mathbf{R}_{c1.1}\mathbf{R}_{d1.1})-$ is  and $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$ is . In some variations, $-\text{C}(\mathbf{R}_{c1.1}\mathbf{R}_{d1.1})-$ is , and $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$ is . In some variations, $-\text{C}(\mathbf{R}_{c1.1}\mathbf{R}_{d1.1})-$ is , and $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$ is .

Variations of formulae (If)-(If.63) in which t is 1 and o_I is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, and three $\mathbf{U}_1$ are $-\text{C}(\mathbf{R}_{c1}\mathbf{R}_{d1})-$

[617] In variations, of formulae (If)-(If.63) in which o_I is 3, the three instances of $\mathbf{R}_c$ and $\mathbf{R}_d$ are indicated as $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$; $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d1.2}$; and $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$, respectively.

[618] In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{c1.2}$, $\mathbf{R}_{d1.2}$, $\mathbf{R}_{c1.3}$, and $\mathbf{R}_{d1.3}$ is H. In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{c1.2}$, $\mathbf{R}_{d1.2}$, $\mathbf{R}_{c1.3}$, and $\mathbf{R}_{d1.3}$ is CH_3 . In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{c1.2}$, and $\mathbf{R}_{d1.2}$, is H and each of $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ is CH_3 . In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{c1.2}$, and $\mathbf{R}_{d1.2}$, is CH_3 and each of $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ is H. In some variations, $\mathbf{R}_{c1.1}$ is H and each of $\mathbf{R}_{c1.2}$, $\mathbf{R}_{c1.3}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{d1.2}$, and $\mathbf{R}_{d1.3}$ is CH_3 . In some variations, each of $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{c1.2}$ is H and each of $\mathbf{R}_{c1.3}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{d1.2}$, and $\mathbf{R}_{d1.3}$ is CH_3 . In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{c1.2}$, and $\mathbf{R}_{c1.3}$ is H and each of $\mathbf{R}_{d1.1}$, $\mathbf{R}_{d1.2}$, and $\mathbf{R}_{d1.3}$ is CH_3 .

[619] In some variations, each of $\mathbf{R}_{c1,1}$, $\mathbf{R}_{d1,1}$, $\mathbf{R}_{c1,2}$, and $\mathbf{R}_{d1,2}$, is H and $-\text{C}(\mathbf{R}_{c1,3}\mathbf{R}_{d1,3})-$ is .

In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{c1.2}$, and $\mathbf{R}_{d1.2}$, is CH_3 and $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ are . In

some variations, $\mathbf{R}_{c1.1}$ is H and each of $\mathbf{R}_{c1.2}$, $\mathbf{R}_{d1.1}$, and $\mathbf{R}_{d1.2}$ is CH_3 , and $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ is . In some variations, each of $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{c1.2}$ is H and each of $\mathbf{R}_{d1.1}$ and $\mathbf{R}_{d1.2}$ is CH_3 , and $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ is .

$C(\mathbf{R}_{c1,3}\mathbf{R}_{d1,3})$ - is .

[620] In some variations, each of $\mathbf{R}_{c1,1}$, $\mathbf{R}_{d1,1}$, $\mathbf{R}_{c1,2}$, and $\mathbf{R}_{d1,2}$, is H and $-\mathbf{C}(\mathbf{R}_{c1,3}\mathbf{R}_{d1,3})-$ is .

In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{c1.2}$, and $\mathbf{R}_{d1.2}$, is CH_3 and $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ is . In

some variations, $\mathbf{R}_{c1.1}$ is H and each of $\mathbf{R}_{c1.2}$, $\mathbf{R}_{d1.1}$, and $\mathbf{R}_{d1.2}$ is CH₃, and $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ is . In some variations, each of $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{c1.2}$ is H and each of $\mathbf{R}_{d1.1}$ and $\mathbf{R}_{d1.2}$ is CH₃, and

$$-\text{C}(\text{R}_{\text{c}1.3}\text{R}_{\text{d}1.3})-$$
 is .

[621] In some variations, $-\text{C}(\mathbf{R}_{\text{c1.1}}\mathbf{R}_{\text{d1.1}})-$ is , $-\text{C}(\mathbf{R}_{\text{c1.2}}\mathbf{R}_{\text{d1.2}})-$ is , and each of $\mathbf{R}_{\text{c1.3}}$

and $\mathbf{R}_{dl,3}$ is H. In some variations, $-\mathbf{C}(\mathbf{R}_{cl,1}\mathbf{R}_{dl,1})-$ is , $-\mathbf{C}(\mathbf{R}_{cl,2}\mathbf{R}_{dl,2})-$ is , and each

of $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ is CH_3 . In some variations, $-\text{C}(\mathbf{R}_{c1.1}\mathbf{R}_{d1.1})-$ is , $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$ is .

R_{c1.3} is H, and **R_{d1.3}** is CH₃. In some variations, -C(**R_{c1.1}****R_{d1.1}**)- is , -C(**R_{c1.2}****R_{d1.2}**)- is 

, and each of **R**_{c1.3} and **R**_{d1.3} is H. In some variations, $-\text{C}(\text{R}_{c1.1}\text{R}_{d1.1})-$ is , $-\text{C}(\text{R}_{c1.2}\text{R}_{d1.2})-$ is

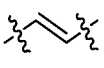
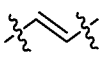
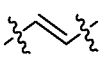
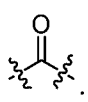
, and each of **R_{c1,3}** and **R_{d1,3}** is CH₃. In some variations, -C(**R_{c1,1}****R_{d1,1}**)- is , -

$C(R_{c1,2}R_{d1,2})$ - is , $R_{c1,3}$ is H, and $R_{d1,3}$ is CH_3 .

[622] In some variations, $-C(R_{c1.1}R_{d1.1})-$ is , $-C(R_{c1.2}R_{d1.2})-$ is , and each of $R_{c1.3}$ and $R_{d1.3}$ is H. In some variations, $-C(R_{c1.1}R_{d1.1})-$ is , $-C(R_{c1.2}R_{d1.2})-$ is , and each of $R_{c1.3}$ and $R_{d1.3}$ is CH_3 . In some variations, $-C(R_{c1.1}R_{d1.1})-$ is , $-C(R_{c1.2}R_{d1.2})-$ is , $R_{c1.3}$ is H, and $R_{d1.3}$ is CH_3 . In some variations, $-C(R_{c1.1}R_{d1.1})-$ is , $-C(R_{c1.2}R_{d1.2})-$ is , and each of $R_{c1.3}$ and $R_{d1.3}$ is H. In some variations, $-C(R_{c1.1}R_{d1.1})-$ is , $-C(R_{c1.2}R_{d1.2})-$ is , and each of $R_{c1.3}$ and $R_{d1.3}$ is CH_3 . In some variations, $-C(R_{c1.1}R_{d1.1})-$ is , $-C(R_{c1.2}R_{d1.2})-$ is , $R_{c1.3}$ is H, and $R_{d1.3}$ is CH_3 .

[623] In some variations, $-C(R_{c1.1}R_{d1.1})-$ is , $-C(R_{c1.2}R_{d1.2})-$ is , and each of $R_{c1.3}$ and $R_{d1.3}$ is H. In some variations, $-C(R_{c1.1}R_{d1.1})-$ is , $-C(R_{c1.2}R_{d1.2})-$ is , and each of $R_{c1.3}$ and $R_{d1.3}$ is CH_3 . In some variations, $-C(R_{c1.1}R_{d1.1})-$ is , $-C(R_{c1.2}R_{d1.2})-$ is , $R_{c1.3}$ is H, and $R_{d1.3}$ is CH_3 . In some variations, $-C(R_{c1.1}R_{d1.1})-$ is , $-C(R_{c1.2}R_{d1.2})-$ is , and each of $R_{c1.3}$ and $R_{d1.3}$ is H. In some variations, $-C(R_{c1.1}R_{d1.1})-$ is , $-C(R_{c1.2}R_{d1.2})-$ is , and each of $R_{c1.3}$ and $R_{d1.3}$ is CH_3 . In some variations, $-C(R_{c1.1}R_{d1.1})-$ is , $-C(R_{c1.2}R_{d1.2})-$ is , $R_{c1.3}$ is H, and $R_{d1.3}$ is CH_3 .

[624] In some variations, $-C(R_{c1.1}R_{d1.1})-$ and $-C(R_{c1.2}R_{d1.2})-$ together are , and each of $R_{c1.3}$ and $R_{d1.3}$ is H. In some variations, $-C(R_{c1.1}R_{d1.1})-$ and $-C(R_{c1.2}R_{d1.2})-$ together are , and each of $R_{c1.3}$ and $R_{d1.3}$ is CH_3 . In some variations, $-C(R_{c1.1}R_{d1.1})-$ and $-C(R_{c1.2}R_{d1.2})-$

together are , $\mathbf{R}_{c1.3}$ is H, and $\mathbf{R}_{d1.3}$ is CH₃. In some variations, $-\text{C}(\mathbf{R}_{c1.1}\mathbf{R}_{d1.1})-$ and $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$ together are , and $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ is . In some variations, $-\text{C}(\mathbf{R}_{c1.1}\mathbf{R}_{d1.1})-$ and $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$ together are , and $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ is .

Variations of formulae (If)-(If.63) in which t is 1 and o_I is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, and four $\mathbf{U}_1$ are $-\text{C}(\mathbf{R}_{c1}\mathbf{R}_{d1})-$

[625] In variations of formulae (If)-(If.63) in which o_1 is 4, the four instances of $\mathbf{R}_{c1}$ and $\mathbf{R}_{d1.1}$ are indicated as $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$; $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d1.2}$; $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$; and $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$, respectively.

[626] In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{c1.2}$, $\mathbf{R}_{b2}$, $\mathbf{R}_{c1.3}$, $\mathbf{R}_{d1.3}$, $\mathbf{R}_{c1.4}$, and $\mathbf{R}_{d1.4}$ is H. In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{c1.2}$, $\mathbf{R}_{b2}$, $\mathbf{R}_{c1.3}$, $\mathbf{R}_{d1.3}$, $\mathbf{R}_{c1.4}$, and $\mathbf{R}_{d1.4}$ is CH₃. In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{c1.2}$, $\mathbf{R}_{b2}$, $\mathbf{R}_{c1.3}$, and $\mathbf{R}_{d1.3}$ is H and each of $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$ is CH₃. In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{c1.2}$, and $\mathbf{R}_{b2}$ is H and each of $\mathbf{R}_{c1.3}$, $\mathbf{R}_{d1.3}$, $\mathbf{R}_{c1.4}$, and $\mathbf{R}_{d1.4}$ is CH₃. In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{c1.2}$, $\mathbf{R}_{b2}$, $\mathbf{R}_{c1.3}$, and $\mathbf{R}_{d1.3}$ is CH₃ and each of $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$ is H.

[627] In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{c1.2}$, and $\mathbf{R}_{c1.3}$ is H and each of $\mathbf{R}_{d1.1}$, $\mathbf{R}_{b2}$, and $\mathbf{R}_{d1.3}$ is CH₃. In some variations, $\mathbf{R}_{c1.1}$ is H, $\mathbf{R}_{d1.1}$ is CH₃, and each of $\mathbf{R}_{c1.2}$, $\mathbf{R}_{b2}$, $\mathbf{R}_{c1.3}$, and $\mathbf{R}_{d1.3}$ is CH₃. In some variations, $\mathbf{R}_{c1.1}$ is H, $\mathbf{R}_{d1.1}$ is CH₃, and each of $\mathbf{R}_{c1.2}$, $\mathbf{R}_{b2}$, $\mathbf{R}_{c1.3}$, and $\mathbf{R}_{d1.3}$ is H. In some variations, each of $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{c1.2}$ is H, each of $\mathbf{R}_{d1.1}$ and $\mathbf{R}_{b2}$ is CH₃, and each of $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ is H. In some variations, each of $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{c1.2}$ is H, each of $\mathbf{R}_{d1.1}$ and $\mathbf{R}_{b2}$ is CH₃, and each of $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ is CH₃.

[628] In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$ are H, $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{b2}$ are H, $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ are H, and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is . In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$ are H, $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{b2}$ are H, $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ are CH₃, and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is . In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$ are H, $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{b2}$ are CH₃, $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ are CH₃, and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is . In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$ are CH₃, $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d1.2}$ are CH₃, $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$ are CH₃, and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is .

[629] In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$ are H, $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{b2}$ are H, $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ is , and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is . In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$ are H, $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{b2}$ are CH_3 , $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ is , and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is . In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$ are CH_3 , $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{b2}$ are CH_3 , $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ is , and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is . In some variations, $\mathbf{R}_{c1.1}$ is H, $\mathbf{R}_{d1.1}$ is CH_3 , $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{b2}$ are CH_3 , $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ is , and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is . In some variations, $\mathbf{R}_{c1.1}$ is H, $\mathbf{R}_{d1.1}$ is CH_3 , $\mathbf{R}_{c1.2}$ is H, $\mathbf{R}_{b2}$ is CH_3 , $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ is , and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is .

[630] In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$ are H, $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$ is , $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ is , and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is . In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$ are CH_3 , $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$ is , $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ is , and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is . In some variations, $\mathbf{R}_{c1.1}$ is H, $\mathbf{R}_{d1.1}$ is CH_3 , $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$ is , $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ is , and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is . In some variations, each of $-\text{C}(\mathbf{R}_{c1.1}\mathbf{R}_{d1.1})-$, $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$, $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$, and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is .

[631] In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{c1.2}$, $\mathbf{R}_{b2}$, $\mathbf{R}_{c1.3}$, and $\mathbf{R}_{d1.3}$ is H, and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is . In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{c1.2}$, and $\mathbf{R}_{b2}$, each of $\mathbf{R}_{c1.3}$, and $\mathbf{R}_{d1.3}$ is CH_3 , and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is . In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$ are H, each of $\mathbf{R}_{c1.2}$, $\mathbf{R}_{b2}$, $\mathbf{R}_{c1.3}$, and $\mathbf{R}_{d1.3}$ is CH_3 , and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is . In some variations, each of $\mathbf{R}_{c1.1}$, $\mathbf{R}_{d1.1}$, $\mathbf{R}_{c1.2}$, $\mathbf{R}_{b2}$, $\mathbf{R}_{c1.3}$, and $\mathbf{R}_{d1.3}$ is CH_3 , and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is .

[632] In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$ are H, $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{b2}$ are H, $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ is , and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is . In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$ are H, $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{b2}$ are CH_3 , $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ is , and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is . In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$ are CH_3 , $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{b2}$ are CH_3 , $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ is , and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is . In some variations, $\mathbf{R}_{c1.1}$ is H, $\mathbf{R}_{d1.1}$ is CH_3 , $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d1.2}$ are CH_3 , $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ is , and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is . In some variations, $\mathbf{R}_{c1.1}$ is H, $\mathbf{R}_{d1.1}$ is CH_3 , $\mathbf{R}_{c1.2}$ is H, $\mathbf{R}_{d1.2}$ is CH_3 , $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ is , and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is .

[633] In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$ are H, $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$ is , $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ is , and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is . In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$ are CH_3 , $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$ is , $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ is , and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is . In some variations, $\mathbf{R}_{c1.1}$ is H, $\mathbf{R}_{d1.1}$ is CH_3 , $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$ is , $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ is , and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is . In some variations, each of $-\text{C}(\mathbf{R}_{c1.1}\mathbf{R}_{d1.1})-$, $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$, $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$, and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is .

[634] In some variations, $-\text{C}(\mathbf{R}_{c1.1}\mathbf{R}_{d1.1})-$ is , each of $\mathbf{R}_{c1.2}$, $\mathbf{R}_{d1.2}$, $\mathbf{R}_{c1.3}$, and $\mathbf{R}_{d1.3}$ is H, and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is . In some variations, $-\text{C}(\mathbf{R}_{c1.1}\mathbf{R}_{d1.1})-$ is , each of $\mathbf{R}_{c1.2}$, $\mathbf{R}_{d1.2}$, $\mathbf{R}_{c1.3}$, and $\mathbf{R}_{d1.3}$ is CH_3 , and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is . In some variations, $-\text{C}(\mathbf{R}_{c1.1}\mathbf{R}_{d1.1})-$ is , each of $\mathbf{R}_{c1.2}$, $\mathbf{R}_{d1.2}$, $\mathbf{R}_{c1.3}$, and $\mathbf{R}_{d1.3}$ is CH_3 , and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ is .

[635] In some variations, each of $-C(R_{c1.1}R_{d1.1})-$ and $-C(R_{c1.2}R_{d1.2})-$ is , each of $R_{c1.3}$ and

$R_{d1.3}$ is H, and $-C(R_{c1.4}R_{d1.4})-$ is . In some variations, each of $-C(R_{c1.1}R_{d1.1})-$ and -

$C(R_{c1.2}R_{d1.2})-$ is , each of $R_{c1.3}$ and $R_{d1.3}$ is CH_3 , and $-C(R_{c1.4}R_{d1.4})-$ is . In some

variations, each of $-C(R_{c1.1}R_{d1.1})-$ and $-C(R_{c1.2}R_{d1.2})-$ is , $R_{c1.3}$ is H, $R_{d1.3}$ is CH_3 , and -

$C(R_{c1.4}R_{d1.4})-$ is .

[636] In some variations, each of $-C(R_{c1.1}R_{d1.1})-$, $-C(R_{c1.2}R_{d1.2})-$, $-C(R_{c1.3}R_{d1.3})-$ is , and

$-C(R_{c1.4}R_{d1.4})-$ is .

[637] In some variations, $-C(R_{c1.1}R_{d1.1})-$ is , $-C(R_{c1.2}R_{d1.2})-$ is , each of $R_{c1.3}$ and

$R_{d1.3}$ is H, and $-C(R_{c1.4}R_{d1.4})-$ is . In some variations, $-C(R_{c1.1}R_{d1.1})-$ is ,

$-C(R_{c1.2}R_{d1.2})-$ is , each of $R_{c1.3}$ and $R_{d1.3}$ is CH_3 , and $-C(R_{c1.4}R_{d1.4})-$ is . In some

variations, $-C(R_{c1.1}R_{d1.1})-$ is , $-C(R_{c1.2}R_{d1.2})-$ is , each of $R_{c1.3}$ and $R_{d1.3}$ is CH_3 , and

$-C(R_{c1.4}R_{d1.4})-$ is . In some variations, $-C(R_{c1.1}R_{d1.1})-$ is , $-C(R_{c1.2}R_{d1.2})-$ is ,

each of $R_{c1.3}$ and $R_{d1.3}$ is H, and $-C(R_{c1.4}R_{d1.4})-$ is .

[638] In some variations, $-C(R_{c1.1}R_{d1.1})-$ is , $-C(R_{c1.2}R_{d1.2})-$ is , $-C(R_{c1.3}R_{d1.3})-$ is

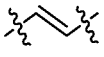
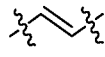
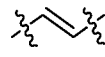
, and $-C(R_{c1.4}R_{d1.4})-$ is .

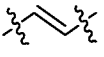
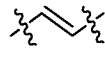
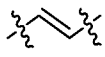
[639] In some variations, $-C(R_{c1.1}R_{d1.1})-$ is , $-C(R_{c1.2}R_{d1.2})-$ is , each of $R_{c1.3}$ and $R_{d1.3}$ is H, and $-C(R_{c1.4}R_{d1.4})-$ is . In some variations, $-C(R_{c1.1}R_{d1.1})-$ is , $-C(R_{c1.2}R_{d1.2})-$ is , each of $R_{c1.3}$ and $R_{d1.3}$ is CH_3 , and $-C(R_{c1.4}R_{d1.4})-$ is . In some variations, $-C(R_{c1.1}R_{d1.1})-$ is , $-C(R_{c1.2}R_{d1.2})-$ is , each of $R_{c1.3}$ and $R_{d1.3}$ is CH_3 , and $-C(R_{c1.4}R_{d1.4})-$ is . In some variations, $-C(R_{c1.1}R_{d1.1})-$ is , $-C(R_{c1.2}R_{d1.2})-$ is , each of $R_{c1.3}$ and $R_{d1.3}$ is H, and $-C(R_{c1.4}R_{d1.4})-$ is .

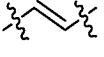
[640] In some variations, $-C(R_{c1.1}R_{d1.1})-$ is , $-C(R_{c1.2}R_{d1.2})-$ is , $-C(R_{c1.3}R_{d1.3})-$ is , and $-C(R_{c1.4}R_{d1.4})-$ is .

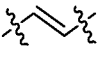
[641] In some variations, each of $R_{c1.1}$, $R_{d1.1}$, $R_{c1.2}$, and $R_{d1.2}$ is H, and $-C(R_{c1.3}R_{d1.3})-$ and $-C(R_{c1.4}R_{d1.4})-$ together are . In some variations, $R_{c1.1}$ and $R_{d1.1}$ are H, $R_{c1.2}$ and $R_{d1.2}$ are CH_3 , and $-C(R_{c1.3}R_{d1.3})-$ and $-C(R_{c1.4}R_{d1.4})-$ together are . In some variations, $R_{c1.1}$ and $R_{c1.2}$ are H, $R_{d1.1}$ and $R_{d1.2}$ are CH_3 , and $-C(R_{c1.3}R_{d1.3})-$ and $-C(R_{c1.4}R_{d1.4})-$ together are .

[642] In some variations, $R_{c1.1}$ and $R_{d1.1}$ are H, $-C(R_{c1.2}R_{d1.2})-$ is , and $-C(R_{c1.3}R_{d1.3})-$ and $-C(R_{c1.4}R_{d1.4})-$ together are . In some variations, $-C(R_{c1.1}R_{d1.1})-$ is , $R_{c1.2}$ and $R_{d1.2}$ are CH_3 , and $-C(R_{c1.3}R_{d1.3})-$ and $-C(R_{c1.4}R_{d1.4})-$ together are . In some variations, $R_{c1.1}$ is H, $R_{d1.1}$ is CH_3 , $-C(R_{c1.2}R_{d1.2})-$ is , and $-C(R_{c1.3}R_{d1.3})-$ and $-C(R_{c1.4}R_{d1.4})-$ together are .

[643] In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$ are H, $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$ is , and $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ together are . In some variations, $-\text{C}(\mathbf{R}_{c1.1}\mathbf{R}_{d1.1})-$ is , $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{b2}$ are CH_3 , and $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ together are . In some variations, $\mathbf{R}_{c1.1}$ is H, $\mathbf{R}_{d1.1}$ is CH_3 , $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$ is , and $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ together are .

[644] In some variations, $-\text{C}(\mathbf{R}_{c1.1}\mathbf{R}_{d1.1})-$ is , $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{b2}$ are , and $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ together are . In some variations, $\mathbf{v}$ , $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{b2}$ are , and $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ together are . In some variations, $-\text{C}(\mathbf{R}_{c1.1}\mathbf{R}_{d1.1})-$ is , $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{b2}$ are , and $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ together are .

[645] In some variations, $-\text{C}(\mathbf{R}_{c1.1}\mathbf{R}_{d1.1})-$ is , $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{b2}$ are , and $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ together are .

[646] In some variations, $-\text{C}(\mathbf{R}_{c1.1}\mathbf{R}_{d1.1})-$ and $-\text{C}(\mathbf{R}_{c1.2}\mathbf{R}_{d1.2})-$ together are  and $-\text{C}(\mathbf{R}_{c1.3}\mathbf{R}_{d1.3})-$ and $-\text{C}(\mathbf{R}_{c1.4}\mathbf{R}_{d1.4})-$ together are .

Variations of formulae (If)-(If.63) in which t is 1 and o_I is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, and five $\mathbf{U}_1$ are $-\text{C}(\mathbf{R}_{c1}\mathbf{R}_{d1})-$

[647] In variations of formulae (If)-(If.63) in which o_I is 1, 2, 3, 4, 5, 6, 7, or 8 and five $\mathbf{U}_1$ are $-\text{C}(\mathbf{R}_{c1}\mathbf{R}_{d1})-$, five instances of $\mathbf{R}_{c1}$ and $\mathbf{R}_{d1}$ are indicated as $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$; $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d1.2}$; $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$; $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$; and $\mathbf{R}_{c1.5}$ and $\mathbf{R}_{d1.5}$, respectively.

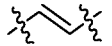
[648] In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$; $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d1.2}$; $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$; $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$ are as defined above, and each of $\mathbf{R}_{c1.5}$ and $\mathbf{R}_{d1.5}$ is H.

[649] In some variations, $R_{c1.1}$ and $R_{d1.1}$; $R_{c1.2}$ and $R_{d1.2}$; $R_{c1.3}$ and $R_{d1.3}$; $R_{c1.4}$ and $R_{d1.4}$ are as defined above, and each of $R_{c1.5}$ and $R_{d1.5}$ is CH_3 .

[650] In some variations, $R_{c1.1}$ and $R_{d1.1}$; $R_{c1.2}$ and $R_{d1.2}$; $R_{c1.3}$ and $R_{d1.3}$; $R_{c1.4}$ and $R_{d1.4}$ are as defined above, $R_{c1.5}$ is H and $R_{d1.5}$ is CH_3 .

[651] In some variations, $R_{c1.1}$ and $R_{d1.1}$; $R_{c1.2}$ and $R_{d1.2}$; $R_{c1.3}$ and $R_{d1.3}$; $R_{c1.4}$ and $R_{d1.4}$ are as defined above, and $-C(R_{c1.5}R_{d1.5})-$ is .

[652] In some variations, $R_{c1.1}$ and $R_{d1.1}$; $R_{c1.2}$ and $R_{d1.2}$; $R_{c1.3}$ and $R_{d1.3}$; $R_{c1.4}$ and $R_{d1.4}$ are as defined above, and $-C(R_{c1.5}R_{d1.5})-$ is .

[653] In some variations, $R_{c1.1}$ and $R_{d1.1}$; $R_{c1.2}$ and $R_{d1.2}$; $R_{c1.3}$ and $R_{d1.3}$ are as defined above, and $-C(R_{c1.5}R_{d1.5})-$ and $-C(R_{c1.5}R_{d1.5})-$ together are .

Variations of formulae (If)-(If.63) in which t is 1 and o_I is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, and six U_1 are $-C(R_{c1}R_{d1})-$

[654] In variations of formulae (If)-(If.63) in which o_I is 1, 2, 3, 4, 5, 6, 7, or 8 and six U_1 are $-C(R_{c1}R_{d1})-$, six instances of R_{c1} and R_{d1} are indicated as $R_{c1.1}$ and $R_{d1.1}$; $R_{c1.2}$ and $R_{d1.2}$; $R_{c1.3}$ and $R_{d1.3}$; $R_{c1.4}$ and $R_{d1.4}$; $R_{c1.5}$ and $R_{d1.5}$, and $R_{c1.6}$ and $R_{d1.6}$, respectively.

[655] In some variations, $R_{c1.1}$ and $R_{d1.1}$; $R_{c1.2}$ and $R_{d1.2}$; $R_{c1.3}$ and $R_{d1.3}$; $R_{c1.4}$ and $R_{d1.4}$; and $R_{c1.5}$ and $R_{d1.5}$ are as defined above, and each of $R_{c1.6}$ and $R_{d1.6}$ is H.

[656] In some variations, $R_{c1.1}$ and $R_{d1.1}$; $R_{c1.2}$ and $R_{d1.2}$; $R_{c1.3}$ and $R_{d1.3}$; $R_{c1.4}$ and $R_{d1.4}$; and $R_{c1.5}$ and $R_{d1.5}$ are as defined above, and each of $R_{c1.6}$ and $R_{d1.6}$ is CH_3 .

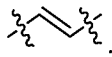
[657] In some variations, $R_{c1.1}$ and $R_{d1.1}$; $R_{c1.2}$ and $R_{d1.2}$; $R_{c1.3}$ and $R_{d1.3}$; $R_{c1.4}$ and $R_{d1.4}$; and $R_{c1.5}$ and $R_{d1.5}$ are as defined above, $R_{c1.6}$ is H, and $R_{d1.6}$ is CH_3 .

[658] In some variations, $R_{c1.1}$ and $R_{d1.1}$; $R_{c1.2}$ and $R_{d1.2}$; $R_{c1.3}$ and $R_{d1.3}$; $R_{c1.4}$ and $R_{d1.4}$; and $R_{c1.5}$ and $R_{d1.5}$ are as defined above, and $-C(R_{c1.6}R_{d1.6})-$ is .

[659] In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$; $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d1.2}$; $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$; $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$; and

$\mathbf{R}_{c1.5}$ and $\mathbf{R}_{d1.5}$ are as defined above, and $-\text{C}(\mathbf{R}_{c1.6}\mathbf{R}_{d1.6})-$ is .

[660] In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$; $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d1.2}$; $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$; and $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$ are

as defined above, and $-\text{C}(\mathbf{R}_{c1.5}\mathbf{R}_{d1.5})-$ and $-\text{C}(\mathbf{R}_{c1.6}\mathbf{R}_{d1.6})-$ together are .

Variations of formulae (If)-(If.63) in which t is 1 and o_I is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, and seven $\mathbf{U}_1$ are $-\text{C}(\mathbf{R}_{c1}\mathbf{R}_{d1})-$

[661] In variations of formulae (If)-(If.63) in which o_I is 1, 2, 3, 4, 5, 6, 7, or 8 and seven $\mathbf{U}_1$ are $-\text{C}(\mathbf{R}_{c1}\mathbf{R}_{d1})-$, seven instances of $\mathbf{R}_{c1}$ and $\mathbf{R}_{d1}$ are indicated as $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$; $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d1.2}$; $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$; $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$; $\mathbf{R}_{c1.5}$ and $\mathbf{R}_{d1.5}$; $\mathbf{R}_{c1.6}$ and $\mathbf{R}_{d1.6}$, and $\mathbf{R}_{c1.7}$ and $\mathbf{R}_{d1.7}$, respectively.

[662] In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$; $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d1.2}$; $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$; $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$; $\mathbf{R}_{c1.5}$ and $\mathbf{R}_{d1.5}$; and $\mathbf{R}_{c1.6}$ and $\mathbf{R}_{d1.6}$, are as defined above, and each of $\mathbf{R}_{c1.7}$ and $\mathbf{R}_{d1.7}$ is H.

[663] In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$; $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d1.2}$; $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$; $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$; $\mathbf{R}_{c1.5}$ and $\mathbf{R}_{d1.5}$; and $\mathbf{R}_{c1.6}$ and $\mathbf{R}_{d1.6}$, are as defined above, and each of $\mathbf{R}_{c1.7}$ and $\mathbf{R}_{d1.7}$ is CH_3 .

[664] In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$; $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d1.2}$; $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$; $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$; $\mathbf{R}_{c1.5}$ and $\mathbf{R}_{d1.5}$; and $\mathbf{R}_{c1.6}$ and $\mathbf{R}_{d1.6}$, are as defined above, $\mathbf{R}_{c1.7}$ is H, and $\mathbf{R}_{d1.7}$ is CH_3 .

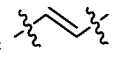
[665] In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$; $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d1.2}$; $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$; $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$; $\mathbf{R}_{c1.5}$

and $\mathbf{R}_{d1.5}$; and $\mathbf{R}_{c1.6}$ and $\mathbf{R}_{d1.6}$, are as defined above, and $-\text{C}(\mathbf{R}_{c1.7}\mathbf{R}_{d1.7})-$ is .

[666] In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$; $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d1.2}$; $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$; $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$; $\mathbf{R}_{c1.5}$

and $\mathbf{R}_{d1.5}$; and $\mathbf{R}_{c1.6}$ and $\mathbf{R}_{d1.6}$, are as defined above, and $-\text{C}(\mathbf{R}_{c1.7}\mathbf{R}_{d1.7})-$ is .

[667] In some variations, $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$; $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d1.2}$; $\mathbf{R}_{c1.3}$ and $\mathbf{R}_{d1.3}$; and $\mathbf{R}_{c1.4}$ and $\mathbf{R}_{d1.4}$; and

$\mathbf{R}_{c1.5}$ and $\mathbf{R}_{d1.5}$ are as defined above, and $-\text{C}(\mathbf{R}_{c1.6}\mathbf{R}_{d1.6})-$ and $-\text{C}(\mathbf{R}_{c1.7}\mathbf{R}_{d1.7})-$ together are .

Variations of formulae (If)-(If.63) in which t is 1 and o_I is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, and eight $\mathbf{U}_1$ are $-\text{C}(\mathbf{R}_{c1}\mathbf{R}_{d1})-$

[668] In variations of formulae (If)-(If.63) in which o_I is 1, 2, 3, 4, 5, 6, 7, or 8 and eight $\mathbf{U}_1$ are $-\text{C}(\mathbf{R}_{c1}\mathbf{R}_{d1})-$, eight instances of $\mathbf{R}_{c1}$ and $\mathbf{R}_{d1}$, are indicated as $\mathbf{R}_{c1.1}$ and $\mathbf{R}_{d1.1}$; $\mathbf{R}_{c1.2}$ and $\mathbf{R}_{d1.2}$; $\mathbf{R}_{c1.3}$

and $R_{d1.3}$; $R_{c1.4}$ and $R_{d1.4}$; $R_{c1.5}$ and $R_{d1.5}$, $R_{c1.6}$ and $R_{d1.6}$, $R_{c1.7}$ and $R_{d1.7}$, and $R_{c1.8}$ and $R_{d1.8}$, respectively.

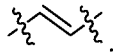
[669] In some variations, $R_{c1.1}$ and $R_{d1.1}$; $R_{c1.2}$ and $R_{d1.2}$; $R_{c1.3}$ and $R_{d1.3}$; $R_{c1.4}$ and $R_{d1.4}$; $R_{c1.5}$ and $R_{d1.5}$; $R_{c1.6}$ and $R_{d1.6}$; and $R_{c1.7}$ and $R_{d1.7}$ are as defined above, and each of $R_{c1.8}$ and $R_{d1.8}$ is H.

[670] In some variations, $R_{c1.1}$ and $R_{d1.1}$; $R_{c1.2}$ and $R_{d1.2}$; $R_{c1.3}$ and $R_{d1.3}$; $R_{c1.4}$ and $R_{d1.4}$; $R_{c1.5}$ and $R_{d1.5}$; $R_{c1.6}$ and $R_{d1.6}$; and $R_{c1.7}$ and $R_{d1.7}$ are as defined above, and each of $R_{c1.8}$ and $R_{d1.8}$ is CH_3 .

[671] In some variations, $R_{c1.1}$ and $R_{d1.1}$; $R_{c1.2}$ and $R_{d1.2}$; $R_{c1.3}$ and $R_{d1.3}$; $R_{c1.4}$ and $R_{d1.4}$; $R_{c1.5}$ and $R_{d1.5}$; $R_{c1.6}$ and $R_{d1.6}$; and $R_{c1.7}$ and $R_{d1.7}$ are as defined above, $R_{c1.8}$ is H, and $R_{d1.8}$ is CH_3 .

[672] In some variations, $R_{c1.1}$ and $R_{d1.1}$; $R_{c1.2}$ and $R_{d1.2}$; $R_{c1.3}$ and $R_{d1.3}$; $R_{c1.4}$ and $R_{d1.4}$; $R_{c1.5}$ and $R_{d1.5}$; $R_{c1.6}$ and $R_{d1.6}$; and $R_{c1.7}$ and $R_{d1.7}$ are as defined above, and $-C(R_{c1.8}R_{d1.8})-$ is .

[673] In some variations, $R_{c1.1}$ and $R_{d1.1}$; $R_{c1.2}$ and $R_{d1.2}$; $R_{c1.3}$ and $R_{d1.3}$; $R_{c1.4}$ and $R_{d1.4}$; $R_{c1.5}$ and $R_{d1.5}$; $R_{c1.6}$ and $R_{d1.6}$; and $R_{c1.7}$ and $R_{d1.7}$ are as defined above, and $-C(R_{c1.8}R_{d1.8})-$ is .

[674] In some variations, $R_{c1.1}$ and $R_{d1.1}$; $R_{c1.2}$ and $R_{d1.2}$; $R_{c1.3}$ and $R_{d1.3}$; and $R_{c1.4}$ and $R_{d1.4}$; $R_{c1.5}$ and $R_{d1.5}$; and $R_{c1.6}$ and $R_{d1.6}$ are as defined above, and $-C(R_{c1.7}R_{d1.7})-$ and $-C(R_{c1.8}R_{d1.8})-$ together are .

Variations of formulae (If)-(If.63) in which t is 1, o_1 is 1, 2, 3, 4, 5, 6, 7, or 8, as described above, o_2 is 1, and U_2 is $-C(R_{c2}R_{d2})-$

[675] In some variations, R_{c2} and R_{d2} are both H. In some variations, R_{c2} is H and R_{d2} is CH_3 .

In some variations, R_{c2} and R_{d2} are both CH_3 . In some variations, $-C(R_{c2}R_{d2})-$ is . In some

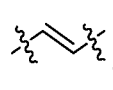
variations, $-C(R_{c2}R_{d2})-$ is .

Variations of formulae (If)-(If.63) in which t is 1, o_1 is 1, 2, 3, 4, 5, 6, 7, or 8, as described above, o_2 is 2, and each U_2 is $-C(R_{c2}R_{d2})-$

[676] In variations of formulae (If)-(If.63) described in the paragraphs above in which o_I is 2, the two instances of R_{c2} and R_{d2} are indicated as $R_{c2.1}$ and $R_{d2.1}$ and $R_{c2.2}$ and $R_{d2.2}$, respectively.

[677] In some variations, each of $R_{c2.1}$ and $R_{d2.1}$ and $R_{c2.2}$ and $R_{d2.2}$ is H. In some variations, each of $R_{c2.1}$ and $R_{d2.1}$ and $R_{c2.2}$ and $R_{d2.2}$ is CH₃. In some variations, each of $R_{c2.1}$ and $R_{c2.2}$ is H and each of $R_{d2.1}$ and $R_{d2.2}$ is CH₃. In some variations, each of $R_{c2.1}$, $R_{c2.2}$, and $R_{d2.1}$ is H and $R_{d2.2}$ is CH₃.

[678] In some variations, each of $R_{c2.1}$ and $R_{d2.1}$ is H and $-C(R_{c2.2}R_{d2.2})-$ is . In some variations, each of $R_{c2.1}$ and $R_{d2.1}$ is H and $-C(R_{c2.2}R_{d2.2})-$ is . In some variations, each of $R_{c2.1}$ and $R_{d2.1}$ is CH₃ and $-C(R_{c2.2}R_{d2.2})-$ is . In some variations, each of $R_{c2.1}$ and $R_{d2.1}$ is CH₃ and $-C(R_{c2.2}R_{d2.2})-$ is .

some variations, $R_{c2.1}$ is H, $R_{d2.1}$ is CH₃, and $-C(R_{c2.2}R_{d2.2})-$ is . In some variations, $R_{c2.1}$ is H, $R_{d2.1}$ is CH₃, and $-C(R_{c2.2}R_{d2.2})-$ is . In some variations, two of $-C(R_{c2.2}R_{d2.2})-$ are . In some variations, $-C(R_{c2.2}R_{d2.2})-$ is  and $-C(R_{c2.2}R_{d2.2})-$ is . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , and $-C(R_{c2.2}R_{d2.2})-$ is . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , and $-C(R_{c2.2}R_{d2.2})-$ is .

Variations of formulae (If)-(If.63) in which t is 1, o_1 is 1, 2, 3, 4, 5, 6, 7, or 8, as described above, o_2 is 3, and each U_2 is $-C(R_{c2}R_{d2})-$

[679] In variations, of formulae (If)-(If.63) in which o_I is 3, the three instances of R_c and R_d are indicated as $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; and $R_{c2.3}$ and $R_{d2.3}$, respectively.

[680] In some variations, each of $R_{c2.1}$, $R_{d2.1}$, $R_{c2.2}$, $R_{d2.2}$, $R_{c2.3}$, and $R_{d2.3}$ is H. In some variations, each of $R_{c2.1}$, $R_{d2.1}$, $R_{c2.2}$, $R_{d2.2}$, $R_{c2.3}$, and $R_{d2.3}$ is CH₃. In some variations, each of $R_{c2.1}$, $R_{d2.1}$, $R_{c2.2}$, and $R_{d2.2}$, is H and each of $R_{c2.3}$ and $R_{d2.3}$ is CH₃. In some variations, each of $R_{c2.1}$, $R_{d2.1}$, $R_{c2.2}$, and $R_{d2.2}$, is CH₃ and each of $R_{c2.3}$ and $R_{d2.3}$ is H. In some variations, $R_{c2.1}$ is H

and each of $R_{c2.2}$, $R_{c2.3}$, $R_{d2.1}$, $R_{d2.2}$, and $R_{d2.3}$ is CH_3 . In some variations, each of $R_{c2.1}$ and $R_{c2.2}$ is H and each of $R_{c2.3}$, $R_{d2.1}$, $R_{d2.2}$, and $R_{d2.3}$ is CH_3 . In some variations, each of $R_{c2.1}$, $R_{c2.2}$, and $R_{c2.3}$ is H and each of $R_{d2.1}$, $R_{d2.2}$, and $R_{d2.3}$ is CH_3 .

[681] In some variations, each of $R_{c2.1}$, $R_{d2.1}$, $R_{c2.2}$, and $R_{d2.2}$, is H and $-C(R_{c2.3}R_{d2.3})-$ is .

In some variations, each of $R_{c2.1}$, $R_{d2.1}$, $R_{c2.2}$, and $R_{d2.2}$, is CH_3 and $-C(R_{c2.3}R_{d2.3})-$ is . In

some variations, $R_{c2.1}$ is H and each of $R_{c2.2}$, $R_{d2.1}$, and $R_{d2.2}$ is CH_3 , and $-C(R_{c2.3}R_{d2.3})-$ is .

In some variations, each of $R_{c2.1}$ and $R_{c2.2}$ is H and each of $R_{d2.1}$ and $R_{d2.2}$ is CH_3 , and -

$C(R_{c2.3}R_{d2.3})-$ is .

[682] In some variations, each of $R_{c2.1}$, $R_{d2.1}$, $R_{c2.2}$, and $R_{d2.2}$, is H and $-C(R_{c2.3}R_{d2.3})-$ is .

In some variations, each of $R_{c2.1}$, $R_{d2.1}$, $R_{c2.2}$, and $R_{d2.2}$, is CH_3 and $-C(R_{c2.3}R_{d2.3})-$ is . In

some variations, $R_{c2.1}$ is H and each of $R_{c2.2}$, $R_{d2.1}$, and $R_{d2.2}$ is CH_3 , and $-C(R_{c2.3}R_{d2.3})-$ is .

In some variations, each of $R_{c2.1}$ and $R_{c2.2}$ is H and each of $R_{d2.1}$ and $R_{d2.2}$ is CH_3 , and -

$C(R_{c2.3}R_{d2.3})-$ is .

[683] In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , and each of $R_{c2.3}$

and $R_{d2.3}$ is H. In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , and each of

$R_{c2.3}$ and $R_{d2.3}$ is CH_3 . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , $R_{c2.3}$

is H, and $R_{d2.3}$ is CH_3 . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , and

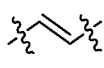
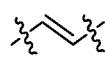
each of $R_{c2.3}$ and $R_{d2.3}$ is H. In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is ,

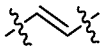
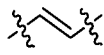
and each of $R_{c2.3}$ and $R_{d2.3}$ is CH_3 . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is

, $R_{c2.3}$ is H, and $R_{d2.3}$ is CH_3 .

[684] In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , and each of $R_{c2.3}$ and $R_{d2.3}$ is H. In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , and each of $R_{c2.3}$ and $R_{d2.3}$ is CH_3 . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , $R_{c2.3}$ is H, and $R_{d2.3}$ is CH_3 . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , and each of $R_{c2.3}$ and $R_{d2.3}$ is H. In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , and each of $R_{c2.3}$ and $R_{d2.3}$ is CH_3 . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , $R_{c2.3}$ is H, and $R_{d2.3}$ is CH_3 .

[685] In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , and each of $R_{c2.3}$ and $R_{d2.3}$ is H. In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , and each of $R_{c2.3}$ and $R_{d2.3}$ is CH_3 . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , $R_{c2.3}$ is H, and $R_{d2.3}$ is CH_3 . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , and each of $R_{c2.3}$ and $R_{d2.3}$ is H. In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , and each of $R_{c2.3}$ and $R_{d2.3}$ is CH_3 . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , $R_{c2.3}$ is H, and $R_{d2.3}$ is CH_3 .

[686] In some variations, $-C(R_{c2.1}R_{d2.1})-$ and $-C(R_{c2.2}R_{d2.2})-$ together are , and each of $R_{c2.3}$ and $R_{d2.3}$ is H. In some variations, $-C(R_{c2.1}R_{d2.1})-$ and $-C(R_{c2.2}R_{d2.2})-$ together are , and each of $R_{c2.3}$ and $R_{d2.3}$ is CH_3 . In some variations, $-C(R_{c2.1}R_{d2.1})-$ and $-C(R_{c2.2}R_{d2.2})-$ together

are , $\mathbf{R}_{c2.3}$ is H, and $\mathbf{R}_{d2.3}$ is CH_3 . In some variations, $-\text{C}(\mathbf{R}_{c2.1}\mathbf{R}_{d2.1})-$ and $-\text{C}(\mathbf{R}_{c2.2}\mathbf{R}_{d2.2})-$ together are , and $-\text{C}(\mathbf{R}_{c2.3}\mathbf{R}_{d2.3})-$ is . In some variations, $-\text{C}(\mathbf{R}_{c2.1}\mathbf{R}_{d2.1})-$ and $-\text{C}(\mathbf{R}_{c2.2}\mathbf{R}_{d2.2})-$ together are , and $-\text{C}(\mathbf{R}_{c2.3}\mathbf{R}_{d2.3})-$ is .

Variations of formulae (If)-(If.63) in which t is 1, o_1 is 1, 2, 3, 4, 5, 6, 7, or 8, as described above, o_2 is 4, and each $\mathbf{U}_2$ is $-\text{C}(\mathbf{R}_{c2}\mathbf{R}_{d2})-$

[687] In variations of formulae (If)-(If.63) in which o_1 is 4, the four instances of $\mathbf{R}_{c2}$ and $\mathbf{R}_{d2}$ are indicated as $\mathbf{R}_{c2.1}$ and $\mathbf{R}_{d2.1}$; $\mathbf{R}_{c2.2}$ and $\mathbf{R}_{d2.2}$; $\mathbf{R}_{c2.3}$ and $\mathbf{R}_{d2.3}$; and $\mathbf{R}_{c2.4}$ and $\mathbf{R}_{d2.4}$, respectively.

[688] In some variations, each of $\mathbf{R}_{c2.1}$, $\mathbf{R}_{d2.1}$, $\mathbf{R}_{c2.2}$, $\mathbf{R}_{d2.2}$, $\mathbf{R}_{c2.3}$, $\mathbf{R}_{d2.3}$, $\mathbf{R}_{c2.4}$, and $\mathbf{R}_{d2.4}$ is H. In some variations, each of $\mathbf{R}_{c2.1}$, $\mathbf{R}_{d2.1}$, $\mathbf{R}_{c2.2}$, $\mathbf{R}_{d2.2}$, $\mathbf{R}_{c2.3}$, $\mathbf{R}_{d2.3}$, $\mathbf{R}_{c2.4}$, and $\mathbf{R}_{d2.4}$ is CH_3 . In some variations, each of $\mathbf{R}_{c2.1}$, $\mathbf{R}_{d2.1}$, $\mathbf{R}_{c2.2}$, $\mathbf{R}_{d2.2}$, $\mathbf{R}_{c2.3}$, and $\mathbf{R}_{d2.3}$ is H and each of $\mathbf{R}_{c2.4}$ and $\mathbf{R}_{d2.4}$ is CH_3 . In some variations, each of $\mathbf{R}_{c2.1}$, $\mathbf{R}_{d2.1}$, $\mathbf{R}_{c2.2}$, and $\mathbf{R}_{d2.2}$ is H and each of $\mathbf{R}_{c2.3}$, $\mathbf{R}_{d2.3}$, $\mathbf{R}_{c2.4}$, and $\mathbf{R}_{d2.4}$ is CH_3 . In some variations, each of $\mathbf{R}_{c2.1}$, $\mathbf{R}_{d2.1}$, $\mathbf{R}_{c2.2}$, $\mathbf{R}_{d2.2}$, $\mathbf{R}_{c2.3}$, and $\mathbf{R}_{d2.3}$ is CH_3 and each of $\mathbf{R}_{c2.4}$ and $\mathbf{R}_{d2.4}$ is H.

[689] In some variations, each of $\mathbf{R}_{c2.1}$, $\mathbf{R}_{c2.2}$, and $\mathbf{R}_{c2.3}$ is H and each of $\mathbf{R}_{d2.1}$, $\mathbf{R}_{d2.2}$, and $\mathbf{R}_{d2.3}$ is CH_3 . In some variations, $\mathbf{R}_{c2.1}$ is H, $\mathbf{R}_{d2.1}$ is CH_3 , and each of $\mathbf{R}_{c2.2}$, $\mathbf{R}_{d2.2}$, $\mathbf{R}_{c2.3}$, and $\mathbf{R}_{d2.3}$ is CH_3 . In some variations, $\mathbf{R}_{c2.1}$ is H, $\mathbf{R}_{d2.1}$ is CH_3 , and each of $\mathbf{R}_{c2.2}$, $\mathbf{R}_{d2.2}$, $\mathbf{R}_{c2.3}$, and $\mathbf{R}_{d2.3}$ is H. In some variations, each of $\mathbf{R}_{c2.1}$ and $\mathbf{R}_{c2.2}$ is H, each of $\mathbf{R}_{d2.1}$ and $\mathbf{R}_{d2.2}$ is CH_3 , and each of $\mathbf{R}_{c2.3}$ and $\mathbf{R}_{d2.3}$ is H. In some variations, each of $\mathbf{R}_{c2.1}$ and $\mathbf{R}_{c2.2}$ is H, each of $\mathbf{R}_{d2.1}$ and $\mathbf{R}_{d2.2}$ is CH_3 , and each of $\mathbf{R}_{c2.3}$ and $\mathbf{R}_{d2.3}$ is CH_3 .

[690] In some variations, $\mathbf{R}_{c2.1}$ and $\mathbf{R}_{d2.1}$ are H, $\mathbf{R}_{c2.2}$ and $\mathbf{R}_{d2.2}$ are H, $\mathbf{R}_{c2.3}$ and $\mathbf{R}_{d2.3}$ are H, and $-\text{C}(\mathbf{R}_{c2.4}\mathbf{R}_{d2.4})-$ is . In some variations, $\mathbf{R}_{c2.1}$ and $\mathbf{R}_{d2.1}$ are H, $\mathbf{R}_{c2.2}$ and $\mathbf{R}_{d2.2}$ are H, $\mathbf{R}_{c2.3}$ and $\mathbf{R}_{d2.3}$ are CH_3 , and $-\text{C}(\mathbf{R}_{c2.4}\mathbf{R}_{d2.4})-$ is . In some variations, $\mathbf{R}_{c2.1}$ and $\mathbf{R}_{d2.1}$ are H, $\mathbf{R}_{c2.2}$ and $\mathbf{R}_{d2.2}$ are CH_3 , $\mathbf{R}_{c2.3}$ and $\mathbf{R}_{d2.3}$ are CH_3 , and $-\text{C}(\mathbf{R}_{c2.4}\mathbf{R}_{d2.4})-$ is . In some variations, $\mathbf{R}_{c2.1}$ and $\mathbf{R}_{d2.1}$ are CH_3 , $\mathbf{R}_{c2.2}$ and $\mathbf{R}_{d2.2}$ are CH_3 , $\mathbf{R}_{c2.3}$ and $\mathbf{R}_{d2.3}$ are CH_3 , and $-\text{C}(\mathbf{R}_{c2.4}\mathbf{R}_{d2.4})-$ is .

[691] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are H, $R_{c2.2}$ and $R_{d2.2}$ are H, $-C(R_{c2.3}R_{d2.3})-$ is , and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are H, $R_{c2.2}$ and $R_{d2.2}$ are CH₃, $-C(R_{c2.3}R_{d2.3})-$ is , and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are CH₃, $R_{c2.2}$ and $R_{d2.2}$ are CH₃, $-C(R_{c2.3}R_{d2.3})-$ is , and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $R_{c2.1}$ is H, $R_{d2.1}$ is CH₃, $R_{c2.2}$ and $R_{d2.2}$ are CH₃, $-C(R_{c2.3}R_{d2.3})-$ is , and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $R_{c2.1}$ is H, $R_{d2.1}$ is CH₃, $R_{c2.2}$ is H, $R_{d2.2}$ is CH₃, $-C(R_{c2.3}R_{d2.3})-$ is , and $-C(R_{c2.4}R_{d2.4})-$ is .

[692] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are H, $-C(R_{c2.2}R_{d2.2})-$ is , $-C(R_{c2.3}R_{d2.3})-$ is , and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are CH₃, $R_{c2.2}$ and $R_{d2.2}$ are , $-C(R_{c2.3}R_{d2.3})-$ is , and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $R_{c2.1}$ is H, $R_{d2.1}$ is CH₃, $C(R_{c2.2}R_{d2.2})-$ is , $-C(R_{c2.3}R_{d2.3})-$ is , and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $-C(R_{c2.2}R_{d2.2})-$ is , $R_{c2.2}$ and $R_{d2.2}$ are , $-C(R_{c2.3}R_{d2.3})-$ is , and $-C(R_{c2.4}R_{d2.4})-$ is .

[693] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are H, $R_{c2.2}$ and $R_{d2.2}$ are H, $R_{c2.3}$ and $R_{d2.3}$ are H, and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are H, $R_{c2.2}$ and $R_{d2.2}$ are H, $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are H, $R_{c2.2}$ and $R_{d2.2}$ are CH₃, $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are CH₃, $R_{c2.2}$ and $R_{d2.2}$ are CH₃, $R_{c2.3}$ and $R_{d2.3}$ are CH₃, and $-C(R_{c2.4}R_{d2.4})-$ is .

[694] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are H, $R_{c2.2}$ and $R_{d2.2}$ are H, $-C(R_{c2.3}R_{d2.3})-$ is , and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are H, $R_{c2.2}$ and $R_{d2.2}$ are CH₃, $-C(R_{c2.3}R_{d2.3})-$ is , and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are CH₃, $R_{c2.2}$ and $R_{d2.2}$ are CH₃, $-C(R_{c2.3}R_{d2.3})-$ is , and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $R_{c2.1}$ is H, $R_{d2.1}$ is CH₃, $R_{c2.2}$ and $R_{d2.2}$ are CH₃, $-C(R_{c2.3}R_{d2.3})-$ is , and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $R_{c2.1}$ is H, $R_{d2.1}$ is CH₃, $R_{c2.2}$ is H, $R_{d2.2}$ is CH₃, $-C(R_{c2.3}R_{d2.3})-$ is , and $-C(R_{c2.4}R_{d2.4})-$ is .

[695] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are H, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.3}R_{d2.3})-$ is , and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $R_{c2.1}$ and $R_{d2.2}$ are CH₃, $-C(R_{c2.2}R_{d2.2})-$ is , $-C(R_{c2.3}R_{d2.3})-$ is , and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $R_{c2.1}$ is H, $R_{d2.1}$ is CH₃, $-C(R_{c2.2}R_{d2.2})-$ is , $-C(R_{c2.3}R_{d2.3})-$ is , and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $R_{c2.2}$ and $R_{d2.2}$ are , $-C(R_{c2.3}R_{d2.3})-$ is , and $-C(R_{c2.4}R_{d2.4})-$ is .

[696] In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $R_{c2.2}$ and $R_{d2.1}$ are H, $R_{c2.3}$ and $R_{d2.3}$ are H, and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $R_{c2.2}$ and $R_{d2.2}$ are CH₃,

$R_{c2.3}$ and $R_{d2.3}$ are CH_3 , and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is ,

$R_{c2.2}$ and $R_{d2.1}$ are H, $R_{c2.3}$ and $R_{d2.3}$ are CH_3 , and $-C(R_{c2.4}R_{d2.4})-$ is .

[697] In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , $R_{c2.3}$ and $R_{d2.3}$ are

H, and $R_{c2.4}$ and $R_{d2.4}$ are . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is

, $R_{c2.3}$ and $R_{d2.3}$ are CH_3 , and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is

, $-C(R_{c2.2}R_{d2.2})-$ is , $R_{c2.3}$ and $R_{d2.3}$ are CH_3 , and $-C(R_{c2.4}R_{d2.4})-$ is . In some

variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , $R_{c2.3}$ and $R_{d2.3}$ are H, and

$-C(R_{c2.4}R_{d2.4})-$ is .

[698] In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , $-C(R_{c2.3}R_{d2.3})-$ is

, and $-C(R_{c2.4}R_{d2.4})-$ is .

[699] In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , $R_{c2.3}$ and $R_{d2.3}$ are

H, and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is

, $R_{c2.3}$ and $R_{d2.3}$ are CH_3 , and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is

, $-C(R_{c2.2}R_{d2.2})-$ is , $R_{c2.3}$ and $R_{d2.3}$ are CH_3 , and $-C(R_{c2.4}R_{d2.4})-$ is . In some

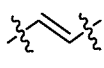
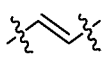
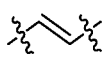
variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , $R_{c2.3}$ and $R_{d2.3}$ are H, and -

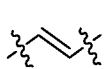
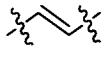
$C(R_{c2.4}R_{d2.4})-$ is .

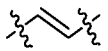
[700] In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , $-C(R_{c2.3}R_{d2.3})-$ is , and $-C(R_{c2.4}R_{d2.4})-$ is .

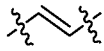
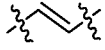
[701] In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , $R_{c2.3}$ and $R_{d2.3}$ are H, and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , $R_{c2.3}$ and $R_{d2.3}$ are CH_3 , and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , $R_{c2.3}$ and $R_{d2.3}$ are CH_3 , and $-C(R_{c2.4}R_{d2.4})-$ is . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , $R_{c2.3}$ and $R_{d2.3}$ are H, and $-C(R_{c2.4}R_{d2.4})-$ is .

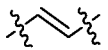
[702] In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , $-C(R_{c2.3}R_{d2.3})-$ is , and $-C(R_{c2.4}R_{d2.4})-$ is .

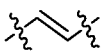
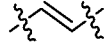
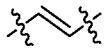
[703] In some variations, $R_{c2.1}$ and $R_{d2.1}$ are H, $R_{c2.2}$ and $R_{d2.2}$ are H, and $-C(R_{c2.3}R_{d2.3})-$ and $-C(R_{c2.4}R_{d2.4})-$ together are . In some variations, $R_{c2.1}$ and $R_{d2.2}$ are H, $R_{c2.2}$ and $R_{d2.1}$ are CH_3 , and $-C(R_{c2.3}R_{d2.3})-$ and $-C(R_{c2.4}R_{d2.4})-$ together are . In some variations, $R_{c2.1}$ and $R_{c2.2}$ are H, $R_{d2.2}$ and $R_{d2.1}$ are CH_3 , and $-C(R_{c2.3}R_{d2.3})-$ and $-C(R_{c2.4}R_{d2.4})-$ together are .

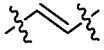
[704] In some variations, $R_{c2.1}$ and $R_{d2.2}$ are H, $-C(R_{c2.2}R_{d2.2})-$ is , and $-C(R_{c2.3}R_{d2.3})-$ and $-C(R_{c2.4}R_{d2.4})-$ together are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are CH_3 , and $-C(R_{c2.3}R_{d2.3})-$ and $-C(R_{c2.4}R_{d2.4})-$ together are . In some variations, $R_{c2.1}$ is

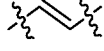
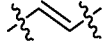
H, $R_{d2.1}$ is CH_3 , $-C(R_{c2.2}R_{d2.2})-$ is , and $-C(R_{c2.3}R_{d2.3})-$ and $-C(R_{c2.4}R_{d2.4})-$ together are .

[705] In some variations, $R_{c2.1}$ and $R_{d2.2}$ are H, $-C(R_{c2.2}R_{d2.2})-$ is , and $-C(R_{c2.3}R_{d2.3})-$ and $-C(R_{c2.4}R_{d2.4})-$ together are . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $R_{c2.2}$ and $R_{d2.1}$ are CH_3 , and $-C(R_{c2.3}R_{d2.3})-$ and $-C(R_{c2.4}R_{d2.4})-$ together are .

H, $R_{d2.2}$ is CH_3 , $-C(R_{c2.2}R_{d2.2})-$ is , and $-C(R_{c2.3}R_{d2.3})-$ and $-C(R_{c2.4}R_{d2.4})-$ together are .

[706] In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , and $-C(R_{c2.3}R_{d2.3})-$ and $-C(R_{c2.4}R_{d2.4})-$ together are . In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , and $-C(R_{c2.3}R_{d2.3})-$ and $-C(R_{c2.4}R_{d2.4})-$ together are . In some variations, $R_{c2.1}$ and $R_{d2.1}$ are , $R_{c2.2}$ and $R_{d2.2}$ are , and $-C(R_{c2.3}R_{d2.3})-$ and $-C(R_{c2.4}R_{d2.4})-$ together are .

[707] In some variations, $-C(R_{c2.1}R_{d2.1})-$ is , $-C(R_{c2.2}R_{d2.2})-$ is , and $-C(R_{c2.3}R_{d2.3})-$ and $-C(R_{c2.4}R_{d2.4})-$ together are .

[708] In some variations, $-C(R_{c2.1}R_{d2.1})-$ and $-C(R_{c2.2}R_{d2.2})-$ together are , and $-C(R_{c2.3}R_{d2.3})-$ and $-C(R_{c2.4}R_{d2.4})-$ together are .

Variations of formulae (If)-(If.63) in which t is 1, o_1 is 1, 2, 3, 4, 5, 6, 7, or 8, as described above, o_2 is 5, and each U_2 is $-C(R_{c2}R_{d2})-$

[709] In variations of formulae (If)-(If.63) in which θ_I is 1, 2, 3, 4, 5, 6, 7, or 8 and five U_2 are $-C(R_{c2}R_{d2})-$, five instances of R_{c2} and R_{d2} are indicated as $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$; and $R_{c2.5}$ and $R_{d2.5}$, respectively.

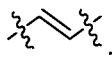
[710] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$ are as defined above, and each of $R_{c2.5}$ and $R_{d2.5}$ is H.

[711] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$ are as defined above, and each of $R_{c2.5}$ and $R_{d2.5}$ is CH_3 .

[712] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$ are as defined above, $R_{c2.5}$ is H and $R_{d2.5}$ is CH_3 .

[713] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$ are as defined above, and $-C(R_{c2.5}R_{d2.5})-$ is .

[714] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$ are as defined above, and $-C(R_{c2.5}R_{d2.5})-$ is .

[715] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$ are as defined above, and $-C(R_{c2.4}R_{d2.4})-$ and $-C(R_{c2.5}R_{d2.5})-$ together are .

Variations of formulae (If)-(If.63) in which t is 1, θ_1 is 1, 2, 3, 4, 5, 6, 7, or 8, as described above, θ_2 is 6, and each U_2 is $-C(R_{c2}R_{d2})-$

[716] In variations of formulae (If)-(If.63) in which θ_I is 1, 2, 3, 4, 5, 6, 7, or 8 and six U_2 are $-C(R_{c2}R_{d2})-$, six instances of R_{c2} and R_{d2} are indicated as $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$; $R_{c2.5}$ and $R_{d2.5}$, and $R_{c2.6}$ and $R_{d2.6}$, respectively.

[717] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$; and $R_{c2.5}$ and $R_{d2.5}$ are as defined above, and each of $R_{c2.6}$ and $R_{d2.6}$ is H.

[718] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$; and $R_{c2.5}$ and $R_{d2.5}$ are as defined above, and each of $R_{c2.6}$ and $R_{d2.6}$ is CH_3 .

[719] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$; and $R_{c2.5}$ and $R_{d2.5}$ are as defined above, $R_{c2.6}$ is H, and $R_{d2.6}$ is CH_3 .

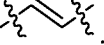
[720] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$; and

$R_{c2.5}$ and $R_{d2.5}$ are as defined above, and $-C(R_{c2.6}R_{d2.6})-$ is .

[721] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$; and

$R_{c2.5}$ and $R_{d2.5}$ are as defined above, and $-C(R_{c2.6}R_{d2.6})-$ is .

[722] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; and $R_{c2.4}$ and $R_{d2.4}$ are

as defined above, and $-C(R_{c2.5}R_{d2.5})-$ and $-C(R_{c2.6}R_{d2.6})-$ together are .

Variations of formulae (If)-(If.63) in which t is 1, o_1 is 1, 2, 3, 4, 5, 6, 7, or 8, as described above, o_2 is 7, and each U_2 is $-C(R_{c2}R_{d2})-$

[723] In variations of formulae (If)-(If.63) in which o_1 is 1, 2, 3, 4, 5, 6, 7, or 8 and seven U_2 are $-C(R_{c2}R_{d2})-$, seven instances of R_{c2} and R_{d2} are indicated as $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$; $R_{c2.5}$ and $R_{d2.5}$; $R_{c2.6}$ and $R_{d2.6}$, and $R_{c2.7}$ and $R_{d2.7}$, respectively.

[724] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$; $R_{c2.5}$ and $R_{d2.5}$; and $R_{c2.6}$ and $R_{d2.6}$, are as defined above, and each of $R_{c2.7}$ and $R_{d2.7}$ is H.

[725] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$; $R_{c2.5}$ and $R_{d2.5}$; and $R_{c2.6}$ and $R_{d2.6}$, are as defined above, and each of $R_{c2.7}$ and $R_{d2.7}$ is CH_3 .

[726] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$; $R_{c2.5}$ and $R_{d2.5}$; and $R_{c2.6}$ and $R_{d2.6}$, are as defined above, $R_{c2.7}$ is H, and $R_{d2.7}$ is CH_3 .

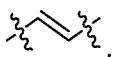
[727] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$; $R_{c2.5}$

and $R_{d2.5}$; and $R_{c2.6}$ and $R_{d2.6}$, are as defined above, and $-C(R_{c2.7}R_{d2.7})-$ is .

[728] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$; $R_{c2.5}$

and $R_{d2.5}$; and $R_{c2.6}$ and $R_{d2.6}$, are as defined above, and $-C(R_{c2.7}R_{d2.7})-$ is .

[729] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; and $R_{c2.4}$ and $R_{d2.4}$; and

$R_{c2.5}$ and $R_{d2.5}$ are as defined above, and $-C(R_{c2.6}R_{d2.6})-$ and $-C(R_{c2.7}R_{d2.7})-$ together are .

Variations of formulae (If)-(If.63) in which t is 1, o_1 is 1, 2, 3, 4, 5, 6, 7, or 8, as described above, o_2 is 8, and each U_2 is $-C(R_{c2}R_{d2})-$

[730] In variations of formulae (If)-(If.63) in which o_1 is 1, 2, 3, 4, 5, 6, 7, or 8 and eight U_2 are $-C(R_{c2}R_{d2})-$, eight instances of R_{c2} and R_{d2} are indicated as $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$; $R_{c2.5}$ and $R_{d2.5}$; $R_{c2.6}$ and $R_{d2.6}$; $R_{c2.7}$ and $R_{d2.7}$, and $R_{c2.8}$ and $R_{d2.8}$, respectively.

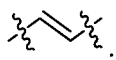
[731] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$; $R_{c2.5}$ and $R_{d2.5}$; $R_{c2.6}$ and $R_{d2.6}$; and $R_{c2.7}$ and $R_{d2.7}$ are as defined above, and each of $R_{c2.8}$ and $R_{d2.8}$ is H.

[732] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$; $R_{c2.5}$ and $R_{d2.5}$; $R_{c2.6}$ and $R_{d2.6}$; and $R_{c2.7}$ and $R_{d2.7}$ are as defined above, and each of $R_{c2.8}$ and $R_{d2.8}$ is CH_3 .

[733] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$; $R_{c2.5}$ and $R_{d2.5}$; $R_{c2.6}$ and $R_{d2.6}$; and $R_{c2.7}$ and $R_{d2.7}$ are as defined above, $R_{c2.8}$ is H, and $R_{d2.8}$ is CH_3 .

[734] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$; $R_{c2.5}$ and $R_{d2.5}$; $R_{c2.6}$ and $R_{d2.6}$; and $R_{c2.7}$ and $R_{d2.7}$ are as defined above, and $-C(R_{c2.8}R_{d2.8})-$ is .

[735] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; $R_{c2.4}$ and $R_{d2.4}$; $R_{c2.5}$ and $R_{d2.5}$; $R_{c2.6}$ and $R_{d2.6}$; and $R_{c2.7}$ and $R_{d2.7}$ are as defined above, and $-C(R_{c2.8}R_{d2.8})-$ is .

[736] In some variations, $R_{c2.1}$ and $R_{d2.1}$; $R_{c2.2}$ and $R_{d2.2}$; $R_{c2.3}$ and $R_{d2.3}$; and $R_{c2.4}$ and $R_{d2.4}$; $R_{c2.5}$ and $R_{d2.5}$; and $R_{c2.6}$ and $R_{d2.6}$ are as defined above, and $-C(R_{c2.7}R_{d2.7})-$ and $-C(R_{c2.8}R_{d2.8})-$ together are .

Variations of formulae (If)-(If.63) in which t is 2

[737] In some variations of formulae (If)-(If.63) in which t is 2, the respective instances of U_2 are distinguished in the description below as U_2' and U_2'' , respectively. When U_2 is $-C(R_{c2}R_{d2})-$, the two respective instances of $-C(R_{c2}R_{d2})-$ are distinguished in the description below as $-C(R'_{c2}R'_{d2})-$ and $-C(R''_{c2}R''_{d2})-$, respectively.

Variations of formulae (If)-(If.63) in which t is 2, o_1 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, a first o_2 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, and a second instance of o_2 is 1

[738] In some variations, U_2' is $-C(R'_c R'_{d2})$ -. In some of these variations, U_2'' is $-C(R''_c R''_{d2})$ -. In some of these variations, U_2'' is $-N$ -. In some of these variations, U_2'' is $-O$ -. In some of these variations, U_2'' is $-S$ -.

[739] In some variations, U_2' is $-N$ -. In some of these variations, U_2'' is $-C(R''_c R''_{d2})$ -. In some of these variations, U_2'' is $-N$ -. In some of these variations, U_2'' is $-O$ -. In some of these variations, $U_{2,2}$ is $-S$ -.

[740] In some variations, U_2'' is $-O$ -. In some of these variations, U_2'' is $-C(R''_c R''_{d2})$ -. In some of these variations, U_2'' is $-N$ -. In some of these variations, U_2'' is $-O$ -. In some of these variations, U_2'' is $-S$ -.

[741] In some variations, U_2' is $-S$ -. In some of these variations, U_2'' is $-C(R''_c R''_{d2})$ -. In some of these variations, U_2'' is $-N$ -. In some of these variations, U_2'' is $-O$ -. In some of these variations, U_2'' is $-S$ -.

Variations of formulae (If)-(If.63) in which t is 2, o_1 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, a first o_2 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, and a second instance of o_2 is 2

[742] In some variations, U_2' is $-C(R'_c R'_{d2})$ -. In some of these variations, each of first and second U_2'' is $-C(R''_c R''_{d2})$ -. In some of these variations, each of a first and second U_2'' is $-N$ -. In some of these variations, each of a first and second U_2'' is $-O$ -. In some of these variations, each of a first and second U_2'' is $-S$ -. In some of these variations, a first U_2'' is $-C(R''_c R''_{d2})$ - and a second U_2'' is $-N$ -. In some of these variations, a first U_2'' is $-C(R''_c R''_{d2})$ - and a second U_2'' is $-O$ -. In some of these variations, a first U_2'' is $-C(R''_c R''_{d2})$ - and a second U_2'' is $-S$ -. In some of these variations, a first U_2'' is $-N$ - and a second U_2'' is $-O$ -. In some of these variations, a first U_2'' is $-N$ - and a second U_2'' is $-S$ -. In some of these variations, a first U_2'' is $-O$ - and a second U_2'' is $-S$ -.

[743] In some variations, U_2' is $-N$ -. In some of these variations, each of first and second U_2'' is $-C(R''_c R''_{d2})$ -. In some of these variations, each of a first and second U_2'' is $-N$ -. In some of these variations, each of a first and second U_2'' is $-O$ -. In some of these variations, each of a first and second U_2'' is $-S$ -. In some of these variations, a first U_2'' is $-C(R''_c R''_{d2})$ - and a second U_2'' is $-N$ -. In some of these variations, a first U_2'' is $-C(R''_c R''_{d2})$ - and a second U_2'' is $-O$ -. In some of these variations, a first U_2'' is $-C(R''_c R''_{d2})$ - and a second U_2'' is $-S$ -. In some of these

variations, a first U_2'' is -N- and a second U_2'' is -O-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -S-. In some of these variations, a first U_2'' is -O- and a second U_2'' is -S-.

[744] In some variations, U_2' -O-. In some of these variations, each of first and second U_2'' is -C($R''_{c2}R''_{d2}$)-. In some of these variations, each of a first and second U_2'' is -N-. In some of these variations, each of a first and second U_2'' is -O-. In some of these variations, each of a first and second U_2'' is -S-. In some of these variations, a first U_2'' is -C($R''_{c2}R''_{d2}$)- and a second U_2'' is -N-. In some of these variations, a first U_2'' is -C($R''_{c2}R''_{d2}$)- and a second U_2'' is -O-. In some of these variations, a first U_2'' is -C($R''_{c2}R''_{d2}$)- and a second U_2'' is -S-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -O-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -S-. In some of these variations, a first U_2'' is -O- and a second U_2'' is -S-.

[745] In some variations, U_2' is -S-. In some of these variations, each of first and second U_2'' is -C($R''_{c2}R''_{d2}$)-. In some of these variations, each of a first and second U_2'' is -N-. In some of these variations, each of a first and second U_2'' is -O-. In some of these variations, each of a first and second U_2'' is -S-. In some of these variations, a first U_2'' is -C($R''_{c2}R''_{d2}$)- and a second U_2'' is -N-. In some of these variations, a first U_2'' is -C($R''_{c2}R''_{d2}$)- and a second U_2'' is -O-. In some of these variations, a first U_2'' is -C($R''_{c2}R''_{d2}$)- and a second U_2'' is -S-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -O-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -S-. In some of these variations, a first U_2'' is -O- and a second U_2'' is -S-.

Variations of formulae (If)-(If.63) in which t is 2, o_1 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, a first o_2 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, and a second instance of o_2 is 3

[746] In some variations, U_2' is -C($R'_{c2}R'_{d2}$)-. In some of these variations, each of first and second U_2'' is -C($R''_{c2}R''_{d2}$)-. In some of these variations, each of a first and second U_2'' is -N-. In some of these variations, each of a first and second U_2'' is -O-. In some of these variations, each of a first and second U_2'' is -S-. In some of these variations, a first U_2'' is -C($R''_{c2}R''_{d2}$)- and a second U_2'' is -N-. In some of these variations, a first U_2'' is -C($R''_{c2}R''_{d2}$)- and a second U_2'' is -O-. In some of these variations, a first U_2'' is -C($R''_{c2}R''_{d2}$)- and a second U_2'' is -S-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -O-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -S-. In some of these variations, a first U_2'' is -O- and a second U_2'' is -S-. In some of the variations described in this paragraph, a third U_2'' is -C($R''_{c2}R''_{d2}$)-. In some of the variations described in this paragraph, a third U_2'' is -N-. In some

of the variations described in this paragraph, a third $\mathbf{U}_2''$ is -O-. In some of the variations described in this paragraph, a third $\mathbf{U}_2''$ is -S-.

[747] In some variations, U_2' is $-N$ -. In some of these variations, each of first and second U_2'' is $-C(R''_c R''_{d2})$ -. In some of these variations, each of a first and second U_2'' is $-N$ -. In some of these variations, each of a first and second U_2'' is $-O$ -. In some of these variations, each of a first and second U_2'' is $-S$ -. In some of these variations, a first U_2'' is $-C(R''_c R''_{d2})$ - and a second U_2'' is $-N$ -. In some of these variations, a first U_2'' is $-C(R''_c R''_{d2})$ - and a second U_2'' is $-O$ -. In some of these variations, a first U_2'' is $-C(R''_c R''_{d2})$ - and a second U_2'' is $-S$ -. In some of these variations, a first U_2'' is $-N$ - and a second U_2'' is $-O$ -. In some of these variations, a first U_2'' is $-N$ - and a second U_2'' is $-S$ -. In some of these variations, a first U_2'' is $-O$ - and a second U_2'' is $-S$ -. In some of the variations described in this paragraph, a third U_2'' is $-C(R''_c R''_{d2})$ -. In some of the variations described in this paragraph, a third U_2'' is $-N$ -. In some of the variations described in this paragraph, a third U_2'' is $-O$ -. In some of the variations described in this paragraph, a third U_2'' is $-S$ -.

[748] In some variations, $\mathbf{U}_2' - \mathbf{O}-$. In some of these variations, each of first and second $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''_{\mathbf{c}_2}\mathbf{R}''_{\mathbf{d}_2})-$. In some of these variations, each of a first and second $\mathbf{U}_2''$ is $-\mathbf{N}-$. In some of these variations, each of a first and second $\mathbf{U}_2''$ is $-\mathbf{O}-$. In some of these variations, each of a first and second $\mathbf{U}_2''$ is $-\mathbf{S}-$. In some of these variations, a first $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''_{\mathbf{c}_2}\mathbf{R}''_{\mathbf{d}_2})-$ and a second $\mathbf{U}_2''$ is $-\mathbf{N}-$. In some of these variations, a first $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''_{\mathbf{c}_2}\mathbf{R}''_{\mathbf{d}_2})-$ and a second $\mathbf{U}_2''$ is $-\mathbf{O}-$. In some of these variations, a first $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''_{\mathbf{c}_2}\mathbf{R}''_{\mathbf{d}_2})-$ and a second $\mathbf{U}_2''$ is $-\mathbf{S}-$. In some of these variations, a first $\mathbf{U}_2''$ is $-\mathbf{N}-$ and a second $\mathbf{U}_2''$ is $-\mathbf{O}-$. In some of these variations, a first $\mathbf{U}_2''$ is $-\mathbf{N}-$ and a second $\mathbf{U}_2''$ is $-\mathbf{S}-$. In some of these variations, a first $\mathbf{U}_2''$ is $-\mathbf{O}-$ and a second $\mathbf{U}_2''$ is $-\mathbf{S}-$. In some of the variations described in this paragraph, a third $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''_{\mathbf{c}_2}\mathbf{R}''_{\mathbf{d}_2})-$. In some of the variations described in this paragraph, a third $\mathbf{U}_2''$ is $-\mathbf{N}-$. In some of the variations described in this paragraph, a third $\mathbf{U}_2''$ is $-\mathbf{O}-$. In some of the variations described in this paragraph, a third $\mathbf{U}_2''$ is $-\mathbf{S}-$.

[749] In some variations, $\mathbf{U}_2'$ is $-\mathbf{S}$ -. In some of these variations, each of first and second $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''_{\mathbf{c}_2}\mathbf{R}''_{\mathbf{d}_2})$ -. In some of these variations, each of a first and second $\mathbf{U}_2''$ is $-\mathbf{N}$ -. In some of these variations, each of a first and second $\mathbf{U}_2''$ is $-\mathbf{O}$ -. In some of these variations, each of a first and second $\mathbf{U}_2''$ is $-\mathbf{S}$ -. In some of these variations, a first $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''_{\mathbf{c}_2}\mathbf{R}''_{\mathbf{d}_2})$ - and a second $\mathbf{U}_2''$ is $-\mathbf{N}$ -. In some of these variations, a first $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''_{\mathbf{c}_2}\mathbf{R}''_{\mathbf{d}_2})$ - and a second $\mathbf{U}_2''$ is $-\mathbf{O}$ -. In some of these variations, a first $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''_{\mathbf{c}_2}\mathbf{R}''_{\mathbf{d}_2})$ - and a second $\mathbf{U}_2''$ is $-\mathbf{S}$ -. In some of these variations, a first $\mathbf{U}_2''$ is $-\mathbf{N}$ - and a second $\mathbf{U}_2''$ is $-\mathbf{O}$ -. In some of these variations, a first $\mathbf{U}_2''$ is

–N- and a second U_2'' is –S-. In some of these variations, a first U_2'' is –O- and a second U_2'' is –S-.

Variations of formulae (If)-(If.63) in which t is 2, o_1 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, a first o_2 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, and a second instance of o_2 is 4

[750] In some variations, U_2' is $-C(R'_{c2}R'_{d2})-$. In some of these variations, each of first and second U_2'' is $-C(R''_{c2}R''_{d2})-$. In some of these variations, each of a first and second U_2'' is –N-. In some of these variations, each of a first and second U_2'' is –O-. In some of these variations, each of a first and second U_2'' is –S-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})-$ and a second U_2'' is –N-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})-$ and a second U_2'' is –O-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})-$ and a second U_2'' is –S-. In some of these variations, a first U_2'' is –N- and a second U_2'' is –O-. In some of these variations, a first U_2'' is –N- and a second U_2'' is –S-. In some of these variations, a first U_2'' is –O- and a second U_2'' is –S-. In some of the variations described in this paragraph, a third U_2'' is $-C(R''_{c2}R''_{d2})-$. In some of the variations described in this paragraph, a third U_2'' is –N-. In some of the variations described in this paragraph, a third U_2'' is –O-. In some of the variations described in this paragraph, a third U_2'' is –S-. In some of the variations described in this paragraph, a fourth U_2'' is $-C(R''_{c2}R''_{d2})-$. In some of the variations described in this paragraph, a fourth U_2'' is –N-. In some of the variations described in this paragraph, a fourth U_2'' is –O-. In some of the variations described in this paragraph, a fourth U_2'' is –S-.

[751] In some variations, U_2' is –N-. In some of these variations, each of first and second U_2'' is $-C(R''_{c2}R''_{d2})-$. In some of these variations, each of a first and second U_2'' is –N-. In some of these variations, each of a first and second U_2'' is –O-. In some of these variations, each of a first and second U_2'' is –S-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})-$ and a second U_2'' is –N-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})-$ and a second U_2'' is –O-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})-$ and a second U_2'' is –S-. In some of these variations, a first U_2'' is –N- and a second U_2'' is –O-. In some of these variations, a first U_2'' is –N- and a second U_2'' is –S-. In some of these variations, a first U_2'' is –O- and a second U_2'' is –S-. In some of the variations described in this paragraph, a third U_2'' is $-C(R''_{c2}R''_{d2})-$. In some of the variations described in this paragraph, a third U_2'' is –N-. In some of the variations described in this paragraph, a third U_2'' is –O-. In some of the variations described in this paragraph, a third U_2'' is –S-. In some of the variations described in this paragraph, a fourth U_2'' is $-C(R''_{c2}R''_{d2})-$. In some of the variations described in this paragraph, a fourth U_2'' is –N-. In

some of the variations described in this paragraph, a fourth U_2'' is -O-. In some of the variations described in this paragraph, a fourth U_2'' is -S-.

[752] In some variations, U_2' -O-. In some of these variations, each of first and second U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of these variations, each of a first and second U_2'' is -N-. In some of these variations, each of a first and second U_2'' is -O-. In some of these variations, each of a first and second U_2'' is -S-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -N-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -O-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -S-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -O-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -S-. In some of these variations, a first U_2'' is -O- and a second U_2'' is -S-. In some of the variations described in this paragraph, a third U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a third U_2'' is -N-. In some of the variations described in this paragraph, a third U_2'' is -O-. In some of the variations described in this paragraph, a third U_2'' is -S-. In some of the variations described in this paragraph, a fourth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a fourth U_2'' is -N-. In some of the variations described in this paragraph, a fourth U_2'' is -O-. In some of the variations described in this paragraph, a fourth U_2'' is -S-.

[753] In some variations, U_2' is -S-. In some of these variations, each of first and second U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of these variations, each of a first and second U_2'' is -N-. In some of these variations, each of a first and second U_2'' is -O-. In some of these variations, each of a first and second U_2'' is -S-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -N-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -O-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -S-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -O-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -S-. In some of these variations, a first U_2'' is -O- and a second U_2'' is -S-. In some of the variations described in this paragraph, a fourth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a fourth U_2'' is -N-. In some of the variations described in this paragraph, a fourth U_2'' is -O-. In some of the variations described in this paragraph, a fourth U_2'' is -S-.

Variations of formulae (If)-(If.63) in which t is 2, o_1 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, a first o_2 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, and a second instance of o_2 is 5

[754] In some variations, U_2' is $-C(R'_{c2}R'_{d2})$ -. In some of these variations, each of first and second U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of these variations, each of a first and second U_2'' is -N-.

In some of these variations, each of a first and second $\mathbf{U}_2''$ is $-\mathbf{O}-$. In some of these variations, each of a first and second $\mathbf{U}_2''$ is $-\mathbf{S}-$. In some of these variations, a first $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''\mathbf{c}_2\mathbf{R}''\mathbf{a}_2)-$ and a second $\mathbf{U}_2''$ is $-\mathbf{N}-$. In some of these variations, a first $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''\mathbf{c}_2\mathbf{R}''\mathbf{a}_2)-$ and a second $\mathbf{U}_2''$ is $-\mathbf{O}-$. In some of these variations, a first $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''\mathbf{c}_2\mathbf{R}''\mathbf{a}_2)-$ and a second $\mathbf{U}_2''$ is $-\mathbf{S}-$. In some of these variations, a first $\mathbf{U}_2''$ is $-\mathbf{N}-$ and a second $\mathbf{U}_2''$ is $-\mathbf{O}-$. In some of these variations, a first $\mathbf{U}_2''$ is $-\mathbf{N}-$ and a second $\mathbf{U}_2''$ is $-\mathbf{S}-$. In some of these variations, a first $\mathbf{U}_2''$ is $-\mathbf{O}-$ and a second $\mathbf{U}_2''$ is $-\mathbf{S}-$. In some of the variations described in this paragraph, a third $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''\mathbf{c}_2\mathbf{R}''\mathbf{a}_2)-$. In some of the variations described in this paragraph, a third $\mathbf{U}_2''$ is $-\mathbf{N}-$. In some of the variations described in this paragraph, a third $\mathbf{U}_2''$ is $-\mathbf{O}-$. In some of the variations described in this paragraph, a third $\mathbf{U}_2''$ is $-\mathbf{S}-$. In some of the variations described in this paragraph, a fourth $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''\mathbf{c}_2\mathbf{R}''\mathbf{a}_2)-$. In some of the variations described in this paragraph, a fourth $\mathbf{U}_2''$ is $-\mathbf{N}-$. In some of the variations described in this paragraph, a fourth $\mathbf{U}_2''$ is $-\mathbf{O}-$. In some of the variations described in this paragraph, a fourth $\mathbf{U}_2''$ is $-\mathbf{S}-$. In some of the variations described in this paragraph, a fifth $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''\mathbf{c}_2\mathbf{R}''\mathbf{a}_2)-$. In some of the variations described in this paragraph, a fifth $\mathbf{U}_2''$ is $-\mathbf{N}-$. In some of the variations described in this paragraph, a fifth $\mathbf{U}_2''$ is $-\mathbf{O}-$. In some of the variations described in this paragraph, a fifth $\mathbf{U}_2''$ is $-\mathbf{S}-$.

[755] In some variations, U_2' is $-N$ -. In some of these variations, each of first and second U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of these variations, each of a first and second U_2'' is $-N$ -. In some of these variations, each of a first and second U_2'' is $-O$ -. In some of these variations, each of a first and second U_2'' is $-S$ -. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is $-N$ -. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is $-O$ -. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is $-S$ -. In some of these variations, a first U_2'' is $-N$ - and a second U_2'' is $-O$ -. In some of these variations, a first U_2'' is $-N$ - and a second U_2'' is $-S$ -. In some of these variations, a first U_2'' is $-O$ - and a second U_2'' is $-S$ -. In some of the variations described in this paragraph, a third U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a third U_2'' is $-N$ -. In some of the variations described in this paragraph, a third U_2'' is $-O$ -. In some of the variations described in this paragraph, a third U_2'' is $-S$ -. In some of the variations described in this paragraph, a fourth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a fourth U_2'' is $-N$ -. In some of the variations described in this paragraph, a fourth U_2'' is $-O$ -. In some of the variations described in this paragraph, a fourth U_2'' is $-S$ -. In some of the variations described in this paragraph, a fifth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a fifth U_2'' is $-N$ -. In some of the variations described in this paragraph, a fifth U_2'' is $-O$ -. In some of the variations described in this paragraph, a fifth U_2'' is $-S$ -.

[756] In some variations, $U_2' - O-$. In some of these variations, each of first and second U_2'' is $-C(R''_{c2}R''_{d2})-$. In some of these variations, each of a first and second U_2'' is $-N-$. In some of these variations, each of a first and second U_2'' is $-O-$. In some of these variations, each of a first and second U_2'' is $-S-$. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})-$ and a second U_2'' is $-N-$. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})-$ and a second U_2'' is $-O-$. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})-$ and a second U_2'' is $-S-$. In some of these variations, a first U_2'' is $-N-$ and a second U_2'' is $-O-$. In some of these variations, a first U_2'' is $-N-$ and a second U_2'' is $-S-$. In some of these variations, a first U_2'' is $-O-$ and a second U_2'' is $-S-$. In some of the variations described in this paragraph, a third U_2'' is $-C(R''_{c2}R''_{d2})-$. In some of the variations described in this paragraph, a third U_2'' is $-N-$. In some of the variations described in this paragraph, a third U_2'' is $-O-$. In some of the variations described in this paragraph, a third U_2'' is $-S-$. In some of the variations described in this paragraph, a fourth U_2'' is $-C(R''_{c2}R''_{d2})-$. In some of the variations described in this paragraph, a fourth U_2'' is $-N-$. In some of the variations described in this paragraph, a fourth U_2'' is $-O-$. In some of the variations described in this paragraph, a fourth U_2'' is $-S-$. In some of the variations described in this paragraph, a fifth U_2'' is $-C(R''_{c2}R''_{d2})-$. In some of the variations described in this paragraph, a fifth U_2'' is $-N-$. In some of the variations described in this paragraph, a fifth U_2'' is $-O-$. In some of the variations described in this paragraph, a fifth U_2'' is $-S-$.

[757] In some variations, U_2' is $-S-$. In some of these variations, each of first and second U_2'' is $-C(R''_c R''_{d2})-$. In some of these variations, each of a first and second U_2'' is $-N-$. In some of these variations, each of a first and second U_2'' is $-O-$. In some of these variations, each of a first and second U_2'' is $-S-$. In some of these variations, a first U_2'' is $-C(R''_c R''_{d2})-$ and a second U_2'' is $-N-$. In some of these variations, a first U_2'' is $-C(R''_c R''_{d2})-$ and a second U_2'' is $-O-$. In some of these variations, a first U_2'' is $-C(R''_c R''_{d2})-$ and a second U_2'' is $-S-$. In some of these variations, a first U_2'' is $-N-$ and a second U_2'' is $-O-$. In some of these variations, a first U_2'' is $-N-$ and a second U_2'' is $-S-$. In some of these variations, a first U_2'' is $-O-$ and a second U_2'' is $-S-$. In some of the variations described in this paragraph, a fourth U_2'' is $-C(R''_c R''_{d2})-$. In some of the variations described in this paragraph, a fourth U_2'' is $-N-$. In some of the variations described in this paragraph, a fourth U_2'' is $-O-$. In some of the variations described in this paragraph, a fourth U_2'' is $-S-$. In some of the variations described in this paragraph, a fifth U_2'' is $-C(R''_c R''_{d2})-$. In some of the variations described in this paragraph, a fifth U_2'' is $-N-$. In some of the variations described in this paragraph, a fifth U_2'' is $-O-$. In some of the variations described in this paragraph, a fifth U_2'' is $-S-$.

[758] In some variations, $\mathbf{U}_2'$ is $-\mathbf{C}(\mathbf{R}'_{\mathbf{c}_2}\mathbf{R}'_{\mathbf{d}_2})$ -. In some of these variations, each of first and second $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''_{\mathbf{c}_2}\mathbf{R}''_{\mathbf{d}_2})$ -. In some of these variations, each of a first and second $\mathbf{U}_2''$ is $-\mathbf{N}$ -. In some of these variations, each of a first and second $\mathbf{U}_2''$ is $-\mathbf{O}$ -. In some of these variations, each of a first and second $\mathbf{U}_2''$ is $-\mathbf{S}$ -. In some of these variations, a first $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''_{\mathbf{c}_2}\mathbf{R}''_{\mathbf{d}_2})$ - and a second $\mathbf{U}_2''$ is $-\mathbf{N}$ -. In some of these variations, a first $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''_{\mathbf{c}_2}\mathbf{R}''_{\mathbf{d}_2})$ - and a second $\mathbf{U}_2''$ is $-\mathbf{O}$ -. In some of these variations, a first $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''_{\mathbf{c}_2}\mathbf{R}''_{\mathbf{d}_2})$ - and a second $\mathbf{U}_2''$ is $-\mathbf{S}$ -. In some of these variations, a first $\mathbf{U}_2''$ is $-\mathbf{N}$ - and a second $\mathbf{U}_2''$ is $-\mathbf{O}$ -. In some of these variations, a first $\mathbf{U}_2''$ is $-\mathbf{N}$ - and a second $\mathbf{U}_2''$ is $-\mathbf{S}$ -. In some of these variations, a first $\mathbf{U}_2''$ is $-\mathbf{O}$ - and a second $\mathbf{U}_2''$ is $-\mathbf{S}$ -. In some of the variations described in this paragraph, a third $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''_{\mathbf{c}_2}\mathbf{R}''_{\mathbf{d}_2})$ -. In some of the variations described in this paragraph, a third $\mathbf{U}_2''$ is $-\mathbf{N}$ -. In some of the variations described in this paragraph, a third $\mathbf{U}_2''$ is $-\mathbf{O}$ -. In some of the variations described in this paragraph, a third $\mathbf{U}_2''$ is $-\mathbf{S}$ -. In some of the variations described in this paragraph, a fourth $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''_{\mathbf{c}_2}\mathbf{R}''_{\mathbf{d}_2})$ -. In some of the variations described in this paragraph, a fourth $\mathbf{U}_2''$ is $-\mathbf{N}$ -. In some of the variations described in this paragraph, a fourth $\mathbf{U}_2''$ is $-\mathbf{O}$ -. In some of the variations described in this paragraph, a fourth $\mathbf{U}_2''$ is $-\mathbf{S}$ -. In some of the variations described in this paragraph, a fifth $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''_{\mathbf{c}_2}\mathbf{R}''_{\mathbf{d}_2})$ -. In some of the variations described in this paragraph, a fifth $\mathbf{U}_2''$ is $-\mathbf{N}$ -. In some of the variations described in this paragraph, a fifth $\mathbf{U}_2''$ is $-\mathbf{O}$ -. In some of the variations described in this paragraph, a fifth $\mathbf{U}_2''$ is $-\mathbf{S}$ -. In some of the variations described in this paragraph, a sixth $\mathbf{U}_2''$ is $-\mathbf{C}(\mathbf{R}''_{\mathbf{c}_2}\mathbf{R}''_{\mathbf{d}_2})$ -. In some of the variations described in this paragraph, a sixth $\mathbf{U}_2''$ is $-\mathbf{N}$ -. In some of the variations described in this paragraph, a sixth $\mathbf{U}_2''$ is $-\mathbf{O}$ -. In some of the variations described in this paragraph, a sixth $\mathbf{U}_2''$ is $-\mathbf{S}$ -.

263

described in this paragraph, a third U_2'' is -O-. In some of the variations described in this paragraph, a third U_2'' is -S-. In some of the variations described in this paragraph, a fourth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a fourth U_2'' is -N-. In some of the variations described in this paragraph, a fourth U_2'' is -O-. In some of the variations described in this paragraph, a fourth U_2'' is -S-. In some of the variations described in this paragraph, a fifth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a fifth U_2'' is -N-. In some of the variations described in this paragraph, a fifth U_2'' is -O-. In some of the variations described in this paragraph, a fifth U_2'' is -S-. In some of the variations described in this paragraph, a sixth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a sixth U_2'' is -N-. In some of the variations described in this paragraph, a sixth U_2'' is -O-. In some of the variations described in this paragraph, a sixth U_2'' is -S-.

[760] In some variations, U_2' -O-. In some of these variations, each of first and second U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of these variations, each of a first and second U_2'' is -N-. In some of these variations, each of a first and second U_2'' is -O-. In some of these variations, each of a first and second U_2'' is -S-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -N-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -O-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -S-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -O-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -S-. In some of these variations, a first U_2'' is -O- and a second U_2'' is -S-. In some of the variations described in this paragraph, a third U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a third U_2'' is -N-. In some of the variations described in this paragraph, a third U_2'' is -O-. In some of the variations described in this paragraph, a third U_2'' is -S-. In some of the variations described in this paragraph, a fourth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a fourth U_2'' is -N-. In some of the variations described in this paragraph, a fourth U_2'' is -O-. In some of the variations described in this paragraph, a fourth U_2'' is -S-. In some of the variations described in this paragraph, a fifth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a fifth U_2'' is -N-. In some of the variations described in this paragraph, a fifth U_2'' is -O-. In some of the variations described in this paragraph, a fifth U_2'' is -S-. In some of the variations described in this paragraph, a sixth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a sixth U_2'' is -N-. In some of the variations described in this paragraph, a sixth U_2'' is -O-. In some of the variations described in this paragraph, a sixth U_2'' is -S-.

[761] In some variations, U_2' is -S-. In some of these variations, each of first and second U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of these variations, each of a first and second U_2'' is -N-. In some of these variations, each of a first and second U_2'' is -O-. In some of these variations, each of a first and second U_2'' is -S-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -N-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -O-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -S-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -O-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -S-. In some of these variations, a first U_2'' is -O- and a second U_2'' is -S-. In some of the variations described in this paragraph, a fourth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a fourth U_2'' is -N-. In some of the variations described in this paragraph, a fourth U_2'' is -O-. In some of the variations described in this paragraph, a fourth U_2'' is -S-. In some of the variations described in this paragraph, a fifth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a fifth U_2'' is -N-. In some of the variations described in this paragraph, a fifth U_2'' is -O-. In some of the variations described in this paragraph, a fifth U_2'' is -S-. In some of the variations described in this paragraph, a sixth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a sixth U_2'' is -N-. In some of the variations described in this paragraph, a sixth U_2'' is -O-. In some of the variations described in this paragraph, a sixth U_2'' is -S-.

Variations of formulae (If)-(If.63) in which t is 2, o_1 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, a first o_2 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, and a second instance of o_2 is 7

[762] In some variations, U_2' is $-C(R'_{c2}R'_{d2})$ -. In some of these variations, each of first and second U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of these variations, each of a first and second U_2'' is -N-. In some of these variations, each of a first and second U_2'' is -O-. In some of these variations, each of a first and second U_2'' is -S-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -N-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -O-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -S-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -O-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -S-. In some of these variations, a first U_2'' is -O- and a second U_2'' is -S-. In some of the variations described in this paragraph, a third U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a third U_2'' is -N-. In some of the variations described in this paragraph, a third U_2'' is -O-. In some of the variations described in this paragraph, a third U_2'' is -S-. In some of the variations described in this paragraph, a fourth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a fourth U_2'' is -N-. In some of the variations described in this paragraph, a fourth U_2'' is -O-. In

some of the variations described in this paragraph, a fourth U_2'' is -S-. In some of the variations described in this paragraph, a fifth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a fifth U_2'' is -N-. In some of the variations described in this paragraph, a fifth U_2'' is -O-. In some of the variations described in this paragraph, a fifth U_2'' is -S-. In some of the variations described in this paragraph, a sixth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a sixth U_2'' is -N-. In some of the variations described in this paragraph, a sixth U_2'' is -O-. In some of the variations described in this paragraph, a sixth U_2'' is -S-. In some of the variations described in this paragraph, a seventh U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a seventh U_2'' is -N-. In some of the variations described in this paragraph, a seventh U_2'' is -O-. In some of the variations described in this paragraph, a seventh U_2'' is -S-.

[763] In some variations, U_2' is -N-. In some of these variations, each of first and second U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of these variations, each of a first and second U_2'' is -N-. In some of these variations, each of a first and second U_2'' is -O-. In some of these variations, each of a first and second U_2'' is -S-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -N-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -O-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -S-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -O-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -S-. In some of these variations, a first U_2'' is -O- and a second U_2'' is -S-. In some of the variations described in this paragraph, a third U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a third U_2'' is -N-. In some of the variations described in this paragraph, a third U_2'' is -O-. In some of the variations described in this paragraph, a third U_2'' is -S-. In some of the variations described in this paragraph, a fourth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a fourth U_2'' is -N-. In some of the variations described in this paragraph, a fourth U_2'' is -O-. In some of the variations described in this paragraph, a fourth U_2'' is -S-. In some of the variations described in this paragraph, a fifth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a fifth U_2'' is -N-. In some of the variations described in this paragraph, a fifth U_2'' is -O-. In some of the variations described in this paragraph, a fifth U_2'' is -S-. In some of the variations described in this paragraph, a sixth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a sixth U_2'' is -N-. In some of the variations described in this paragraph, a sixth U_2'' is -O-. In some of the variations described in this paragraph, a sixth U_2'' is -S-. In some of the variations described in this paragraph, a seventh U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a seventh U_2'' is -N-. In some of the variations described

in this paragraph, a seventh U_2'' is -O-. In some of the variations described in this paragraph, a seventh U_2'' is -S-.

[764] In some variations, U_2' -O-. In some of these variations, each of first and second U_2'' is $-C(R''_{c2}R''_{d2})-$. In some of these variations, each of a first and second U_2'' is -N-. In some of these variations, each of a first and second U_2'' is -O-. In some of these variations, each of a first and second U_2'' is -S-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})-$ and a second U_2'' is -N-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})-$ and a second U_2'' is -O-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})-$ and a second U_2'' is -S-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -O-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -S-. In some of these variations, a first U_2'' is -O- and a second U_2'' is -S-. In some of the variations described in this paragraph, a third U_2'' is $-C(R''_{c2}R''_{d2})-$. In some of the variations described in this paragraph, a third U_2'' is -N-. In some of the variations described in this paragraph, a third U_2'' is -O-. In some of the variations described in this paragraph, a third U_2'' is -S-. In some of the variations described in this paragraph, a fourth U_2'' is $-C(R''_{c2}R''_{d2})-$. In some of the variations described in this paragraph, a fourth U_2'' is -N-. In some of the variations described in this paragraph, a fourth U_2'' is -O-. In some of the variations described in this paragraph, a fourth U_2'' is -S-. In some of the variations described in this paragraph, a fifth U_2'' is $-C(R''_{c2}R''_{d2})-$. In some of the variations described in this paragraph, a fifth U_2'' is -N-. In some of the variations described in this paragraph, a fifth U_2'' is -O-. In some of the variations described in this paragraph, a fifth U_2'' is -S-. In some of the variations described in this paragraph, a sixth U_2'' is $-C(R''_{c2}R''_{d2})-$. In some of the variations described in this paragraph, a sixth U_2'' is -N-. In some of the variations described in this paragraph, a sixth U_2'' is -O-. In some of the variations described in this paragraph, a sixth U_2'' is -S-. In some of the variations described in this paragraph, a seventh U_2'' is $-C(R''_{c2}R''_{d2})-$. In some of the variations described in this paragraph, a seventh U_2'' is -N-. In some of the variations described in this paragraph, a seventh U_2'' is -O-. In some of the variations described in this paragraph, a seventh U_2'' is -S-.

[765] In some variations, U_2' is -S-. In some of these variations, each of first and second U_2'' is $-C(R''_{c2}R''_{d2})-$. In some of these variations, each of a first and second U_2'' is -N-. In some of these variations, each of a first and second U_2'' is -O-. In some of these variations, each of a first and second U_2'' is -S-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})-$ and a second U_2'' is -N-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})-$ and a second U_2'' is -O-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})-$ and a second U_2'' is -S-. In some of these

variations, a first U_2'' is -N- and a second U_2'' is -O-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -S-. In some of these variations, a first U_2'' is -O- and a second U_2'' is -S-. In some of the variations described in this paragraph, a fourth U_2'' is -C($R''_{c2}R''_{d2}$)-. In some of the variations described in this paragraph, a fourth U_2'' is -N-. In some of the variations described in this paragraph, a fourth U_2'' is -O-. In some of the variations described in this paragraph, a fourth U_2'' is -S-. In some of the variations described in this paragraph, a fifth U_2'' is -C($R''_{c2}R''_{d2}$)-. In some of the variations described in this paragraph, a fifth U_2'' is -N-. In some of the variations described in this paragraph, a fifth U_2'' is -O-. In some of the variations described in this paragraph, a fifth U_2'' is -S-. In some of the variations described in this paragraph, a sixth U_2'' is -C($R''_{c2}R''_{d2}$)-. In some of the variations described in this paragraph, a sixth U_2'' is -N-. In some of the variations described in this paragraph, a sixth U_2'' is -O-. In some of the variations described in this paragraph, a sixth U_2'' is -S-. In some of the variations described in this paragraph, a seventh U_2'' is -C($R''_{c2}R''_{d2}$)-. In some of the variations described in this paragraph, a seventh U_2'' is -N-. In some of the variations described in this paragraph, a seventh U_2'' is -O-. In some of the variations described in this paragraph, a seventh U_2'' is -S-.

Variations of formulae (If)-(If.63) in which t is 2, o_1 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, a first o_2 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, and a second instance of o_2 is 8

[766] In some variations, U_2' is -C($R'_{c2}R'_{d2}$)-. In some of these variations, each of first and second U_2'' is -C($R''_{c2}R''_{d2}$)-. In some of these variations, each of a first and second U_2'' is -N-. In some of these variations, each of a first and second U_2'' is -O-. In some of these variations, each of a first and second U_2'' is -S-. In some of these variations, a first U_2'' is -C($R''_{c2}R''_{d2}$)- and a second U_2'' is -N-. In some of these variations, a first U_2'' is -C($R''_{c2}R''_{d2}$)- and a second U_2'' is -O-. In some of these variations, a first U_2'' is -C($R''_{c2}R''_{d2}$)- and a second U_2'' is -S-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -O-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -S-. In some of these variations, a first U_2'' is -O- and a second U_2'' is -S-. In some of the variations described in this paragraph, a third U_2'' is -C($R''_{c2}R''_{d2}$)-. In some of the variations described in this paragraph, a third U_2'' is -N-. In some of the variations described in this paragraph, a third U_2'' is -O-. In some of the variations described in this paragraph, a third U_2'' is -S-. In some of the variations described in this paragraph, a fourth U_2'' is -C($R''_{c2}R''_{d2}$)-. In some of the variations described in this paragraph, a fourth U_2'' is -N-. In some of the variations described in this paragraph, a fourth U_2'' is -O-. In some of the variations described in this paragraph, a fourth U_2'' is -S-. In some of the variations described in this paragraph, a fifth U_2'' is -C($R''_{c2}R''_{d2}$)-. In some of the variations described in this paragraph, a fifth U_2'' is -N-. In some of the variations described in this paragraph, a fifth

U_2'' is -O-. In some of the variations described in this paragraph, a fifth U_2'' is -S-. In some of the variations described in this paragraph, a sixth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a sixth U_2'' is -N-. In some of the variations described in this paragraph, a sixth U_2'' is -O-. In some of the variations described in this paragraph, a sixth U_2'' is -S-. In some of the variations described in this paragraph, a seventh U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a seventh U_2'' is -N-. In some of the variations described in this paragraph, a seventh U_2'' is -O-. In some of the variations described in this paragraph, a seventh U_2'' is -S-. In some of the variations described in this paragraph, an eighth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, an eighth U_2'' is -N-. In some of the variations described in this paragraph, an eighth U_2'' is -O-. In some of the variations described in this paragraph, an eighth U_2'' is -S-.

[767] In some variations, U_2' is -N-. In some of these variations, each of first and second U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of these variations, each of a first and second U_2'' is -N-. In some of these variations, each of a first and second U_2'' is -O-. In some of these variations, each of a first and second U_2'' is -S-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -N-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -O-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -S-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -O-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -S-. In some of these variations, a first U_2'' is -O- and a second U_2'' is -S-. In some of the variations described in this paragraph, a third U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a third U_2'' is -N-. In some of the variations described in this paragraph, a third U_2'' is -O-. In some of the variations described in this paragraph, a third U_2'' is -S-. In some of the variations described in this paragraph, a fourth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a fourth U_2'' is -N-. In some of the variations described in this paragraph, a fourth U_2'' is -O-. In some of the variations described in this paragraph, a fourth U_2'' is -S-. In some of the variations described in this paragraph, a fifth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a fifth U_2'' is -N-. In some of the variations described in this paragraph, a fifth U_2'' is -O-. In some of the variations described in this paragraph, a fifth U_2'' is -S-. In some of the variations described in this paragraph, a sixth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a sixth U_2'' is -N-. In some of the variations described in this paragraph, a sixth U_2'' is -O-. In some of the variations described in this paragraph, a sixth U_2'' is -S-. In some of the variations described in this paragraph, a seventh U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a seventh U_2'' is -N-. In some of the variations described

in this paragraph, a seventh U_2'' is -O-. In some of the variations described in this paragraph, a seventh U_2'' is -S-.

[768] In some variations, U_2' -O-. In some of these variations, each of first and second U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of these variations, each of a first and second U_2'' is -N-. In some of these variations, each of a first and second U_2'' is -O-. In some of these variations, each of a first and second U_2'' is -S-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -N-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -O-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -S-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -O-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -S-. In some of these variations, a first U_2'' is -O- and a second U_2'' is -S-. In some of the variations described in this paragraph, a third U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a third U_2'' is -N-. In some of the variations described in this paragraph, a third U_2'' is -O-. In some of the variations described in this paragraph, a third U_2'' is -S-. In some of the variations described in this paragraph, a fourth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a fourth U_2'' is -N-. In some of the variations described in this paragraph, a fourth U_2'' is -O-. In some of the variations described in this paragraph, a fourth U_2'' is -S-. In some of the variations described in this paragraph, a fifth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a fifth U_2'' is -N-. In some of the variations described in this paragraph, a fifth U_2'' is -O-. In some of the variations described in this paragraph, a fifth U_2'' is -S-. In some of the variations described in this paragraph, a sixth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a sixth U_2'' is -N-. In some of the variations described in this paragraph, a sixth U_2'' is -O-. In some of the variations described in this paragraph, a sixth U_2'' is -S-. In some of the variations described in this paragraph, a seventh U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a seventh U_2'' is -N-. In some of the variations described in this paragraph, a seventh U_2'' is -O-. In some of the variations described in this paragraph, a seventh U_2'' is -S-. In some of the variations described in this paragraph, an eighth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, an eighth U_2'' is -N-. In some of the variations described in this paragraph, an eighth U_2'' is -O-. In some of the variations described in this paragraph, an eighth U_2'' is -S-.

[769] In some variations, U_2' is -S-. In some of these variations, each of first and second U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of these variations, each of a first and second U_2'' is -N-. In some of these variations, each of a first and second U_2'' is -O-. In some of these variations, each of a first

and second U_2'' is -S-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -N-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -O-. In some of these variations, a first U_2'' is $-C(R''_{c2}R''_{d2})$ - and a second U_2'' is -S-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -O-. In some of these variations, a first U_2'' is -N- and a second U_2'' is -S-. In some of these variations, a first U_2'' is -O- and a second U_2'' is -S-. In some of the variations described in this paragraph, a fourth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a fourth U_2'' is -N-. In some of the variations described in this paragraph, a fourth U_2'' is -O-. In some of the variations described in this paragraph, a fourth U_2'' is -S-. In some of the variations described in this paragraph, a fifth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a fifth U_2'' is -N-. In some of the variations described in this paragraph, a fifth U_2'' is -O-. In some of the variations described in this paragraph, a fifth U_2'' is -S-. In some of the variations described in this paragraph, a sixth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a sixth U_2'' is -N-. In some of the variations described in this paragraph, a sixth U_2'' is -O-. In some of the variations described in this paragraph, a sixth U_2'' is -S-. In some of the variations described in this paragraph, a seventh U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, a seventh U_2'' is -N-. In some of the variations described in this paragraph, a seventh U_2'' is -O-. In some of the variations described in this paragraph, a seventh U_2'' is -S-. In some of the variations described in this paragraph, an eighth U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of the variations described in this paragraph, an eighth U_2'' is -N-. In some of the variations described in this paragraph, an eighth U_2'' is -O-. In some of the variations described in this paragraph, an eighth U_2'' is -S-.

Variations of formulae (If)-(If.63) in which t is 3

[770] In some variations of formulae (If)-(If.63) in which t is 3, the respective instances of U_2 are distinguished in the description below as U_2' , U_2'' , and U_2''' , respectively. When U_2 is $-C(R_{c2}R_{d2})$ -, the three respective instances of $-C(R_{c2}R_{d2})$ - are distinguished in the description below as $-C(R'_{c2}R'_{d2})$ -, $-C(R''_{c2}R''_{d2})$ -, and $-C(R'''_{c2}R'''_{d2})$ -, respectively.

Variations of formulae (If)-(If.63) in which t is 3 o_1 is 1, 2, 3, 4, 5, 6, 7, or 8; a first o_2 is 1, 2, 3, 4, 5, 6, 7, or 8; and a second o_2 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, and a third o_2 is 1.

[771] In some variations, U_2' is $-C(R'_{c2}R'_{d2})$ - and U_2'' is $-C(R''_{c2}R''_{d2})$ -. In some of these variations, U_2''' is $-C(R'''_{c2}R'''_{d2})$ -. In some of these variations, U_2''' is -N-. In some of these variations, U_2''' is -O-. In some of these variations, U_2''' is -S-.

[772] In some variations, U_2' is $-C(R'_c R'_{d2})-$ and U_2'' is $-N-$. In some of these variations, U_2''' is $-C(R'''_c R'''_{d2})-$. In some of these variations, U_2''' is $-N-$. In some of these variations, U_2''' is $-O-$. In some of these variations, U_2''' is $-S-$.

[773] In some variations, U_2' is $-C(R'_c R'_{d2})-$, U_2'' is $-O-$. In some of these variations, U_2''' is $-C(R'''_c R'''_{d2})-$. In some of these variations, U_2''' is $-N-$. In some of these variations, U_2''' is $-O-$. In some of these variations, U_2''' is $-S-$.

[774] In some variations, U_2' is $-C(R'_c R'_{d2})-$, U_2'' is $-S-$. In some of these variations, U_2''' is $-C(R'''_c R'''_{d2})-$. In some of these variations, U_2''' is $-N-$. In some of these variations, U_2''' is $-O-$. In some of these variations, U_2''' is $-S-$.

[775] In some variations, U_2' is $-N-$ and U_2'' is $-N-$. In some of these variations, U_2''' is $-C(R'''_c R'''_{d2})-$. In some of these variations, U_2''' is $-N-$. In some of these variations, U_2''' is $-O-$. In some of these variations, U_2''' is $-S-$.

[776] In some of these variations, U_2' is $-N-$ and U_2'' is $-O-$. In some of these variations, U_2''' is $-C(R'''_c R'''_{d2})-$. In some of these variations, U_2''' is $-N-$. In some of these variations, U_2''' is $-O-$. In some of these variations, U_2''' is $-S-$.

[777] In some of these variations, U_2' is $-N-$ and U_2'' is $-S-$. In some of these variations, U_2''' is $-C(R'''_c R'''_{d2})-$. In some of these variations, U_2''' is $-N-$. In some of these variations, U_2''' is $-O-$. In some of these variations, U_2''' is $-S-$.

[778] In some of these variations, U_2' is $-S-$ and U_2'' is $-O-$. In some of these variations, U_2''' is $-C(R'''_c R'''_{d2})-$. In some of these variations, U_2''' is $-N-$. In some of these variations, U_2''' is $-O-$. In some of these variations, U_2''' is $-S-$.

[779] In some of these variations, U_2' is $-O-$ and U_2'' is $-O-$. In some of these variations, U_2''' is $-C(R'''_c R'''_{d2})-$. In some of these variations, U_2''' is $-N-$. In some of these variations, U_2''' is $-O-$. In some of these variations, U_2''' is $-S-$.

[780] In some of these variations, U_2' is $-S-$ and U_2'' is $-S-$. In some of these variations, U_2''' is $-C(R'''_c R'''_{d2})-$. In some of these variations, U_2''' is $-N-$. In some of these variations, U_2''' is $-O-$. In some of these variations, U_2''' is $-S-$.

Variations of formulae (If)-(If.63) in which t is 3 o_1 is 1, 2, 3, 4, 5, 6, 7, or 8; a first o_2 is 1, 2, 3, 4, 5, 6, 7, or 8; and a second o_2 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, a third o_2 is 1, and U_2''' is $-C(R'''_{c2}R'''_{d2})-$

[781] In some variations, each U_1 , U_2' , and U_2'' are as defined above, a third o_2 is 1, and U_2''' is $-C(R'''_{c2}R'''_{d2})-$. In some of these variations, each of R'''_{c2} and R'''_{d2} is H. In some of these variations, each of R'''_{c2} and R'''_{d2} is CH_3 . In some of these variations, R'''_{c2} is H and R'''_{d2} is

CH_3 . In some variations, $-C(R'''_{c2}R'''_{d2})-$ is . In some variations, $-C(R'''_{c2}R'''_{d2})-$ is .

Variations of formulae (If)-(If.63) in which t is 3 o_1 is 1, 2, 3, 4, 5, 6, 7, or 8; a first o_2 is 1, 2, 3, 4, 5, 6, 7, or 8; and a second o_2 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, a third o_2 is 2, and each U_2''' is $-C(R'''_{c2}R'''_{d2})-$

[782] In some variations, each U_1 , U_2' , and U_2'' are as defined above, a third o_2 is 2, and each U_2''' is $-C(R'''_{c2}R'''_{d2})-$ and the two instances of $-C(R'''_{c2}R'''_{d2})-$ are distinguished below as $-C(R'''_{c2.1}R'''_{d2.1})-$ and $-C(R'''_{c2.2}R'''_{d2.2})-$, respectively.

[783] In some variations in which a third o_2 is 2, each of $R'''_{c2.1}$ and $R'''_{d2.1}$ is H. In some of these variations, each of $R'''_{c2.2}$ and $R'''_{d2.2}$ is H. In some of these variations, each of $R'''_{c2.2}$ and $R'''_{d2.2}$ is CH_3 . In some of these variations, $R'''_{c2.2}$ is H and $R'''_{d2.2}$ is CH_3 . In some of these

variations, $-C(R'''_{c2.2}R'''_{d2.2})-$ is . In some of these variations, $-C(R'''_{c2.2}R'''_{d2.2})-$ is .

[784] In some variations in which a third o_2 is 2, each of $R'''_{c2.1}$ and $R'''_{d2.1}$ is CH_3 . In some of these variations, each of $R'''_{c2.2}$ and $R'''_{d2.2}$ is H. In some of these variations, each of $R'''_{c2.2}$ and $R'''_{d2.2}$ is CH_3 . In some of these variations, $R'''_{c2.2}$ is H and $R'''_{d2.2}$ is CH_3 . In some of these

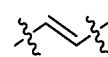
variations, $-C(R'''_{c2.2}R'''_{d2.2})-$ is . In some of these variations, $-C(R'''_{c2.2}R'''_{d2.2})-$ is .

[785] In some variations in which a third o_2 is 2, each of $R'''_{c2.1}$ and $R'''_{d2.1}$ is CH_3 . In some of these variations, each of $R'''_{c2.2}$ and $R'''_{d2.2}$ is H. In some of these variations, each of $R'''_{c2.2}$ and $R'''_{d2.2}$ is CH_3 . In some of these variations, $R'''_{c2.2}$ is H and $R'''_{d2.2}$ is CH_3 . In some of these

variations, $-C(R'''_{c2.2}R'''_{d2.2})-$ is . In some of these variations, $-C(R'''_{c2.2}R'''_{d2.2})-$ is .

[786] In some variations in which a third o_2 is 2, $-C(R'''_{c2.1}R'''_{d2.1})-$ is . In some of these variations, $-C(R'''_{c2.2}R'''_{d2.2})-$ is . In some of these variations, $-C(R'''_{c2.2}R'''_{d2.2})-$ is .

[787] In some variations in which a third o_2 is 2, $-C(R'''_{c2.1}R'''_{d2.1})-$ is . In some of these variations, $-C(R'''_{c2.2}R'''_{d2.2})-$ is . In some of these variations, $-C(R'''_{c2.2}R'''_{d2.2})-$ is .

[788] In some variations in which a third o_2 is 2, $-C(R'''_{c2.1}R'''_{d2.1})-$ and $-C(R'''_{c2.2}R'''_{d2.2})-$ are .

Variations of formulae (If)-(If.63) in which t is 3 o_1 is 1, 2, 3, 4, 5, 6, 7, or 8; a first o_2 is 1, 2, 3, 4, 5, 6, 7, or 8; and a second o_2 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, a third o_2 is 3, and each U_2''' is $-C(R'''_{c2}R'''_{d2})-$

[789] In some variations, each U_1 , U_2' , and U_2'' are as defined above, a third o_2 is 3, and each U_2''' is $-C(R'''_{c2}R'''_{d2})-$ and the three instances of $-C(R'''_{c2}R'''_{d2})-$ are distinguished below as $-C(R'''_{c2.1}R'''_{d2.1})-$, $-C(R'''_{c2.2}R'''_{d2.2})-$, and $-C(R'''_{c2.3}R'''_{d2.3})-$, respectively.

[790] In some variations, each of $R'''_{c2.1}$, $R'''_{d2.1}$, $R'''_{c2.2}$, $R'''_{d2.2}$, $R'''_{c2.3}$, and $R'''_{d2.3}$ is H. In some variations, each of $R'''_{c2.1}$, $R'''_{d2.1}$, $R'''_{c2.2}$, $R'''_{d2.2}$, $R'''_{c2.3}$, and $R'''_{d2.3}$ is CH_3 . In some variations, each of $R'''_{c2.1}$, $R'''_{d2.1}$, $R'''_{c2.2}$, and $R'''_{d2.2}$ is H and each of $R'''_{c2.3}$ and $R'''_{d2.3}$ is CH_3 . In some variations, each of $R'''_{c2.1}$, $R'''_{d2.1}$, $R'''_{c2.2}$, and $R'''_{d2.2}$ is CH_3 and each of $R'''_{c2.3}$ and $R'''_{d2.3}$ is H. In some variations, $R'''_{c2.1}$ is H and each of $R'''_{c2.2}$, $R'''_{c2.3}$, $R'''_{d2.1}$, $R'''_{d2.2}$, and $R'''_{d2.3}$ is CH_3 . In some variations, each of $R'''_{c2.1}$ and $R'''_{c2.2}$ is H and each of $R'''_{c2.3}$, $R'''_{d2.1}$, $R'''_{d2.2}$, and $R'''_{d2.3}$ is CH_3 . In some variations, each of $R'''_{c2.1}$, $R'''_{c2.2}$, and $R'''_{c2.3}$ is H and each of $R'''_{d2.1}$, $R'''_{d2.2}$, and $R'''_{d2.3}$ is CH_3 .

[791] In some variations, each of $R'''_{c2.1}$, $R'''_{d2.1}$, $R'''_{c2.2}$, and $R'''_{d2.2}$ is H and -

$C(R'''_{c2.3}R'''_{d2.3})-$ is . In some variations, each of $R'''_{c2.1}$, $R'''_{d2.1}$, $R'''_{c2.2}$, and $R'''_{d2.2}$ is CH_3 and $-C(R'''_{c2.3}R'''_{d2.3})-$ is . In some variations, $R'''_{c2.1}$ is H and each of $R'''_{c2.2}$,

$R'''_{d2.1}$, and $R'''_{d2.2}$ is CH_3 , and $-C(R'''_{c2.3}R'''_{d2.3})-$ is . In some variations, each of $R'''_{c2.1}$ and $R'''_{c2.2}$ is H and each of $R'''_{d2.1}$ and $R'''_{d2.2}$ is CH_3 , and $-C(R'''_{c2.3}R'''_{d2.3})-$ is .

[792] In some variations, each of $R'''_{c2.1}$, $R'''_{d2.1}$, $R'''_{c2.2}$, and $R'''_{d2.2}$, is H and -

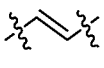
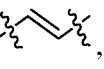
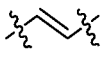
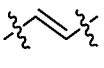
$C(R'''_{c2.3}R'''_{d2.3})-$ is . In some variations, each of $R'''_{c2.1}$, $R'''_{d2.1}$, $R'''_{c2.2}$, and $R'''_{d2.2}$, is CH_3 and $-C(R'''_{c2.3}R'''_{d2.3})-$ is . In some variations, $R'''_{c2.1}$ is H and each of $R'''_{c2.2}$, $R'''_{d2.1}$, and $R'''_{d2.2}$ is CH_3 , and $-C(R'''_{c2.3}R'''_{d2.3})-$ is . In some variations, each of $R'''_{c2.1}$ and $R'''_{c2.2}$ is H and each of $R'''_{d2.1}$ and $R'''_{d2.2}$ is CH_3 , and $-C(R'''_{c2.3}R'''_{d2.3})-$ is .

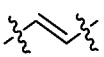
[793] In some variations, $-C(R'''_{c2.1}R'''_{d2.1})-$ is , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , and each of $R'''_{c2.3}$ and $R'''_{d2.3}$ is H. In some variations, $-C(R'''_{c2.1}R'''_{d2.1})-$ is , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , and each of $R'''_{c2.3}$ and $R'''_{d2.3}$ is CH_3 . In some variations, $-C(R'''_{c2.1}R'''_{d2.1})-$ is , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , $R'''_{c2.3}$ is H, and $R'''_{d2.3}$ is CH_3 . In some variations, $-C(R'''_{c2.1}R'''_{d2.1})-$ is , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , and each of $R'''_{c2.3}$ and $R'''_{d2.3}$ is H. In some variations, $-C(R'''_{c2.1}R'''_{d2.1})-$ is , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , and each of $R'''_{c2.3}$ and $R'''_{d2.3}$ is CH_3 . In some variations, $-C(R'''_{c2.1}R'''_{d2.1})-$ is , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , $R'''_{c2.3}$ is H, and $R'''_{d2.3}$ is CH_3 .

[794] In some variations, $-C(R'''_{c2.1}R'''_{d2.1})-$ is , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , and each of $R'''_{c2.3}$ and $R'''_{d2.3}$ is H. In some variations, $-C(R'''_{c2.1}R'''_{d2.1})-$ is , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , and each of $R'''_{c2.3}$ and $R'''_{d2.3}$ is CH_3 . In some variations, $-C(R'''_{c2.1}R'''_{d2.1})-$ is ,

-C(R'''_{c2.2}R'''_{d2.2})- is , R'''_{c2.3} is H, and R'''_{d2.3} is CH₃. In some variations, -C(R'''_{c2.1}R'''_{d2.1})- is , -C(R'''_{c2.2}R'''_{d2.2})- is , and each of R'''_{c2.3} and R'''_{d2.3} is H. In some variations, -C(R'''_{c2.1}R'''_{d2.1})- is , -C(R'''_{c2.2}R'''_{d2.2})- is , and each of R'''_{c2.3} and R'''_{d2.3} is CH₃. In some variations, -C(R'''_{c2.1}R'''_{d2.1})- is , -C(R'''_{c2.2}R'''_{d2.2})- is , R'''_{c2.3} is H, and R'''_{d2.3} is CH₃.

[795] In some variations, -C(R'''_{c2.1}R'''_{d2.1})- is , -C(R'''_{c2.2}R'''_{d2.2})- is , and each of R'''_{c2.3} and R'''_{d2.3} is H. In some variations, -C(R'''_{c2.1}R'''_{d2.1})- is , -C(R'''_{c2.2}R'''_{d2.2})- is , and each of R'''_{c2.3} and R'''_{d2.3} is CH₃. In some variations, -C(R'''_{c2.1}R'''_{d2.1})- is , -C(R'''_{c2.2}R'''_{d2.2})- is , R'''_{c2.3} is H, and R'''_{d2.3} is CH₃. In some variations, -C(R'''_{c2.1}R'''_{d2.1})- is , -C(R'''_{c2.2}R'''_{d2.2})- is , and each of R'''_{c2.3} and R'''_{d2.3} is H. In some variations, -C(R'''_{c2.1}R'''_{d2.1})- is , -C(R'''_{c2.2}R'''_{d2.2})- is , and each of R'''_{c2.3} and R'''_{d2.3} is CH₃. In some variations, -C(R'''_{c2.1}R'''_{d2.1})- is , -C(R'''_{c2.2}R'''_{d2.2})- is , R'''_{c2.3} is H, and R'''_{d2.3} is CH₃.

[796] In some variations, -C(R'''_{c2.1}R'''_{d2.1})- and -C(R'''_{c2.2}R'''_{d2.2})- together are , and each of R'''_{c2.3} and R'''_{d2.3} is H. In some variations, -C(R'''_{c2.1}R'''_{d2.1})- and -C(R'''_{c2.2}R'''_{d2.2})- together are , and each of R'''_{c2.3} and R'''_{d2.3} is CH₃. In some variations, -C(R'''_{c2.1}R'''_{d2.1})- and -C(R'''_{c2.2}R'''_{d2.2})- together are , R'''_{c2.3} is H, and R'''_{d2.3} is CH₃. In some variations, -C(R'''_{c2.1}R'''_{d2.1})- and -C(R'''_{c2.2}R'''_{d2.2})- together are , and

$-\text{C}(\text{R}'''_{\text{c}2.3}\text{R}'''_{\text{d}2.3})-$ is . In some variations, $-\text{C}(\text{R}'''_{\text{c}2.1}\text{R}'''_{\text{d}2.1})-$ and $-\text{C}(\text{R}'''_{\text{c}2.2}\text{R}'''_{\text{d}2.2})-$ together are , and $-\text{C}(\text{R}'''_{\text{c}2.3}\text{R}'''_{\text{d}2.3})-$ is .

Variations of formulae (If)-(If.63) in which t is 3 o_1 is 1, 2, 3, 4, 5, 6, 7, or 8; a first o_2 is 1, 2, 3, 4, 5, 6, 7, or 8; and a second o_2 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, a third o_2 is 4, and each U_2''' is $-\text{C}(\text{R}'''_{\text{c}2}\text{R}'''_{\text{d}2})-$

[797] In some variations, each U_1 , U_2' , and U_2'' are as defined above, a third o_2 is 4, and each U_2''' is $-\text{C}(\text{R}'''_{\text{c}2}\text{R}'''_{\text{d}2})-$ and the four instances of $-\text{C}(\text{R}'''_{\text{c}2}\text{R}'''_{\text{d}2})-$ are distinguished below as $-\text{C}(\text{R}'''_{\text{c}2.1}\text{R}'''_{\text{d}2.1})-$, $-\text{C}(\text{R}'''_{\text{c}2.2}\text{R}'''_{\text{d}2.2})-$, $-\text{C}(\text{R}'''_{\text{c}2.3}\text{R}'''_{\text{d}2.3})-$, and $\text{C}(\text{R}'''_{\text{c}2.4}\text{R}'''_{\text{d}2.4})-$, respectively.

[798] In some variations, each of $\text{R}'''_{\text{c}2.1}$, $\text{R}'''_{\text{d}2}$, $\text{R}'''_{\text{c}2.2}$, $\text{R}'''_{\text{d}2}$, $\text{R}'''_{\text{c}2.3}$, $\text{R}'''_{\text{d}2.3}$, $\text{R}'''_{\text{c}2.4}$, and $\text{R}'''_{\text{d}2.4}$ is H. In some variations, each of $\text{R}'''_{\text{c}2.1}$, $\text{R}'''_{\text{d}2}$, $\text{R}'''_{\text{c}2.2}$, $\text{R}'''_{\text{d}2}$, $\text{R}'''_{\text{c}2.3}$, $\text{R}'''_{\text{d}2.3}$, $\text{R}'''_{\text{c}2.4}$, and $\text{R}'''_{\text{d}2.4}$ is CH_3 . In some variations, each of $\text{R}'''_{\text{c}2.1}$, $\text{R}'''_{\text{d}2}$, $\text{R}'''_{\text{c}2.2}$, $\text{R}'''_{\text{d}2}$, $\text{R}'''_{\text{c}2.3}$, and $\text{R}'''_{\text{d}2.3}$ is H and each of $\text{R}'''_{\text{c}2.4}$ and $\text{R}'''_{\text{d}2.4}$ is CH_3 . In some variations, each of $\text{R}'''_{\text{c}2.1}$, $\text{R}'''_{\text{d}2}$, $\text{R}'''_{\text{c}2.2}$, and $\text{R}'''_{\text{d}2}$ is H and each of $\text{R}'''_{\text{c}2.3}$, $\text{R}'''_{\text{d}2.3}$, $\text{R}'''_{\text{c}2.4}$, and $\text{R}'''_{\text{d}2.4}$ is CH_3 . In some variations, each of $\text{R}'''_{\text{c}2.1}$, $\text{R}'''_{\text{d}2}$, $\text{R}'''_{\text{c}2.2}$, $\text{R}'''_{\text{d}2}$, $\text{R}'''_{\text{c}2.3}$, and $\text{R}'''_{\text{d}2.3}$ is CH_3 and each of $\text{R}'''_{\text{c}2.4}$ and $\text{R}'''_{\text{d}2.4}$ is H.

[799] In some variations, each of $\text{R}'''_{\text{c}2.1}$, $\text{R}'''_{\text{c}2.2}$, and $\text{R}'''_{\text{c}2.3}$ is H and each of $\text{R}'''_{\text{d}2}$, $\text{R}'''_{\text{d}2}$, and $\text{R}'''_{\text{d}2.3}$ is CH_3 . In some variations, $\text{R}'''_{\text{c}2.1}$ is H, $\text{R}'''_{\text{d}2}$ is CH_3 , and each of $\text{R}'''_{\text{c}2.2}$, $\text{R}'''_{\text{d}2}$, $\text{R}'''_{\text{c}2.3}$, and $\text{R}'''_{\text{d}2.3}$ is CH_3 . In some variations, $\text{R}'''_{\text{c}2.1}$ is H, $\text{R}'''_{\text{d}2}$ is CH_3 , and each of $\text{R}'''_{\text{c}2.2}$, $\text{R}'''_{\text{d}2}$, $\text{R}'''_{\text{c}2.3}$, and $\text{R}'''_{\text{d}2.3}$ is H. In some variations, each of $\text{R}'''_{\text{c}2.1}$ and $\text{R}'''_{\text{c}2.2}$ is H, each of $\text{R}'''_{\text{d}2}$ and $\text{R}'''_{\text{d}2}$ is CH_3 , and each of $\text{R}'''_{\text{c}2.3}$ and $\text{R}'''_{\text{d}2.3}$ is H. In some variations, each of $\text{R}'''_{\text{c}2.1}$ and $\text{R}'''_{\text{c}2.2}$ is H, each of $\text{R}'''_{\text{d}2}$ and $\text{R}'''_{\text{d}2}$ is CH_3 , and each of $\text{R}'''_{\text{c}2.3}$ and $\text{R}'''_{\text{d}2.3}$ is CH_3 .

[800] In some variations, $\text{R}'''_{\text{c}2.1}$ and $\text{R}'''_{\text{d}2}$ are H, $\text{R}'''_{\text{c}2.2}$ and $\text{R}'''_{\text{d}2}$ are H, $\text{R}'''_{\text{c}2.3}$ and $\text{R}'''_{\text{d}2.3}$ are H, and $-\text{C}(\text{R}'''_{\text{c}2.4}\text{R}'''_{\text{d}2.4})-$ is .

In some variations, $\text{R}'''_{\text{c}2.1}$ and $\text{R}'''_{\text{d}2}$ are H, $\text{R}'''_{\text{c}2.2}$ and $\text{R}'''_{\text{d}2}$ are H, $\text{R}'''_{\text{c}2.3}$ and $\text{R}'''_{\text{d}2.3}$ are CH_3 , and $-\text{C}(\text{R}'''_{\text{c}2.4}\text{R}'''_{\text{d}2.4})-$ is .

In some variations, $\text{R}'''_{\text{c}2.1}$ and $\text{R}'''_{\text{d}2}$ are H, $\text{R}'''_{\text{c}2.2}$ and $\text{R}'''_{\text{d}2}$ are CH_3 , $\text{R}'''_{\text{c}2.3}$ and $\text{R}'''_{\text{d}2.3}$ are CH_3 , and $\text{C}(\text{R}'''_{\text{c}2.4}\text{R}'''_{\text{d}2.4})-$ is . In some variations, $\text{R}'''_{\text{c}2.1}$ and $\text{R}'''_{\text{d}2}$ are CH_3 , $\text{R}'''_{\text{c}2.2}$ and $\text{R}'''_{\text{d}2}$ are CH_3 , $\text{R}'''_{\text{c}2.3}$ and $\text{R}'''_{\text{d}2.3}$ are CH_3 , and $-\text{C}(\text{R}'''_{\text{c}2.4}\text{R}'''_{\text{d}2.4})-$ is .

[801] In some variations, $R'''_{c2.1}$ and R'''_{d2} are H, $R'''_{c2.2}$ and R'''_{d2} are H, $-C(R'''_{c2.3}R'''_{d2.3})-$ is , and $R'''_{c2.4}$ and $R'''_{d2.4}$ are . In some variations, $R'''_{c2.1}$ and R'''_{d2} are H, $R'''_{c2.2}$ and R'''_{d2} are CH_3 , $-C(R'''_{c2.3}R'''_{d2.3})-$ is , and $-C(R'''_{c2.4}R'''_{d2.4})-$ is . In some variations, $R'''_{c2.1}$ and R'''_{d2} are CH_3 , $R'''_{c2.2}$ and R'''_{d2} are CH_3 , $-C(R'''_{c2.3}R'''_{d2.3})-$ is , and $-C(R'''_{c2.4}R'''_{d2.4})-$ is . In some variations, $R'''_{c2.1}$ is H, R'''_{d2} is CH_3 , $R'''_{c2.2}$ and R'''_{d2} are CH_3 , $-C(R'''_{c2.3}R'''_{d2.3})-$ is , and $-C(R'''_{c2.4}R'''_{d2.4})-$ is . In some variations, $R'''_{c2.1}$ is H, R'''_{d2} is CH_3 , $R'''_{c2.2}$ is H, R'''_{d2} is CH_3 , $-C(R'''_{c2.3}R'''_{d2.3})-$ is , and $-C(R'''_{c2.4}R'''_{d2.4})-$ is .

[802] In some variations, $R'''_{c2.1}$ and $R'''_{d2.1}$ are H, $-C(R'''_{c2.2}R'''_{d2.2})-$ is , $-C(R'''_{c2.3}R'''_{d2.3})-$ is , and $-C(R'''_{c2.4}R'''_{d2.4})-$ is . In some variations, $R'''_{c2.1}$ and $R'''_{d2.1}$ are CH_3 , $R'''_{c2.2}$ and $R'''_{d2.2}$ are , $-C(R'''_{c2.3}R'''_{d2.3})-$ is , and $-C(R'''_{c2.4}R'''_{d2.4})-$ is . In some variations, $R'''_{c2.1}$ is H, $R'''_{d2.1}$ is CH_3 , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , $-C(R'''_{c2.3}R'''_{d2.3})-$ is , and $-C(R'''_{c2.4}R'''_{d2.4})-$ is . In some variations, $-C(R'''_{c2.2}R'''_{d2.2})-$ is , $R'''_{c2.2}$ and $R'''_{d2.2}$ are , $-C(R'''_{c2.3}R'''_{d2.3})-$ is , and $-C(R'''_{c2.4}R'''_{d2.4})-$ is .

[803] In some variations, $R'''_{c2.1}$ and R'''_{d2} are H, $R'''_{c2.2}$ and R'''_{d2} are H, $R'''_{c2.3}$ and $R'''_{d2.3}$ are H, and $-C(R'''_{c2.4}R'''_{d2.4})-$ is . In some variations, $R'''_{c2.1}$ and R'''_{d2} are H, $R'''_{c2.2}$ and R'''_{d2} are H, $R'''_{c2.3}$ and $R'''_{d2.3}$ are CH_3 , and $-C(R'''_{c2.4}R'''_{d2.4})-$ is . In some variations, $R'''_{c2.1}$ and R'''_{d2} are H, $R'''_{c2.2}$ and R'''_{d2} are CH_3 , $R'''_{c2.3}$ and $R'''_{d2.3}$ are CH_3 , and

$-C(R'''_{c2.4}R'''_{d2.4})-$ is . In some variations, $R'''_{c2.1}$ and R'''_{d2} are CH_3 , $R'''_{c2.2}$ and R'''_{d2} are CH_3 , $R'''_{c2.3}$ and $R'''_{d2.3}$ are CH_3 , and $-C(R'''_{c2.4}R'''_{d2.4})-$ is .

[804] In some variations, $R'''_{c2.1}$ and R'''_{d2} are H, $R'''_{c2.2}$ and R'''_{d2} are H, $-C(R'''_{c2.3}R'''_{d2.3})-$ is , and $-C(R'''_{c2.4}R'''_{d2.4})-$ is . In some variations, $R'''_{c2.1}$ and R'''_{d2} are H, $R'''_{c2.2}$ and R'''_{d2} are CH_3 , $-C(R'''_{c2.3}R'''_{d2.3})-$ is , and $-C(R'''_{c2.4}R'''_{d2.4})-$ is . In some variations, $R'''_{c2.1}$ and R'''_{d2} are CH_3 , $R'''_{c2.2}$ and R'''_{d2} are CH_3 , $-C(R'''_{c2.3}R'''_{d2.3})-$ is , and $-C(R'''_{c2.4}R'''_{d2.4})-$ is . In some variations, $R'''_{c2.1}$ is H, R'''_{d2} is CH_3 , $R'''_{c2.2}$ and R'''_{d2} are CH_3 , $-C(R'''_{c2.3}R'''_{d2.3})-$ is , and $-C(R'''_{c2.4}R'''_{d2.4})-$ is . In some variations, $R'''_{c2.1}$ is H, R'''_{d2} is CH_3 , $R'''_{c2.2}$ is H, R'''_{d2} is CH_3 , $-C(R'''_{c2.3}R'''_{d2.3})-$ is , and $-C(R'''_{c2.4}R'''_{d2.4})-$ is .

[805] In some variations, $R'''_{c2.1}$ and R'''_{d2} are H, $-C(R'''_{c2.1}R'''_{d2.1})-$ is , $-C(R'''_{c2.3}R'''_{d2.3})-$ is , and $-C(R'''_{c2.4}R'''_{d2.4})-$ is . In some variations, $R'''_{c2.1}$ and R'''_{d2} are CH_3 , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , $-C(R'''_{c2.3}R'''_{d2.3})-$ is , and $-C(R'''_{c2.4}R'''_{d2.4})-$ is . In some variations, $R'''_{c2.1}$ is H, R'''_{d2} is CH_3 , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , $-C(R'''_{c2.3}R'''_{d2.3})-$ is , and $-C(R'''_{c2.4}R'''_{d2.4})-$ is . In some variations,

$-\text{C}(\text{R}'''_{\text{c}2.1}\text{R}'''_{\text{d}2.1})-$ is , $\text{R}'''_{\text{c}2.2}$ and $\text{R}'''_{\text{d}2}$ are , $-\text{C}(\text{R}'''_{\text{c}2.3}\text{R}'''_{\text{d}2.3})-$ is , and $-\text{C}(\text{R}'''_{\text{c}2.4}\text{R}'''_{\text{d}2.4})-$ is .

[806] In some variations, $-\text{C}(\text{R}'''_{\text{c}2.1}\text{R}'''_{\text{d}2.1})-$ is , $\text{R}'''_{\text{c}2.2}$ and $\text{R}'''_{\text{d}2}$ are H, $\text{R}'''_{\text{c}2.3}$ and $\text{R}'''_{\text{d}2.3}$ are H, and $-\text{C}(\text{R}'''_{\text{c}2.4}\text{R}'''_{\text{d}2.4})-$ is . In some variations, $-\text{C}(\text{R}'''_{\text{c}2.1}\text{R}'''_{\text{d}2.1})-$ is , $\text{R}'''_{\text{c}2.2}$ and $\text{R}'''_{\text{d}2}$ are CH_3 , $\text{R}'''_{\text{c}2.3}$ and $\text{R}'''_{\text{d}2.3}$ are CH_3 , and $-\text{C}(\text{R}'''_{\text{c}2.4}\text{R}'''_{\text{d}2.4})-$ is . In some variations, $-\text{C}(\text{R}'''_{\text{c}2.1}\text{R}'''_{\text{d}2.1})-$ is , $\text{R}'''_{\text{c}2.2}$ and $\text{R}'''_{\text{d}2}$ are H, $\text{R}'''_{\text{c}2.3}$ and $\text{R}'''_{\text{d}2.3}$ are CH_3 , and $-\text{C}(\text{R}'''_{\text{c}2.4}\text{R}'''_{\text{d}2.4})-$ is .

[807] In some variations, $-\text{C}(\text{R}'''_{\text{c}2.1}\text{R}'''_{\text{d}2.1})-$ is , $-\text{C}(\text{R}'''_{\text{c}2.2}\text{R}'''_{\text{d}2.2})-$ is , $\text{R}'''_{\text{c}2.3}$ and $\text{R}'''_{\text{d}2.3}$ are H, and $\text{R}'''_{\text{c}2.4}$ and $\text{R}'''_{\text{d}2.4}$ are . In some variations, $-\text{C}(\text{R}'''_{\text{c}2.1}\text{R}'''_{\text{d}2.1})-$ is , $-\text{C}(\text{R}'''_{\text{c}2.2}\text{R}'''_{\text{d}2.2})-$ is , $\text{R}'''_{\text{c}2.3}$ and $\text{R}'''_{\text{d}2.3}$ are CH_3 , and $-\text{C}(\text{R}'''_{\text{c}2.4}\text{R}'''_{\text{d}2.4})-$ is . In some variations, $-\text{C}(\text{R}'''_{\text{c}2.1}\text{R}'''_{\text{d}2.1})-$ is , $-\text{C}(\text{R}'''_{\text{c}2.2}\text{R}'''_{\text{d}2.2})-$ is , $\text{R}'''_{\text{c}2.3}$ and $\text{R}'''_{\text{d}2.3}$ are CH_3 , and $-\text{C}(\text{R}'''_{\text{c}2.4}\text{R}'''_{\text{d}2.4})-$ is . In some variations, $-\text{C}(\text{R}'''_{\text{c}2.1}\text{R}'''_{\text{d}2.1})-$ is , $-\text{C}(\text{R}'''_{\text{c}2.2}\text{R}'''_{\text{d}2.2})-$ is , $\text{R}'''_{\text{c}2.3}$ and $\text{R}'''_{\text{d}2.3}$ are H, and $-\text{C}(\text{R}'''_{\text{c}2.4}\text{R}'''_{\text{d}2.4})-$ is .

[808] In some variations, $-\text{C}(\text{R}'''_{\text{c}2.1}\text{R}'''_{\text{d}2.1})-$ is , $-\text{C}(\text{R}'''_{\text{c}2.2}\text{R}'''_{\text{d}2.2})-$ is , $-\text{C}(\text{R}'''_{\text{c}2.3}\text{R}'''_{\text{d}2.3})-$ is , and $-\text{C}(\text{R}'''_{\text{c}2.4}\text{R}'''_{\text{d}2.4})-$ is .

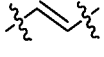
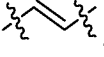
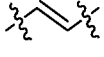
[809] In some variations, $-C(R'''_{c2.1}R'''_{d2.1})-$ is , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , $R'''_{c2.3}$ and $R'''_{d2.3}$ are H, and $-C(R'''_{c2.4}R'''_{d2.4})-$ is . In some variations, $-C(R'''_{c2.1}R'''_{d2.1})-$ is , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , $R'''_{c2.3}$ and $R'''_{d2.3}$ are CH₃, and $-C(R'''_{c2.4}R'''_{d2.4})-$ is . In some variations, $-C(R'''_{c2.1}R'''_{d2.1})-$ is , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , $R'''_{c2.3}$ and $R'''_{d2.3}$ are CH₃, and $-C(R'''_{c2.4}R'''_{d2.4})-$ is . In some variations, $-C(R'''_{c2.1}R'''_{d2.1})-$ is , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , $R'''_{c2.3}$ and $R'''_{d2.3}$ are H, and $-C(R'''_{c2.4}R'''_{d2.4})-$ is .

[810] In some variations, $-C(R'''_{c2.1}R'''_{d2.1})-$ is , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , $-C(R'''_{c2.3}R'''_{d2.3})-$ is , and $-C(R'''_{c2.4}R'''_{d2.4})-$ is .

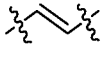
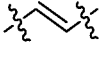
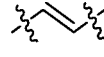
[811] In some variations, $-C(R'''_{c2.1}R'''_{d2.1})-$ is , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , $R'''_{c2.3}$ and $R'''_{d2.3}$ are H, and $-C(R'''_{c2.4}R'''_{d2.4})-$ is . In some variations, $-C(R'''_{c2.1}R'''_{d2.1})-$ is , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , $R'''_{c2.3}$ and $R'''_{d2.3}$ are CH₃, and $-C(R'''_{c2.4}R'''_{d2.4})-$ is . In some variations, $-C(R'''_{c2.1}R'''_{d2.1})-$ is , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , $R'''_{c2.3}$ and $R'''_{d2.3}$ are CH₃, and $-C(R'''_{c2.4}R'''_{d2.4})-$ is . In some variations, $-C(R'''_{c2.1}R'''_{d2.1})-$ is , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , $R'''_{c2.3}$ and $R'''_{d2.3}$ are H, and $-C(R'''_{c2.4}R'''_{d2.4})-$ is .

[812] In some variations, $-C(R'''_{c2.1}R'''_{d2.1})-$ is , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , $-C(R'''_{c2.3}R'''_{d2.3})-$ is , and $-C(R'''_{c2.4}R'''_{d2.4})-$ is .

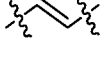
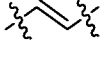
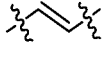
[813] In some variations, $R'''_{c2.1}$ and $R'''_{d2.1}$ are H, $R'''_{c2.2}$ and $R'''_{d2.2}$ are H, and

$-C(R'''_{c2.3}R'''_{d2.3})-$ and $-C(R'''_{c2.4}R'''_{d2.4})-$ together are . In some variations, $R'''_{c2.1}$ and R'''_{d2} are H, $R'''_{c2.2}$ and R'''_{d2} are CH₃, and $-C(R'''_{c2.3}R'''_{d2.3})-$ and $-C(R'''_{c2.4}R'''_{d2.4})-$ together are . In some variations, $R'''_{c2.1}$ and $R'''_{c2.2}$ are H, R'''_{d2} and R'''_{d2} are CH₃, and $-C(R'''_{c2.3}R'''_{d2.3})-$ and $-C(R'''_{c2.4}R'''_{d2.4})-$ together are .

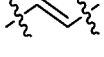
[814] In some variations, $R'''_{c2.1}$ and R'''_{d2} are H, $-C(R'''_{c2.2}R'''_{d2.2})-$ is , and

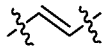
$-C(R'''_{c2.3}R'''_{d2.3})-$ and $-C(R'''_{c2.4}R'''_{d2.4})-$ together are . In some variations, $R'''_{c2.1}$ and R'''_{d2} are , $R'''_{c2.2}$ and R'''_{d2} are CH₃, and $-C(R'''_{c2.3}R'''_{d2.3})-$ and $-C(R'''_{c2.4}R'''_{d2.4})-$ together are . In some variations, $R'''_{c2.1}$ is H, R'''_{d2} is CH₃, $-C(R'''_{c2.2}R'''_{d2.2})-$ is , and $-C(R'''_{c2.3}R'''_{d2.3})-$ and $-C(R'''_{c2.4}R'''_{d2.4})-$ together are .

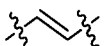
[815] In some variations, $R'''_{c2.1}$ and R'''_{d2} are H, $-C(R'''_{c2.2}R'''_{d2.2})-$ is , and

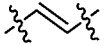
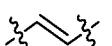
$-C(R'''_{c2.3}R'''_{d2.3})-$ and $-C(R'''_{c2.4}R'''_{d2.4})-$ together are . In some variations, $-C(R'''_{c2.1}R'''_{d2.1})-$ is , $R'''_{c2.2}$ and R'''_{d2} are CH₃, and $-C(R'''_{c2.3}R'''_{d2.3})-$ and $-C(R'''_{c2.4}R'''_{d2.4})-$ together are . In some variations, $R'''_{c2.1}$ is H, R'''_{d2} is CH₃, $-C(R'''_{c2.2}R'''_{d2.2})-$ is , and $-C(R'''_{c2.3}R'''_{d2.3})-$ and $-C(R'''_{c2.4}R'''_{d2.4})-$ together are .

[816] In some variations, $-C(R'''_{c2.1}R'''_{d2.1})-$ is , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , and

$-C(R'''_{c2.3}R'''_{d2.3})-$ and $-C(R'''_{c2.4}R'''_{d2.4})-$ together are . In some variations, $-C(R'''_{c2.1}R'''_{d2.1})-$ is , $-C(R'''_{c2.2}R'''_{d2.2})-$ is , and $-C(R'''_{c2.3}R'''_{d2.3})-$ and

$-\text{C}(\text{R}'''_{\text{c}2.4}\text{R}'''_{\text{d}2.4})-$ together are . In some variations, $\text{R}'''_{\text{c}2.1}$ and $\text{R}'''_{\text{d}2}$ are , $\text{R}'''_{\text{c}2.2}$ and $\text{R}'''_{\text{d}2}$ are , and $-\text{C}(\text{R}'''_{\text{c}2.3}\text{R}'''_{\text{d}2.3})-$ and $-\text{C}(\text{R}'''_{\text{c}2.4}\text{R}'''_{\text{d}2.4})-$ together are .

[817] In some variations, $-\text{C}(\text{R}'''_{\text{c}2.1}\text{R}'''_{\text{d}2.1})-$ is , $-\text{C}(\text{R}'''_{\text{c}2.2}\text{R}'''_{\text{d}2.2})-$ is , and $-\text{C}(\text{R}'''_{\text{c}2.3}\text{R}'''_{\text{d}2.3})-$ and $-\text{C}(\text{R}'''_{\text{c}2.4}\text{R}'''_{\text{d}2.4})-$ together are .

[818] In some variations, $-\text{C}(\text{R}'''_{\text{c}2.1}\text{R}'''_{\text{d}2.1})-$ and $-\text{C}(\text{R}'''_{\text{c}2.2}\text{R}'''_{\text{d}2.2})-$ together are , and $-\text{C}(\text{R}'''_{\text{c}2.3}\text{R}'''_{\text{d}2.3})-$ and $-\text{C}(\text{R}'''_{\text{c}2.4}\text{R}'''_{\text{d}2.4})-$ together are .

Variations of formulae (If)-(If.63) in which t is 3 o_1 is 1, 2, 3, 4, 5, 6, 7, or 8; a first o_2 is 1, 2, 3, 4, 5, 6, 7, or 8; and a second o_2 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, a third o_2 is 5, and each U_2''' is $-\text{C}(\text{R}'''_{\text{c}2}\text{R}'''_{\text{d}2})-$

[819] In some variations, each U_1 , U_2' , and U_2'' are as defined above, a third o_2 is 5, and each U_2''' is $-\text{C}(\text{R}'''_{\text{c}2}\text{R}'''_{\text{d}2})-$ and the five instances of $-\text{C}(\text{R}'''_{\text{c}2}\text{R}'''_{\text{d}2})-$ are distinguished below as $-\text{C}(\text{R}'''_{\text{c}2.1}\text{R}'''_{\text{d}2.1})-$, $-\text{C}(\text{R}'''_{\text{c}2.2}\text{R}'''_{\text{d}2.2})-$, $-\text{C}(\text{R}'''_{\text{c}2.3}\text{R}'''_{\text{d}2.3})-$, $-\text{C}(\text{R}'''_{\text{c}2.4}\text{R}'''_{\text{d}2.4})-$, and $-\text{C}(\text{R}'''_{\text{c}2.5}\text{R}'''_{\text{d}2.5})-$, respectively.

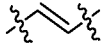
[820] In some variations, $\text{R}'''_{\text{c}2.1}$ and $\text{R}'''_{\text{d}2.1}$; $\text{R}'''_{\text{c}2.2}$ and $\text{R}'''_{\text{d}2.2}$; $\text{R}'''_{\text{c}2.3}$ and $\text{R}'''_{\text{d}2.3}$; $\text{R}'''_{\text{c}2.4}$ and $\text{R}'''_{\text{d}2.4}$ are as defined above, and each of $\text{R}'''_{\text{c}2.5}$ and $\text{R}'''_{\text{d}2.5}$ is H.

[821] In some variations, $\text{R}'''_{\text{c}2.1}$ and $\text{R}'''_{\text{d}2.1}$; $\text{R}'''_{\text{c}2.2}$ and $\text{R}'''_{\text{d}2.2}$; $\text{R}'''_{\text{c}2.3}$ and $\text{R}'''_{\text{d}2.3}$; $\text{R}'''_{\text{c}2.4}$ and $\text{R}'''_{\text{d}2.4}$ are as defined above, and each of $\text{R}'''_{\text{c}2.5}$ and $\text{R}'''_{\text{d}2.5}$ is CH_3 .

[822] In some variations, $\text{R}'''_{\text{c}2.1}$ and $\text{R}'''_{\text{d}2.1}$; $\text{R}'''_{\text{c}2.2}$ and $\text{R}'''_{\text{d}2.2}$; $\text{R}'''_{\text{c}2.3}$ and $\text{R}'''_{\text{d}2.3}$; $\text{R}'''_{\text{c}2.4}$ and $\text{R}'''_{\text{d}2.4}$ are as defined above, $\text{R}'''_{\text{c}2.5}$ is H and $\text{R}'''_{\text{d}2.5}$ is CH_3 .

[823] In some variations, $\text{R}'''_{\text{c}2.1}$ and $\text{R}'''_{\text{d}2.1}$; $\text{R}'''_{\text{c}2.2}$ and $\text{R}'''_{\text{d}2.2}$; $\text{R}'''_{\text{c}2.3}$ and $\text{R}'''_{\text{d}2.3}$; $\text{R}'''_{\text{c}2.4}$ and $\text{R}'''_{\text{d}2.4}$ are as defined above, and $-\text{C}(\text{R}'''_{\text{c}2.5}\text{R}'''_{\text{d}2.5})-$ is .

[824] In some variations, $\text{R}'''_{\text{c}2.1}$ and $\text{R}'''_{\text{d}2.1}$; $\text{R}'''_{\text{c}2.2}$ and $\text{R}'''_{\text{d}2.2}$; $\text{R}'''_{\text{c}2.3}$ and $\text{R}'''_{\text{d}2.3}$; $\text{R}'''_{\text{c}2.4}$ and $\text{R}'''_{\text{d}2.4}$ are as defined above, and $-\text{C}(\text{R}'''_{\text{c}2.5}\text{R}'''_{\text{d}2.5})-$ is .

[825] In some variations, $R'''_{c2.1}$ and $R'''_{d2.1}$; $R'''_{c2.2}$ and $R'''_{d2.2}$; $R'''_{c2.3}$ and $R'''_{d2.3}$ are as defined above, and $-C(R'''_{c2.5}R'''_{d2.5})-$ and $-C(R'''_{c2.5}R'''_{d2.5})-$ together are .

Variations of formulae (If)-(If.63) in which t is 3 o_1 is 1, 2, 3, 4, 5, 6, 7, or 8; a first o_2 is 1, 2, 3, 4, 5, 6, 7, or 8; and a second o_2 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, a third o_2 is 6, and each U_2''' is $-C(R'''_{c2}R'''_{d2})-$

[826] In some variations, each U_1 , U_2' , and U_2'' are as defined above, a third o_2 is 6, and each U_2''' is $-C(R'''_{c2}R'''_{d2})-$ and the six instances of $-C(R'''_{c2}R'''_{d2})-$ are distinguished below as $-C(R'''_{c2.1}R'''_{d2.1})-$, $-C(R'''_{c2.2}R'''_{d2.2})-$, $-C(R'''_{c2.3}R'''_{d2.3})-$, $-C(R'''_{c2.4}R'''_{d2.4})-$, $-C(R'''_{c2.5}R'''_{d2.5})-$, and $-C(R'''_{c2.6}R'''_{d2.6})-$, respectively.

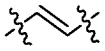
[827] In some variations, $R'''_{c2.1}$ and $R'''_{d2.1}$; $R'''_{c2.2}$ and $R'''_{d2.2}$; $R'''_{c2.3}$ and $R'''_{d2.3}$; $R'''_{c2.4}$ and $R'''_{d2.4}$; and $R'''_{c2.5}$ and $R'''_{d2.5}$ are as defined above, and each of $R'''_{c2.6}$ and $R'''_{d2.6}$ is H.

[828] In some variations, $R'''_{c2.1}$ and $R'''_{d2.1}$; $R'''_{c2.2}$ and $R'''_{d2.2}$; $R'''_{c2.3}$ and $R'''_{d2.3}$; $R'''_{c2.4}$ and $R'''_{d2.4}$; and $R'''_{c2.5}$ and $R'''_{d2.5}$ are as defined above, and each of $R'''_{c2.6}$ and $R'''_{d2.6}$ is CH_3 .

[829] In some variations, $R'''_{c2.1}$ and $R'''_{d2.1}$; $R'''_{c2.2}$ and $R'''_{d2.2}$; $R'''_{c2.3}$ and $R'''_{d2.3}$; $R'''_{c2.4}$ and $R'''_{d2.4}$; and $R'''_{c2.5}$ and $R'''_{d2.5}$ are as defined above, $R'''_{c2.6}$ is H, and $R'''_{d2.6}$ is CH_3 .

[830] In some variations, $R'''_{c2.1}$ and $R'''_{d2.1}$; $R'''_{c2.2}$ and $R'''_{d2.2}$; $R'''_{c2.3}$ and $R'''_{d2.3}$; $R'''_{c2.4}$ and $R'''_{d2.4}$; and $R'''_{c2.5}$ and $R'''_{d2.5}$ are as defined above, and $-C(R'''_{c2.6}R'''_{d2.6})-$ is .

[831] In some variations, $R'''_{c2.1}$ and $R'''_{d2.1}$; $R'''_{c2.2}$ and $R'''_{d2.2}$; $R'''_{c2.3}$ and $R'''_{d2.3}$; $R'''_{c2.4}$ and $R'''_{d2.4}$; and $R'''_{c2.5}$ and $R'''_{d2.5}$ are as defined above, and $-C(R'''_{c2.6}R'''_{d2.6})-$ is .

[832] In some variations, $R'''_{c2.1}$ and $R'''_{d2.1}$; $R'''_{c2.2}$ and $R'''_{d2.2}$; $R'''_{c2.3}$ and $R'''_{d2.3}$; and $R'''_{c2.4}$ and $R'''_{d2.4}$ are as defined above, and $-C(R'''_{c2.5}R'''_{d2.5})-$ and $-C(R'''_{c2.6}R'''_{d2.6})-$ together are .

Variations of formulae (If)-(If.63) in which t is 3 o_1 is 1, 2, 3, 4, 5, 6, 7, or 8; a first o_2 is 1, 2, 3, 4, 5, 6, 7, or 8; and a second o_2 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, a third o_2 is 7, and each U_2''' is $-C(R'''_{c2}R'''_{d2})-$

[833] In some variations, each U_1 , U_2' , and U_2'' are as defined above, a third o_2 is 7, and each U_2''' is $-C(R'''_{c2}R'''_{d2})-$ and the seven instances of $-C(R'''_{c2}R'''_{d2})-$ are distinguished below as

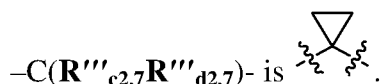
$-C(R'''_{c2.1}R'''_{d2.1})-$, $-C(R'''_{c2.2}R'''_{d2.2})-$, $-C(R'''_{c2.3}R'''_{d2.3})-$, $-C(R'''_{c2.4}R'''_{d2.4})-$,
 $-C(R'''_{c2.5}R'''_{d2.5})-$, $-C(R'''_{c2.6}R'''_{d2.6})-$, and $-C(R'''_{c2.7}R'''_{d2.7})-$, respectively.

[834] In some variations, $R'''_{c2.1}$ and $R'''_{d2.1}$; $R'''_{c2.2}$ and $R'''_{d2.2}$; $R'''_{c2.3}$ and $R'''_{d2.3}$; $R'''_{c2.4}$ and $R'''_{d2.4}$; $R'''_{c2.5}$ and $R'''_{d2.5}$; and $R'''_{c2.6}$ and $R'''_{d2.6}$, are as defined above, and each of $R'''_{c2.7}$ and $R'''_{d2.7}$ is H.

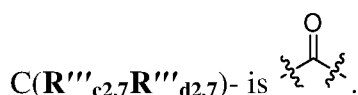
[835] In some variations, $R'''_{c2.1}$ and $R'''_{d2.1}$; $R'''_{c2.2}$ and $R'''_{d2.2}$; $R'''_{c2.3}$ and $R'''_{d2.3}$; $R'''_{c2.4}$ and $R'''_{d2.4}$; $R'''_{c2.5}$ and $R'''_{d2.5}$; and $R'''_{c2.6}$ and $R'''_{d2.6}$, are as defined above, and each of $R'''_{c2.7}$ and $R'''_{d2.7}$ is CH_3 .

[836] In some variations, $R'''_{c2.1}$ and $R'''_{d2.1}$; $R'''_{c2.2}$ and $R'''_{d2.2}$; $R'''_{c2.3}$ and $R'''_{d2.3}$; $R'''_{c2.4}$ and $R'''_{d2.4}$; $R'''_{c2.5}$ and $R'''_{d2.5}$; and $R'''_{c2.6}$ and $R'''_{d2.6}$, are as defined above, $R'''_{c2.7}$ is H, and $R'''_{d2.7}$ is CH_3 .

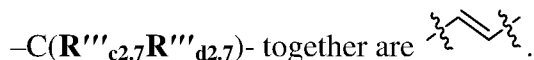
[837] In some variations, $R'''_{c2.1}$ and $R'''_{d2.1}$; $R'''_{c2.2}$ and $R'''_{d2.2}$; $R'''_{c2.3}$ and $R'''_{d2.3}$; $R'''_{c2.4}$ and $R'''_{d2.4}$; $R'''_{c2.5}$ and $R'''_{d2.5}$; and $R'''_{c2.6}$ and $R'''_{d2.6}$, are as defined above, and



[838] In some variations, $R'''_{c2.1}$ and $R'''_{d2.1}$; $R'''_{c2.2}$ and $R'''_{d2.2}$; $R'''_{c2.3}$ and $R'''_{d2.3}$; $R'''_{c2.4}$ and $R'''_{d2.4}$; $R'''_{c2.5}$ and $R'''_{d2.5}$; and $R'''_{c2.6}$ and $R'''_{d2.6}$, are as defined above, and –



[839] In some variations, $R'''_{c2.1}$ and $R'''_{d2.1}$; $R'''_{c2.2}$ and $R'''_{d2.2}$; $R'''_{c2.3}$ and $R'''_{d2.3}$; and $R'''_{c2.4}$ and $R'''_{d2.4}$; and $R'''_{c2.5}$ and $R'''_{d2.5}$ are as defined above, and $-C(R'''_{c2.6}R'''_{d2.6})-$ and



Variations of formulae (If)-(If.63) in which t is 3 o_1 is 1, 2, 3, 4, 5, 6, 7, or 8; a first o_2 is 1, 2, 3, 4, 5, 6, 7, or 8; and a second o_2 is 1, 2, 3, 4, 5, 6, 7, or 8 as described above, a third o_2 is 8, and each U_2''' is $-C(R'''_{c2}R'''_{d2})-$

[840] In some variations, each U_1 , U_2' , and U_2'' are as defined above, a third o_2 is 8, and each U_2''' is $-C(R'''_{c2}R'''_{d2})-$ and the eight instances of $-C(R'''_{c2}R'''_{d2})-$ are distinguished below as $-C(R'''_{c2.1}R'''_{d2.1})-$, $-C(R'''_{c2.2}R'''_{d2.2})-$, $-C(R'''_{c2.3}R'''_{d2.3})-$, $-C(R'''_{c2.4}R'''_{d2.4})-$,
 $-C(R'''_{c2.5}R'''_{d2.5})-$, $-C(R'''_{c2.6}R'''_{d2.6})-$, $-C(R'''_{c2.7}R'''_{d2.7})-$, and $C(R'''_{c2.8}R'''_{d2.8})-$, respectively.

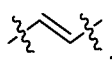
[841] In some variations, $R'''_{c2.1}$ and $R'''_{d2.1}$; $R'''_{c2.2}$ and $R'''_{d2.2}$; $R'''_{c2.3}$ and $R'''_{d2.3}$; $R'''_{c2.4}$ and $R'''_{d2.4}$; $R'''_{c2.5}$ and $R'''_{d2.5}$; $R'''_{c2.6}$ and $R'''_{d2.6}$; and $R'''_{c2.7}$ and $R'''_{d2.7}$ are as defined above, and each of $R'''_{c2.8}$ and $R'''_{d2.8}$ is H.

[842] In some variations, $R'''_{c2.1}$ and $R'''_{d2.1}$; $R'''_{c2.2}$ and $R'''_{d2.2}$; $R'''_{c2.3}$ and $R'''_{d2.3}$; $R'''_{c2.4}$ and $R'''_{d2.4}$; $R'''_{c2.5}$ and $R'''_{d2.5}$; $R'''_{c2.6}$ and $R'''_{d2.6}$; and $R'''_{c2.7}$ and $R'''_{d2.7}$ are as defined above, and each of $R'''_{c2.8}$ and $R'''_{d2.8}$ is CH_3 .

[843] In some variations, $R'''_{c2.1}$ and $R'''_{d2.1}$; $R'''_{c2.2}$ and $R'''_{d2.2}$; $R'''_{c2.3}$ and $R'''_{d2.3}$; $R'''_{c2.4}$ and $R'''_{d2.4}$; $R'''_{c2.5}$ and $R'''_{d2.5}$; $R'''_{c2.6}$ and $R'''_{d2.6}$; and $R'''_{c2.7}$ and $R'''_{d2.7}$ are as defined above, $R'''_{c2.8}$ is H, and $R'''_{d2.8}$ is CH_3 .

[844] In some variations, $R'''_{c2.1}$ and $R'''_{d2.1}$; $R'''_{c2.2}$ and $R'''_{d2.2}$; $R'''_{c2.3}$ and $R'''_{d2.3}$; $R'''_{c2.4}$ and $R'''_{d2.4}$; $R'''_{c2.5}$ and $R'''_{d2.5}$; $R'''_{c2.6}$ and $R'''_{d2.6}$; and $R'''_{c2.7}$ and $R'''_{d2.7}$ are as defined above, and $-C(R'''_{c2.8}R'''_{d2.8})-$ is .

[845] In some variations, $R'''_{c2.1}$ and $R'''_{d2.1}$; $R'''_{c2.2}$ and $R'''_{d2.2}$; $R'''_{c2.3}$ and $R'''_{d2.3}$; $R'''_{c2.4}$ and $R'''_{d2.4}$; $R'''_{c2.5}$ and $R'''_{d2.5}$; $R'''_{c2.6}$ and $R'''_{d2.6}$; and $R'''_{c2.7}$ and $R'''_{d2.7}$ are as defined above, and $-C(R'''_{c2.8}R'''_{d2.8})-$ is .

[846] In some variations, $R'''_{c2.1}$ and $R'''_{d2.1}$; $R'''_{c2.2}$ and $R'''_{d2.2}$; $R'''_{c2.3}$ and $R'''_{d2.3}$; and $R'''_{c2.4}$ and $R'''_{d2.4}$; $R'''_{c2.5}$ and $R'''_{d2.5}$; and $R'''_{c2.6}$ and $R'''_{d2.6}$ are as defined above, and $-C(R'''_{c2.7}R'''_{d2.7})-$ and $-C(R'''_{c2.8}R'''_{d2.8})-$ together are .

Variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) in which n is 1-4, 1-3, 1-2, 2-4, 2-3, 3-4, 1, 2, 3, or 4

[847] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, n is 1-4, 1-3, 1-2, 2-4, 2-3, 3-4, 1, 2, 3, or 4.

[848] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, n is 1.

[849] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) in which *n* is 1, **ring A** is substituted with halo. In some variations, the halo is F, Br, I, or Cl.

[850] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) in which *n* is 1, **ring A** is substituted with C1-C6 linear or branched alkyl (*e.g.*, C1-C6, C1-C5, C1-C4, C1-C3, C1-C2, C1, C2-C6, C2-C5, C2-C4, C2-C3, C2, C3-C6, C3-C5, C3-C4, C3, C4-C6, C4-C5, C4, C5-C6, C5, or C6 linear or branched alkyl).

[851] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, *n* is 2.

[852] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) in which *n* is 2, each of the first **ring A** and the second **ring A** is substituted with halo. In some variations, the halo is F, Br, I, or Cl.

[853] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) in which *n* is 2, each of the first **ring A** and the second **ring A** is substituted with C1-C6 linear or branched alkyl (*e.g.*, C1-C6, C1-C5, C1-C4, C1-C3, C1-C2, C1, C2-C6, C2-C5, C2-C4, C2-C3, C2, C3-C6, C3-C5, C3-C4, C3, C4-C6, C4-C5, C4, C5-C6, C5, or C6 linear or branched alkyl).

[854] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) in which *n* is 2, a first **ring A** is substituted with halo. In some variations, the halo is F, Br, I, or Cl. In some of these variations, a second **ring A** is substituted with C1-C6 linear or branched alkyl (*e.g.*, C1-C6, C1-C5, C1-C4, C1-C3, C1-C2, C1, C2-C6, C2-C5, C2-C4, C2-C3, C2, C3-C6, C3-C5, C3-C4, C3, C4-C6, C4-C5, C4, C5-C6, C5, or C6 linear or branched alkyl).

[855] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, *n* is 3.

[856] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) in which *n* is 3, each of the first **ring A**, the second **ring A**, and the third **ring A** is substituted with halo. In some variations, the halo is F, Br, I, or Cl.

[857] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) in which *n* is 3, each of the first **ring A**, the second **ring A**, and the third **ring A** is substituted with C1-C6 linear or branched alkyl (*e.g.*, C1-C6, C1-C5, C1-C4, C1-C3, C1-C2, C1, C2-C6, C2-C5, C2-C4, C2-C3, C2, C3-C6, C3-C5, C3-C4, C3, C4-C6, C4-C5, C4, C5-C6, C5, or C6 linear or branched alkyl).

[858] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) in which *n* is 3, each of a first **ring A** and a second **ring A** is substituted with halo, and a third **ring A** is substituted with C1-C6 linear or branched alkyl (*e.g.*, C1-C6, C1-C5, C1-C4, C1-C3, C1-C2, C1, C2-C6, C2-C5, C2-C4, C2-C3, C2, C3-C6, C3-C5, C3-C4, C3, C4-C6, C4-C5, C4, C5-C6, C5, or C6 linear or branched alkyl). In some variations, the halo is F, Br, I, or Cl.

[859] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) in which *n* is 3, each of a first **ring A** and a second **ring A** is substituted with C1-C6 linear or branched alkyl (*e.g.*, C1-C6, C1-C5, C1-C4, C1-C3, C1-C2, C1, C2-C6, C2-C5, C2-C4, C2-C3, C2, C3-C6, C3-C5, C3-C4, C3, C4-C6, C4-C5, C4, C5-C6, C5, or C6 linear or branched alkyl), and a third **ring A** is substituted with halo. In some variations, the halo is F, Br, I, or Cl.

[860] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, *n* is 4.

[861] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) in which *n* is 4, each of the first **ring A**, the second **ring A**, the third **ring A**, and the fourth **ring A** is substituted with halo. In some variations, the halo is F, Br, I, or Cl.

[862] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) in which *n* is 4, each of the first **ring A**, the second **ring A**, the third **ring A**, and the fourth **ring A** is substituted with C1-C6 linear or branched alkyl (*e.g.*, C1-C6, C1-C5, C1-C4, C1-C3, C1-C2, C1, C2-C6, C2-C5, C2-C4, C2-C3, C2, C3-C6, C3-C5, C3-C4, C3, C4-C6, C4-C5, C4, C5-C6, C5, or C6 linear or branched alkyl).

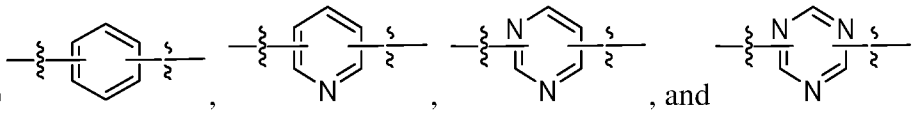
[863] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) in which *n* is 4, each of a first **ring A**, a second **ring A**, and a third **ring A** is substituted with halo, and a fourth **ring A** is substituted with C1-C6 linear or branched alkyl (*e.g.*, C1-C6, C1-C5, C1-C4, C1-C3, C1-C2, C1, C2-C6, C2-C5, C2-C4, C2-C3, C2, C3-C6, C3-C5, C3-C4, C3, C4-C6, C4-C5, C4, C5-C6, C5, or C6 linear or branched alkyl). In some variations, the halo is F, Br, I, or Cl.

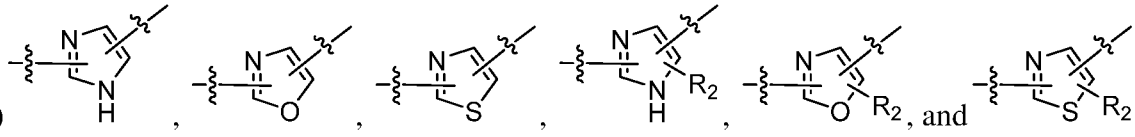
[864] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) in which *n* is 4, each of a first **ring A**, a second **ring A**, and a third **ring A** is substituted with C1-C6 linear or branched alkyl (*e.g.*, C1-C6, C1-C5, C1-C4, C1-C3, C1-C2, C1, C2-C6, C2-C5, C2-C4, C2-C3, C2, C3-C6, C3-C5, C3-C4, C3, C4-C6, C4-C5, C4, C5-C6, C5, or C6 linear or

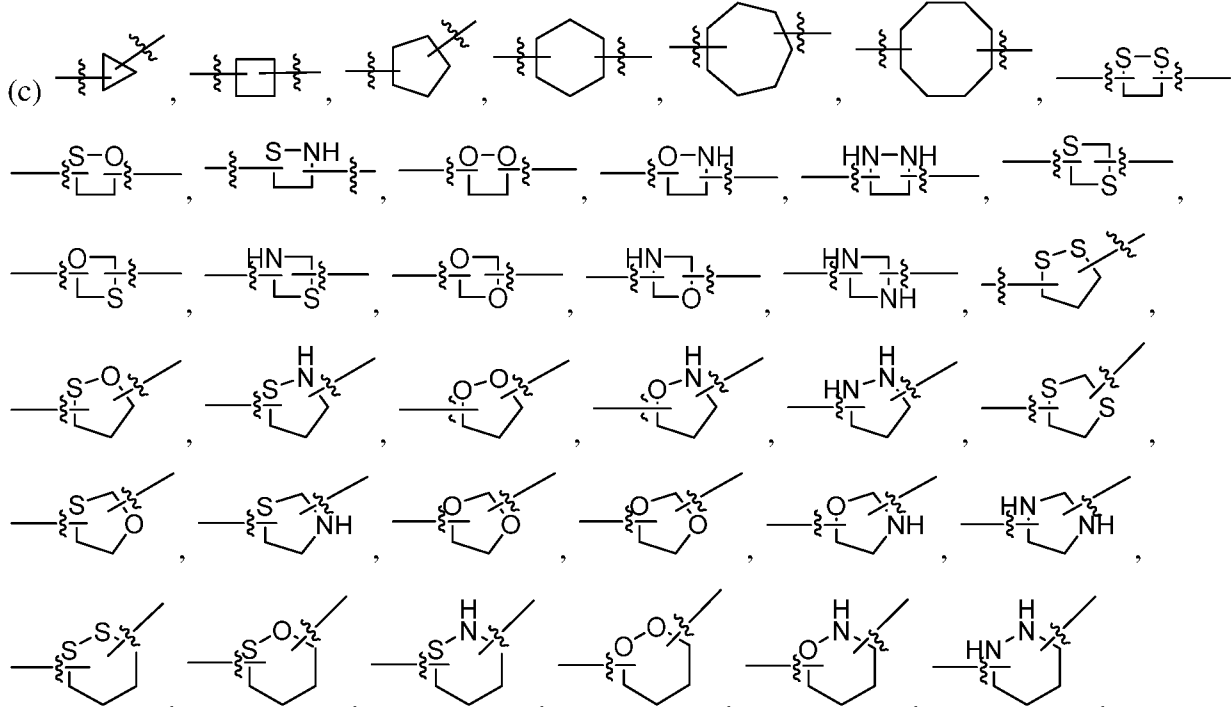
branched alkyl), and a fourth **ring A** is substituted with halo. In some variations, the halo is F, Br, I, or Cl.

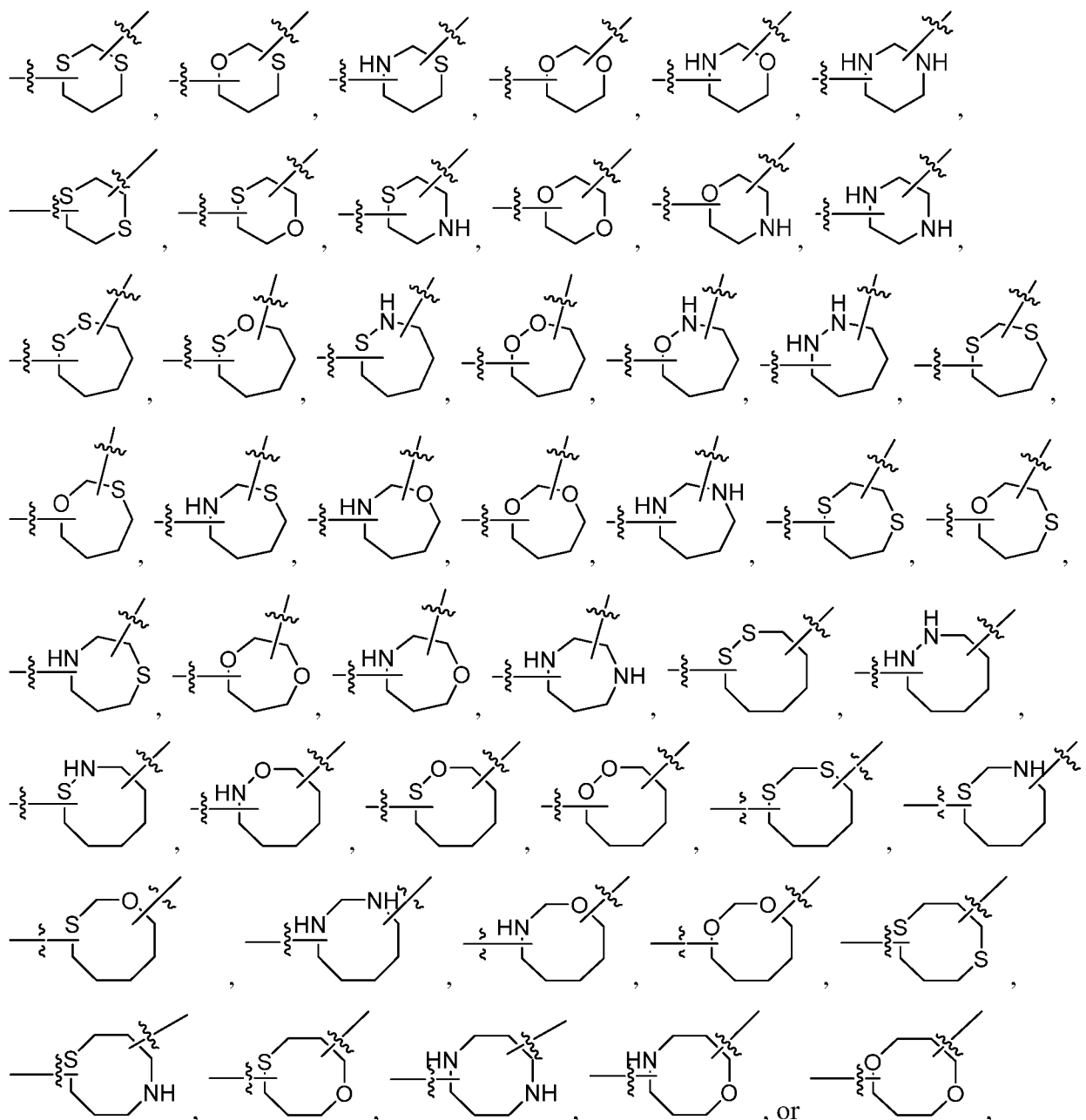
[865] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) in which *n* is 4, each of a first **ring A** and a second **ring A** is substituted with C1-C6 linear or branched alkyl (*e.g.*, C1-C6, C1-C5, C1-C4, C1-C3, C1-C2, C1, C2-C6, C2-C5, C2-C4, C2-C3, C2, C3-C6, C3-C5, C3-C4, C3, C4-C6, C4-C5, C4, C5-C6, C5, or C6 linear or branched alkyl), and third **ring A** and a fourth **ring A** is substituted with halo. In some variations, the halo is F, Br, I, or Cl.

[866] In any of the variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described above, each **ring A** independently is selected from:

(a) , optionally substituted with halo or C1-C6 linear or branched alkyl;

(b) , optionally substituted with halo or C1-C6 linear or branched alkyl; and

(c) 



optionally substituted with halo or C1-C6 linear or branched alkyl.

Variations of formulae (I), (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id)-(Id.63), (Ie)-(Ie.63), and (If)-(If.63) in which V_1 is absent

[867] In some variations of formulae (I), (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id)-(Id.63), (Ie)-(Ie.63), and (If)-(If.63), V_1 is absent. In some of variations in which V_1 is absent, V_2 is absent. In some of variations in which V_1 is absent, V_2 is $-C(R_Z)_2-$. In some of variations in which V_1 is absent, V_2 is $-C(=O)-$. In some of variations in which V_1 is absent, V_2 is $-C(=O)O-$. In some of variations in which V_1 is absent, V_2 is $-C(=O)NR_Z-$. In some of variations in which V_1 is absent, V_2 is $-NR_Z-$. In some of variations in which V_1 is absent, V_2 is $-O-$. In some of variations in which V_1 is absent, V_2 is $-S-$. In some of variations in which V_1 is absent, V_2 is $-S(=O)-$. In some

of variations in which V_1 is absent, V_2 is $-S(=O)_2-$. In some of variations in which V_1 is absent, V_2 is $-S(=O)_2O-$. In some of variations in which V_1 is absent, V_2 is $-S(=O)_2NR_Z-$.

[868] In some of the variations described above, each R_Z independently is H or C1-C6 linear or branched alkyl. In some of the variations described above, each R_Z is H. In some of the variations described above, each R_Z independently is C1-C6 linear or branched alkyl.

Variations of formulae (I), (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) in which V_2 is absent

[869] In some variations of formulae (I), (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63), V_2 is absent. In some of variations in which V_2 is absent, V_1 is $-C(R_Z)_2-$. In some of variations in which V_2 is absent, V_1 is $-C(=O)-$. In some of variations in which V_2 is absent, V_1 is $-C(=O)O-$. In some of variations in which V_2 is absent, V_1 is $-C(=O)NR_Z-$. In some of variations in which V_2 is absent, V_1 is $-NR_Z-$. In some of variations in which V_2 is absent, V_1 is $-O-$. In some of variations in which V_2 is absent, V_1 is $-S-$. In some of variations in which V_2 is absent, V_1 is $-S(=O)-$. In some of variations in which V_2 is absent, V_1 is $-S(=O)_2-$. In some of variations in which V_2 is absent, V_1 is $-S(=O)_2O-$. In some of variations in which V_2 is absent, V_1 is $-S(=O)_2NR_Z-$.

[870] In some of the variations described above, each R_Z independently is H or C1-C6 linear or branched alkyl. In some of the variations described above, each R_Z is H. In some of the variations described above, each R_Z independently is C1-C6 linear or branched alkyl.

Variations of formulae (I), (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) in which 1 each of V_1 and V_2 are present

[871] In some variations of formulae (I), (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63), V_1 is $-C(R_Z)_2-$. In some of these variations, V_2 is $-C(R_Z)_2-$. In some of these variations, V_2 is $-C(=O)-$. In some of these variations, V_2 is $-C(=O)O-$. In some of these variations, V_2 is $-C(=O)NR_Z-$. In some of these variations, V_2 is $-NR_Z-$. In some of these variations, V_2 is $-O-$. In some of these variations, V_2 is $-S-$. In some of these variations, V_2 is $-S(=O)-$. In some of these variations, V_2 is $-S(=O)_2-$. In some of these variations, V_2 is $-S(=O)_2O-$. In some of these variations, V_2 is $-S(=O)_2NR_Z-$.

[872] In some variations of formulae (I), (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63), V_1 is $-C(=O)-$. In some of these variations, V_2 is $-C(R_Z)_2-$. In some of these variations, V_2 is $-C(=O)-$. In some of these variations, V_2 is $-C(=O)O-$. In some of these variations, V_2 is $-C(=O)NR_Z-$. In some of these variations, V_2 is $-NR_Z-$. In some of these

variations, $\mathbf{V}_2$ is $\mathbf{V}_2$ is -O-. In some of these variations, $\mathbf{V}_2$ is $\mathbf{V}_2$ is -S-. In some of these variations, $\mathbf{V}_2$ is -S(=O)-. In some of these variations, $\mathbf{V}_2$ is -S(=O)₂-. In some of these variations, $\mathbf{V}_2$ is -S(=O)₂O-. In some of these variations, $\mathbf{V}_2$ is -S(=O)₂NR_Z-.

[873] In some variations of formulae (I), (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63), $\mathbf{V}_1$ is -C(=O)O- . In some of these variations, $\mathbf{V}_2$ is $\text{-C(R}_Z)_2\text{-}$. In some of these variations, $\mathbf{V}_2$ is -C(=O)- . In some of these variations, $\mathbf{V}_2$ is -C(=O)O- . In some of these variations, $\mathbf{V}_2$ is $\text{-C(=O)NR}_Z\text{-}$. In some of these variations, $\mathbf{V}_2$ is $\text{-NR}_Z\text{-}$. In some of these variations, $\mathbf{V}_2$ is -O- . In some of these variations, $\mathbf{V}_2$ is -S- . In some of these variations, $\mathbf{V}_2$ is -S(=O)- . In some of these variations, $\mathbf{V}_2$ is $\text{-S(=O)}_2\text{-}$. In some of these variations, $\mathbf{V}_2$ is $\text{-S(=O)}_2\text{O-}$. In some of these variations, $\mathbf{V}_2$ is $\text{-S(=O)}_2\text{NR}_Z\text{-}$.

[874] In some variations of formulae (I), (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63), $\mathbf{V}_1$ is $\text{-C(=O)NR}_Z\text{-}$. In some of these variations, $\mathbf{V}_2$ is $\text{-C(R}_Z)_2\text{-}$. In some of these variations, $\mathbf{V}_2$ is -C(=O)- . In some of these variations, $\mathbf{V}_2$ is -C(=O)O- . In some of these variations, $\mathbf{V}_2$ is $\text{-C(=O)NR}_Z\text{-}$. In some of these variations, $\mathbf{V}_2$ is $\text{-NR}_Z\text{-}$. In some of these variations, $\mathbf{V}_2$ is -O- . In some of these variations, $\mathbf{V}_2$ is -S- . In some of these variations, $\mathbf{V}_2$ is -S(=O)- . In some of these variations, $\mathbf{V}_2$ is $\text{-S(=O)}_2\text{-}$. In some of these variations, $\mathbf{V}_2$ is $\text{-S(=O)}_2\text{O-}$. In some of these variations, $\mathbf{V}_2$ is $\text{-S(=O)}_2\text{NR}_Z\text{-}$.

[875] In some variations of formulae (I), (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id)-Id.63), (Ie)-(Ie.63), and (If)-(If.63), $\mathbf{V}_1$ is $-\mathbf{NR}_Z-$. In some of these variations, $\mathbf{V}_2$ is $-\mathbf{C}(\mathbf{R}_Z)_2-$. In some of these variations, $\mathbf{V}_2$ is $-\mathbf{C}(=\mathbf{O})-$. In some of these variations, $\mathbf{V}_2$ is $-\mathbf{C}(=\mathbf{O})\mathbf{O}-$. In some of these variations, $\mathbf{V}_2$ is $-\mathbf{C}(=\mathbf{O})\mathbf{NR}_Z-$. In some of these variations, $\mathbf{V}_2$ is $-\mathbf{NR}_Z-$. In some of these variations, $\mathbf{V}_2$ is $\mathbf{V}_2$ is $-\mathbf{O}-$. In some of these variations, $\mathbf{V}_2$ is $\mathbf{V}_2$ is $-\mathbf{S}-$. In some of these variations, $\mathbf{V}_2$ is $-\mathbf{S}(=\mathbf{O})-$. In some of these variations, $\mathbf{V}_2$ is $-\mathbf{S}(=\mathbf{O})_2-$. In some of these variations, $\mathbf{V}_2$ is $-\mathbf{S}(=\mathbf{O})_2\mathbf{O}-$. In some of these variations, $\mathbf{V}_2$ is $-\mathbf{S}(=\mathbf{O})_2\mathbf{NR}_Z-$.

[876] In some variations of formulae (I), (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63), $\mathbf{V}_1$ is -O-. In some of these variations, $\mathbf{V}_2$ is -C($\mathbf{R}_Z$)₂-. In some of these variations, $\mathbf{V}_2$ is -C(=O)-. In some of these variations, $\mathbf{V}_2$ is -C(=O)O-. In some of these variations, $\mathbf{V}_2$ is -C(=O)NR_Z-. In some of these variations, $\mathbf{V}_2$ is -NR_Z-. In some of these variations, $\mathbf{V}_2$ is $\mathbf{V}_2$ is -O-. In some of these variations, $\mathbf{V}_2$ is $\mathbf{V}_2$ is -S-. In some of these variations, $\mathbf{V}_2$ is -S(=O)-. In some of these variations, $\mathbf{V}_2$ is -S(=O)₂-. In some of these variations, $\mathbf{V}_2$ is -S(=O)₂O-. In some of these variations, $\mathbf{V}_2$ is -S(=O)₂NR_Z -.

variations, V_2 is V_2 is -O-. In some of these variations, V_2 is V_2 is -S-. In some of these variations, V_2 is -S(=O)-. In some of these variations, V_2 is -S(=O)₂-. In some of these variations, V_2 is -S(=O)₂O-. In some of these variations, V_2 is -S(=O)₂NR_Z-.

[882] In some of the variations described above, each R_Z independently is H or C1-C6 linear or branched alkyl. In some of the variations described above, each R_Z is H. In some of the variations described above, each R_Z independently is C1-C6 linear or branched alkyl.

Variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63) in which w is 2, and variations of formulae (If)-(If.63) in which t is 2

[883] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63) in which w is 2, and in some variations of formulae (If)-(If.63) in which t is 2, a first V_2 is -C(R_Z)₂-. In some of these variations, a second V_2 is -C(R_Z)₂-. In some of these variations, a second V_2 is -C(=O)-. In some of these variations, a second V_2 is -C(=O)O-. In some of these variations, a second V_2 is -C(=O)NR_Z-. In some of these variations, a second V_2 is -NR_Z-. In some of these variations, a second V_2 is V_2 is -O-. In some of these variations, a second V_2 is V_2 is -S-. In some of these variations, a second V_2 is -S(=O)-. In some of these variations, a second V_2 is -S(=O)₂-. In some of these variations, a second V_2 is -S(=O)₂O-. In some of these variations, a second V_2 is -S(=O)₂NR_Z-.

[884] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63) in which w is 2, and in some variations of formulae (If)-(If.63) in which t is 2, a first V_2 is -C(=O)-. In some of these variations, a second V_2 is -C(R_Z)₂-. In some of these variations, a second V_2 is -C(=O)-. In some of these variations, a second V_2 is -C(=O)O-. In some of these variations, a second V_2 is -C(=O)NR_Z-. In some of these variations, a second V_2 is -NR_Z-. In some of these variations, a second V_2 is V_2 is -O-. In some of these variations, a second V_2 is V_2 is -S-. In some of these variations, a second V_2 is -S(=O)-. In some of these variations, a second V_2 is -S(=O)₂-. In some of these variations, a second V_2 is -S(=O)₂O-. In some of these variations, a second V_2 is -S(=O)₂NR_Z-.

[885] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63) in which w is 2, and in some variations of formulae (If)-(If.63) in which t is 2, a first V_2 is -C(=O)O-. In some of these variations, a second V_2 is -C(R_Z)₂-. In some of these variations, a second V_2 is -C(=O)-. In some of these variations, a second V_2 is -C(=O)O-. In some of these variations, a second V_2 is -C(=O)NR_Z-. In some of these variations, a second V_2 is -NR_Z-. In some of these variations, a second V_2 is V_2 is -O-. In some of these variations, a second V_2 is V_2 is -S-. In some of these

variations, a second V_2 is $-S(=O)-$. In some of these variations, a second V_2 is $-S(=O)_2-$. In some of these variations, a second V_2 is $-S(=O)_2O-$. In some of these variations, a second V_2 is $-S(=O)_2NR_Z-$.

[886] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63) in which w is 2, and in some variations of formulae (If)-(If.63) in which t is 2, a first V_2 is $-C(=O)NR_Z-$. In some of these variations, a second V_2 is $-C(R_Z)_2-$. In some of these variations, a second V_2 is $-C(=O)-$. In some of these variations, a second V_2 is $-C(=O)O-$. In some of these variations, a second V_2 is $-C(=O)NR_Z-$. In some of these variations, a second V_2 is $-NR_Z-$. In some of these variations, a second V_2 is V_2 is $-O-$. In some of these variations, a second V_2 is V_2 is $-S-$. In some of these variations, a second V_2 is $-S(=O)-$. In some of these variations, a second V_2 is $-S(=O)_2-$. In some of these variations, a second V_2 is $-S(=O)_2O-$. In some of these variations, a second V_2 is $-S(=O)_2NR_Z-$.

[887] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63) in which w is 2, and in some variations of formulae (If)-(If.63) in which t is 2, a first V_2 is $-NR_Z-$. In some of these variations, a second V_2 is $-C(R_Z)_2-$. In some of these variations, a second V_2 is $-C(=O)-$. In some of these variations, a second V_2 is $-C(=O)O-$. In some of these variations, a second V_2 is $-C(=O)NR_Z-$. In some of these variations, a second V_2 is $-NR_Z-$. In some of these variations, a second V_2 is V_2 is $-O-$. In some of these variations, a second V_2 is V_2 is $-S-$. In some of these variations, a second V_2 is $-S(=O)-$. In some of these variations, a second V_2 is $-S(=O)_2-$. In some of these variations, a second V_2 is $-S(=O)_2O-$. In some of these variations, a second V_2 is $-S(=O)_2NR_Z-$.

[888] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63) in which w is 2, and in some variations of formulae (If)-(If.63) in which t is 2, a first V_2 is $-O-$. In some of these variations, a second V_2 is $-C(R_Z)_2-$. In some of these variations, a second V_2 is $-C(=O)-$. In some of these variations, a second V_2 is $-C(=O)O-$. In some of these variations, a second V_2 is $-C(=O)NR_Z-$. In some of these variations, a second V_2 is $-NR_Z-$. In some of these variations, a second V_2 is V_2 is $-O-$. In some of these variations, a second V_2 is V_2 is $-S-$. In some of these variations, a second V_2 is $-S(=O)-$. In some of these variations, a second V_2 is $-S(=O)_2-$. In some of these variations, a second V_2 is $-S(=O)_2O-$. In some of these variations, a second V_2 is $-S(=O)_2NR_Z-$.

[889] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63) in which w is 2, and in some variations of formulae (If)-(If.63) in which t is 2, a first V_2 is $-S-$. In some of these

variations, a second V_2 is $-C(R_Z)_2-$. In some of these variations, a second V_2 is $-C(=O)-$. In some of these variations, a second V_2 is $-C(=O)O-$. In some of these variations, a second V_2 is $-C(=O)NR_Z-$. In some of these variations, a second V_2 is $-NR_Z-$. In some of these variations, a second V_2 is V_2 is $-O-$. In some of these variations, a second V_2 is V_2 is $-S-$. In some of these variations, a second V_2 is $-S(=O)-$. In some of these variations, a second V_2 is $-S(=O)_2-$. In some of these variations, a second V_2 is $-S(=O)_2O-$. In some of these variations, a second V_2 is $-S(=O)_2NR_Z-$.

[890] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63) in which w is 2, and in some variations of formulae (If)-(If.63) in which t is 2, a first V_2 is $-S(=O)-$. In some of these variations, a second V_2 is $-C(R_Z)_2-$. In some of these variations, a second V_2 is $-C(=O)-$. In some of these variations, a second V_2 is $-C(=O)O-$. In some of these variations, a second V_2 is $-C(=O)NR_Z-$. In some of these variations, a second V_2 is $-NR_Z-$. In some of these variations, a second V_2 is V_2 is $-O-$. In some of these variations, a second V_2 is V_2 is $-S-$. In some of these variations, a second V_2 is $-S(=O)-$. In some of these variations, a second V_2 is $-S(=O)_2-$. In some of these variations, a second V_2 is $-S(=O)_2O-$. In some of these variations, a second V_2 is $-S(=O)_2NR_Z-$.

[891] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63) in which w is 2, and in some variations of formulae (If)-(If.63) in which t is 2, a first V_2 is $-S(=O)_2-$. In some of these variations, a second V_2 is $-C(R_Z)_2-$. In some of these variations, a second V_2 is $-C(=O)-$. In some of these variations, a second V_2 is $-C(=O)O-$. In some of these variations, a second V_2 is $-C(=O)NR_Z-$. In some of these variations, a second V_2 is $-NR_Z-$. In some of these variations, a second V_2 is V_2 is $-O-$. In some of these variations, a second V_2 is V_2 is $-S-$. In some of these variations, a second V_2 is $-S(=O)-$. In some of these variations, a second V_2 is $-S(=O)_2-$. In some of these variations, a second V_2 is $-S(=O)_2O-$. In some of these variations, a second V_2 is $-S(=O)_2NR_Z-$.

[892] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63) in which w is 2, and in some variations of formulae (If)-(If.63) in which t is 2, a first V_2 is $-S(=O)_2O-$. In some of these variations, a second V_2 is $-C(R_Z)_2-$. In some of these variations, a second V_2 is $-C(=O)-$. In some of these variations, a second V_2 is $-C(=O)O-$. In some of these variations, a second V_2 is $-C(=O)NR_Z-$. In some of these variations, a second V_2 is $-NR_Z-$. In some of these variations, a second V_2 is V_2 is $-O-$. In some of these variations, a second V_2 is V_2 is $-S-$. In some of these variations, a second V_2 is $-S(=O)-$. In some of these variations, a second V_2 is $-S(=O)_2-$. In some

of these variations, a second V_2 is $-S(=O)_2O-$. In some of these variations, a second V_2 is $-S(=O)_2NR_Z-$.

[893] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63) in which w is 2, and in some variations of formulae (If)-(If.63) in which t is 2, a first V_2 is $-S(=O)_2NR_Z-$. In some of these variations, a second V_2 is $-C(R_Z)_2-$. In some of these variations, a second V_2 is $-C(=O)-$. In some of these variations, a second V_2 is $-C(=O)O-$. In some of these variations, a second V_2 is $-C(=O)NR_Z-$. In some of these variations, a second V_2 is $-NR_Z-$. In some of these variations, a second V_2 is V_2 is $-O-$. In some of these variations, a second V_2 is V_2 is $-S-$. In some of these variations, a second V_2 is $-S(=O)-$. In some of these variations, a second V_2 is $-S(=O)_2-$. In some of these variations, a second V_2 is $-S(=O)_2O-$. In some of these variations, a second V_2 is $-S(=O)_2NR_Z-$.

[894] In some of the variations described above, V_1 is $-C(=O)-$. In some of the variations described above, V_1 is $-C(=O)O-$. In some of the variations described above, V_1 is $-C(=O)NR_Z-$. In some of the variations described above, V_1 is $-NR_Z-$. In some of the variations described above, V_1 is $-O-$. In some of the variations described above, V_1 is $-S-$. In some of the variations described above, V_1 is $-S(=O)-$. In some of the variations described above, V_1 is $-S(=O)_2-$. In some of the variations described above, V_1 is $-S(=O)_2O-$. In some of the variations described above, V_1 is $-S(=O)_2NR_Z-$.

[895] In some of the variations described above, each R_Z independently is H or C1-C6 linear or branched alkyl. In some of the variations described above, each R_Z is H. In some of the variations described above, each R_Z independently is C1-C6 linear or branched alkyl.

Variations of formulae (If)-(If.63) in which t is 3

[896] In some variations of formulae (If)-(If.63) in which t is 3, a first V_2 is $-C(R_Z)_2-$. In some of these variations, a second V_2 is $-C(R_Z)_2-$. In some of these variations, a second V_2 is $-C(=O)-$. In some of these variations, a second V_2 is $-C(=O)O-$. In some of these variations, a second V_2 is $-C(=O)NR_Z-$. In some of these variations, a second V_2 is $-NR_Z-$. In some of these variations, a second V_2 is V_2 is $-O-$. In some of these variations, a second V_2 is V_2 is $-S-$. In some of these variations, a second V_2 is $-S(=O)-$. In some of these variations, a second V_2 is $-S(=O)_2-$. In some of these variations, a second V_2 is $-S(=O)_2O-$. In some of these variations, a second V_2 is $-S(=O)_2NR_Z-$. In some variations described in this paragraph, a third V_2 is $-C(R_Z)_2-$. In some variations described in this paragraph, a third V_2 is $-C(=O)-$. In some variations described in this paragraph, a third V_2 is $-C(=O)O-$. In some variations described in this paragraph, a third V_2 is

-C(=O)NR_Z-. In some variations described in this paragraph, a third V₂ is -NR_Z-. In some variations described in this paragraph, a third V₂ is V₂ is -O-. In some variations described in this paragraph, a third V₂ is V₂ is -S-. In some variations described in this paragraph, a third V₂ is -S(=O)-. In some variations described in this paragraph, a third V₂ is -S(=O)₂-. In some variations described in this paragraph, a third V₂ is -S(=O)₂O-. In some variations described in this paragraph, a third V₂ is -S(=O)₂NR_Z-.

[897] In some variations of formulae (If)-(If.63) in which *t* is 3, a first V₂ is -C(=O)-. In some of these variations, a second V₂ is -C(R_Z)₂-. In some of these variations, a second V₂ is -C(=O)-. In some of these variations, a second V₂ is -C(=O)O-. In some of these variations, a second V₂ is -C(=O)NR_Z-. In some of these variations, a second V₂ is -NR_Z-. In some of these variations, a second V₂ is V₂ is -O-. In some of these variations, a second V₂ is V₂ is -S-. In some of these variations, a second V₂ is -S(=O)-. In some of these variations, a second V₂ is -S(=O)₂-. In some of these variations, a second V₂ is -S(=O)₂O-. In some of these variations, a second V₂ is -S(=O)₂NR_Z-. In some variations described in this paragraph, a third V₂ is -C(R_Z)₂-. In some variations described in this paragraph, a third V₂ is -C(=O)-. In some variations described in this paragraph, a third V₂ is -C(=O)O-. In some variations described in this paragraph, a third V₂ is -C(=O)NR_Z-. In some variations described in this paragraph, a third V₂ is -NR_Z-. In some variations described in this paragraph, a third V₂ is V₂ is -O-. In some variations described in this paragraph, a third V₂ is V₂ is -S-. In some variations described in this paragraph, a third V₂ is -S(=O)-. In some variations described in this paragraph, a third V₂ is -S(=O)₂-. In some variations described in this paragraph, a third V₂ is -S(=O)₂O-. In some variations described in this paragraph, a third V₂ is -S(=O)₂NR_Z-.

[898] In some variations of formulae (If)-(If.63) in which *t* is 3, a first V₂ is -C(=O)O-. In some of these variations, a second V₂ is -C(R_Z)₂-. In some of these variations, a second V₂ is -C(=O)-. In some of these variations, a second V₂ is -C(=O)O-. In some of these variations, a second V₂ is -C(=O)NR_Z-. In some of these variations, a second V₂ is -NR_Z-. In some of these variations, a second V₂ is V₂ is -O-. In some of these variations, a second V₂ is V₂ is -S-. In some of these variations, a second V₂ is -S(=O)-. In some of these variations, a second V₂ is -S(=O)₂-. In some of these variations, a second V₂ is -S(=O)₂O-. In some of these variations, a second V₂ is -S(=O)₂NR_Z-. In some variations described in this paragraph, a third V₂ is -C(R_Z)₂-. In some variations described in this paragraph, a third V₂ is -C(=O)-. In some variations described in this paragraph, a third V₂ is -C(=O)O-. In some variations described in this paragraph, a third V₂ is -C(=O)NR_Z-. In some variations described in this paragraph, a third V₂ is -NR_Z-. In some variations described in this paragraph, a third V₂ is V₂ is -O-. In some variations described in this

paragraph, a third V_2 is V_2 is -S-. In some variations described in this paragraph, a third V_2 is -S(=O)-. In some variations described in this paragraph, a third V_2 is -S(=O)₂-. In some variations described in this paragraph, a third V_2 is -S(=O)₂O-. In some variations described in this paragraph, a third V_2 is -S(=O)₂NR_Z-.

[899] In some variations of formulae (If)-(If.63) in which t is 3, a first V_2 is -C(=O)NR_Z-. In some of these variations, a second V_2 is -C(R_Z)₂-. In some of these variations, a second V_2 is -C(=O)-. In some of these variations, a second V_2 is -C(=O)O-. In some of these variations, a second V_2 is -C(=O)NR_Z-. In some of these variations, a second V_2 is -NR_Z-. In some of these variations, a second V_2 is V_2 is -O-. In some of these variations, a second V_2 is V_2 is -S-. In some of these variations, a second V_2 is -S(=O)-. In some of these variations, a second V_2 is -S(=O)₂-. In some of these variations, a second V_2 is -S(=O)₂O-. In some of these variations, a second V_2 is -S(=O)₂NR_Z-. In some variations described in this paragraph, a third V_2 is -C(R_Z)₂-. In some variations described in this paragraph, a third V_2 is -C(=O)-. In some variations described in this paragraph, a third V_2 is -C(=O)O-. In some variations described in this paragraph, a third V_2 is -C(=O)NR_Z-. In some variations described in this paragraph, a third V_2 is -NR_Z-. In some variations described in this paragraph, a third V_2 is V_2 is -O-. In some variations described in this paragraph, a third V_2 is V_2 is -S-. In some variations described in this paragraph, a third V_2 is -S(=O)-. In some variations described in this paragraph, a third V_2 is -S(=O)₂-. In some variations described in this paragraph, a third V_2 is -S(=O)₂O-. In some variations described in this paragraph, a third V_2 is -S(=O)₂NR_Z-.

[900] In some variations of formulae (If)-(If.63) in which t is 3, a first V_2 is -NR_Z-. In some of these variations, a second V_2 is -C(R_Z)₂-. In some of these variations, a second V_2 is -C(=O)-. In some of these variations, a second V_2 is -C(=O)O-. In some of these variations, a second V_2 is -C(=O)NR_Z-. In some of these variations, a second V_2 is -NR_Z-. In some of these variations, a second V_2 is V_2 is -O-. In some of these variations, a second V_2 is V_2 is -S-. In some of these variations, a second V_2 is -S(=O)-. In some of these variations, a second V_2 is -S(=O)₂-. In some of these variations, a second V_2 is -S(=O)₂O-. In some of these variations, a second V_2 is -S(=O)₂NR_Z-. In some variations described in this paragraph, a third V_2 is -C(R_Z)₂-. In some variations described in this paragraph, a third V_2 is -C(=O)-. In some variations described in this paragraph, a third V_2 is -C(=O)O-. In some variations described in this paragraph, a third V_2 is -C(=O)NR_Z-. In some variations described in this paragraph, a third V_2 is -NR_Z-. In some variations described in this paragraph, a third V_2 is V_2 is -O-. In some variations described in this paragraph, a third V_2 is V_2 is -S-. In some variations described in this paragraph, a third V_2 is -S(=O)-. In some variations described in this paragraph, a third V_2 is -S(=O)₂-. In some

variations described in this paragraph, a third V_2 is $-S(=O)_2O-$. In some variations described in this paragraph, a third V_2 is $-S(=O)_2NR_Z-$.

[901] In some variations of formulae (If)-(If.63) in which t is 3, a first V_2 is $-O-$. In some of these variations, a second V_2 is $-C(R_Z)_2-$. In some of these variations, a second V_2 is $-C(=O)-$. In some of these variations, a second V_2 is $-C(=O)O-$. In some of these variations, a second V_2 is $-C(=O)NR_Z-$. In some of these variations, a second V_2 is $-NR_Z-$. In some of these variations, a second V_2 is V_2 is $-O-$. In some of these variations, a second V_2 is V_2 is $-S-$. In some of these variations, a second V_2 is $-S(=O)-$. In some of these variations, a second V_2 is $-S(=O)_2-$. In some of these variations, a second V_2 is $-S(=O)_2O-$. In some of these variations, a second V_2 is $-S(=O)_2NR_Z-$. In some variations described in this paragraph, a third V_2 is $-C(R_Z)_2-$. In some variations described in this paragraph, a third V_2 is $-C(=O)-$. In some variations described in this paragraph, a third V_2 is $-C(=O)O-$. In some variations described in this paragraph, a third V_2 is $-C(=O)NR_Z-$. In some variations described in this paragraph, a third V_2 is $-NR_Z-$. In some variations described in this paragraph, a third V_2 is V_2 is $-O-$. In some variations described in this paragraph, a third V_2 is V_2 is $-S-$. In some variations described in this paragraph, a third V_2 is $-S(=O)-$. In some variations described in this paragraph, a third V_2 is $-S(=O)_2-$. In some variations described in this paragraph, a third V_2 is $-S(=O)_2O-$. In some variations described in this paragraph, a third V_2 is $-S(=O)_2NR_Z-$.

[902] In some variations of formulae (If)-(If.63) in which t is 3, a first V_2 is $-S-$. In some of these variations, a second V_2 is $-C(R_Z)_2-$. In some of these variations, a second V_2 is $-C(=O)-$. In some of these variations, a second V_2 is $-C(=O)O-$. In some of these variations, a second V_2 is $-C(=O)NR_Z-$. In some of these variations, a second V_2 is $-NR_Z-$. In some of these variations, a second V_2 is V_2 is $-O-$. In some of these variations, a second V_2 is V_2 is $-S-$. In some of these variations, a second V_2 is $-S(=O)-$. In some of these variations, a second V_2 is $-S(=O)_2-$. In some of these variations, a second V_2 is $-S(=O)_2O-$. In some of these variations, a second V_2 is $-S(=O)_2NR_Z-$. In some variations described in this paragraph, a third V_2 is $-C(R_Z)_2-$. In some variations described in this paragraph, a third V_2 is $-C(=O)-$. In some variations described in this paragraph, a third V_2 is $-C(=O)O-$. In some variations described in this paragraph, a third V_2 is $-C(=O)NR_Z-$. In some variations described in this paragraph, a third V_2 is $-NR_Z-$. In some variations described in this paragraph, a third V_2 is V_2 is $-O-$. In some variations described in this paragraph, a third V_2 is V_2 is $-S-$. In some variations described in this paragraph, a third V_2 is $-S(=O)-$. In some variations described in this paragraph, a third V_2 is $-S(=O)_2-$. In some variations described in this paragraph, a third V_2 is $-S(=O)_2O-$. In some variations described in this paragraph, a third V_2 is $-S(=O)_2NR_Z-$.

[903] In some variations of formulae (If)-(If.63) in which t is 3, a first V_2 is $-S(=O)-$. In some of these variations, a second V_2 is $-C(R_Z)_2-$. In some of these variations, a second V_2 is $-C(=O)-$. In some of these variations, a second V_2 is $-C(=O)O-$. In some of these variations, a second V_2 is $-C(=O)NR_Z-$. In some of these variations, a second V_2 is $-NR_Z-$. In some of these variations, a second V_2 is V_2 is $-O-$. In some of these variations, a second V_2 is V_2 is $-S-$. In some of these variations, a second V_2 is $-S(=O)-$. In some of these variations, a second V_2 is $-S(=O)_2-$. In some of these variations, a second V_2 is $-S(=O)_2O-$. In some of these variations, a second V_2 is $-S(=O)_2NR_Z-$. In some variations described in this paragraph, a third V_2 is $-C(R_Z)_2-$. In some variations described in this paragraph, a third V_2 is $-C(=O)-$. In some variations described in this paragraph, a third V_2 is $-C(=O)O-$. In some variations described in this paragraph, a third V_2 is $-C(=O)NR_Z-$. In some variations described in this paragraph, a third V_2 is $-NR_Z-$. In some variations described in this paragraph, a third V_2 is V_2 is $-O-$. In some variations described in this paragraph, a third V_2 is V_2 is $-S-$. In some variations described in this paragraph, a third V_2 is $-S(=O)-$. In some variations described in this paragraph, a third V_2 is $-S(=O)_2-$. In some variations described in this paragraph, a third V_2 is $-S(=O)_2O-$. In some variations described in this paragraph, a third V_2 is $-S(=O)_2NR_Z-$.

[904] In some variations of formulae (If)-(If.63) in which t is 3, a first V_2 is $-S(=O)_2-$. In some of these variations, a second V_2 is $-C(R_Z)_2-$. In some of these variations, a second V_2 is $-C(=O)-$. In some of these variations, a second V_2 is $-C(=O)O-$. In some of these variations, a second V_2 is $-C(=O)NR_Z-$. In some of these variations, a second V_2 is $-NR_Z-$. In some of these variations, a second V_2 is V_2 is $-O-$. In some of these variations, a second V_2 is V_2 is $-S-$. In some of these variations, a second V_2 is $-S(=O)-$. In some of these variations, a second V_2 is $-S(=O)_2-$. In some of these variations, a second V_2 is $-S(=O)_2O-$. In some of these variations, a second V_2 is $-S(=O)_2NR_Z-$. In some variations described in this paragraph, a third V_2 is $-C(R_Z)_2-$. In some variations described in this paragraph, a third V_2 is $-C(=O)-$. In some variations described in this paragraph, a third V_2 is $-C(=O)O-$. In some variations described in this paragraph, a third V_2 is $-C(=O)NR_Z-$. In some variations described in this paragraph, a third V_2 is $-NR_Z-$. In some variations described in this paragraph, a third V_2 is V_2 is $-O-$. In some variations described in this paragraph, a third V_2 is V_2 is $-S-$. In some variations described in this paragraph, a third V_2 is $-S(=O)-$. In some variations described in this paragraph, a third V_2 is $-S(=O)_2-$. In some variations described in this paragraph, a third V_2 is $-S(=O)_2O-$. In some variations described in this paragraph, a third V_2 is $-S(=O)_2NR_Z-$.

[905] In some variations of formulae (If)-(If.63) in which t is 3, a first V_2 is $-S(=O)_2O-$. In some of these variations, a second V_2 is $-C(R_Z)_2-$. In some of these variations, a second V_2 is $-C(=O)-$.

In some of these variations, a second V_2 is $-C(=O)O-$. In some of these variations, a second V_2 is $-C(=O)NR_Z-$. In some of these variations, a second V_2 is $-NR_Z-$. In some of these variations, a second V_2 is V_2 is $-O-$. In some of these variations, a second V_2 is V_2 is $-S-$. In some of these variations, a second V_2 is $-S(=O)-$. In some of these variations, a second V_2 is $-S(=O)_2-$. In some of these variations, a second V_2 is $-S(=O)_2O-$. In some of these variations, a second V_2 is $-S(=O)_2NR_Z-$. In some variations described in this paragraph, a third V_2 is $-C(R_Z)_2-$. In some variations described in this paragraph, a third V_2 is $-C(=O)-$. In some variations described in this paragraph, a third V_2 is $-C(=O)O-$. In some variations described in this paragraph, a third V_2 is $-C(=O)NR_Z-$. In some variations described in this paragraph, a third V_2 is $-NR_Z-$. In some variations described in this paragraph, a third V_2 is V_2 is $-O-$. In some variations described in this paragraph, a third V_2 is V_2 is $-S-$. In some variations described in this paragraph, a third V_2 is $-S(=O)-$. In some variations described in this paragraph, a third V_2 is $-S(=O)_2-$. In some variations described in this paragraph, a third V_2 is $-S(=O)_2O-$. In some variations described in this paragraph, a third V_2 is $-S(=O)_2NR_Z-$.

[906] In some variations of formulae (If)-(If.63) in which t is 3, a first V_2 is $-S(=O)_2NR_Z-$. In some of these variations, a second V_2 is $-C(R_Z)_2-$. In some of these variations, a second V_2 is $-C(=O)-$. In some of these variations, a second V_2 is $-C(=O)O-$. In some of these variations, a second V_2 is $-C(=O)NR_Z-$. In some of these variations, a second V_2 is $-NR_Z-$. In some of these variations, a second V_2 is V_2 is $-O-$. In some of these variations, a second V_2 is V_2 is $-S-$. In some of these variations, a second V_2 is $-S(=O)-$. In some of these variations, a second V_2 is $-S(=O)_2-$. In some of these variations, a second V_2 is $-S(=O)_2O-$. In some of these variations, a second V_2 is $-S(=O)_2NR_Z-$. In some variations described in this paragraph, a third V_2 is $-C(R_Z)_2-$. In some variations described in this paragraph, a third V_2 is $-C(=O)-$. In some variations described in this paragraph, a third V_2 is $-C(=O)O-$. In some variations described in this paragraph, a third V_2 is $-C(=O)NR_Z-$. In some variations described in this paragraph, a third V_2 is $-NR_Z-$. In some variations described in this paragraph, a third V_2 is V_2 is $-O-$. In some variations described in this paragraph, a third V_2 is V_2 is $-S-$. In some variations described in this paragraph, a third V_2 is $-S(=O)-$. In some variations described in this paragraph, a third V_2 is $-S(=O)_2-$. In some variations described in this paragraph, a third V_2 is $-S(=O)_2O-$. In some variations described in this paragraph, a third V_2 is $-S(=O)_2NR_Z-$.

[907] In some of the variations described above, V_1 is $-C(R_Z)_2-$. In some of the variations described above, V_1 is $-C(=O)-$. In some of the variations described above, V_1 is $-C(=O)O-$. In some of the variations described above, V_1 is $-C(=O)NR_Z-$. In some of the variations described above, V_1 is $-NR_Z-$. In some of the variations described above, V_1 is $-O-$. In some of the

variations described above, V_1 is $-S-$. In some of the variations described above, V_1 is $-S(=O)-$. In some of the variations described above, V_1 is $-S(=O)_2-$. In some of the variations described above, V_1 is $-S(=O)_2O-$. In some of the variations described above, V_1 is $-S(=O)_2NR_Z-$. In some variations described in this paragraph, a third V_2 is $-C(R_Z)_2-$. In some variations described in this paragraph, a third V_2 is $-C(=O)-$. In some variations described in this paragraph, a third V_2 is $-C(=O)O-$. In some variations described in this paragraph, a third V_2 is $-C(=O)NR_Z-$. In some variations described in this paragraph, a third V_2 is $-NR_Z-$. In some variations described in this paragraph, a third V_2 is V_2 is $-O-$. In some variations described in this paragraph, a third V_2 is V_2 is $-S-$. In some variations described in this paragraph, a third V_2 is $-S(=O)-$. In some variations described in this paragraph, a third V_2 is $-S(=O)_2-$. In some variations described in this paragraph, a third V_2 is $-S(=O)_2O-$. In some variations described in this paragraph, a third V_2 is $-S(=O)_2NR_Z-$.

[908] In some of the variations described above, V_1 is $-C(=O)-$. In some of the variations described above, V_1 is $-C(=O)O-$. In some of the variations described above, V_1 is $-C(=O)NR_Z-$. In some of the variations described above, V_1 is $-NR_Z-$. In some of the variations described above, V_1 is $-O-$. In some of the variations described above, V_1 is $-S-$. In some of the variations described above, V_1 is $-S(=O)-$. In some of the variations described above, V_1 is $-S(=O)_2-$. In some of the variations described above, V_1 is $-S(=O)_2O-$. In some of the variations described above, V_1 is $-S(=O)_2NR_Z-$.

[909] In some of the variations described above, each R_Z independently is H or C1-C6 linear or branched alkyl. In some of the variations described above, each R_Z is H. In some of the variations described above, each R_Z independently is C1-C6 linear or branched alkyl.

Variations of X and Y in formulae (I), (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63)

[910] In some variations of formulae (I), (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63), X and Y are the same positively charged moiety. In some variations of formulae (I), (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63), X and Y are different positively charged moieties.

[911] In some variations of formulae (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63) in which w is 2, and variations of formulae (If)-(If.63) in which t is 2, each of the two Y moieties can be the same positively charged moiety or can be different positively charged moieties. In any of these

variations, **X** can be a positively charged moiety which is the same as or different than either of the two **Y** moieties.

[912] In some variations of formulae (If)-(If.63) in which *t* is e, each of the three **Y** moieties can be the same positively charged moiety or can be different positively charged moieties. In any of these variations, **X** can be a positively charged moiety which is the same as or different than any of the three **Y** moieties.

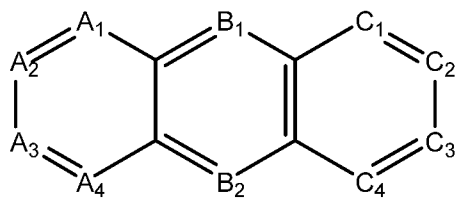
Variations of formulae (I), (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) in which at least one of X and Y is a fused bicyclic ring system

[913] In some of the variations described above, at least one of **X** and **Y** is a fused bicyclic ring system.

Variations of formulae (I), (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) in which at least one of X and Y is a fused tricyclic ring system

[914] In some of the variations described above, at least one of **X** and **Y** is a fused tricyclic ring system.

[915] In some variations of formulae (I), (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described above, at least one of **X** and **Y** is:



in which:

each A_1 , A_2 , A_3 , A_4 , C_1 , C_2 , C_3 , and C_4 is independently selected from N, CH, and $C(R_X)$; and

each B_1 and B_2 is independently selected from $C(R_X)$, N, $N(R_X)^+$, and S^+ ,

provided that at least one of B_1 and B_2 is a heteroatom and provided that at least one of A_1 , A_2 , A_3 , A_4 , B_1 , B_2 , C_1 , C_2 , C_3 , C_4 , and R_X comprises a positive charge.

[916] In some of the variations described above, B_1 and B_2 are N. In some of the variations described above, B_1 and B_2 are $N(R_X)^+$. In some of the variations described above, B_1 and B_2 are S^+ .

[917] In some of the variations described above, B_1 is $C(R_X)_2$. In some of these variations, B_2 is N. In some of the variations described above, B_2 is $C(R_X)_2$. In some of these variations, B_1 is N.

[918] In some of the variations described above, B_1 is $C(R_X)_2$ and B_2 is $N(R_X)^+$. In some of the variations described above, B_2 is $N(R_X)^+$ and B_1 is $C(R_X)_2$.

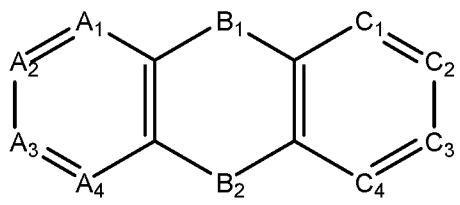
[919] In some of the variations described above, B_1 is $C(R_X)_2$ and B_2 is S^+ . In some of the variations described above, B_2 is S^+ and B_1 is $C(R_X)_2$.

[920] In some of the variations described above, B_1 is $N(R_X)$ and B_2 is $N(R_X)^+$. In some of the variations described above, B_2 is $N(R_X)$ and B_1 is $N(R_X)^+$.

[921] In some of the variations described above, B_1 is $N(R_X)$ and B_2 is S^+ . In some of the variations described above, B_2 is $N(R_X)$ and B_1 is S^+ .

[922] In some of the variations described above, B_1 is $N(R_X)^+$ and B_2 is S^+ . In some of the variations described above, B_2 is $N(R_X)^+$ and B_1 is S^+ .

[923] In some variations of formulae (I), (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described above, at least one of **X** and **Y** is:



wherein:

each A_1 , A_2 , A_3 , A_4 , C_1 , C_2 , C_3 , and C_4 is independently selected from N, CH, and $C(R_X)$;
and

each B_1 and B_2 is independently selected from $C(R_X)_2$, $N(R_X)$, O, and S,

provided that at least one of B_1 and B_2 is a heteroatom and provided that at least one of A_1 , A_2 , A_3 , A_4 , B_1 , B_2 , C_1 , C_2 , C_3 , C_4 , and R_X comprises a positive charge.

[924] In some of the variations described above, B_1 and B_2 are $N(R_X)$. In some of the variations described above, B_1 and B_2 are O. In some of the variations described above, B_1 and B_2 are S.

[925] In some of the variations described above, B_1 is $C(R_X)_2$. In some of these variations, B_2 is $N(R_X)$. In some of the variations described above, B_2 is $C(R_X)_2$. In some of these variations, B_1 is $N(R_X)$.

[926] In some of the variations described above, B_1 is $C(R_X)_2$ and B_2 is O. In some of the variations described above, B_2 is O and B_1 is $C(R_X)_2$.

[927] In some of the variations described above, B_1 is $C(R_X)_2$ and B_2 is S. In some of the variations described above, B_2 is S and B_1 is $C(R_X)_2$.

[928] In some of the variations described above, B_1 is $N(R_X)$ and B_2 is O. In some of the variations described above, B_2 is $N(R_X)$ and B_1 is O.

[929] In some of the variations described above, B_1 is $N(R_X)$ and B_2 is S. In some of the variations described above, B_2 is $N(R_X)$ and B_1 is S.

[930] In some of the variations described above, B_1 is O and B_2 is S. In some of the variations described above, B_2 is O and B_1 is S.

[931] In some of the variations described above, A_1 is N. In some of the variations described above, A_1 is CH. In some of the variations described above, A_1 is $C(R_X)$.

[932] In some of the variations described above, A_2 is N. In some of the variations described above, A_2 is CH. In some of the variations described above, A_2 is $C(R_X)$.

[933] In some of the variations described above, A_3 is N. In some of the variations described above, A_3 is CH. In some of the variations described above, A_3 is $C(R_X)$.

[934] In some of the variations described above, A_4 is N. In some of the variations described above, A_4 is CH. In some of the variations described above, A_4 is $C(R_X)$.

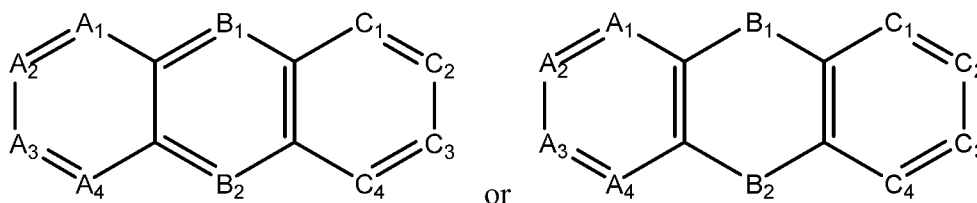
[935] In some of the variations described above, C_1 is N. In some of the variations described above, C_1 is CH. In some of the variations described above, C_1 is $C(R_X)$.

[936] In some of the variations described above, C_2 is N. In some of the variations described above, C_2 is CH. In some of the variations described above, C_2 is $C(R_X)$.

[937] In some of the variations described above, C_3 is N. In some of the variations described above, C_3 is CH. In some of the variations described above, C_3 is $C(R_X)$.

[938] In some of the variations described above, C_4 is N. In some of the variations described above, C_4 is CH. In some of the variations described above, C_4 is $C(R_X)$.

[939] Examples of compounds in which at least one of **X** and **Y** is:



are provided in the Tables, below.

[940] In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described above, R_{X1} is **R**. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described above, R_{X1} is $-NH_2$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described above, R_{X1} is $-NHR$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described above, R_{X1} is $-NR_2$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described above, R_{X1} is $-N(R)_3^+$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described above, R_{X1} is $-NHCOR$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described above, R_{X1} is $-NO_2$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described above, R_{X1} is $-OH$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described above, R_{X1} is $-OR$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described above, R_{X1} is halo. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described above, R_{X1} is C1-C6 perhaloalkyl. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described above, R_{X1} is $-CN$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described above, R_{X1} is $-SH$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described above, R_{X1} is $-SR$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described above, R_{X1} is $-SO_2H$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described above, R_{X1} is $-SO_3H$. In some

[941] In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X2}** is **R**. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X2}** is -NH₂. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X2}** is -NHR. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X2}** is -NR₂. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X2}** is -N(R)₃⁺. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X2}** is -NHCOR. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X2}** is -NO₂. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X2}** is -OH. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X2}** is -OR. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X2}** is halo. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X2}** is C1-C6 perhaloalkyl. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X2}** is -CN. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X2}** is -SH. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X2}** is -SR. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X2}** is -SO₂H. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X2}** is -SO₃H. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X2}** is -S(=O)(R')R''.

[1942] In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, $\mathbf{R_{X3}}$ is $\mathbf{R}$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, $\mathbf{R_{X3}}$ is $-\text{NH}_2$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, $\mathbf{R_{X3}}$ is $-\text{NHR}$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, $\mathbf{R_{X3}}$ is $-\text{NR}_2$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, $\mathbf{R_{X3}}$ is $-\text{N}(\mathbf{R})_3^+$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, $\mathbf{R_{X3}}$ is $-\text{NHCOR}$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, $\mathbf{R_{X3}}$ is $-\text{NO}_2$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, $\mathbf{R_{X3}}$ is $-\text{OH}$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, $\mathbf{R_{X3}}$ is $-\text{OR}$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, $\mathbf{R_{X3}}$ is halo. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, $\mathbf{R_{X3}}$ is C1-C6 perhaloalkyl. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, $\mathbf{R_{X3}}$ is $-\text{CN}$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, $\mathbf{R_{X3}}$ is $-\text{SH}$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, $\mathbf{R_{X3}}$ is $-\text{SR}$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, $\mathbf{R_{X3}}$ is $-\text{SO}_2\text{H}$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, $\mathbf{R_{X3}}$ is $-\text{SO}_3\text{H}$. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, $\mathbf{R_{X3}}$ is $-\text{C}(=\text{O})\text{R}$.

[1943] In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X4}** is **R**. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X4}** is -NH₂. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X4}** is -NHR. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X4}** is -NR₂. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X4}** is -N(R)₃⁺. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X4}** is -NHCOR. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X4}** is -NO₂. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X4}** is -OH. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X4}** is -OR. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X4}** is halo. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X4}** is C1-C6 perhaloalkyl. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X4}** is -CN. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X4}** is -SH. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X4}** is -SR. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X4}** is -SO₂H. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X4}** is -SO₃H. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X4}** is -S(=O)(R')₂.

[1944] In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X5}** is **R**. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X5}** is -NH₂. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X5}** is -NHR. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X5}** is -NR₂. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X5}** is -N(R)₃⁺. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X5}** is -NHCOR. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X5}** is -NO₂. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X5}** is -OH. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X5}** is -OR. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X5}** is halo. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X5}** is C1-C6 perhaloalkyl. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X5}** is -CN. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X5}** is -SH. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X5}** is -SR. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X5}** is -SO₂H. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X5}** is -SO₃H. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X5}** is -S(=O)(R')₂.

[1945] In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X6}** is **R**. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X6}** is -NH₂. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X6}** is -NHR. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X6}** is -NR₂. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X6}** is -N(R)₃⁺. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X6}** is -NHCOR. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X6}** is -NO₂. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X6}** is -OH. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X6}** is -OR. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X6}** is halo. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X6}** is C1-C6 perhaloalkyl. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X6}** is -CN. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X6}** is -SH. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X6}** is -SR. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X6}** is -SO₂H. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X6}** is -SO₃H. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{X6}** is -S(=O)(R')₂.

[illegible]

(If.63) described above, **R_{Y1}** is **–CHO**. In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id-Id.63), (Ie)-(Ie.63), and (If)-(If.63) described above, **R_{Y1}** is **–COR**.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

In some variations of formulae (Ia)-(Ia.63), (Ib)-(Ib.63), (Ic)-(Ic.63), (Id)-(Id.63), (Ie)-(Ie.63), and (If)-(If.63) described in the paragraphs above, **R_{Y6}** is **-COR**.

[952] In some of the embodiments described above, **R** is C1-C6 linear or branched alkyl.

[953] In some of the embodiments described above, **R** is C3-C8 cycloalkyl.

[954] In some of the embodiments described above, **R** is C2-C6 linear or branched alkenyl.

[955] In some of the embodiments described above, **R** is C2-C6 linear or branched alkynyl.

[956] In some of the embodiments described above, **R** is C6-C10 aryl.

[957] In some of the embodiments described above, **R** is C5-C10 heteroaryl.

[958] Examples of compounds that fall within formula (I) are shown in Tables A, B, and D.

Table A.

Cpd. No.	Structure
A1	
bA2	
A3	

Cpd. No.	Structure
A4	
A5	
A6	
A7	
A8	
A9	
A10	

Cpd. No.	Structure
A11	
A12	
A13	
A14	
A15	
A16	
A17	

Cpd. No.	Structure
A18	
A19	
A20	
A21	
A22	
A23	
A24	
A25	

Cpd. No.	Structure
A26	
A27	
A28	
A29	
A30	
A31	

Cpd. No.	Structure
A32	
A33	
A34	
A35	
A36	
A37	

Cpd. No.	Structure
A38	
A39	
A40	
A41	
A42	
A43	
A44	

Cpd. No.	Structure
A45	
A46	
A47	
A48	
A49	

Cpd. No.	Structure
A50	
A51	
A52	
A53	
A54	
A55	

Cpd. No.	Structure
A56	
A57	
A58	

Table B.

Cpd. No.	Structure
B1	
B2	

Cpd. No.	Structure
B3	
B4	
B5	
B6	
B7	
B8	

Cpd. No.	Structure
B9	
B10	
B11	
B12	
B13	
B14	

Cpd. No.	Structure
B15	
B16	
B17	
B18	
B19	
B20	
B21	

Cpd. No.	Structure
B22	
B23	
B24	
B25	
B26	
B27	

Cpd. No.	Structure
B28	
B29	
B30	
B31	
B32	

Cpd. No.	Structure
B33	
B34	
B35	
B36	
B37	
B38	

Cpd. No.	Structure
B39	
B40	
B41	
B42	
B43	
B44	

Cpd. No.	Structure
B45	
B46	
B47	
B48	
B49	
B50	
B51	

Cpd. No.	Structure
B52	
B53	
B54	
B55	
B56	
B57	

Cpd. No.	Structure
B58	

Table C.

Cmp d No.	Structure
4	
20	

Table D

Cpd No.	Structure
D1	
D2	
D3	

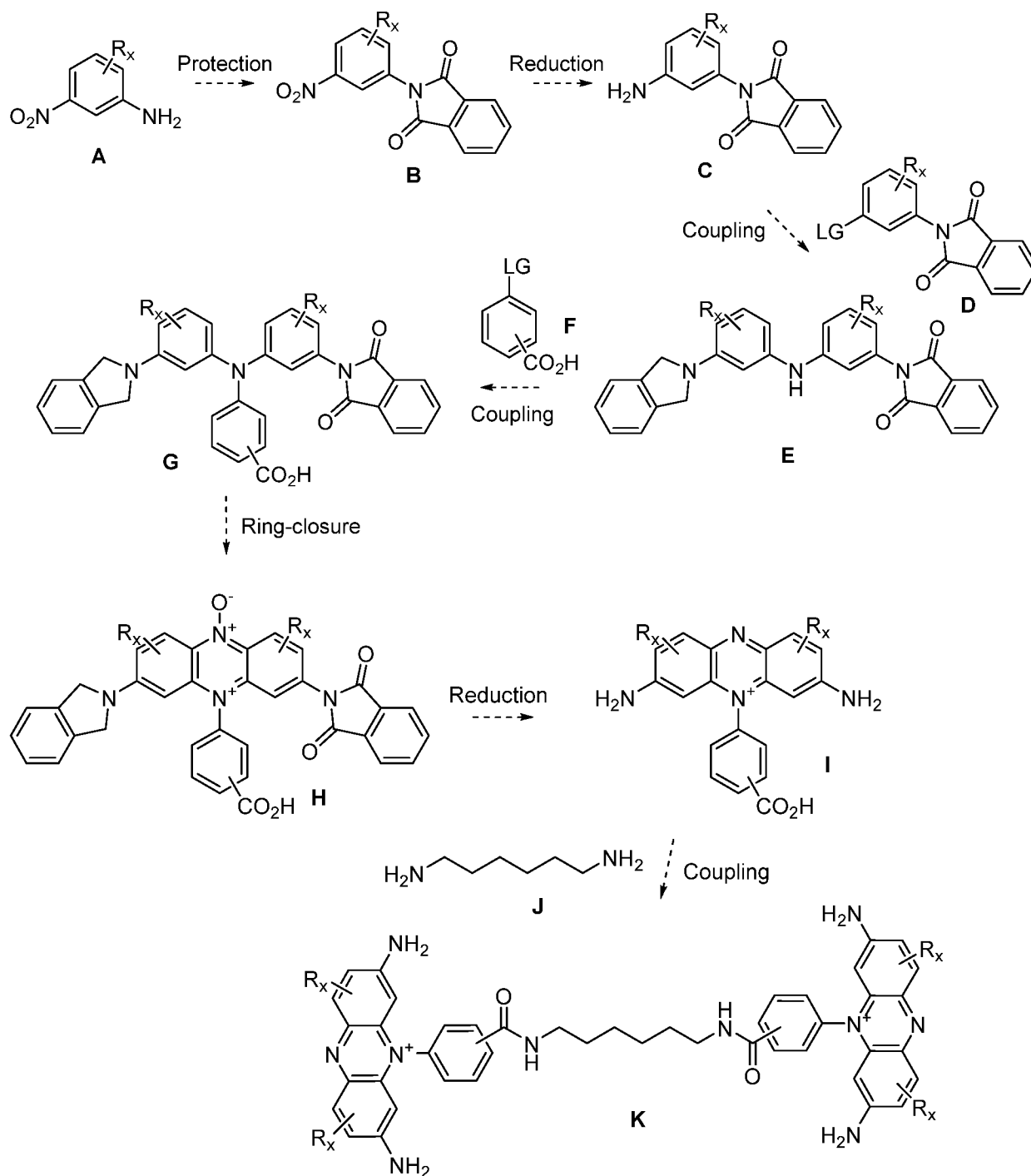
[959] The following examples illustrate but do not limit the scope of the disclosure set forth above.

EXAMPLES

EXAMPLE 1. Schematic synthesis plan for preparing a compound comprising two positively charged moieties

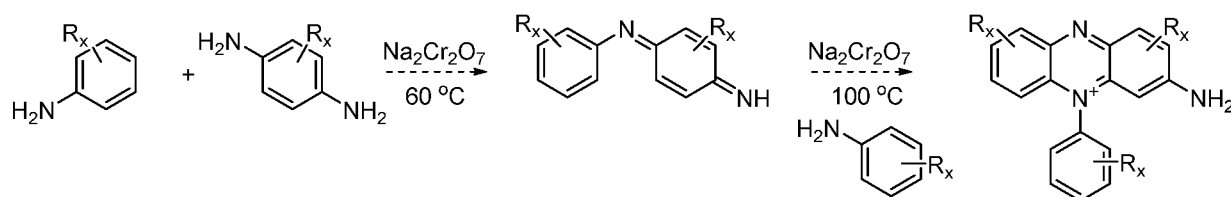
[960] Compounds presented herein can each be prepared using methods known to those skilled in the art. This example provides a synthesis plan for assembling a positively charged dimer utilizing starting materials appropriately functionalized with varying R_x . Here, protection of appropriately functionalized nitroaniline **A** to give the succinimide **B** is followed by reduction of the nitro group to its amine **C** allows coupling with the electrophile **D** bearing an appropriate leaving group (LG), such as halo, to give aniline **E**. Further coupling with functionalized electrophile **F** provides the benzoic acid intermediate **G**. Oxidative ring closure using sodium nitrite yields nitroso compound **H** which, after reduction provides the tricyclic cationic

compound **I**. Coupling of the acid moiety with a variety of amines such as, for example diamine **J**, yields the final bis-amido product **K**. A range of analogs can be prepared using this route based on, for example, varying R_x ; the choice of position of $-NH_2$ and $-NO_2$ in **A**; the choice of position of LG and the amido moiety in **D**; choice of functionality in **F** including non-aromatic electrophiles, and finally the choice of functionalized coupling partner **J**. Those skilled in the art will be familiar with the protection, reduction, ring-closure and coupling methods presented herein.

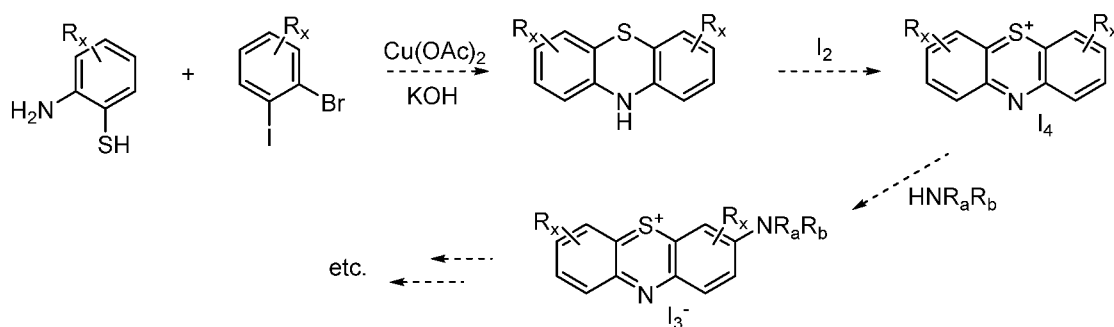


EXAMPLE 2. Methods for preparing X and Y moieties

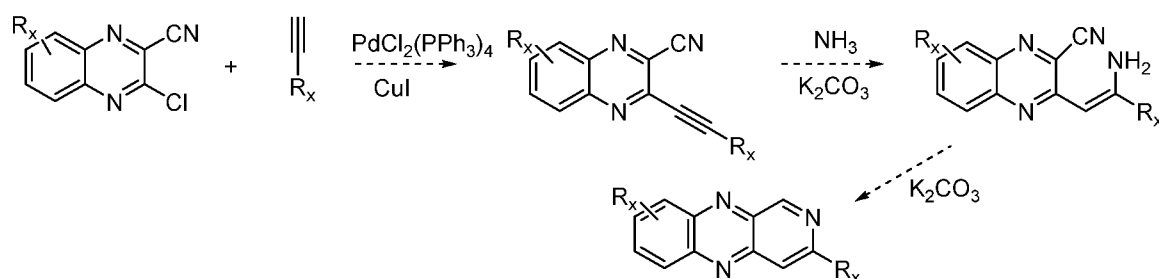
[961] This example provides a schematic synthesis plan for providing various positively charged moieties **X** and **Y**. A choice of both the appropriate functionality **R_x**, and also varying the position of amino groups, will provide access to a range of positively charged **X** and **Y** moieties, as exemplified herein.



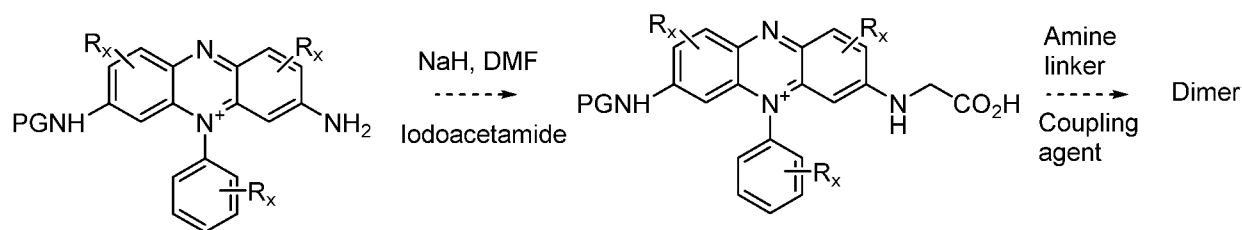
[962] Alternative positively charged **X** and **Y** moieties bearing differing **B₁** and **B₂** substituents can be envisioned from appropriate starting materials, for example as presented. Continual functionalization of the positively charged moiety is possible using methods known to those skilled in the art.



[963] Routes to positively charged **X** and **Y** moieties bearing differing **A₁** to **A₄** or **C₁** to **C₄** ring heteroatoms can be envisioned from appropriate starting materials, for example as presented.

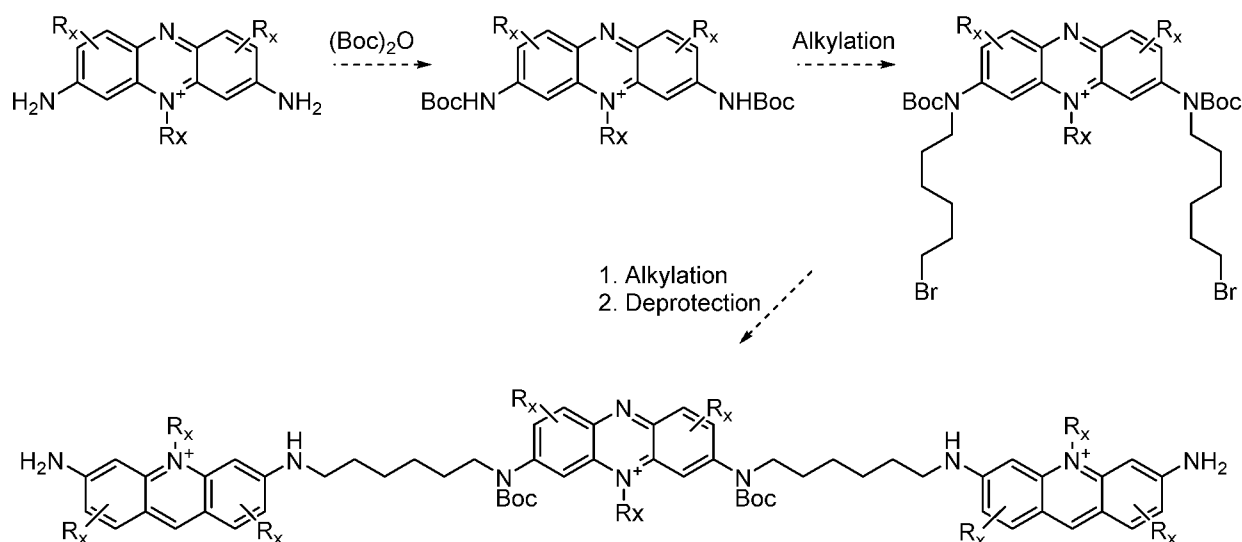
**EXAMPLE 3. Examples of linking positively charged moieties using diamino linkers**

[964] Positively charged moieties can be linked using acetamido groups through diamino linkers, as illustrated below. Appropriately protected amines (PG = protecting group) allow for regioselective coupling positions. The choice of amine linker provides for a range of linked dimers.



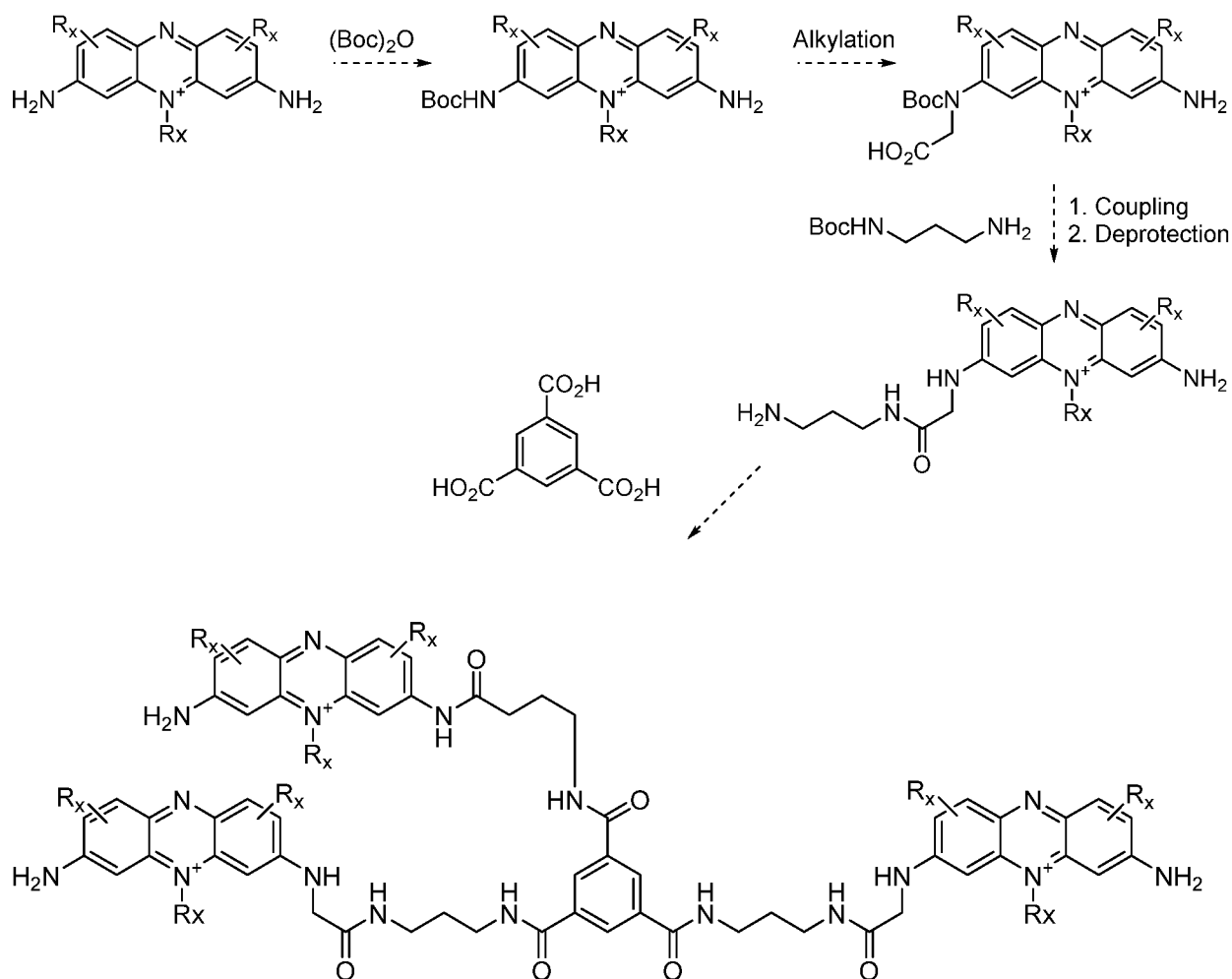
EXAMPLE 4. Preparation of Linear Positively Charged Multimer Species

[965] Positively charged species can be linked linearly using the scheme below, which illustrates preparation of a linear trimer comprising positively charged moieties. The same process can be repeated as desired to prepare a positively charged multimer comprising *e.g.*, 4, 5, or 6, positively charged moieties. The choice of both protecting group and Rx allows for a range of multiple linked products.

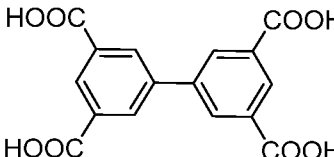
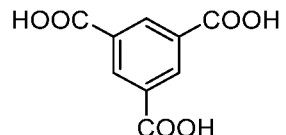


EXAMPLE 5. Preparation of Branched Positively Charged Multimer Species

[966] Positively charged species can be linked to form branched multimers using the scheme below, which illustrates preparation of a branched trimer comprising safranin-O moieties. The same process can be repeated as desired to prepare a positively charged multimer comprising, *e.g.*, 4, or 5 positively charged moieties.



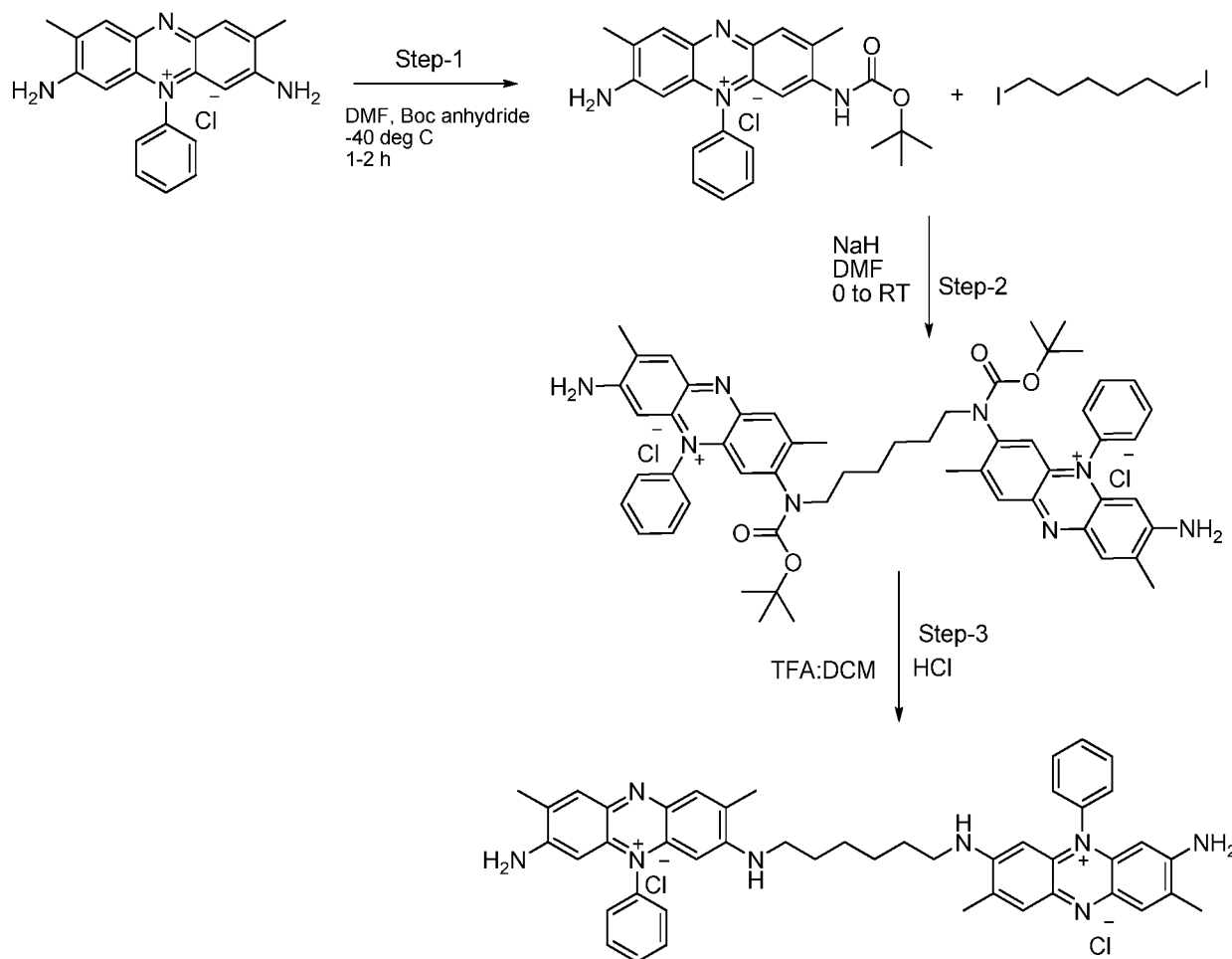
[967] Tetramers can be prepared using a similar scheme and, for example, biphenyl-3,3',5,5'-

tetracarboxylic acid, , instead of  as used in the scheme above. Higher multimers can be prepared similarly, using the appropriate polycarboxylate linker.

Representative Synthetic Examples

[968] **Examples 6 to 19** provide representative examples of routes to positively charged dimers, which those skilled in the art can adapt accordingly to generate compounds presented in Tables A, B, C, and D, as well as analogs thereof.

EXAMPLE 6. Synthesis of 7,7'-(hexane-1,6-diylbis(azanediyl))bis(3-amino-2,8-dimethyl-5-phenylphenazin-5-ium) chloride



Step-1: Synthesis of 3-amino-7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride

[969] To a solution of Safranin-O (5.2 g, 14.8 mmol) in DMF (50 mL), cooled to -40 °C, was added sodium hydride (1.18 g, 29.5 mmol) and the reaction mass was stirred at the same temperature for 1h. Boc anhydride (2.91 g, 13.97 mmol) was added at the same temperature and the reaction mass was stirred at the same temperature for another 1h. The progress of the reaction was monitored by LCMS and TLC (System: 10% MeOH in DCM). The reaction was quenched by adding water (20 mL) and the solid obtained was filtered and purified by column chromatography (silica gel 100-200 mesh, eluent system-10 % MeOH:DCM) to obtain 3-amino-7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride (1 g).

Step-2: Synthesis of tert-butyl N-(8-amino-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl)-N-[6-[(8-amino-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl)-tert-butoxycarbonylamino]hexyl]carbamate dichloride

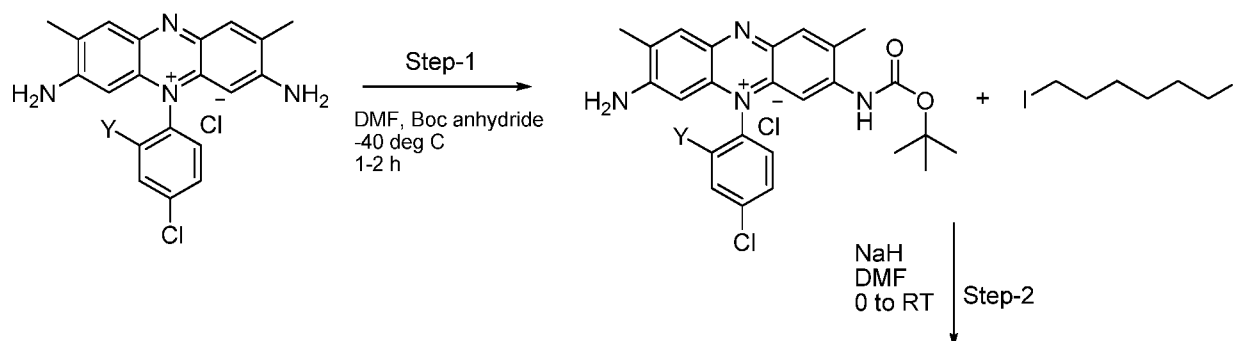
[970] To a solution of 3-amino-7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride (225 mg, 0.5 mmol) in DMF (2.5 mL), cooled to -30 °C, was added sodium hydride (40 mg, 1.0 mmol) and the reaction mass was stirred at the same temperature for 1h. 1,6-Diiodohexane (85 mg, 0.25 mmol) was added and the reaction was stirred at the same temperature for 2 min and at 0 ° for 20 min. Additional 1,6-diiodohexane (33 mg, 0.097 mmol) was added and the reaction mixture was stirred at RT for 5 min. The reaction mixture was monitored by LCMS. After detection of product, the reaction was quenched with water (5 mL). The solid product obtained was filtered, dissolved in 20% MeOH/DCM solution (20 mL) and concentrated under reduced pressure to get 100 mg crude product, which was purified by reverse phase HPLC to get pure tert-butyl N-(8-amino-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl)-N-[6-[(8-amino-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl)-tert-butoxycarbonylamino]hexyl]carbamate dichloride (6 mg.)

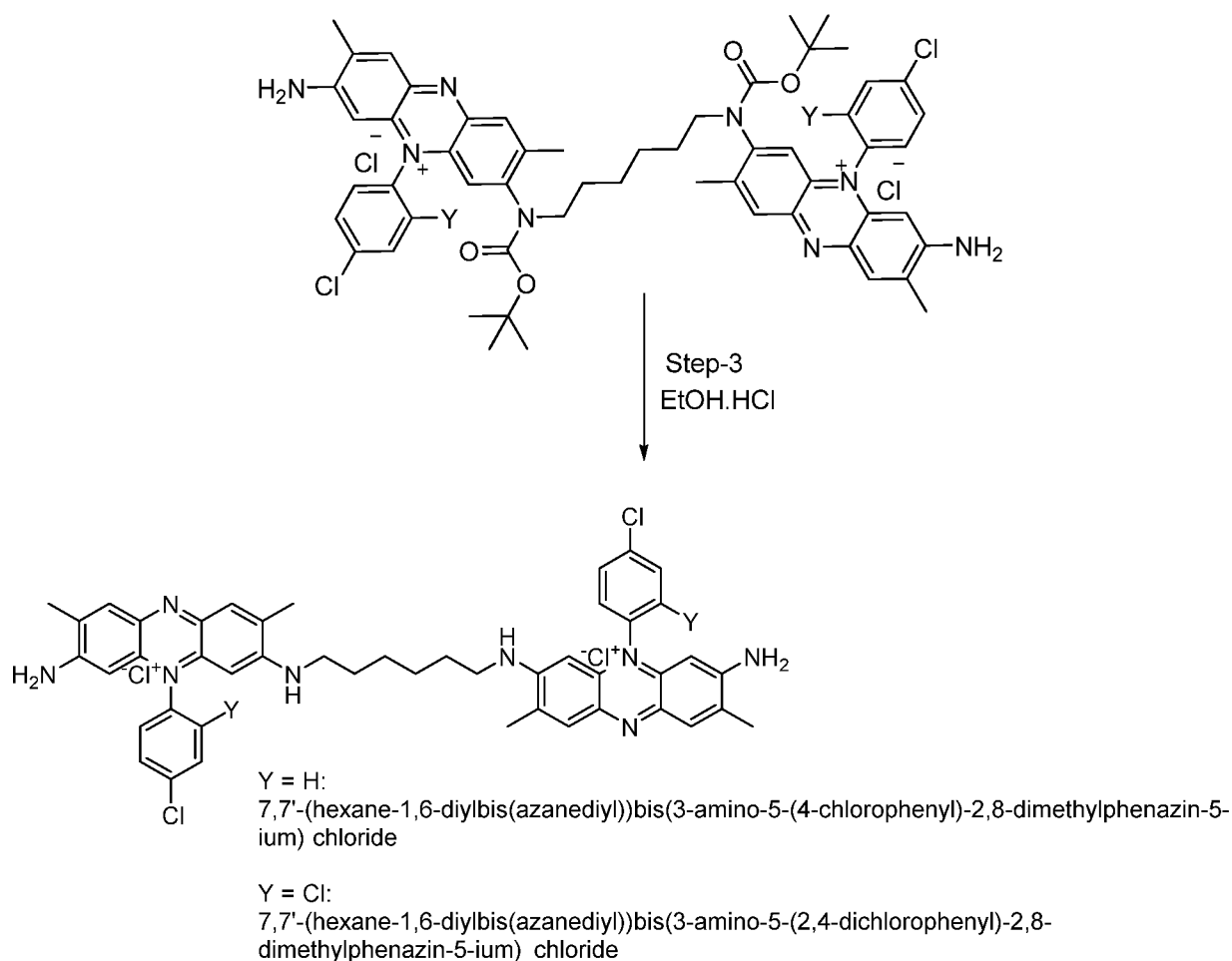
Step-3: Synthesis of 7,7'-(hexane-1,6-diylbis(azanediyl))bis(3-amino-2,8-dimethyl-5-phenylphenazin-5-ium) chloride.

[971] 7,7'-(2,2,15,15-Tetramethyl-4,13-dioxo-3,14-dioxo-5,12-diazahexadecane-5,12-diyl)bis(3-amino-2,8-dimethyl-5-phenylphenazin-5-ium) chloride (5 mg, 0.13 mmol) was dissolved in DCM (1 mL). Trifluoroacetic acid (1 mL) was added and the reaction was stirred at RT for 2h. The desired product was detected by LCMS and NMR. The reaction mixture was concentrated under vacuum to obtain the desired product, which was triturated with diethyl ether and pentane. ¹HNMR (CD₃OD): δ (ppm): 7.90-7.70 (m, 10H), 7.55-7.50 (m, 4H), 6.05 (s, 2H), 5.73 (s, 2H), 3.05 (m, 4H), 2.4 (s, 6H), 2.35 (s, 6H), 1.55-1.42 (m, 6H), 1.22-1.15 (m, 6H). LCMS: 740(M⁺) and 370 (half fragment).

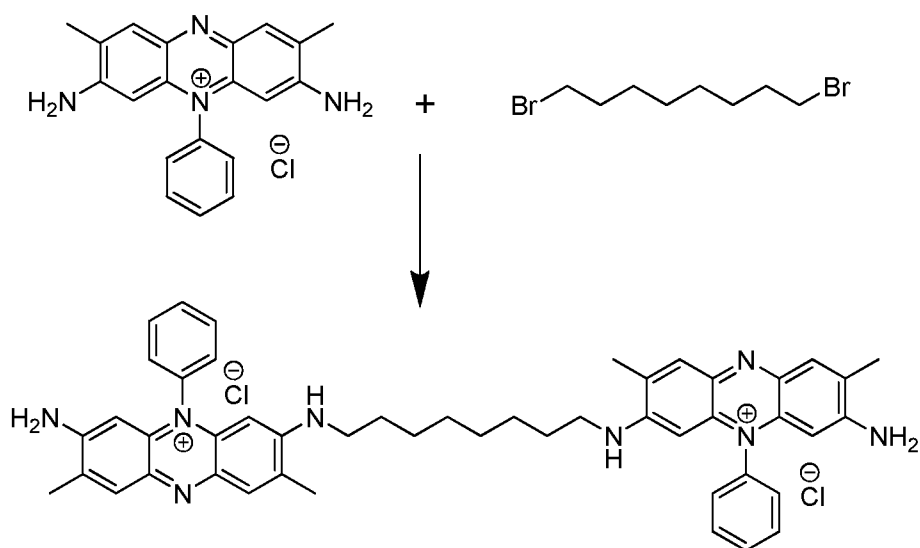
EXAMPLE 7. Synthesis of 7,7'-(hexane-1,6-diylbis(azanediyl))bis(3-amino-5-(4-chlorophenyl)-2,8-dimethylphenazin-5-ium) chloride and 7,7'-(hexane-1,6-diylbis(azanediyl))bis(3-amino-5-(2,4-dichlorophenyl)-2,8-dimethylphenazin-5-ium) chloride.

[972] This example provides a synthesis route to functionalized halophenyl derivatives. Appropriate starting materials can be utilized from the method presented in Example 6.





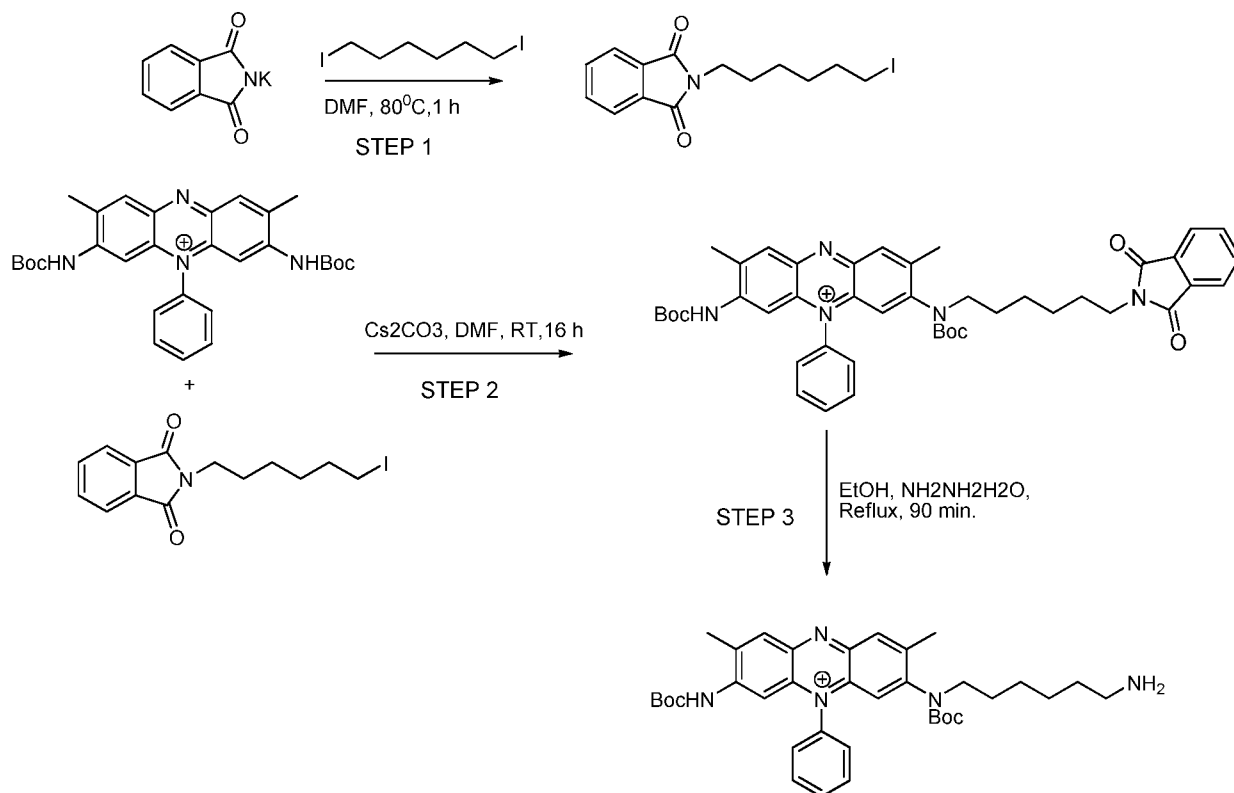
EXAMPLE 8. Synthesis of 7,7'-(octane-1,8-diylbis(azanediyl))bis(3-amino-2,8-dimethyl-5-phenylphenazin-5-ium) chloride

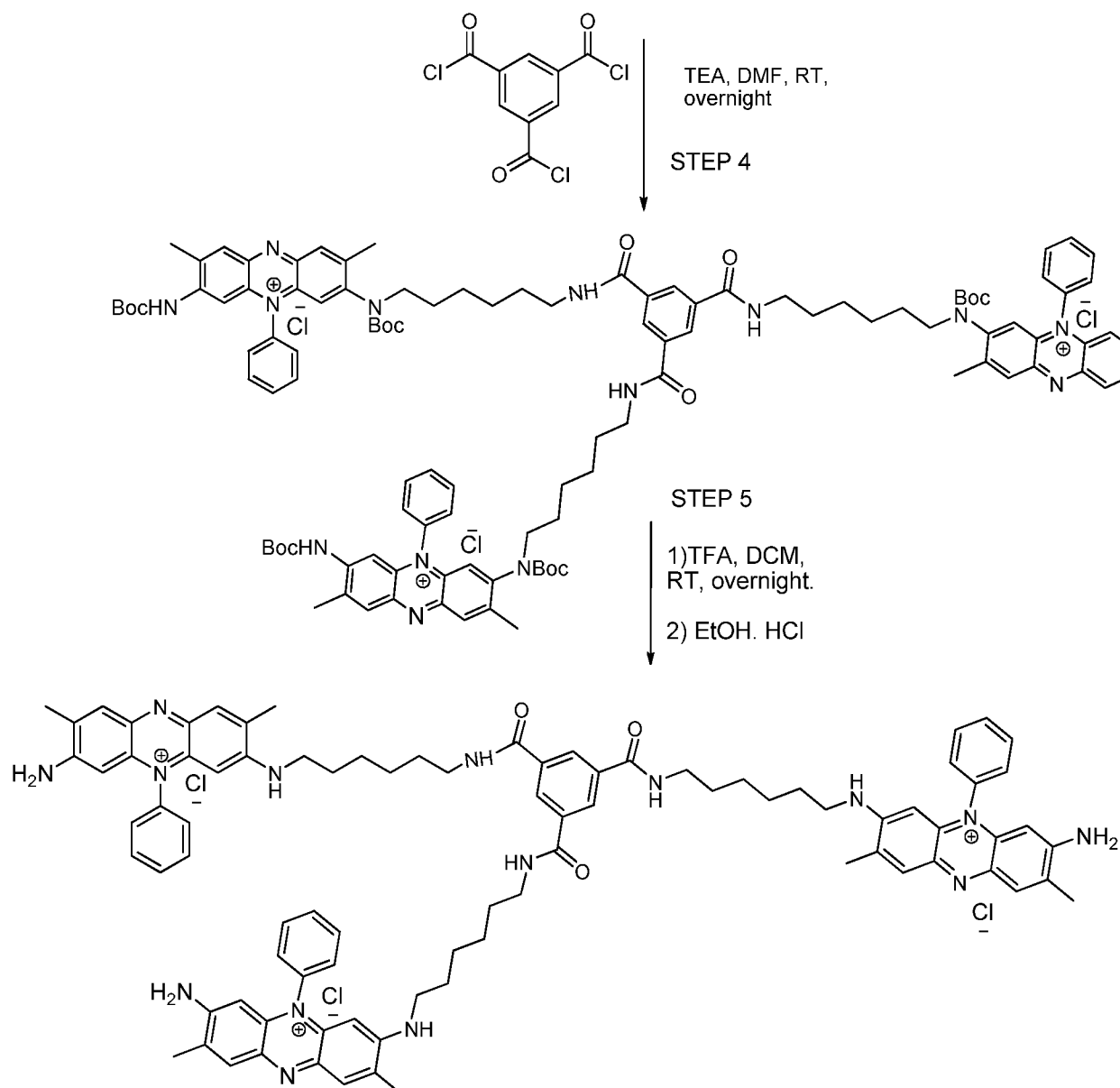


[973] To a stirred solution of Safranin-O (1.05 g, 3.0 mmol) in 15 mL of N,N-dimethylacetamide was added potassium carbonate (0.55 g, 4.0 mmol) and stirred at RT for 15 min. 1,8-Dibromooctane (272 mg, 1.0 mmol) was then added dropwise into the reaction mixture followed by the addition of potassium iodide (332 mg, 2.0 mmol). The reaction mixture was then

stirred at 60 °C for 24h under nitrogen. The reaction mixture was then allowed to cool to RT, 20 mL water was added and the crude reaction mixture was lyophilized. The mixture was then purified by column chromatography (silica gel, 100-200 mesh, 0-10% MeOH in DCM). The product obtained by column chromatography was re-purified by HPLC to afford the desired product as a brown solid. ¹H NMR (DMSO-d₆): δ (ppm): 7.90-7.75 (m, 12H), 7.65-7.55 (m, 7H), 6.0 (s, 2H), 5.55 (s, 2H), 2.98 (m, 4H), 2.30 (s, 12 H), 1.35 (m, 4H), 1.05 (bs, 8H). ¹HNMR (CD₃OD) δ (ppm): 7.90-7.70 (m, 10H), 7.55-7.50 (m, 4H), 6.05 (s, 2H), 5.73 (s, 2H), 3.05 (m, 4H), 2.4 (s, 6H), 2.35 (s, 6H), 1.55-1.42 (m, 6H), 1.22-1.15 (m, 6H). LCMS: 740 (M⁺) and 370 (half fragment).

EXAMPLE 9. Synthesis of 3-amino-7-[(6-{[3,5-bis({6-[(7-amino-2,8-dimethyl-5-phenyl-5λ⁵,10-phenazin-5-ylum-3-yl)amino]hexyl)carbamoyl]phenyl}formamido)hexyl)amino]-2,8-dimethyl-5-phenyl-5λ⁵,10-phenazin-5-ylum





Step-1: Synthesis of 2-(6-iodohexyl)isoindoline-1,3-dione

[974] To a suspension of potassium phthalamide (700 mg, 3.7 mmol) in DMF (30 mL) was added 1,6-diiodohexane (3.83 g, 11.33 mmol) and the reaction mass was heated at 80 °C for 1 h. (The reaction mass became clear on heating). The reaction mixture was cooled to RT, diluted with diethyl ether (100 mL) and water (100 mL), the organic layers were separated, and the aqueous layer was again extracted with diethyl ether (2x100 mL). The combined organic layer was washed with water (200 mL) and saturated brine solution (200 mL). The organic layer was dried over anhydrous sodium sulfate and concentrated under reduced pressure to obtain the product, which was purified by column chromatography (silica gel: 100-200 mesh; Eluent: 10 % ethyl acetate in hexane) to obtain pure product as white solid (2.1 g).

Step-2: Synthesis of tert-butyl N-[8-(tert-butoxycarbonylamino)-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl]-N-[6-(1,3-dioxoisindolin-2-yl)hexyl]carbamate

[975] To a solution of 3,7-bis(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium (500 mg, 0.90 mmol) in DMF (5 mL) was added cesium carbonate (1.48 g, 4.54 mmol) and the mixture stirred at RT for 10 min. 2-(6-Iodoethyl)isindoline-1,3-dione (422 mg, 1.18 mmol) was added and the reaction mass was stirred at RT overnight. The reaction was monitored by LCMS and TLC. The reaction mass was diluted with EtOAc (25 mL) and water (25 mL), and the layers were separated. The aqueous layer was again extracted with EtOAc (2x25 mL). The combined organic layer was washed with water (2x100 mL), and saturated brine solution (200 mL), then dried over anhydrous sodium sulfate and concentrated under reduced pressure to obtain the product. This was purified by column chromatography by using neutral alumina and an eluent system of 0 to 2% Methanol in DCM) to obtain pure product (200 mg.)

Step-3: Synthesis of tert-butyl N-(6-aminoethyl)-N-[8-(tert-butoxycarbonylamino)-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl]carbamate

[976] To a solution of 3-(tert-butoxycarbonyl(6-(1,3-dioxoisindolin-2-yl)ethyl)amino)-7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium (800 mg, 1.04 mmol) in ethanol (40 mL) was added hydrazine hydrate monohydrate (1.072 g, 20.8 mmol) and the reaction mixture was heated to reflux for 90 min. The reaction was monitored by TLC and LCMS. The solvent was evaporated under reduced pressure to dryness. The residue was dissolved in diethyl ether (150 mL) and filtered, the filtrate was concentrated under reduced pressure to obtain the crude product which was purified by column chromatography using neutral alumina (Eluent System: 0 to 3% MeOH in DCM) to obtain pure product (410 mg).

Step-4: Synthesis of tert-butyl N-[6-[[3,5-bis[6-[tert-butoxycarbonyl]-8-(tert-butoxycarbonylamino)-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl]amino]hexylcarbamoyl]benzoyl]amino]hexyl]-N-[8-(tert-butoxycarbonylamino)-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl]carbamate trichloride

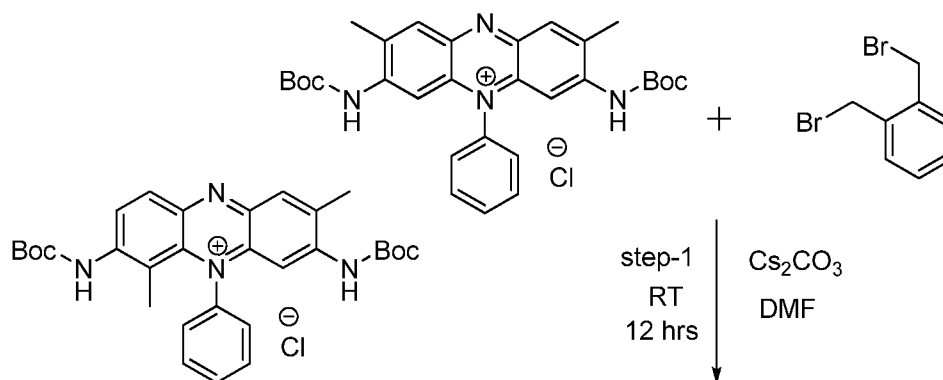
[977] To a solution of 3-((6-aminoethyl)(tert-butoxycarbonyl)amino)-7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium (243 mg, 0.395 mmol) in DMF (3 mL) was added DIPEA (233 mg, 1.80 mmol) and stirred at RT for 10 min. Benzene-1,3,5-tricarbonyl trichloride (30 mg, 0.113 mmol) was added and the reaction was stirred at RT overnight. The reaction was monitored by TLC and LCMS. The reaction mass was diluted with EtOAc (30 mL) and water (30 mL), and the organic layer was separated. The aqueous layer was again extracted with EtOAc (2x30 mL), the combined organic layer was washed with water (100 mL) and saturated

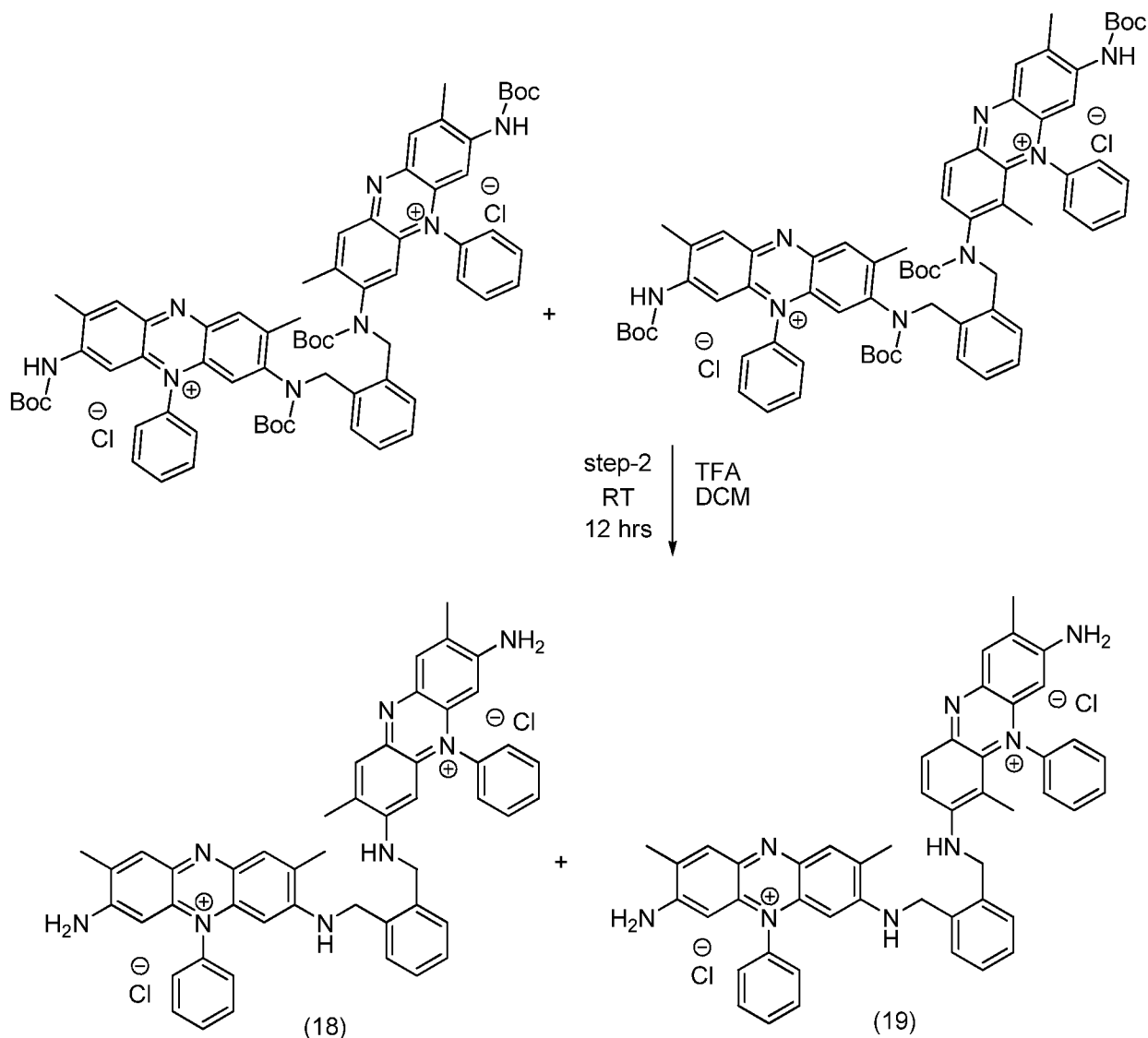
brine solution (100 mL). The organic layer was dried over anhydrous sodium sulfate and concentrated under reduced pressure to obtain the product which was purified by column chromatography using neutral alumina (Eluent: 0.2-1% MeOH in DCM) to obtain pure product (65 mg.)

Step-5: Synthesis of N1,N3,N5-tris[6-[(8-amino-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl)amino]hexyl]benzene-1,3,5-tricarboxamide trichloride

[978] To a solution of the diboc protected trimer (65 mg, 0.0325 mmol) in DCM (5 mL) was added trifluoroacetic acid (01 mL) and the reaction mixture was stirred at RT overnight. The reaction mixture was monitored by LCMS. The reaction mass was concentrated under reduced pressure to dryness and purified by reverse phase HPLC to obtain the product to obtain the product as the acetate counter anion. The product was dissolved in ethanol-HCl (20 mL) and concentrated to dryness (3 times), and the solid obtained was washed with water (20 mL) to remove inorganic impurities. The solid obtained was lyophilized to get the product (6.6 mg) which was confirmed by LCMS and NMR. ^1H NMR (CD_3OD): δ (ppm): 8.25 (s, 3 H), 7.4-7.90 (m, 15 H), 6.6 (s, 6 H), 6.15 (s, 6 H), 3.1-3.5 (m, 12 H), 2.2-2.3 (m, 18 H), 1.3-1.9 (m, 24 H). M^+ (1397), $M/2$ (699.1), $M/3$ (467.1).

EXAMPLE 10. Synthesis of 3-amino-7-[[2-[[[(7-amino-2,8-dimethyl-5-phenyl-5 λ^5 ,10-phenazin-5-ylum-3-yl)amino]methyl]phenyl)methyl]amino]-2,8-dimethyl-5-phenyl-5 λ^5 ,10-phenazin-5-ylum and 3-amino-7-[[2-[[[(7-amino-2,8-dimethyl-5-phenyl-5 λ^5 ,10-phenazin-5-ylum-3-yl)amino]methyl]phenyl)methyl]amino]-2,6-dimethyl-5-phenyl-5 λ^5 ,10-phenazin-5-ylum





Step-1: Synthesis of 7,7'-(1,2-phenylenebis(methylene))bis(tert-butoxycarbonylazanediy)bis(3-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium) chloride & 7-(tert-butoxycarbonyl(2-((tert-butoxycarbonyl(7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium-3-yl)amino)methyl)benzyl)amino)-3-(tert-butoxycarbonylamino)-2,6-dimethyl-5-phenylphenazin-5-ium

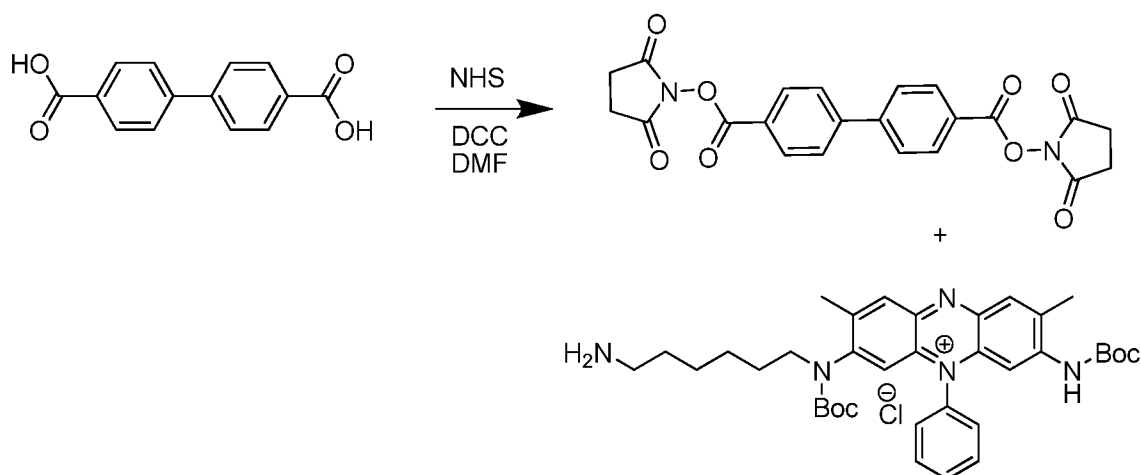
[979] To a stirred solution of 3,7-bis(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride & 3,7-bis(tert-butoxycarbonylamino)-2,6-dimethyl-5-phenylphenazin-5-ium chloride (500 mg, 0.90mmol) in 5 mL of DMF was added cesium carbonate (880 mg, 2.70 mmol) and the mixture stirred at RT for 15 min. The reaction mixture was then cooled to 0°C and o-xylene dibromide (132 mg, 0.50 mmol, diluted with 1ml of DMF) was added dropwise. The reaction mixture was stirred at RT for 12 h. The reaction was monitored by TLC and LCMS. After completion of reaction, mixture was diluted with ice-cold water and filtered. The solid residue obtained was dissolved in diethyl ether (50 mL) and washed

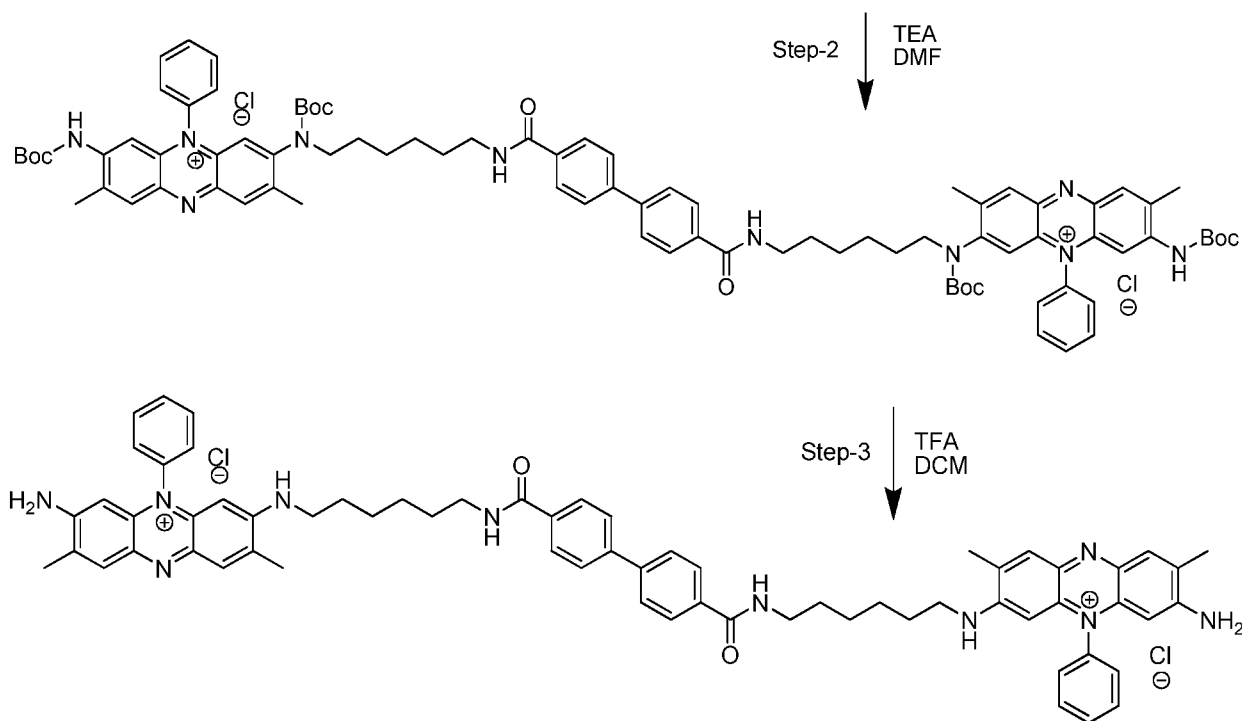
with brine solution (3x20 mL). The organic layer was dried over anhydrous sodium sulfate, and concentrated under reduced pressure to afford crude product which was then purified by column chromatography (neutral alumina, eluent 0-20% EtOAc in hexane) to afford the desired product as a dark brown solid (250 mg).

Step-2: Synthesis of 7,7'-(1,2-phenylenebis(methylene))bis(azanediy)bis(3-amino-2,8-dimethyl-5-phenylphenazin-5-ium) chloride & 3-amino-7-(2-((7-amino-2,8-dimethyl-5-phenylphenazin-5-ium-3-ylamino)methyl)benzylamino)-2,6-dimethyl-5-phenylphenazin-5-ium chloride:

[980] To a stirred solution of 7,7'-(1,2-phenylenebis(methylene))bis(tert-butoxycarbonylazanediy1)-bis(3-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium) chloride (250 mg, 0.27 mmol) in 5 mL of DCM was added TFA (1 mL) at 0°C dropwise and the mixture stirred at RT for 12h. The reaction was monitored by TLC and LCMS. After completion of reaction, the solvent was removed under reduced pressure to dryness and the residue purified by reverse phase HPLC to afford two peaks of the same mass. Both peaks were then treated separately with methanolic HCl and dried, then washed with water and dried again to afford desired product. (Compound 18): 8mg. (Compound 19): 8mg. ¹H NMR Compound 18: (DMSO-d₆): δ (ppm): 8.15 (t, 2H), 7.90 (d, 4H), 7.85-7.75 (m, 6H), 7.6 (m, 3H), 7.40 (d, 4H), 7.05 (m, 2H), 6.65 (m, 2H), 5.95 (s, 2H), 5.45 (s, 2H), 4.10 (m, 4H), 2.40 (s, 6H), 2.30 (s, 6 H). LCMS: 732 (M⁺), 366(M/2). Compound 19: (DMSO-d₆): δ (ppm): 8.15 (bs, 1H), 7.95 (s, 1H), 7.90-7.75 (m, 5H), 7.74-7.60 (m, 7H), 7.42 (d, 2H), 7.20-7.10 (m, 2H), 7.05 (t, 1H), 6.65 (d, 1H), 6.10 (s, 1H), 5.95 (s, 1H), 5.62 (s, 1H), 4.58 (m, 2H), 4.40 (m, 2H), 2.40 (s, 3H), 2.30 (s, 6 H), 1.48 (s, 3H). LCMS: 732 (M⁺), 366 (M/2).

EXAMPLE 11. Synthesis of (3-amino-7-[(6-((4-[4-(6-[(7-amino-5-chloranuide-2,8-dimethyl-5-phenyl-5 λ^6 ,10-phenazin-5-ylum-3-yl)amino]hexyl)carbamoyl)phenyl]phenyl}formamido)hexyl]amino)-2,8-dimethyl-5-phenyl-5 λ^6 ,10-phenazin-5-ylum-5-e)chloranuide





Step-1: Synthesis of bis(2,5-dioxopyrrolidin-1-yl) biphenyl-4,4'-dicarboxylate

[981] To a stirred solution of biphenyl-4,4'-dicarboxylic acid (500 mg, 2.06 mmol) in 10 mL of DMF was added N-hydroxysuccinimide (594 mg, 5.16 mmol) and dicyclohexylcarbodiimide (1.06 g, 5.16 mmol) at 0°C and the mixture stirred at RT overnight. The reaction mixture was filtered and the filtered cake was washed with EtOAc. The washings and filtrate were combined, washed with brine solution (3x20 mL), dried over anhydrous sodium sulfate and concentrated under reduced pressure to afford a crude product that was dissolved in DCM and again filtered. The DCM layer was concentrated under reduced pressure to afford desired product (600 mg).

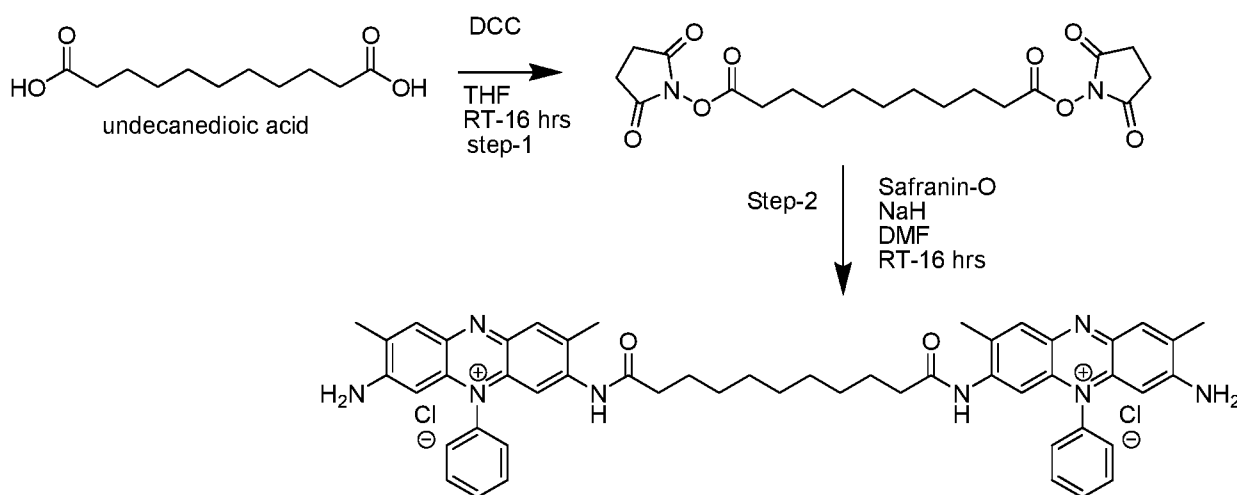
Step-2: Synthesis of tert-butyl N-[8-(tert-butoxycarbonylamino)-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl]-N-[6-[[4-[4-[6-[tert-butoxycarbonyl-[8-(tert-butoxycarbonylamino)-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl]amino]hexylcarbamoyl]phenyl]benzoyl]amino]hexyl]carbamate dichloride

[982] Bis(2,5-dioxopyrrolidin-1-yl)biphenyl-4,4'-dicarboxylate (20 mg, 0.045 mmol) and 3-((6-aminohexyl)(tert-butoxycarbonyl)amino)-7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride (65.5 mg, 0.100 mmol) were dissolved in 2 mL of DMF and triethylamine (14 mg) was added. The reaction mixture was stirred at RT for 16 h. After completion of reaction, the mixture was diluted with ice-cold water and extracted with EtOAc. The organic layer was washed with brine solution (4x10 mL), dried over anhydrous sodium sulfate and concentrated under reduced pressure to afford the crude product, which was purified by column chromatography (neutral alumina) to afford the desired product (70 mg).

Step-3: Synthesis of N-[6-[(8-amino-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl)amino]hexyl]-4-[4-[6-[(8-amino-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl)amino]hexylcarbamoyl]phenyl] benzamide dichloride

[983] The product from Step-2 (70 mg) was dissolved in 2 mL of DCM and TFA (0.5 mL) was added at 0°C dropwise and stirred at RT for 12 h. The reaction was monitored by TLC and LCMS. After completion of reaction, solvent was removed under reduced pressure to dryness to obtained crude product which was purified by reverse phase HPLC. The product obtained after purification was then treated with Methanolic HCl and dried and then washed with water and freeze dried to afford the desired product (6 mg). ¹H NMR (DMSO-d₆): δ (ppm): 8.56 (t, 2H), 7.97-7.95 (d, 4H), 7.90-7.75 (m, 12H), 7.70-7.65 (m, 2H), 7.62 (d, 4H), 7.60-7.45 (m, 3H), 6.02 (s, 2H), 5.58 (s, 2H), 3.25 (m, 4H), 2.98 (m, 4H), 2.35 (s, 6 H), 2.33 (s, 6H), 1.50-1.42 (m, 4H), 1.40-1.30 (m, 4H), 1.20-1.05 (m, 8H).

EXAMPLE 12. Synthesis of (3-amino-7-{10-[(7-amino-5-chloranuide-2,8-dimethyl-5-phenyl-5λ⁶,10-phenazin-5-ylum-3-yl)carbamoyl]decanamido}-2,8-dimethyl-5-phenyl-5λ⁶,10-phenazin-5-ylum-5-e)chloranuide



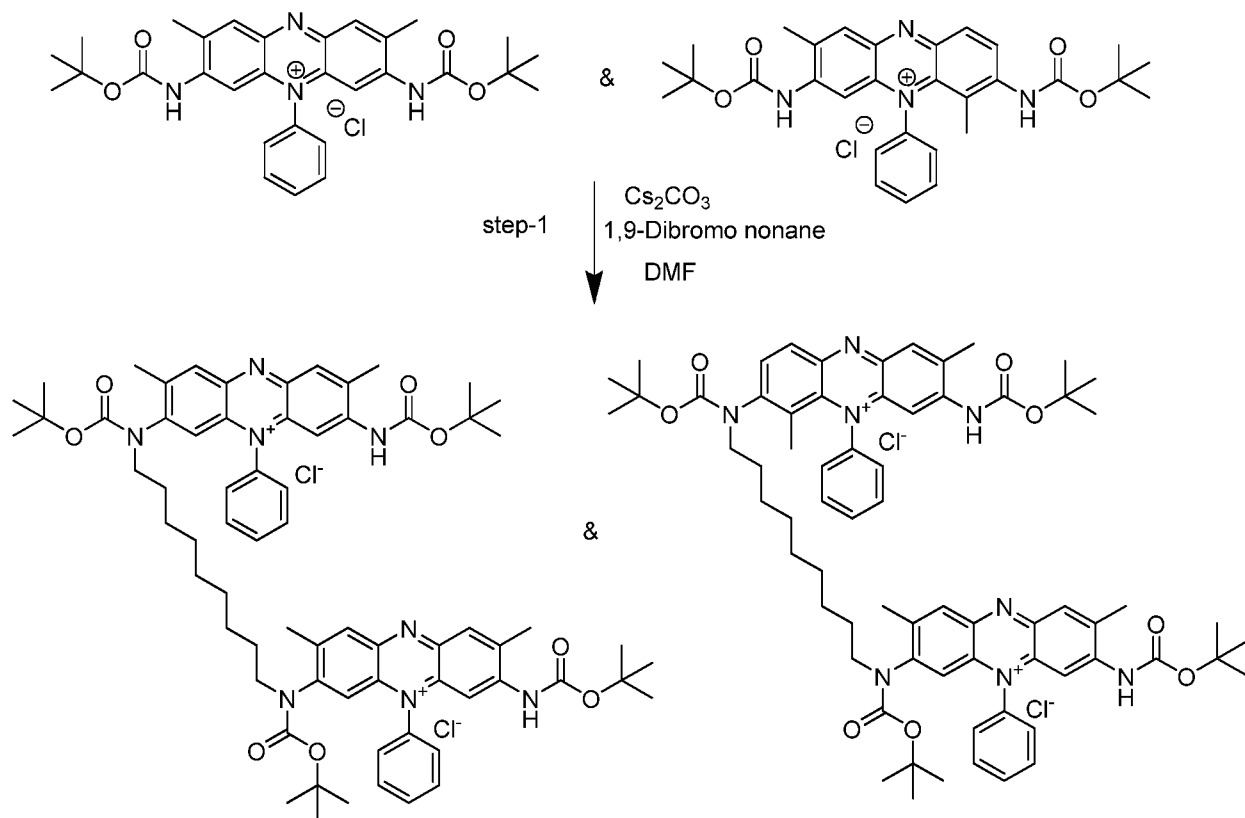
Step-1: Synthesis of bis(2,5-dioxopyrrolidin-1-yl) undecanedioate

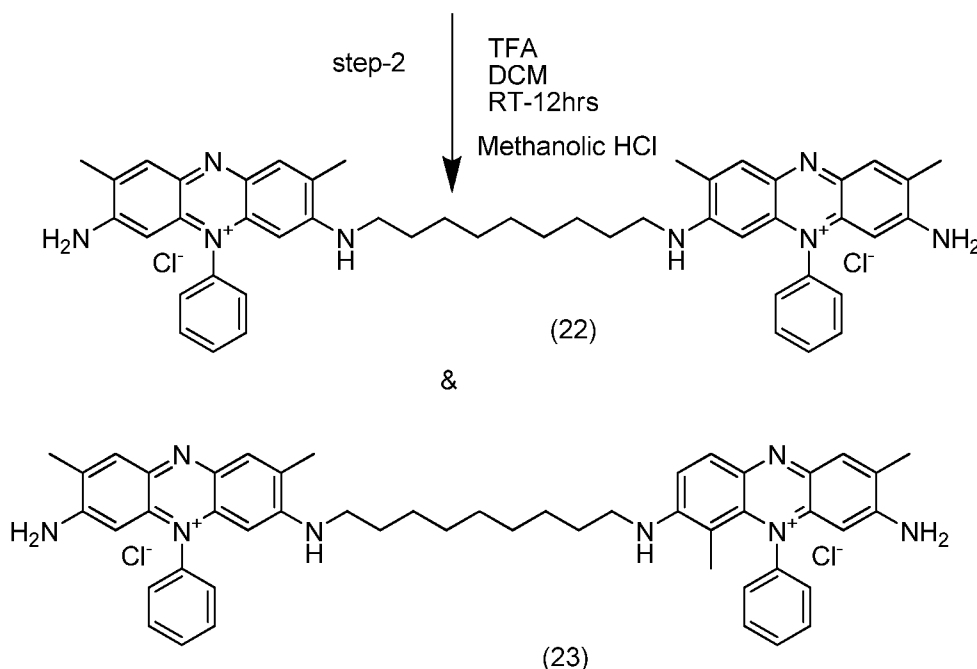
[984] To a stirred solution of undecanedioic acid (500 mg, 2.31 mmol) in 10 mL of anhydrous THF was added N-hydroxysuccinimide (585 mg, 5.09 mmol) and dicyclohexylcarbodiimide (1.08 g, 5.09 mmol) at 0°C and then allowed to stir at RT for 16 h. The reaction mixture was filtered and the filtrate was concentrated under reduced pressure. The product obtained was washed with diethyl ether and dried to afford the desired product (725 mg).

Step-2: Synthesis of (3-amino-7-{10-[(7-amino-5-chloranuide-2,8-dimethyl-5-phenyl-5 λ^6 ,10-phenazin-5-ylum-3-yl)carbamoyl]decanamido}-2,8-dimethyl-5-phenyl-5 λ^6 ,10-phenazin-5-ylum-5-e)chloranuide

[985] To a stirred solution of Safranin-O (350 mg, 1.0 mmol) in 10 mL of DMF was added sodium hydride (60 mg, 1.5 mmol) at 0°C and stirred for 10 min, bis(2,5-dioxopyrrolidin-1-yl)undecanedioate (205 mg, 0.5 mmol) was added and allow to stir at RT for 16 h. After completion of reaction, the mixture was diluted with ice-cold water and filtered. The product obtained was dried and purified by reverse phase HPLC. The purified product was treated with Methanolic HCl (5 times), dried and washed with water and freeze dried to afford the desired product (5 mg). ^1H NMR (CD_3OD): δ (ppm): 8.56 (s, 1H), 8.18 (s, 2H), 7.97-7.95 (m, 3H), 7.90-7.80 (m, 6H), 7.60-7.50 (m, 4H), 6.18 (s, 2H), 2.55 (s, 6H), 2.45-2.40 (m, 10H), 1.65-1.58 (m, 4H), 1.35-1.25 (m, 10H).

EXAMPLE 13. Synthesis of [3-amino-7-({9-[(7-amino-5-chloranuide-2,8-dimethyl-5-phenyl-5 λ^6 ,10-phenazin-5-ylum-3-yl)amino]nonyl}amino)-2,8-dimethyl-5-phenyl-5 λ^6 ,10-phenazin-5-ylum-5-e]chloranuide and [3-amino-7-({9-[(7-amino-5-chloranuide-4,8-dimethyl-5-phenyl-5 λ^6 ,10-phenazin-5-ylum-3-yl)amino]nonyl}amino)-2,8-dimethyl-5-phenyl-5 λ^6 ,10-phenazin-5-ylum-5-e]chloranuide





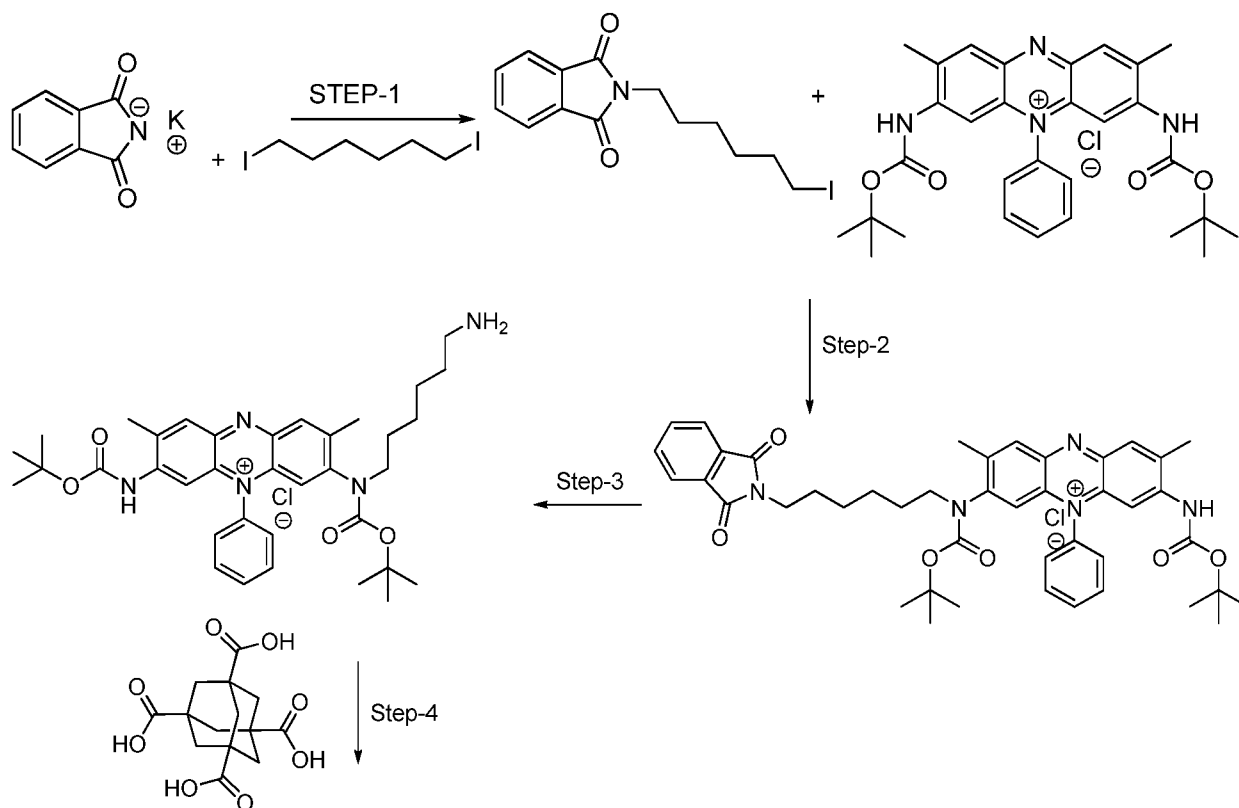
Step-1: Synthesis of 7,7'-(2,2,18,18-tetramethyl-4,16-dioxo-3,17-dioxo-5,15-diazanonadecane-5,15-diyl)bis(3-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium) chloride and 7-(tert-butoxycarbonyl(9-(tert-butoxycarbonyl(7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium-3-yl)amino)nonyl)amino)-3-(tert-butoxycarbonylamino)-2,6-dimethyl-5-phenylphenazin-5-ium chloride:

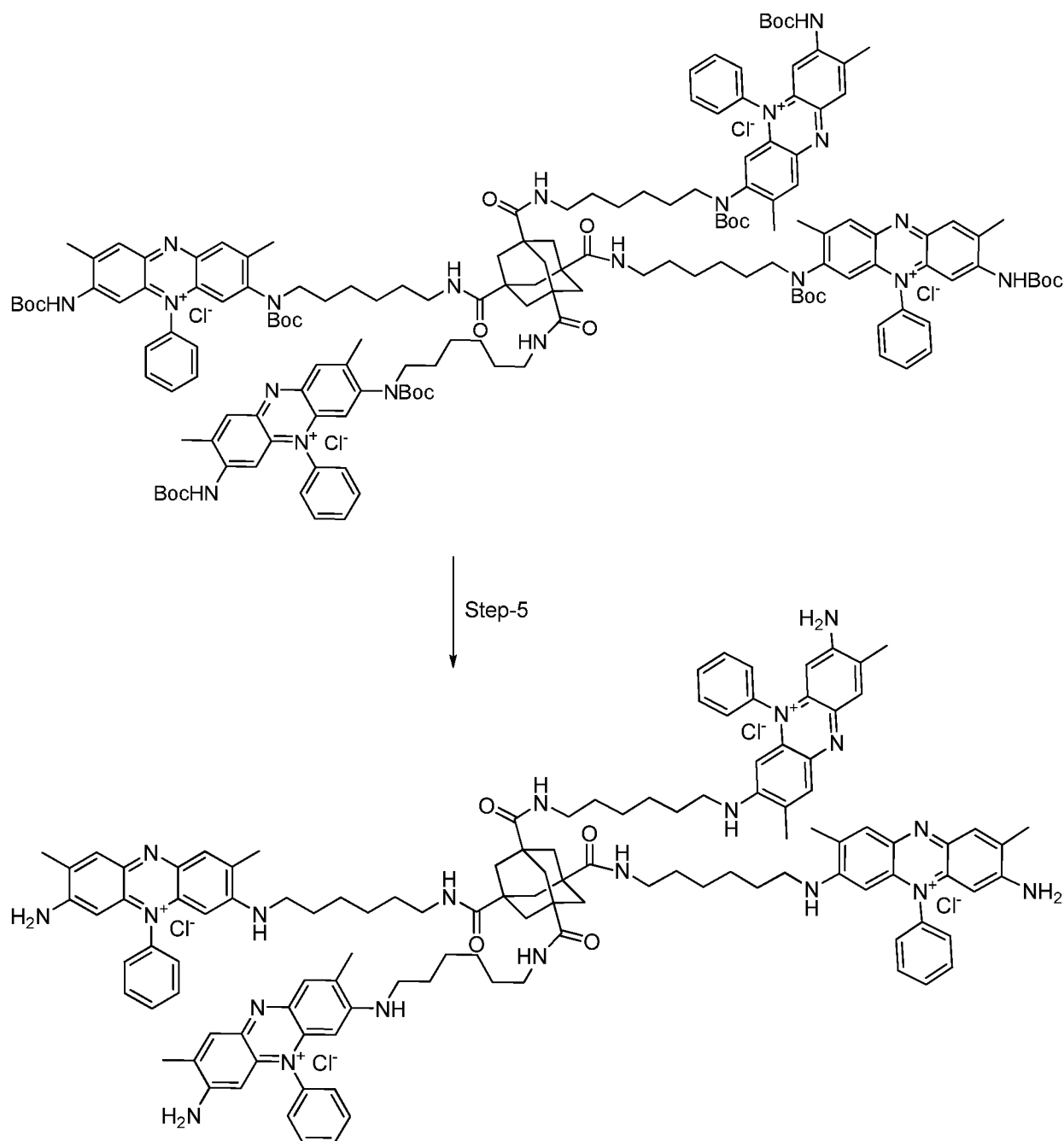
[986] To a stirred solution of mixture of 3,7-bis(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride and 3,7-bis(tert-butoxycarbonylamino)-2,6-dimethyl-5-phenylphenazin-5-ium chloride (500 mg, 0.909 mmol) in 10 mL of DMF was added cesium carbonate (738 mg, 2.27 mmol) and stirred at RT for 15 min. The reaction mixture was cooled to 0°C and 1,9-dibromononane (156 mg, 0.545 mmol, diluted with 1 mL of DMF) was added dropwise. The reaction mixture was stirred at RT for 12 h. The reaction was monitored by TLC and LCMS. After completion of reaction, the mixture was diluted with ice-cold water and filtered. The solid residue obtained after filtration was dissolved in diethyl ether (200 mL) and washed with brine solution (3x50 mL). The ether layer was dried over anhydrous sodium sulfate, concentrated under reduced pressure to afford the crude product which was purified by column chromatography (neutral alumina, eluent 0-20% EtOAc in hexane) to afford the desired product (mixture of 2 products of same mass) as a dark brown solid (400 mg).

Step-2: Synthesis of 7,7'-(nonane-1,9-diylbis(azanediyl))bis(3-amino-2,8-dimethyl-5-phenylphenazin-5-ium) chloride and 3-amino-7-(9-(7-amino-2,8-dimethyl-5-phenylphenazin-5-ium-3-ylamino)nonylamino)-2,6-dimethyl-5-phenylphenazin-5-ium chloride:

[987] To a stirred solution of mixture of 7,7'-(2,2,18,18-tetramethyl-4,16-dioxo-3,17-dioxo-5,15-diazanonadecane-5,15-diyl)bis(3-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium) chloride and 7-(tert-butoxycarbonyl(9-(tert-butoxycarbonyl(7-(tert-butoxycarbonyl amino)-2,8-dimethyl-5-phenylphenazin-5-ium-3-yl)amino)nonyl)amino)-3-(tert-butoxycarbonylamino)-2,6-dimethyl-5-phenylphenazin-5-ium chloride (400 mg, 0.32 mmol) in 5 mL of DCM was added TFA (2 mL) at 0°C dropwise and stirred at RT for 12 hrs. The reaction was monitored by TLC and LCMS. After completion of reaction, solvent was removed under reduced pressure to dryness to obtained crude product which was purified by reverse phase HPLC to afford two peaks of same mass. Both peaks were then treated separately with Methanolic HCl and dried, then washed with water and dried again to afford the desired products. Compound 22: 35 mg. Compound 23: 5 mg. ¹H NMR Compound 22: (DMSO-d₆): δ (ppm): 7.90-7.78 (m, 10H), 7.75-7.70 (m, 3H), 7.65-7.55 (m, 7H), 6.02 (s, 2H), 5.58 (s, 2H), 2.98 (m, 4H), 2.35 (s, 6 H), 2.33 (s, 6H), 1.40-1.30 (m, 4H), 1.20-1.03 (m, 10H). Compound 23: (DMSO-d₆): δ (ppm): 7.95 (d, 1H), 7.90-7.60 (m, 13H), 7.60-7.38 (m, 3H), 6.15 (s, 1H), 6.0 (s, 1H), 5.54 (s, 1H), 3.42 (m, 2H), 2.98 (m, 2H), 2.30 (m, 9 H), 1.60 (m, 2H), 1.40 (s, 3H), 1.38-1.20 (m, 8H), 1.18-1.02 (m, 4H).

EXAMPLE 14. Synthesis of {3-amino-2,8-dimethyl-5-phenyl-7-[(6-{[3,5,7-tris({6-[(7-amino-5-chloranuide-2,8-dimethyl-5-phenyl-5λ⁶,10-phenazin-5-ylum-3-yl)amino]hexyl}carbamoyl)adamantan-1-yl]formamido}hexyl)amino]-5λ⁶,10-phenazin-5-ylum-5-e}chloranuide





Step-1:- Synthesis of 2-(6-iodohexyl)isoindoline-1,3-dione

[988] To a suspension of potassium 1,3-dioxoisoindolin-2-ide (5 g, 27 mmol) in DMF (250 mL) was added 1,6-diiodohexane (22.83 g, 67.5 mmol) dropwise and heated at 85 °C for 2 h. The reaction mixture was monitored with LCMS. The reaction mixture was diluted with cold water and extracted with diethyl ether (2x300 mL), and the combined organic layer was washed with water (3x250 mL) and brine (250 mL). The organic layer dried over sodium sulfate and concentrated under reduced pressure to obtain a crude product which was purified by column chromatography with 10% EtOAc in hexane as eluent to afford 8.5 g of 2-(6-iodohexyl)isoindoline-1,3-dione.

Step-2:- Synthesis of 3-(tert-butoxycarbonyl(6-(1,3-dioxoisindolin-2-yl)hexyl)amino)-7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride

[989] To a solution of 3,7-bis(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride (6 g, 10.90 mmol) in DMF (80 mL) at RT was added cesium carbonate (8.85 g, 27.25 mmol) portionwise and stirred for 15 min. Then, 2-(6-iodohexyl)isoindoline-1,3-dione (5.06 g, 14.18 mmol) was dissolved in DMF (40 mL) and added dropwise at 0° C. The reaction mixture was stirred at RT for 16 h. The reaction mixture was monitored by LCMS and diluted with cold water and extracted with EtOAc (2x200 mL). The combined organic layer washed with brine (4x100 mL), dried over sodium sulfate, and concentrated under reduced pressure. The crude product was purified by column chromatography (Neutral alumina eluent 40% EtOAc in hexane to afford 6.5 g of 3-(tert-butoxycarbonyl(6-(1,3-dioxoisindolin-2-yl)hexyl)amino)-7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride.

Step-3:- Synthesis of 3-((6-aminohexyl)(tert-butoxycarbonyl)amino)-7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride

[990] To a solution of 3-(tert-butoxycarbonyl(6-(1,3-dioxoisindolin-2-yl)hexyl)amino)-7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride (4 g, 5.12 mmol) in ethanol (250 mL) was added hydrazine hydrate (5.36 g, 107.38 mmol) and heated to reflux at 85 °C for 1 h. The reaction mixture was monitored by LCMS and then the reaction mixture was concentrated and the residue dissolved in diethyl ether and filtered. The filtrate was concentrated under reduced pressure and the crude product was purified by column chromatography (Neutral alumina eluent 4 % MeOH in DCM) to afford 1.2 g of 3-((6-aminohexyl)(tert-butoxycarbonyl)amino)-7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride.

Step-4:- Synthesis of 3-[(tert-butoxycarbonyl)(6-{[3,5,7-tris({6-[(tert-butoxycarbonyl){7-[(tert-butoxycarbonyl)amino]-2,8-dimethyl-5-phenyl-5 λ^5 -phenazin-5-ylum-3-yl})amino]hexyl}carbonyl)adamantan-1-yl]formamido}hexyl)amino]-7-[(tert-butoxycarbonyl)amino]-2,8-dimethyl-5-phenyl-5 λ^5 -phenazin-5-ylum tetrachloride

[991] To a solution of adamantane-1,3,5,7-tetracarboxylic acid (30 mg, 0.0961 mmol) in DMF (6 mL) were added EDC.HCl (137 mg, 0.721 mmol) and HOBt (97 mg, 0.721 mmol) and the mixture stirred at RT for 15 min. Then 3-((6-aminohexyl)(tert-butoxycarbonyl)amino)-7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride (280 mg, 0.432 mmol) and DIPEA (0.23 mL, 1.345 mmol) were added portionwise and the mixture stirred at RT for 16 h. The reaction mixture was monitored by LCMS and diluted with water. The precipitate was

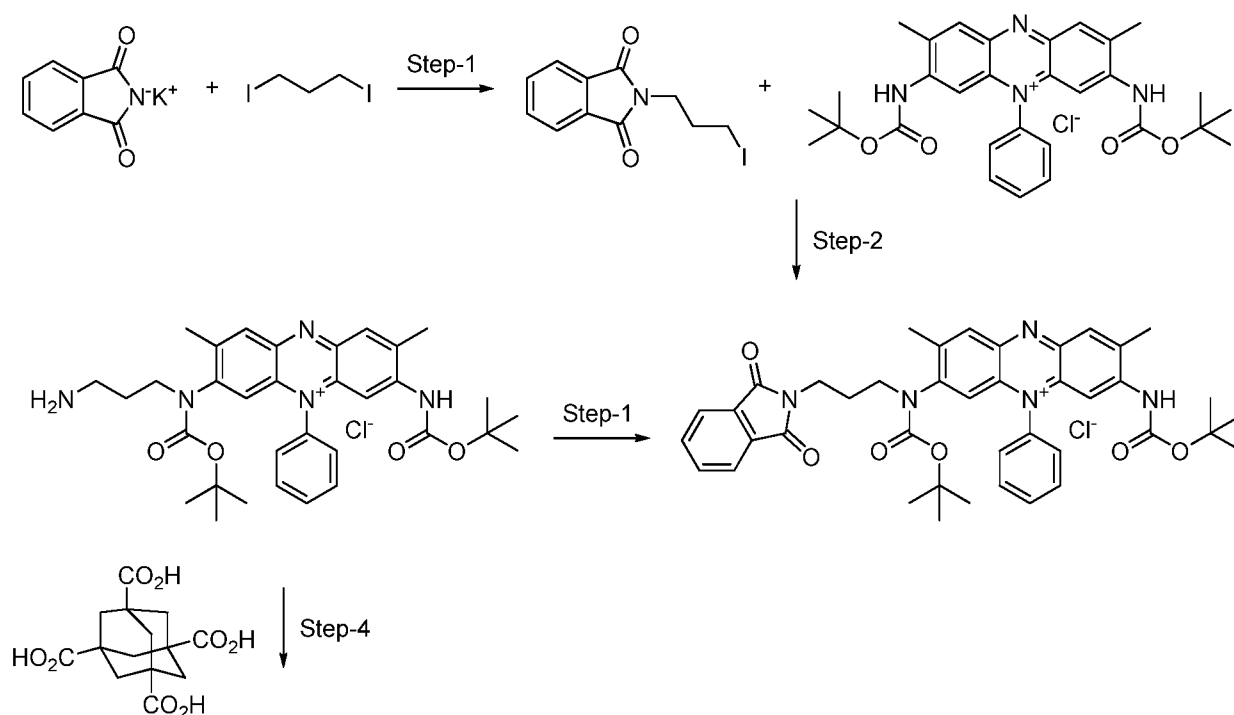
filtered and washed with water. The residue was dissolved in DCM (75 mL), dried over sodium sulfate and concentrated under reduced pressure to obtain the crude product, which was purified by column chromatography (Neutral alumina eluent 5 % MeOH in DCM) to afford 120 mg of BOC protected tetramer of adamantine.

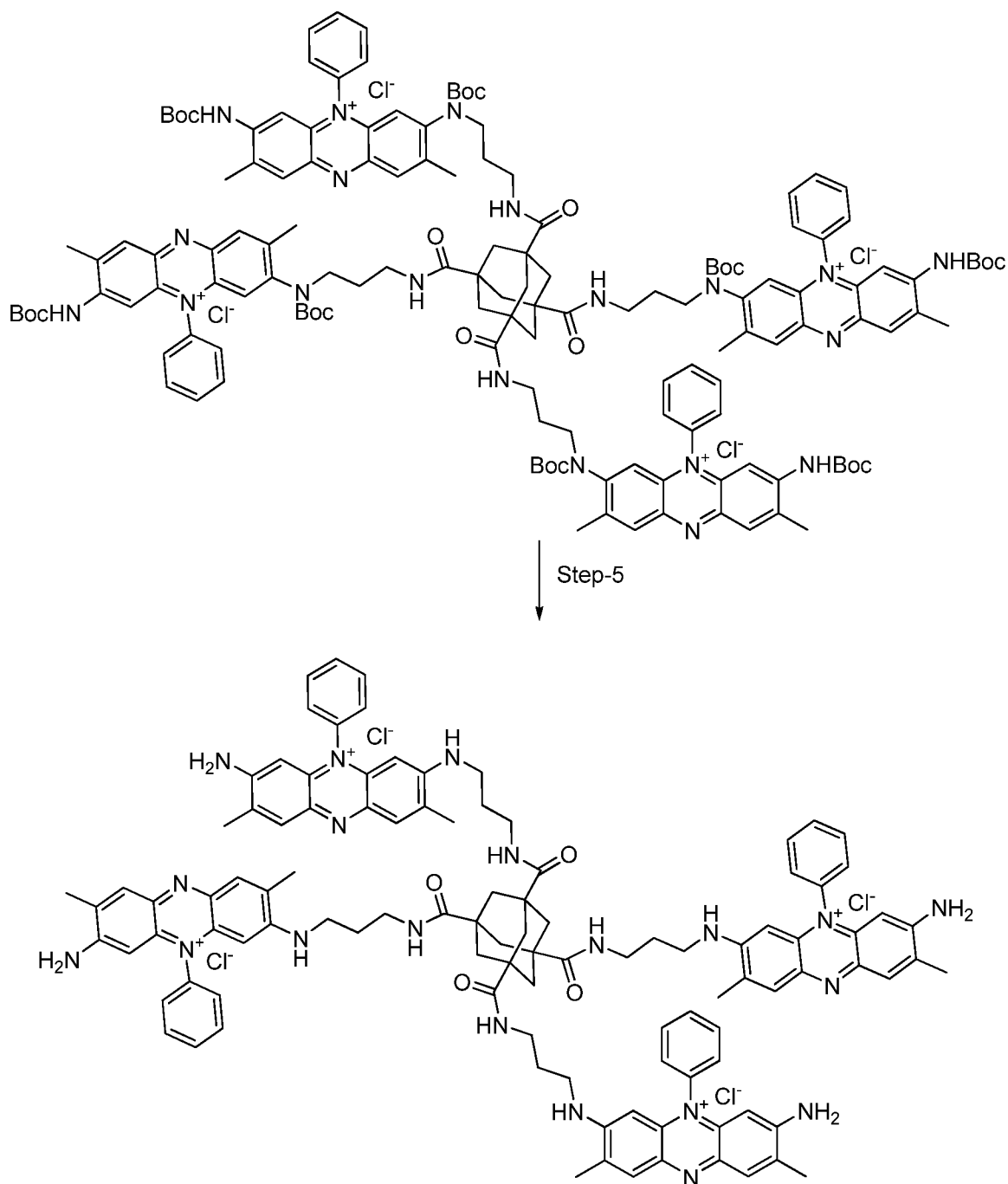
Step-5:- Synthesis of 2-{3-amino-2,8-dimethyl-7-[(6-{[3,5,7-tris({6-[(7-amino-2,8-dimethyl-5-phenyl-5 λ^5 -phenazin-5-ylum-3-yl)amino]hexyl}carbamoyleadamantan-1-yl]formamido}hexyl)amino]-5 λ^5 -phenazin-5-ylum-5-yl]benzen-1-ide trichloride hydrochloride

[992] To the BOC protected tetramer of adamantine from Step-4 (120 mg, 0.046 mmol) in DCM (4 mL) at 0° C was added TFA (0.1 mL) dropwise and the mixture stirred at RT for 16 h. The reaction mixture was monitored by LCMS and solvent was removed and the crude product was purified by HPLC. The product was treated with Methanolic HCl (4x20 mL) and concentrated each time, then triturated with water (5 mL), filtered, and washed with water (20 mL). The residue was dried under lyophilization to afford 25 mg of desired product. ¹H NMR (DMSO): δ (ppm): 7.60-7.90 (m, 44 H), 6.02 (s, 4 H), 5.45 (s, 1 H), 2.90-3.0 (m, 16 H), 2.30 (s, 12H), 2.25 (s, 12H), 1.76 (s, 12H), 1.30-1.36 (m, 16H), 1.05-1.10 (m, 16H).

LCMS:1897.10,M/4=474.6, M/3=632.6, M/2=948.5.

EXAMPLE 15. Synthesis of {3-amino-2,8-dimethyl-5-phenyl-7-[(3-{[3,5,7-tris({3-[(7-amino-5-chloranuide-2,8-dimethyl-5-phenyl-5 λ^6 ,10-phenazin-5-ylum-3-yl)amino]propyl}carbamoyleadamantan-1-yl]formamido}propyl)amino]-5 λ^6 ,10-phenazin-5-ylum-5-e}chloranuide





Step-1: Synthesis of 2-(3-iodopropyl) isoindoline-1,3-dione

[993] To a suspension of potassium 1,3-dioxoisoindolin-2-ide (3 g, 16.2 mmol) in DMF (150 mL) was added 1,3-diiodopropane (4.2 mL, 36.4 mmol) dropwise and heated at 85°C for 2 h. The reaction mixture was monitored by LCMS. The reaction mixture was diluted with cold water and extracted with diethyl ether (2x250 mL). The combined organic layer was washed with water (3x200 mL) and brine (250 mL). The organic layer was dried over sodium sulfate and concentrated under reduced pressure. The crude product was purified by chromatography with 10% EtOAc in hexane as eluent to afford 3 g of 2-(3-iodopropyl) isoindoline-1,3-dione.

Step-2: Synthesis of 3-(tert-butoxycarbonyl(3-(1,3-dioxoisindolin-2-yl)propyl)amino)-7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride

[994] To a solution of 3, 7-bis(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride (4 g, 7.272 mmol) in DMF (50 mL) at RT was added cesium carbonate (5.9 g, 18.1 mmol) portionwise and stirred for 15 min. 2-(3-Iodopropyl)isoindoline-1,3-dione (2.97 g, 9.45 mmol) was dissolved in DMF (10 mL) and added dropwise at 0°C. The reaction mixture was stirred at RT for 16 h. The reaction mixture was monitored by LCMS and then diluted with cold water. The precipitate was filtered, and washed with water. The precipitate was dissolved in DCM (150 mL) and dried over sodium sulfate, and concentrated under reduced pressure to give a crude product that was purified by column chromatography (neutral alumina: eluent 2 % MeOH in DCM) to afford 3 g of 3-(tert-butoxycarbonyl(3-(1,3-dioxoisindolin-2-yl)propyl)amino)-7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride.

Step-3: Synthesis of 3-((3-aminopropyl)(tert-butoxycarbonyl)amino)-7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride

[995] To a solution of 3-(tert-butoxycarbonyl(3-(1,3-dioxoisindolin-2-yl)propyl)amino)-7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride (3 g, 4.06 mmol) in ethanol (200 mL) was added hydrazine hydrate (3.9 mL, 81.3 mmol) and heated to reflux at 85°C for 1h. The reaction mixture was monitored by LCMS, and then the reaction mixture was concentrated and the residue dissolved in diethyl ether and filtered. The filtrate was concentrated under reduced pressure and the crude product was purified by column chromatography (neutral alumina eluent 4 % MeOH in DCM) to afford 1 g of 3-((3-aminopropyl)(tert-butoxycarbonyl)amino)-7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride.

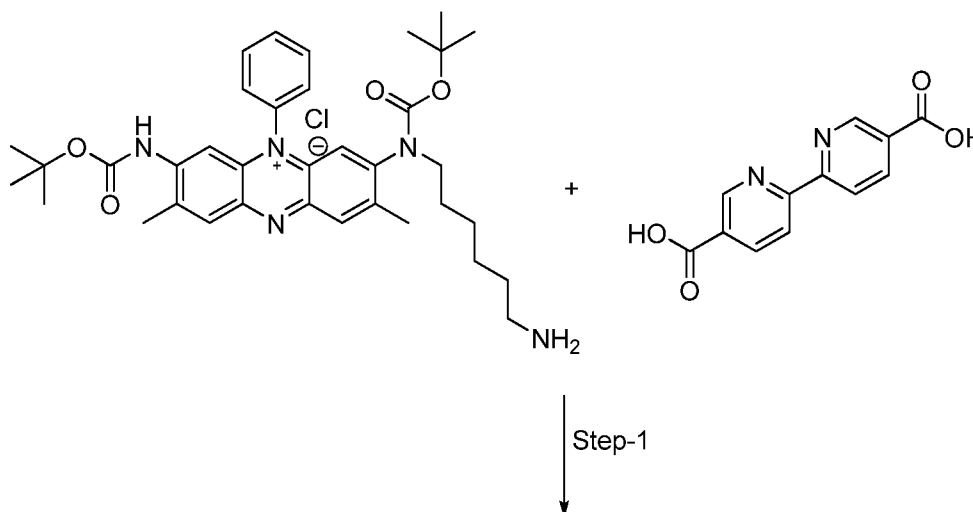
Step-4: Synthesis of BOC protected tetramer of adamantane

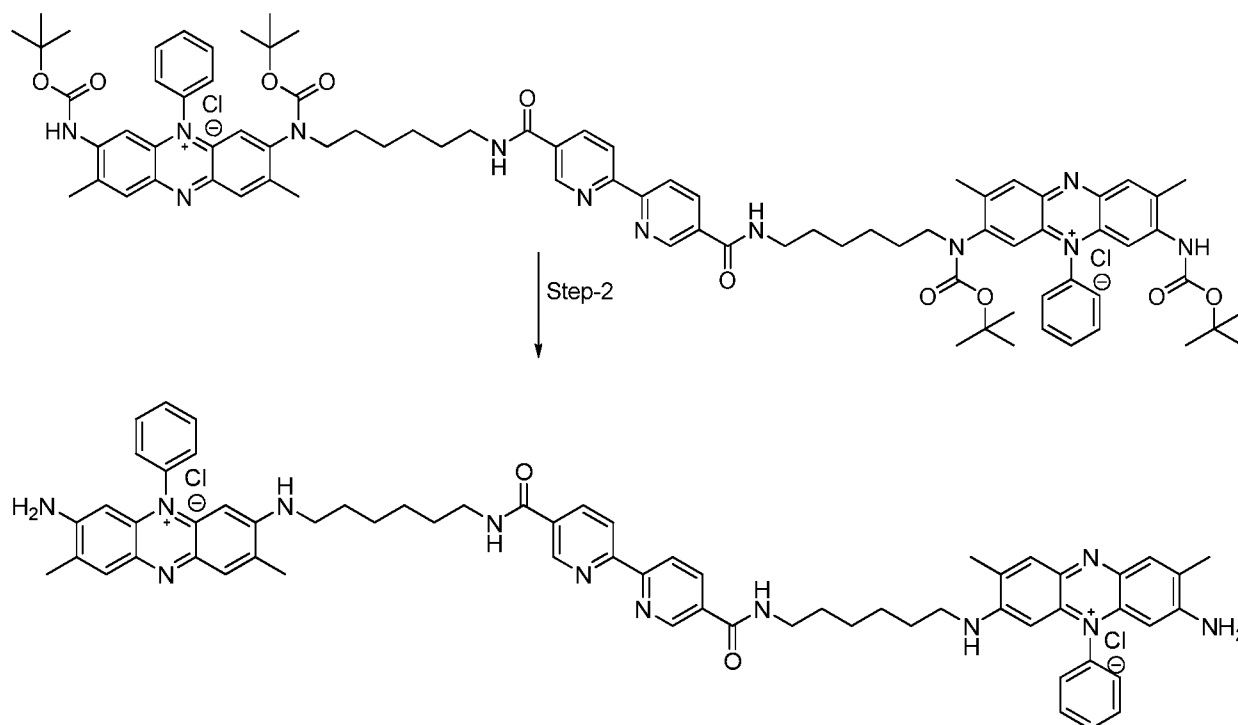
[996] To a solution of adamantane 1,3,5,7-tetracarboxylic acid (30 mg, 0.0961 mmol) in DMF (6 mL) were added EDC.HCl (137 mg, 0.721 mmol) and HOBt (97 mg, 0.721 mmol) and the mixture stirred at RT for 15 min. Then 3-((3-aminopropyl)(tert-butoxycarbonyl)amino)-7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride (263 mg, 0.432 mole) was added portionwise and the mixture stirred at RT for 16 h. The reaction mixture was monitored by LCMS, and then diluted with water. The precipitate was filtered and washed with water. The residue was dissolved in DCM (75 mL), dried over sodium sulfate and concentrated under reduced pressure. The crude product was purified by column chromatography (Neutral alumina eluent 3 % MeOH in DCM) to afford 125 mg of BOC protected tetramer of adamantane.

Step-5: Synthesis of {3-amino-2,8-dimethyl-5-phenyl-7-[(3-{[3,5,7-tris({3-[(7-amino-5-chloranuide-2,8-dimethyl-5-phenyl-5 λ^6 ,10-phenazin-5-ylum-3-yl)amino]propyl}carbamoyl)adamantan-1-yl]formamido}propyl)amino]-5 λ^6 ,10-phenazin-5-ylum-5-e}chloranuide

[997] To the BOC protected tetramer of adamantane from Step-4 (125 mg, 0.046 mmol) in DCM (4 mL) at 0° C was added TFA (0.5 mL) dropwise and the mixture allowed to stir at RT for 16 h. The reaction mixture was monitored by LCMS and solvent was concentrated to obtain a crude product that was purified by reverse phase HPLC to obtain desired product. This product was treated with methanolic HCl (4x20 mL), concentrated each time, then triturated with water (5 mL), filtered and washed with water (20 mL). The residue was dried by lyophilization to afford 25 mg of {3-amino-2,8-dimethyl-5-phenyl-7-[(3-{[3,5,7-tris({3-[(7-amino-5-chloranuide-2,8-dimethyl-5-phenyl-5 λ^6 ,10-phenazin-5-ylum-3-yl)amino]propyl} carbamoyl)adamantan-1-yl]formamido}propyl)amino]-5 λ^6 ,10-phenazin-5-ylum-5-e}chloranuide. ¹H NMR (DMSO): δ (ppm): 7.60-7.90 (m, 44H), 6.0 (s, 4H), 5.45 (s, 4H), 2.90-3.0 (m, 16H), 2.30 (s, 12H), 2.25 (s, 12H), 1.76 (s, 12H), 1.65-1.75 (m, 8H). LCMS: 1728.9, M/4=432.8, M/3=576.5, M/2=864.3.

EXAMPLE 16. Synthesis of (3-amino-7-{[6-({6-[5-({6-[(7-amino-5-chloranuide-2,8-dimethyl-5-phenyl-5 λ^6 ,10-phenazin-5-ylum-3-yl)amino]hexyl}carbamoyl)pyridin-2-yl]pyridin-3-yl}formamido)hexyl]amino}-2,8-dimethyl-5-phenyl-5 λ^6 ,10-phenazin-5-ylum-5-e}chloranuide





Step-1: Synthesis of tert-butyl N-[8-(tert-butoxycarbonylamino)-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl]-N-[6-[[6-[5-[6-[tert-butoxycarbonyl-[8-(tert-butoxycarbonylamino)-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl]amino]hexylcarbamoyl]-2-pyridyl]pyridine-3-carboxyl]amino]hexyl]carbamate dichloride

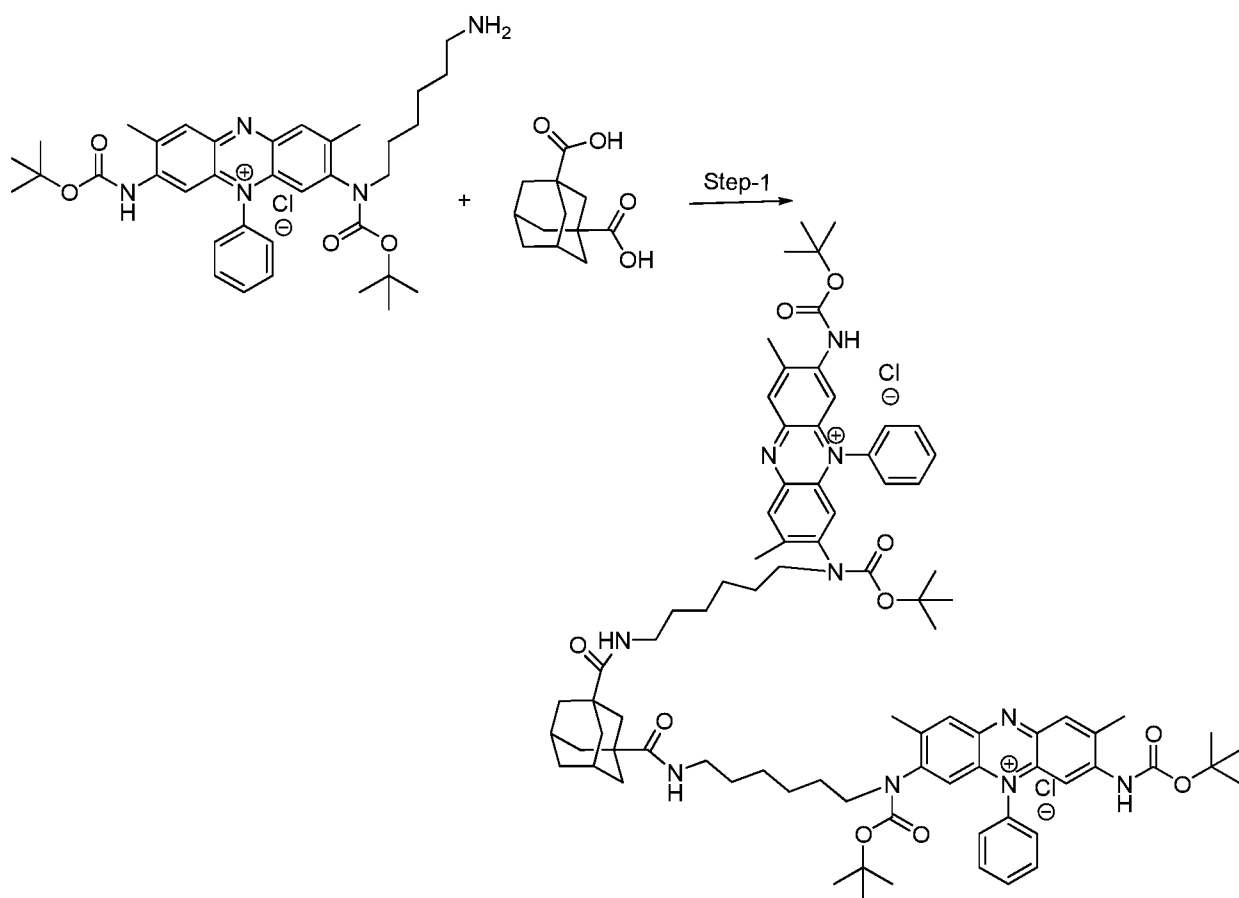
[998] To a suspension of 2,2'-bipyridine-5,5'-dicarboxylic acid (50 mg, 0.204 mmol) in DMF (5 mL) were added EDC.HCl (155 mg, 0.816 mmol) and HOBt (109 mg, 0.816 mmol) and the mixture stirred at RT for 20 min. Then 3-((6-aminohexyl)(tert-butoxycarbonyl)amino)-7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride (293 mg, 0.450 mmol) and DIPEA (0.35 mL, 2.04 mmol) were added portionwise and the mixture stirred at RT for 12 h. The reaction mixture was monitored by LCMS, and then diluted with water, extracted with EtOAc (2x25 mL). The combined organic layer was washed with brine (4x25 mL), dried over sodium sulfate, and concentrated under reduced pressure. The crude product was purified by column chromatography (neutral alumina eluent 5 % MeOH in DCM) to afford 125 mg of BOC protected dimer.

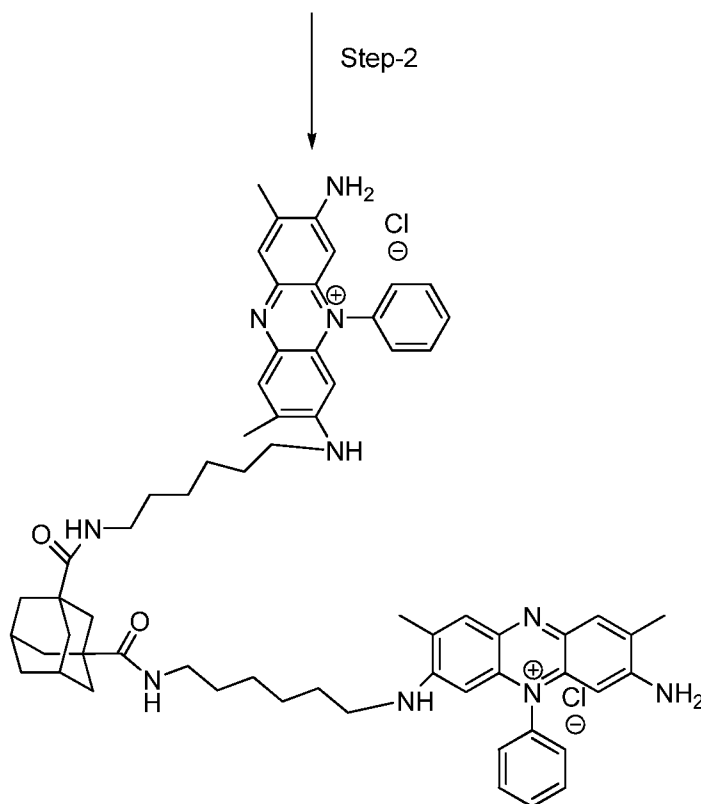
Step-2: Synthesis of N-[6-[(8-amino-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl)amino]hexyl]-6-[5-[6-[(8-amino-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl)amino]hexylcarbamoyl]-2-pyridyl]pyridine-3-carboxamide dichloride

[999] To the BOC protected dimer from Step-1 (90 mg, 0.0596 mmol) in DCM (5 mL) at 0° C was added TFA (0.4 mL) dropwise and the mixture stirred at RT for 12 h. The reaction mixture was monitored by LCMS. The solvent was evaporated and the crude product purified by HPLC

to obtain the desired product, which was treated with methanolic HCl (4x15 mL), concentrated each time, then triturated with water (5 mL), filtered and washed with water (20 mL). The residue was dried by lyophilization to afford 15 mg of title compound. ¹H NMR (DMSO): δ (ppm): 9.10 (s, 2H), 8.83 (t, 2 H), 8.43 (d, 2 H), 8.38 (d, 2H), 7.90-7.75 (m, 10 H) 7.62-7.72 (m, 2 H), 7.60 (d, 4 H), 7.60-7.50 (m, 2 H), 6.0 (s, 2H), 5.50 (s, 2H), 3.26 (m, 4H), 2.99 (m, 4H), 2.35 (s, 6H), 2.33 (s, 6H), 1.50-1.42 (m, 4H), 1.40-1.30 (m, 4H), 1.20-1.05 (m, 8H). LCMS: 1036.56, M/3=346.3, M/2=518.9.

EXAMPLE 17. Synthesis of {3-amino-7-[(6-{[3-({6-[(7-amino-5-chloranuide-2,8-dimethyl-5-phenyl-5λ⁶,10-phenazin-5-ylum-3-yl)amino]hexyl}carbamoyl)adamantan-1-yl]formamido}hexyl)amino]-2,8-dimethyl-5-phenyl-5λ⁶,10-phenazin-5-ylum-5-e}chloranuide





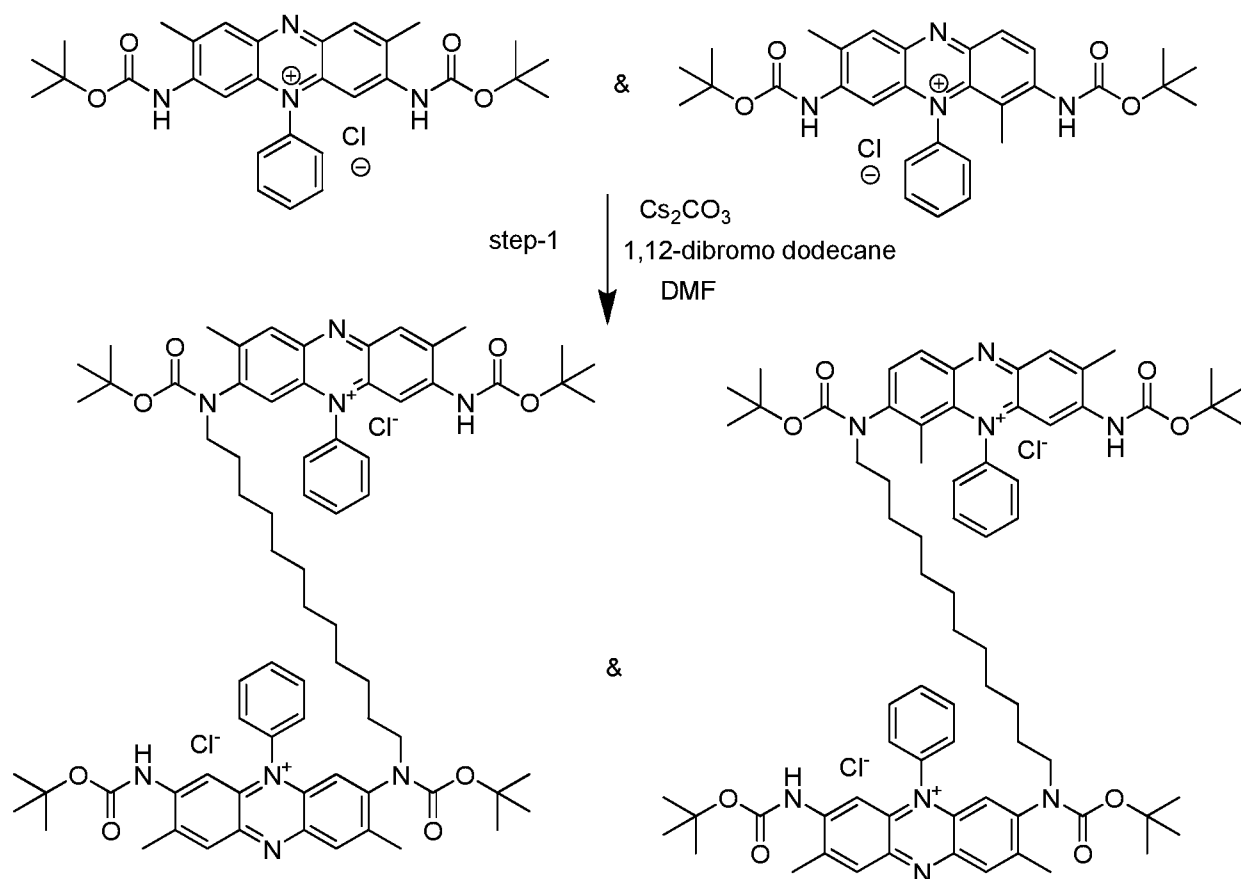
Step-1: Synthesis of tert-butyl N-[8-(tert-butoxycarbonylamino)-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl]-N-[6-[[3-[6-[tert-butoxycarbonyl-[8-(tert-butoxycarbonylamino)-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl]amino]hexyl]carbonyl]adamantane-1-carbonyl]amino]hexyl]carbamate dichloride

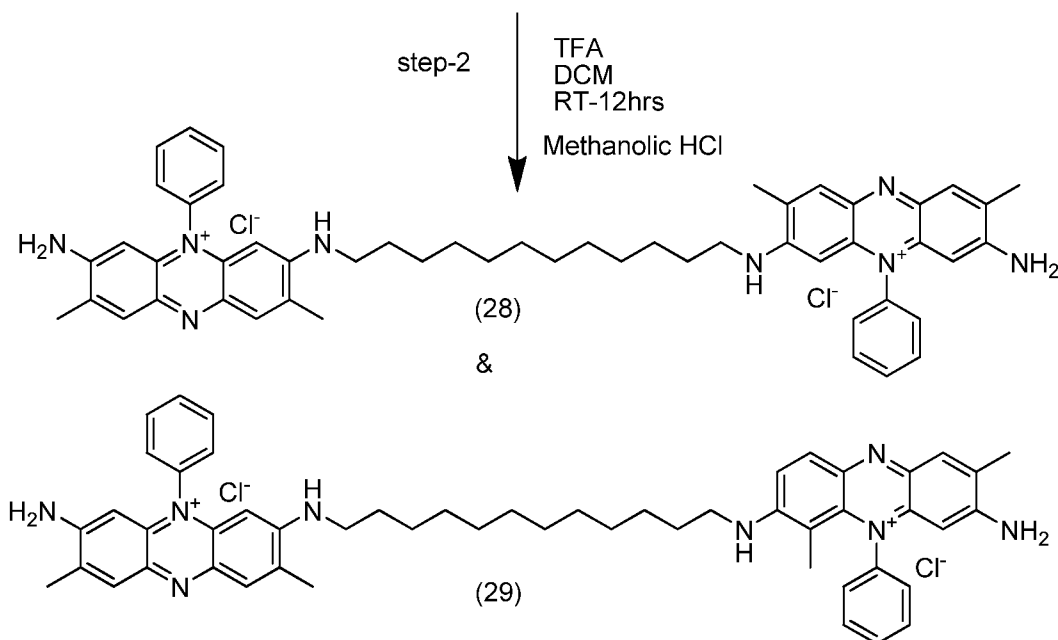
[1000] To a solution of 1,3-adamantanedicarboxylic acid (40 mg, 0.178 mmol) in DMF (65 mL) were added EDC.HCl (119 mg, 0.623 mmol) and HOBT (84 mg, 0.623 mmol) and the mixture stirred at RT for 15 min. Then 3-((6-aminohexyl)(tert-butoxycarbonyl)amino)-7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride (255 mg, 0.392 mmol) and DIPEA (0.22 mL, 1.335 mmol) were added portionwise and the mixture stirred at RT for 16 h. The reaction mixture was monitored by LCMS and diluted with water and extracted with EtOAc (2x25 mL). The combined organic layer was washed with water (2x20 mL) and brine, dried over sodium sulfate, and concentrated under reduced pressure to obtain the crude product, which was purified by column chromatography (Neutral alumina eluent 4 % MeOH in DCM) to afford 150 mg of tert-butyl N-[8-(tert-butoxycarbonylamino)-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl]-N-[6-[[3-[6-[tert-butoxycarbonyl-[8-(tert-butoxycarbonylamino)-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl]amino]hexyl]carbonyl]adamantane-1-carbonyl]amino]hexyl]carbamate dichloride.

Step-2: Synthesis of N1,N3-bis[6-((8-amino-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl)amino)hexyl]adamantane-1,3-dicarboxamide dichloride

[1001] To the compound from Step-1 (150 mg, 0.100 mmol) in DCM (3 mL) at 0° C was added TFA (0.3 mL) dropwise and the mixture stirred at RT for 16 h. The reaction mixture was monitored by LCMS, then the solvent was concentrated and the crude product was purified by HPLC to obtain pure product. This was treated with methanolic HCl (4x15 mL), concentrated each time, then triturated with water (5 mL), filtered, and washed with water (10 mL). The residue was vacuum dried under lyophilization to afford 20 mg of N1, N3-bis[6-[(8-amino-3,7-dimethyl-10-phenyl-phenazin-10-ium-2-yl)amino]hexyl]adamantane-1,3-dicarboxamide dichloride. ¹H NMR (DMSO): δ (ppm): 7.80-7.90 (m, 10 H), 7.60 (d, 6H), 7.50-7.60 (m, 2H), 7.40-7.45 (m, 2H), 6.02 (s, 2H), 5.50 (s, 2H), 2.98-3.04 (m, 8H), 2.30 (s, 6H), 2.28 (s, 6H), 2.04 (m, 2H), 1.8 (m, 2H), 1.70-1.75 (m, 8H), 1.55-1.60 (m, 2H), 1.25-1.40 (m, 10H), 1.05 (m, 6H). LCMS: 1016.6 (M), 508.6 (M/2).

EXAMPLE 18. Synthesis of 7,7'-(dodecane-1,12-diylbis(azanediyl))bis(3-amino-2,8-dimethyl-5-phenylphenazin-5-ium) chloride and 3-amino-7-(12-(7-amino-2,8-dimethyl-5-phenylphenazin-5-ium-3-ylamino)dodecylamino)-2,6-dimethyl-5-phenylphenazin-5-ium chloride





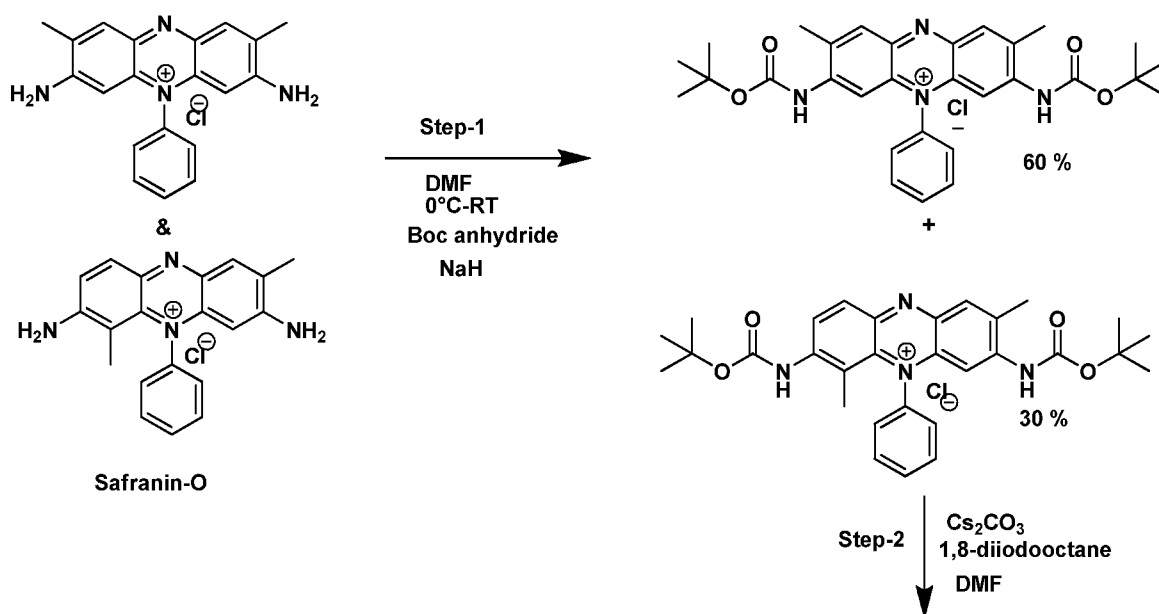
Step-1: Synthesis of 7,7'-(2,2,21,21-tetramethyl-4,19-dioxo-3,20-dioxo-5,18-diazadocosane-5,18-diyl)bis(3-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium) chloride and 7-(tert-butoxycarbonyl(12-(tert-butoxycarbonyl(7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium-3-yl)amino)dodecyl)amino)-3-(tert-butoxycarbonylamino)-2,6-dimethyl-5-phenylphenazin-5-ium chloride

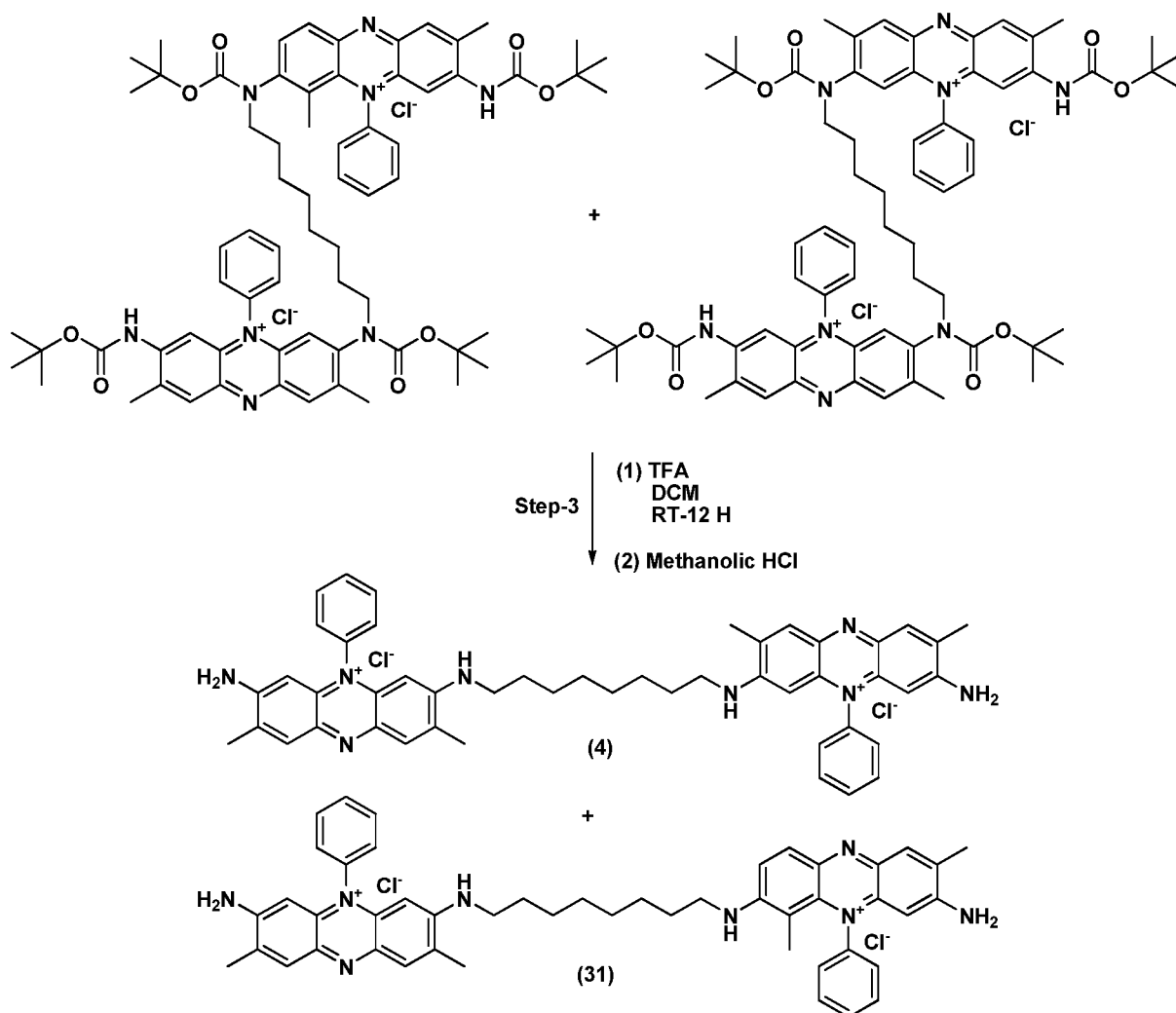
[1002] To a stirred solution of a mixture of 3,7-bis(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride and 3,7-bis(tert-butoxycarbonylamino)-2,6-dimethyl-5-phenylphenazin-5-ium chloride (1.0 g, 1.81 mmol) in 15 mL of DMF was added cesium carbonate (1.48 g, 4.54 mmol) and the mixture stirred at RT for 15 min. The reaction mixture was then cooled to 0°C and to it was added 1,12-dibromododecane (328 mg, 0.99 mmol, diluted with 1 mL of DMF) dropwise. The reaction mixture was then stirred at RT for 12 h. The reaction was monitored by TLC and LCMS. After completion of reaction, the mixture was diluted with ice-cold water and filtered. The solid residue obtained after filtration was dissolved in diethyl ether (200 mL) and washed with brine solution (3x50 mL). The ether layer was then dried over anhydrous sodium sulfate, and concentrated under reduced pressure to afford a crude product which was purified by column chromatography (neutral alumina, eluent 0-20% EtOAc in hexane) to afford the desired product (mixture of 2 products of same mass) as a dark brown solid (500 mg).

Step-2: Synthesis of 7,7'-(dodecane-1,12-diylbis(azanediyl))bis(3-amino-2,8-dimethyl-5-phenylphenazin-5-ium) chloride and 3-amino-7-(12-(7-amino-2,8-dimethyl-5-phenylphenazin-5-ium-3-ylamino)dodecylamino)-2,6-dimethyl-5-phenylphenazin-5-ium chloride:

[1003] To a stirred solution of mixture of 7,7'-(2,2,21,21-tetramethyl-4,19-dioxo-3,20-dioxo-5,18-diazadocosane-5,18-diyl)bis(3-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium) chloride and 7-(tert-butoxycarbonyl(12-(tert-butoxycarbonyl(7-(tert-butoxycarbonyl amino)-2,8-dimethyl-5-phenylphenazin-5-ium-3-yl)amino)dodecyl)amino)-3-(tert-butoxycarbonylamino)-2,6-dimethyl-5-phenylphenazin-5-ium chloride (500 mg, 0.39 mmol) in 5 mL of DCM was added TFA (2 mL) at 0°C dropwise and stirred at RT for 12 h. The reaction was monitored by TLC and LCMS. After completion of reaction, the solvent was removed under reduced pressure to dryness to obtain a crude product which was purified by HPLC to afford two peaks of the same mass. Both peaks were then treated separately with Methanolic HCl and dried and then washed with water, and dried again to afford the desired products (Compound 28: 35 mg and Compound 29: 55 mg). Compound 28: ^1H NMR (DMSO- d_6): δ (ppm): 7.90-7.78 (m, 10H), 7.75-7.70 (m, 3H), 7.65-7.55 (m, 7H), 6.02 (s, 2H), 5.58 (s, 2H), 2.98 (m, 4H), 2.35 (s, 6H), 2.33 (s, 6H), 1.40-1.30 (m, 4H), 1.25-1.20 (bs, 10H), 1.20-1.05 (m, 6H). Compound 29: ^1H NMR (DMSO- d_6): δ (ppm): 7.95 (d, 1H), 7.90-7.60 (m, 15H), 7.60-7.38 (m, 3H), 6.15 (s, 1H), 6.0 (s, 1H), 5.54 (s, 1H), 3.42 (m, 2H), 2.98 (m, 2H), 2.30 (m, 9H), 1.60 (m, 2H), 1.40 (s, 3H), 1.38-1.20 (m, 14H), 1.18-1.02 (m, 4H).

EXAMPLE 19. Synthesis of 7,7'-(octane-1,8-diylbis(azanediyl))bis(3-amino-2,8-dimethyl-5-phenylphenazin-5-ium) chloride & 3-amino-7-(8-(7-amino-2,8-dimethyl-5-phenylphenazin-5-ium-3-ylamino) octylamino)-2,6-dimethyl-5-phenylphenazin-5-ium chloride





Step-1: Synthesis of 3,7-bis(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride and 3,7-bis(tert-butoxycarbonylamino)-2,6-dimethyl-5-phenylphenazin-5-ium chloride.

[1004] To a stirred solution of Safranin-O (10.0 g, 28.57 mmol) in 100 mL of DMF was added sodium hydride (3.42 g, 85.71 mmol) portionwise at 0°C. After addition, the reaction mixture was stirred at RT for 15 min. Boc anhydride (12.45 g, 57.14 mmol, diluted with 15 mL of DMF) was added dropwise into the reaction mixture and stirred at RT for 2h. The reaction was monitored by TLC and LCMS. After completion of reaction, the mixture was quenched using MeOH (30 mL), and concentrated under reduced pressure to obtain the crude product which was purified by column chromatography (neutral alumina, eluent 25% DCM in hexane to 100% DCM) to afford the desired products (a mixture of two products of the same mass) as a dark brown solid (5.0 g).

Step-2: Synthesis of 7,7'-(2,2,17,17-tetramethyl-4,15-dioxo-3,16-dioxa-5,14-diazaoctadecane-5,14-diyl)bis(3-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium) chloride and 7-(tert-butoxycarbonyl(8-(tert-butoxycarbonyl(7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium) chloride (31).

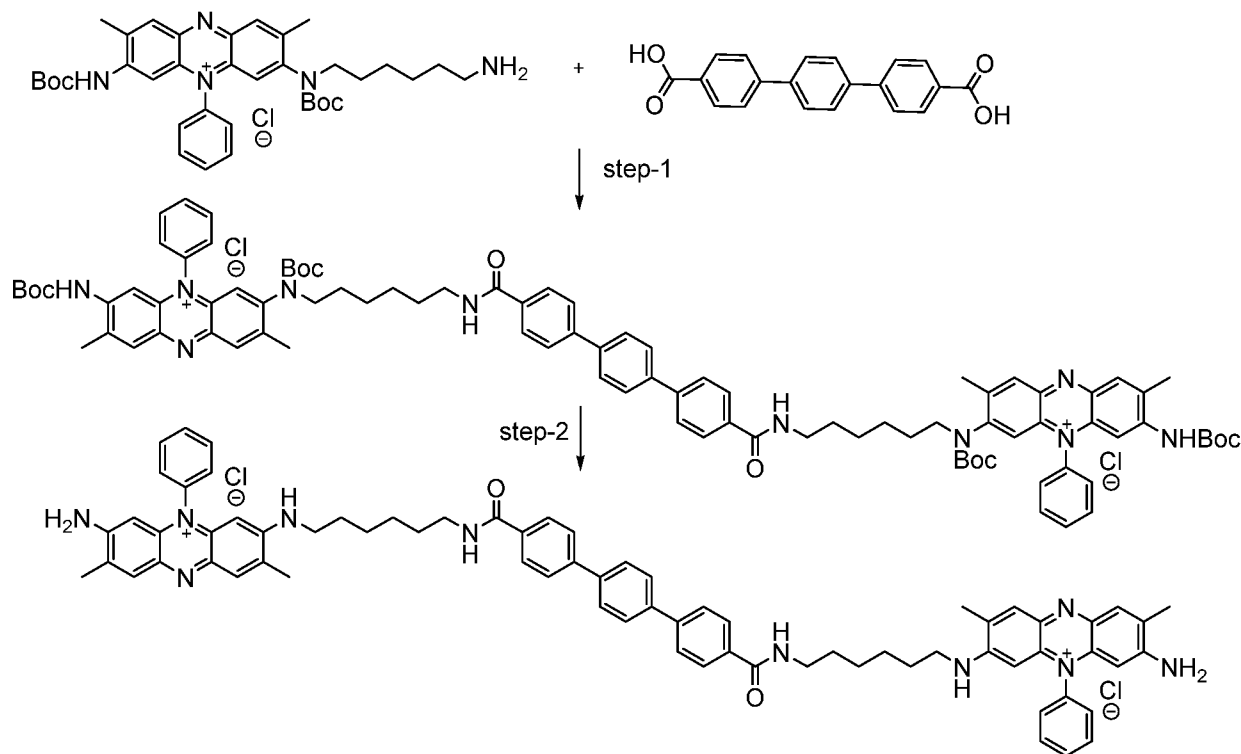
phenylphenazin-5-ium-3-yl)amino)octyl)amino)-3-(tert-butoxycarbonylamino)-2,6-dimethyl-5-phenylphenazin-5-ium chloride.

[1005] To a stirred solution of a mixture of 3,7-bis(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride and 3,7-bis(tert-butoxycarbonylamino)-2,6-dimethyl-5-phenylphenazin-5-ium chloride (5.0 g, 9.07 mmol) in 60 mL of DMF was added cesium carbonate (8.87 g, 27.22 mmol) and stirred at RT for 15 min. The reaction mixture was cooled to 0°C and to it was added 1,8-diiodooctane (2.05 g, 5.62 mmol, diluted with 5 mL of DMF) dropwise. The reaction mixture was stirred at RT for 12 h. The reaction was monitored by TLC and LCMS. After completion of reaction, the mixture was diluted with ice-cold water and filtered. The solid residue was dissolved in diethyl ether (250 mL) and washed with brine solution (3x50 mL). The ether layer was dried over anhydrous sodium sulfate, and concentrated under reduced pressure to afford the crude product which was purified by column chromatography (neutral alumina, eluent 0-40% EtOAc in hexane) to afford the desired product (mixture of 2 products of same mass) as a dark brown solid (3 g).

Step-3: Synthesis of 7,7'-(octane-1,8-diylbis(azanediyl))bis(3-amino-2,8-dimethyl-5-phenylphenazin-5-ium) chloride and 3-amino-7-(8-(7-amino-2,8-dimethyl-5-phenylphenazin-5-ium-3-ylamino)octylamino)-2,6-dimethyl-5-phenylphenazin-5-ium chloride.

[1006] To a stirred solution of a mixture of 7,7'-(2,2,17,17-tetramethyl-4,15-dioxo-3,16-dioxo-5,14-diazaoctadecane-5,14-diyl)bis(3-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium) chloride and 7-(tert-butoxycarbonyl(8-(tert-butoxycarbonyl(7-(tert-butoxycarbonyl amino)-2,8-dimethyl-5-phenylphenazin-5-ium-3-yl)amino)octyl)amino)-3-(tert-butoxy carbonylamino)-2,6-dimethyl-5-phenylphenazin-5-ium chloride (2.5 g, 2.06 mmol) in 25 mL of DCM was added TFA (10 mL) at 0°C dropwise and the mixture stirred at RT for 12 h. The reaction was monitored by TLC and LCMS. After completion of reaction, the solvent was removed under reduced pressure to dryness to obtain a crude product (2 g mixture of two compounds). 400 mg of crude product was purified by reverse phase HPLC to afford two peaks of the same mass. Both peaks were then treated separately with methanolic HCl and dried, and then washed with water and dried again to afford both regioisomeric products.

EXAMPLE 20. Synthesis of Compound D1: [3-Amino-7-({6-[(4-{4-[4-({6-[(7-amino-5-chloranuide-2,8-dimethyl-5-phenyl-5λ⁶,10-phenazin-5-ylum-3-yl)amino]hexyl}carbamoyl)phenyl]phenyl} phenyl)formamido]hexyl}amino)-2,8-dimethyl-5-phenyl-5λ⁶,10-phenazin-5-ylum-5-e]chloranuide



Step-1: Synthesis of tert-butyl N-[8-(tert-butoxycarbonylamino)-3,7-dimethyl-10-phenylphenazin-10-ium-2-yl]-N-[6-[[4-[4-[4-[6-[tert-butoxycarbonyl-8-(tert-butoxycarbonylamino)-3,7-dimethyl-10-phenylphenazin-10-ium-2-yl]amino]hexylcarbamoyl]phenyl]phenyl]benzoyl]amino]hexyl]carbamate dichloride

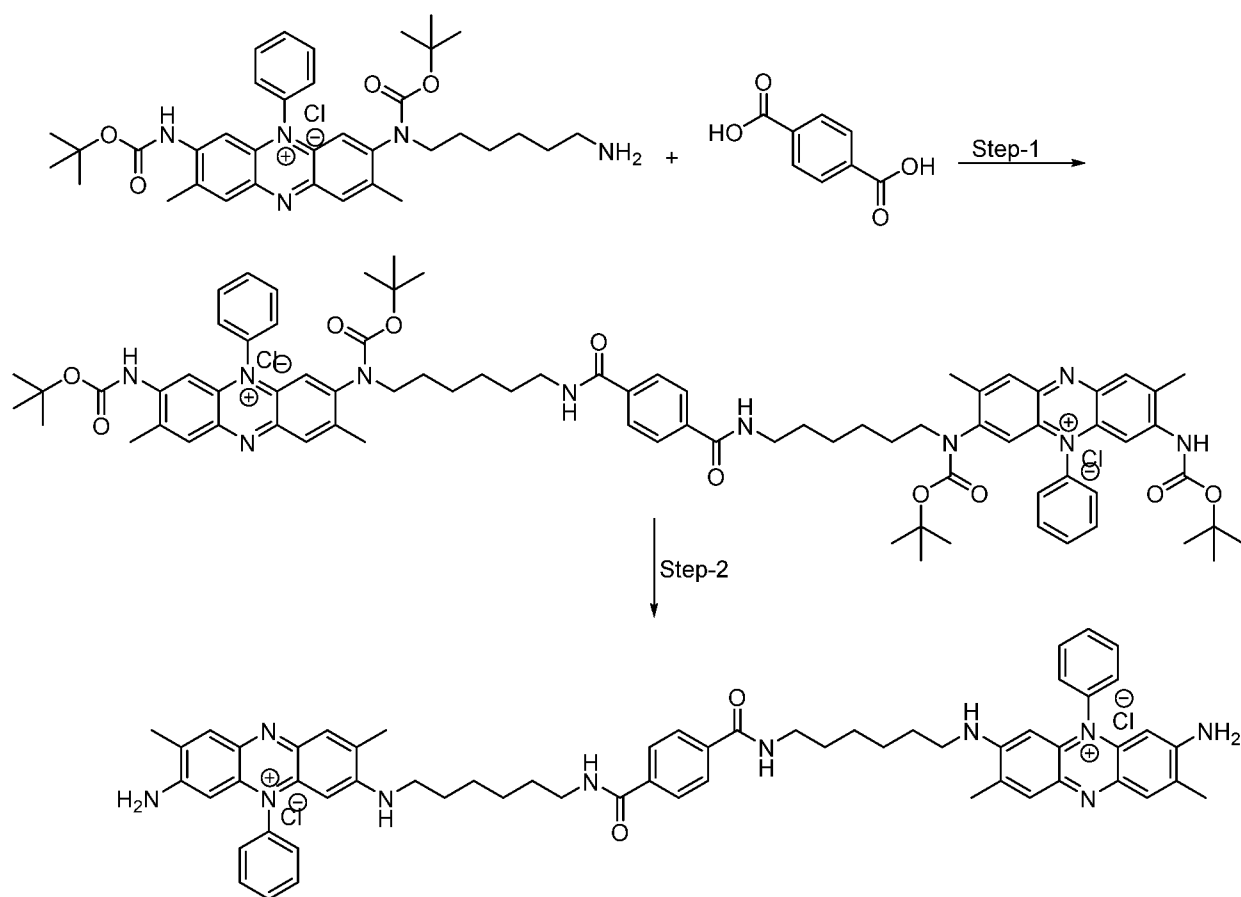
[1007] To a stirred solution of 3-((6-aminohexyl)(tert-butoxycarbonyl)amino)-7-(tert-butoxycarbonyl amino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride (450 mg, 0.69 mmol) in 5 mL of DMF were added EDC.HCl (181 mg, 0.942 mmol), and HOBt (127 mg, 0.942 mmol), and the mixture stirred for 5 min. To this were added 1,4-di(4-carboxyphenyl)benzene (100 mg, 0.314 mmol) and DIPEA (0.21 mL, 1.25 mmol). The reaction mixture was stirred at RT for 12 h. After completion of reaction, the reaction mixture was diluted with ice-cold water and extracted with EtOAc. The organic layer was washed with brine (4x10 mL), dried over anhydrous sodium sulfate and concentrated under reduced pressure to afford a crude product, which was purified by column chromatography (neutral alumina) to afford the desired product (200 mg).

Step-2: Synthesis of N-[6-[(8-amino-3,7-dimethyl-10-phenylphenazin-10-ium-2-yl)amino]hexyl]-4-[4-[4-[6-[(8-amino-3,7-dimethyl-10-phenylphenazin-10-ium-2-yl)amino]hexyl]carbamoyl]phenyl] phenyl]benzamide dichloride

[1008] The product obtained from step-1 (200 mg) was dissolved in 5 mL of DCM and TFA (0.5 mL) was added at 0°C dropwise, and the mixture stirred at RT for 12 h. The reaction was monitored by TLC and LCMS. After completion of reaction, the solvent was removed under reduced pressure to dryness to obtain the crude product, which was purified by reverse phase HPLC. The product was treated with ethanolic HCl (3-4 times), evaporated, then dissolved in minimal distilled water and finally freeze dried to afford the desired product (10 mg).

[1009] ^1H NMR (DMSO- d_6): δ (ppm): 8.56 (t, 2H), 7.97-7.95 (d, 4H), 7.90-7.78 (m, 16H), 7.70-7.65 (m, 2H), 7.62 (d, 4H), 7.60-7.50 (m, 3H), 6.02 (s, 2H), 5.58 (s, 2H), 3.25 (m, 4H), 2.98 (m, 4H), 2.35 (s, 6H), 2.33 (s, 6H), 1.50-1.42 (m, 4H), 1.40-1.30 (m, 4H), 1.25-1.05 (m, 8H). LCMS: 555.6 (M/2).

EXAMPLE 21. Synthesis of Compound D2: 3-Amino-7-[(6-[(4-[(6-[(7-amino-2,8-dimethyl-5-phenyl-5 λ^5 ,10-phenazin-5-ylum-3-yl)amino]hexyl)carbamoyl]phenyl]formamido)hexyl)amino]-2,8-dimethyl-5-phenyl-5 λ^5 ,10-phenazin-5-ylum dichloride



Step-1: Synthesis of 3-[(tert-butoxy)carbonyl][6-[(4-[(6-[(tert-butoxy)carbonyl](7-[(tert-butoxy)carbonyl] amino)-2,8-dimethyl-5-phenyl-5 λ^5 ,10-phenazin-5-ylum-3-yl)amino)hexyl)carbamoyl]phenyl]formamido)hexyl]amino)-7-[(tert-butoxy)carbonyl]amino)-2,8-dimethyl-5-phenyl-5 λ^5 ,10-phenazin-5-ylum dichloride

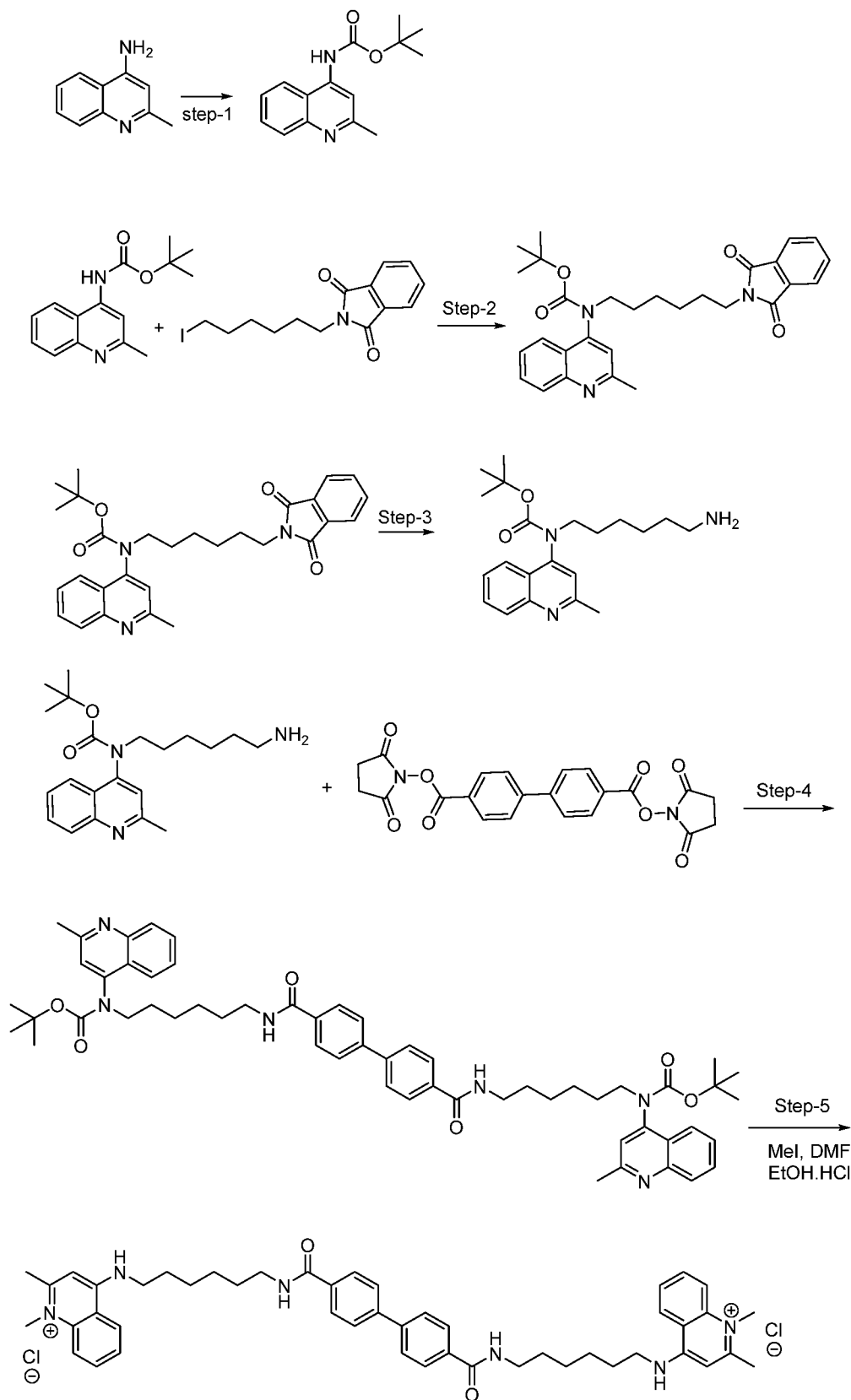
[1010] To a stirred solution of 3-((6-aminohexyl)(tert-butoxycarbonyl)amino)-7-(tert-butoxycarbonylamino)-2,8-dimethyl-5-phenylphenazin-5-ium chloride (440 mg, 0.677 mmol) in 5 mL of DMF were added EDC.HCl (200 mg, 1.05 mmol), and HOBt (141.7 mg, 1.05 mmol), and the mixture stirred for 5 min. Terephthalic acid (50 mg, 0.300 mmol) and DIPEA (0.4 mL, 2.4 mmol) were added. The reaction mixture was stirred at RT for 12 h. After completion of reaction, the reaction mixture was diluted with ice-cold water and extracted with EtOAc (2x30 mL). The organic layer was washed with brine solution (4x20 mL), dried over anhydrous sodium sulfate and concentrated under reduced pressure to afford a crude product, which was purified by column chromatography (neutral alumina) to afford the desired product (200 mg).

Step-2: Synthesis of 3-amino-7-[(6-{[4-({6-[(7-amino-2,8-dimethyl-5-phenyl-5λ⁵,10-phenazin-5-ylum-3-yl)amino]hexyl}carbonyl)phenyl]formamido}hexyl)amino]-2,8-dimethyl-5-phenyl-5λ⁵,10-phenazin-5-ylum dichloride.

[1011] The product obtained from step-1 (200 mg) was dissolved in 5 mL of DCM and TFA (0.5 mL) was added at 0°C dropwise, and the mixture stirred at RT for 12 h. The reaction was monitored by TLC and LCMS. After completion of reaction, the solvent was removed under reduced pressure to dryness to obtain a crude product, which was purified by reverse phase HPLC. The product was then treated with ethanolic HCl, then evaporated, dissolved in distilled water and freeze dried to afford the desired product (40 mg).

[1012] ¹H NMR (DMSO-d₆): δ (ppm): 8.62 (t, 2H), 7.97-7.95 (d, 4H), 7.90-7.78 (m, 8H), 7.80-7.70 (m, 3H), 7.62 (d, 4H), 7.60-7.55 (m, 3H), 6.02 (s, 2H), 5.58 (s, 2H), 3.25 (m, 4H), 2.98 (m, 4H), 2.30 (s, 6 H), 2.25 (s, 6H), 1.50-1.42 (m, 4H), 1.40-1.30 (m, 4H), 1.25-1.05 (m, 8H).
LCMS: 479.7 (M/2).

EXAMPLE 22. Synthesis of Compound D3: Synthesis of N-[6-[(1,2-dimethylquinolin-1-ium-4-yl)amino]hexyl]-4-[4-[6-[(1,2-dimethylquinolin-1-ium-4-yl)amino]hexylcarbamoyl]phenyl]benzamide dichloride



Step-1: Synthesis of tert-butyl 2-methylquinolin-4-yl carbamate:

[1013] To a stirred solution of 2-methylquinolin-4-amine (10.0 g, 63.29 mmol) in 200 mL of THF were added Boc anhydride (13.79 g, 63.29 mmol, 1 eq.), TEA (10.56 mL, 75.94 mmol) and DMAP (772 mg, 6.32 mmol), and the mixture stirred at RT for 6h. A second portion of Boc anhydride (6.9 g, 0.5 eq.) was added and again stirred for 6 h. After completion of reaction, the solvent was removed under reduced pressure and the mixture extracted with EtOAc. The organic layer was washed with brine solution, dried over anhydrous sodium sulfate, and concentrated under reduced pressure to obtain a crude product, which was washed with diethyl ether and pentane to afford tert-butyl 2-methylquinolin-4-ylcarbamate (9.5 g).

Step-2: Synthesis of tert-butyl 6-(1,3-dioxoisindolin-2-yl)hexyl(2-methylquinolin-4-yl)carbamate:

[1014] To a stirred solution of tert-butyl 2-methylquinolin-4-ylcarbamate (1.30 g, 5.03 mmol) in 20 ml of DMF was added cesium carbonate (3.26 g, 10.06 mmol) and stirred at RT for 10 min. 2-(6-iodohexyl) isoindoline-1,3-dione (2.06 g, 5.79 mmol) was dissolved in DMF (10 mL) and added to the reaction mixture at 0°C and allowed to stir at RT for 5 h. After completion of reaction, the mixture was diluted with ice-cold water and extracted with EtOAc. The organic layer was washed with brine solution (5 times), dried over anhydrous sodium sulfate, and concentrated under reduced pressure to obtain tert-butyl 6-(1,3-dioxoisindolin-2-yl)hexyl(2-methylquinolin-4-yl)carbamate (2.80 g).

Step-3: Synthesis of tert-butyl 6-aminohexyl(2-methylquinolin-4-yl)carbamate:

[1015] To a stirred solution of tert-butyl 6-(1,3-dioxoisindolin-2-yl)hexyl(2-methylquinolin-4-yl)carbamate (2.8 g, 5.74 mmol) in 25 mL of EtOH was added 2.87 mL of hydrazine hydrate (57.4 mmol), and the mixture heated to reflux for 3 h. After completion of reaction, the solvent was removed under reduced pressure, and the residue was diluted with water and extracted with EtOAc. The organic layer was washed with brine solution, dried over anhydrous sodium sulfate, and concentrated under reduced pressure to obtain tert-butyl 6-aminohexyl(2-methylquinolin-4-yl)carbamate (1.7 g).

Step-4: Synthesis of tert-butyl N-[6-[[4-[4-[6-[tert-butoxycarbonyl-(2-methyl-4-quinolyl)amino]hexyl carbamoyl]phenyl]benzoyl]amino]hexyl]-N-(2-methyl-4-quinolyl)carbamate

[1016] To a stirred solution of bis(2,5-dioxopyrrolidin-1-yl) biphenyl-4,4'-dicarboxylate (1.03 g, 2.38 mmol) in 20 mL of DMF were added tert-butyl 6-aminohexyl(2-methylquinolin-4-

yl)carbamate (1.7 g, 4.76 mmol, diluted with DMF) dropwise at 0°C and TEA (1.32 mL, 9.52 mmol), and the mixture stirred at RT for 12 h. After completion of reaction, the mixture was diluted with ice-cold water and extracted with EtOAc. The organic layer was washed with brine solution (5 times), dried over anhydrous sodium sulfate, and concentrated under reduced pressure to obtain crude tert-butyl N-[6-[[4-[4-[6-[tert-butoxycarbonyl-(2-methyl-4-quinolyl)amino]hexylcarbamoyl]phenyl]benzoyl]amino]hexyl]-N-(2-methyl-4-quinolyl)carbamate which was purified by column chromatography (silica gel, 100-200 mesh, eluent 0-4% MeOH in DCM) (1.5 g).

Step-5: Synthesis of N-[6-[(1,2-dimethylquinolin-1-ium-4-yl)amino]hexyl]-4-[4-[6-[(1,2-dimethylquinolin-1-ium-4-yl)amino]hexylcarbamoyl]phenyl]benzamide dichloride

[1017] The product from step-4 (300 mg, 0.325 mmol) was dissolved in 3 mL of DMF and methyl iodide (0.60 mL, 9.75 mmol) was added, and the mixture stirred at 90°C for 12 h. After completion of reaction, the mixture was cooled to RT and triturated with diethyl ether. The precipitated product was isolated, washed with water, pentane and diethyl ether, and dried to afford 300 mg of crude product. A portion (50 mg) of crude product was purified by HPLC to afford pure product which was treated with methanolic HCl, evaporated, dissolved in water and freeze dried to afford N-[6-[(1,2-dimethylquinolin-1-ium-4-yl)amino]hexyl]-4-[4-[6-[(1,2-dimethylquinolin-1-ium-4-yl)amino]hexylcarbamoyl]phenyl] benzamide dichloride (5 mg).

[1018] ¹H NMR (DMSO-d₆): δ (ppm): 9.20 (t, 2H), 8.60 (m, 4H), 8.20 (d, 2H), 8.02-7.95 (m, 6H), 7.80 (d, 4H), 7.75 (t, 2H), 6.98 (s, 2H), 3.99 (s, 6H), 3.50 (m, 4H), 3.27 (m, 4H), 2.78 (s, 6H), 1.75 (m, 4H), 1.60 (m, 4H), 1.50-1.38 (m, 8H). LCMS - 375 (M/2).

Example B1. Isolation and Culture of MSCs from Rat Bone Marrow

[1019] A protocol based on Soleimani & Nadri, *Nature Protocols* 4, 102-106, 2009, was used to isolate MSCs from rat bone marrow and culture the MSCs.

[1020] Sprague Dawley rats weighing between 250-300 g were rinsed in 70% ethanol. An incision was made around the perimeter of the hind limbs where they are attach to the trunk. Skin was removed by pulling toward the foot, which was cut at the ankle bone to eliminate further contact of the hind limb with the animal's fur, which is a source of contaminating bacteria. The hind limbs were dissected from the trunk of the body by cutting along the spinal cord with care not to damage the femur.

[1021] Each hind limb was bisected by cutting through the knee joint. Muscle and connective tissue were removed from both the tibia and the femur by scraping the diaphysis of the bone

clean then pulling the tissue toward the ends of the bone. After cleaning, the bones were stored on ice in 1X Hank's balanced salt solution (HBSS), pH: 7.2 (GIBCO®, Cat: 14185-012) until bone marrow was harvested.

[1022] Bone marrow was harvested in a hood using sterile technique. Bones were placed in ethanol for 5 minutes and then transferred to a 10 cm culture dish (NUNC™) containing “complete medium,” which is MESENPRO RS™ medium (GIBCO®, Cat: 12747-010) supplemented with 2 mM L-glutamine, 1% penicillin-streptomycin (10.000 U/mL, GIBCO®, Cat: 15140-122), 15% inactivated fetal bovine serum (FBS; GIBCO®, Cat: 16000-044), and 1X MEM NEAA Solution (Minimal Essential Medium, Non-Essential Amino Acids; GIBCO®, Cat: 11140-050).

[1023] The ends of the tibia and femur were cut just below the end of the marrow cavity using fine scissors. A 21-gauge needle attached to a 5-10 mL syringe containing cold complete medium was inserted into spongy bone exposed by removal of the growth plate. The marrow plug was flushed out of the cut end of the bone with medium and collected in a 50 mL tube (THERMO SCIENTIFIC™) on ice.

[1024] The cell suspension was centrifuged at 400 x g for 5 minutes at RT. At this point the pellet is not very compact, so the supernatant was removed carefully. The cells were resuspended in fresh medium, and the suspension was filtered using a 70 µm filter mesh (FALCON®, Cat:352350) to remove any bone spicules or muscle and cell clumps.

[1025] A sample of the cell suspension was diluted 1/50 and counted in a hemocytometer. Viability was determined by Trypan Blue exclusion (0.4%, GIBCO®, Cat: 15250-061). Typically between 400 and 500 million cells were obtained per rat.

[1026] Bone marrow cells were cultured in a 10 cm culture dish in 5 mL of complete medium at a density of 25×10^6 cells per plate at 37 °C with 5% CO₂ in a humidified chamber without disturbing them.

[1027] After 4 hours, non-adherent cells that accumulated on the surface of the dish were removed by washing twice with PBS-EDTA, which is 1X phosphate-buffered saline 1X, pH 7.4 (GIBCO®, Cat: 70011-044) containing with 5 mM EDTA (Invitrogen, Cat:15576-028) twice, which was then replaced with 10 mL of fresh complete medium. Every 3-4 days, adherent cells were washed vigorously twice with PBS-EDTA, and fresh medium was added.

[1028] Once cells reach about 90% confluence, they are passaged using trypsin, washed in 1X PBS, and re-seeded at a density of 5×10^6 cells per 10 cm culture dish. When cells in passage 3

are about 90% confluent, cells are trypsinized with 0.025% trypsin-EDTA (Gibco, 15090-046) for 8 min at 37°C and 5% CO₂ and washed with PBS 1X. Two hundred thousand living cells were placed in a polystyrene round bottom tube (BD Falcon, 352052). Cells were washed with Flow Cytometry Staining Buffer (1% w/v BSA [Rockland, BSA50], 0.1% w/v Sodium Azide [Sigma-Aldrich, 438456] in PBS 1X) and centrifuged at 400 x g for 5 min at room temperature. Subsequently cells were resuspended in 100 µL of Flow Cytometry Staining Buffer and incubated with primary antibodies for 20 min at 4°C in the dark (0.25 µg/mL CD45 FITC [BD Bioscience, 561867], 0.2 µg/mL CD90 PE-Cy7 [Biolegend, 202518], 0.25 µg/mL CD29 PE [BD Bioscience, 562154], 0.25 µg/mL CD11b PE-Cy7 [BD Bioscience, 562222], 0.25 µg/mL CD54 PE [Biolegend, 202405], 0.25 µg/mL IgG1 FITC [BD Bioscience, 552811] and 0.25 µg/mL IgM PE [BD Bioscience, 553943]). Cells were washed and resuspended in 500 µL of Flow Cytometry Staining Buffer for analysis in MACSQuant® Analyzer 10 (Miltenyi). Characterization of rat-derived MSCs was based on Zhang & Chan, *J Vis Exp.* 2010 Mar 22;(37), including CD29⁺ and CD11b⁻ markers. The results are shown in Table 2. These results demonstrate that >90% of the obtained cells are MSCs.

Table 2. Phenotypic characterization of rat-derived MSCs at passage 3

CD Marker	% Positive	% Negative
CD45	1.9	98.1
CD90	98.9	1.1
CD29	99.9	0.2
CD54	99.8	0.2
CD11b	2.9	97.1

% of MSCs (CD45⁻, CD11b⁻, CD29⁺, CD54⁺, CD90⁺) = 92%

Example B2. Formation of Raji Cell Pellets in the Presence of Compound 20

[1029] 10⁶ Raji cells were placed in 1.5 mL tubes in a final volume of 500 µL PBS and incubated with 1 µM or 10 µM of Compound 20 for 1, 5, 15, or 30 min. After the incubation, the cells were washed by adding 500 µL of PBS. Cells were centrifuged at 500xg for 5 min to form a pellet, and the pellet was gently released from the bottom of the tube with 100 µL of PBS.

[1030] The results are shown in **FIG. 1**. These results demonstrate that Raji cells form pellets after incubation with 10 µM Compound 20 after as little as 1 minute.

Example B3. Stability of Raji Cell Pellets After Incubation with Compound 20

[1031] 1.5×10^6 Raji cells were placed in 1.5 mL tubes in a final volume of 500 μ L PBS, then incubated with 1 μ M or 10 μ M of Compound 20 for 5 min or 30 min on a shaker at RT. After the incubation, the cells were washed by adding 500 μ L of PBS. Cells were centrifuged at 500xg for 5 min to form a pellet, and the pellet was gently released from the bottom of the tube with 100 μ L of PBS.

[1032] To test the stability of the pellets, the pellets were placed on a flat bottom 96-well plate using a cut p1000 micropipette tip in 100 μ L final volume in PBS. The plate was shaken using lineal movement at a speed of 567 cycles per minute (cpm) in a CYTATIONTM 5 imaging equipment. Images of the wells were taken by the CYTATIONTM 5 using Gen 5 2.07 software.

[1033] The results are shown in **FIG. 2A** (30 min. incubation with Compound 20) and **FIG. 2B** (5 min. incubation with Compound 20). These results demonstrate that pellets formed in the presence of 10 μ M Compound 20 for as little as 5 min. remain essentially intact after shaking for up to 5 minutes. Any pellets formed with cells incubated in PBS are not durable and cells disperse quickly within 30 seconds with the pellet fully dismantled by 5 min.

Example B4. Differentiation of Rat Bone Marrow-Derived MSCs in Pellet Cultures

[1034] This example demonstrates that 10 μ M Compound 20 promotes chondrogenic differentiation of rat bone marrow-derived MSCs in pellet cultures incubated with chondrogenic medium.

Differentiation protocol

[1035] Rat MSCs were obtained as described in Example B1. After reaching 90% confluence, MSCs were removed from the culture plate or flask using 2.5% trypsin (GIBCO®, Cat: 15090-046) for 5 min. The cells were centrifuged in 15 ml tubes at 500xg for 4 min, and the supernatant was removed.

[1036] Cells were incubated at a density of $0.5\text{--}10 \times 10^6$ cells in 500 μ L of a 10 μ M solution of Compound 20 in PBS for 20 min at RT on a shaker, then centrifuged in 1.5 ml tubes at 500xg for 4 min. The supernatant was removed, and the cells were washed gently by adding 500 μ L of PBS and centrifuging at 500xg for 7 min. The cells were resuspended in 500 μ L of PBS and counted.

[1037] 5×10^5 viable cells were placed in a 15 mL tube and centrifuged at 500xg for 7 min, then 500 μ L of chondrocyte differentiation media (STEMXVIVO®, Cat N° CCM005-CM006) was

added. The medium was changed every 2 to 3 days, maintaining the 500 μ L volume, for 3 weeks.

Immunofluorescence assay

[1038] The medium was removed from the 15 mL tube and replaced with 500 μ L of 4% paraformaldehyde in PBS and incubated for 20 min at RT. The paraformaldehyde solution was removed, and replaced with 500 μ L of 4% paraformaldehyde, 15% sucrose in PBS. The pellet was left in this solution overnight.

[1039] The solution was removed and replaced with 500 μ L of 4% paraformaldehyde, 30% sucrose in PBS. The pellet was left in this solution overnight or until the pellet is in the bottom of the tube.

[1040] The pellet was frozen in O.C.T.TM compound (TISSUE-TEK®, Cat N° 4583), and 5 μ m sections were cut and fixed on a positively charged slide (Cell Path, Cat N° MDB-0102-54A).

[1041] A line was drawn around the sections with a hydrophobic pen. 100-300 μ L of blocking solution (1% BSA, 0.3% TRITON® X-100 in PBS) was placed on the sections and left for 1h at room temperature. The blocking solution was removed with a micropipette. The primary antibody solution (goat anti-aggrecan G1-IgD-G2 domain, R&D SYSTEMSTM, Cat N° AF1220) was diluted 1:20 in blocking solution, and 100-200 μ L of the antibody solution was placed on the sections. The sections were left at 4°C overnight in a humidified box.

[1042] The primary antibody solution was removed, and the sections were washed 3 times with 1% BSA in PBS for 5 min. The lines around the sections were redrawn with the hydrophobic pen.

[1043] The secondary antibody (donkey anti-goat IgG ALEXA FLUOR® 488, LIFE TECHNOLOGIESTM, Cat N° A11055) was diluted 1:100 in blocking solution, and 100-200 μ L of the secondary antibody solution was added to the sections. The sections were incubated in the dark for 1h at RT, and the remaining steps were carried out in the dark to avoid degrading the fluorophor. The sections were then washed 3 times with 1% BSA in PBS for 5 min, and the lines around the sections were redrawn with the hydrophobic pen.

[1044] 100-200 μ L of a 1:2000 dilution of DAPI in PBS were added to the sections, which were incubated for 5 min at RT. The DAPI was removed, and the sections were washed 3 times with PBS for 5 min and a 4th time with distilled water for another 5 min. After drying, 30 μ L of

Fluorescence Mounting Medium (Dako, catalog # 53023) was added to the sections, which were then covered with a coverslip and stored at 4°C.

[1045] The results are shown in **FIG 3A** and **FIG. 3B**. These results demonstrate that 10 μ M Compound 20 permits chondrogenic differentiation of rat bone marrow-derived MSCs in pellet cultures incubated with chondrogenic medium. This can be seen by the extracellular aggrecan staining in **FIG. 3B**.

Example B5. Chondrogenic Differentiation of Rabbit MSCs in Pellet Cultures in the Presence of Compound 20

[1046] This example demonstrates that 10 μ M Compound 20 promotes chondrogenic differentiation of rabbit MSCs in pellet cultures incubated with either chondrogenic medium or basal medium.

[1047] Rabbit MSCs (Cyagen Cat N° RBXMX-01001) were cultured and incubated with 10 μ M Compound 20 as described for the rat bone marrow-derived MSCs in Example B4. Cells were used up to passage 5 and after that were discarded. After incubation with Compound 20, some cultures were provided with basal medium (DMEM, Life Technologies Cat N° 11965-092) supplemented with 10% FBS (Gibco, catalog number 16000) and penicillin streptomycin (Gibco, catalog number 15140-122) or chondrocyte differentiation media (StemXvivo Cat N° CCM005-CM006) supplemented with penicillin streptomycin. The medium was changed every 2 to 3 days, maintaining the 500 μ L volume, for 21 days.

[1048] The immunofluorescence assay was carried out as described in Example B4. The results are shown in **FIGS. 4A-D**. These results demonstrate that 10 μ M Compound 20 permits chondrogenic differentiation of rabbit MSCs in pellet cultures incubated with chondrogenic medium and promotes chondrogenic differentiation of rabbit MSCs in pellet cultures incubated with basal medium (*i.e.*, in the absence of TGF β).

Example B6. Chondrogenic Differentiation of Low Density Rabbit MSC Pellet Cultures in the Presence of Compound 20

[1049] This example demonstrates that Compound 20 promotes chondrogenic differentiation of rabbit MSCs in low density pellet cultures incubated in supplemented basal medium (*i.e.*, in the absence of TGF- β). Rabbit MSCs were cultured as described in Example B4 except that pellets were formed using 10^5 MSCs. The immunofluorescence assay was carried out as described in Example B4. The results are shown in **FIGS. 5A-F**. These results demonstrate that Compound 20 promotes chondrogenic differentiation of rabbit MSCs in low density pellet cultures.

EXAMPLE B7. Targeting of Raji Cells and Rabbit MSCs to Various Organs

[1050] The femur, cecum, heart, kidney, liver, trachea, lungs, pancreas, spleen, and a portion of the small intestine were extracted from 3 month old C57Bl/6 mice and washed 3 times with PBS in 50 ml conical tubes.

[1051] Non-adherent Raji cells (10^7) were incubated in 500 μ L of 10 μ M calcein AM (Invitrogen, Cat N° C3100MP) in PBS for 30 min on a shaker at RT. The cells were washed by adding 500 μ L PBS, centrifuging at 500g for 4 min, removing supernatant, and resuspending the cells in 500 μ L PBS. The cells were then incubated in 500 μ L 10 μ M Compound 20 in PBS or in PBS alone (control) for 30 min on a shaker at RT. The cells were washed by adding 500 μ L PBS, centrifuging at 500g for 4 min, removing supernatant, and resuspending cells in 1 mL PBS. The cells were then counted, and 0.5×10^6 cells were added over each organ in 1 mL of PBS in a p48 well plate, and incubated for 30 min at RT. The organs were then gently washed in 1 mL of PBS in a new p48 well.

[1052] Rabbit mesenchymal stem cells (rbMSCs) were treated as described above, except that washing for 2 min instead of 4 min.

[1053] Adherence of the Raji cells or MSCs to the organs was evaluated by detecting the fluorescence of calcein dye using a ChemiDoc MP Imaging System (470/530 filter) and ImageLab software and compared to the PBS control. The results are shown in **FIG. 6** (Raji cells) and **FIG. 7** (rbMSCs).

EXAMPLE B8. Targeting of Raji Cells to Meniscus Explants

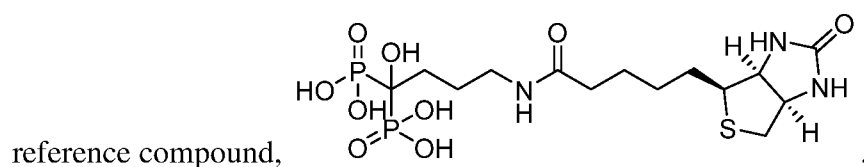
[1054] Whole menisci were extracted from 4-6 month old NZW rabbits and washed 3 times with PBS in 50 ml conical tubes. The menisci were incubated with 100 μ M of biotin-conjugated compound 4 or biotin-conjugated compound 20 in a final volume of 1 mL in PBS or 1 mL PBS alone for 30 min at RT in a 48 well plate, then washed twice in new p48 wells with 1 mL PBS.

[1055] The menisci were incubated with 1 μ g/ml of streptavidin-FITC (SA-FITC) (Thermo 21224) in a final volume of 1 mL in PBS for 30 min at RT in the dark, then washed twice in a new p48 well plate with 1 mL PBS. Staining of the menisci was evaluated by measuring fluorescence in FITC channel (470/530 filter) using ChemiDoc MP Imaging System and ImageLab software.

[1056] Non-adherent Raji cells (10^7) were incubated with compound 4 or compound 20 as described above in Example B1. Cells were counted, and 0.5×10^6 cells were placed over the meniscus explants in 1 mL of PBS in a 48 well plate and incubated for 30 min at RT. The explants were gently washed in 1 mL of PBS in a new p48 well plate.

[1057] Cell adherence to the meniscus explants was evaluated by measuring fluorescence of calcein dye using a ChemiDoc MP Imaging System (470/530 FITC filter) and ImageLab software.

[1058] The results are shown in **FIG. 8A** and **FIG. 8B**. These results demonstrate that compounds 4 and 20 promote adherence of Raji cells to meniscus explants. Compound 6873 is a



EXAMPLE B9. Persistence of Compound 4 in the Knee After Intra-Articular Injection

[1059] Six- to eight-week old Sprague Dawley rats were anesthetized with 3% sevoflurane, and both right and left knees were shaved and washed. 250 μ l of a solution of 10 mg/ml Compound 4 in PEG400 (Spectrum PO110) was injected intra-articularly through the patellar ligament on the right knees. 250 μ l of vehicle (PEG400) was injected intra-articularly into left knees as a control.

[1060] Rats were euthanized at 1h, 4h, 8h and 24h post-injection, and femoral condyles were extracted for macroscopic and fluorescence evaluation using a Gel Logic Pro6000 Imaging System (530/600 filter) and Carestream software.

[1061] The results are shown in **FIG. 9**. These results demonstrate that compound 4 is present in the knee 24 hr after intra-articular injection.

EXAMPLE B10. Staining of Small Intestine After Oral Administration of Compound 20

[1062] Six- to eight-week old C57BL/6 mice were anesthetized with 3% sevoflurane. A solution of 10 mg/ml Compound 4 in 20% cyclodextrin was administered by oral gavage at a dose of 100 mg/kg. A solution of 20% cyclodextrin was administered by oral gavage as a control.

[1063] After 24h, mice were euthanized and a portion of small intestine and Peyer's patches were extracted, washed in PBS and fluorescence was measured using a Gel Logic Pro6000 Imaging System (530/600 filter) and Carestream software.

[1064] The results are shown in **FIG. 10A** and **FIG. 10B**. These results demonstrate that Compound 4 stains the small intestine but not Peyer's patches after oral administration.

EXAMPLE B11. Organ Staining Following Oral Administration of Compound 4

[1065] Six- to eight-week old Sprague Dawley rats were anesthetized with 3% sevoflurane. A solution of 10 mg/ml Compound 4 or 10 mg/ml Safranin-O (Sigma S8884) in 20% cyclodextrin (Sigma C4805) was administered by oral gavage at a dose of 100 mg/kg. A solution of 20% cyclodextrin was administered by oral gavage as a control.

[1066] After 24h, rats were euthanized and different organs were extracted and washed in PBS. Fluorescence was measured using a Gel Logic Pro6000 Imaging System (530/600 filter) and Carestream software to determine the localization of Compound 4 or safranin-O. The results are shown in **FIG. 11A** and **FIG. 11B**.

EXAMPLE B12. Organ Staining Following Intravenous Administration of Compound 4

[1067] Six- to eight-week old Sprague Dawley rats were anesthetized with 3% sevoflurane. A solution of 100 mg/ml Compound 4 in 100% DMSO was administered intravenously at a dose of 100 mg/Kg. A solution of 100% DMSO was administered IV as a control.

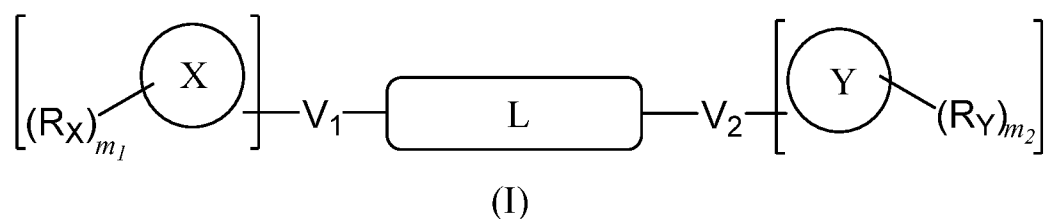
[1068] After 2h, rats were euthanized and different organs were extracted and washed in PBS. Fluorescence was measured using a Gel Logic Pro6000 Imaging System (530/600 filter) and Carestream software to determine where Compound 4 was localized. The results are shown in **FIG. 12A** and **FIG. 12B**.

CLAIMS

1. A method of preparing a pellet composition comprising a population repair cells, comprising:

- (a) incubating a population of repair cells with a compound under conditions sufficient for the compound to bind to the surface of the repair cells;
- (b) subjecting the population to centrifugation to form a pellet; and
- (c) culturing the pellet for less than three weeks,

wherein the compound is a compound of formula (I):



wherein:

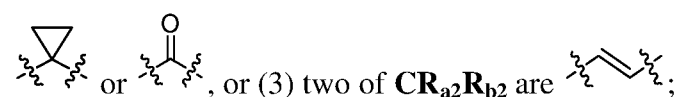
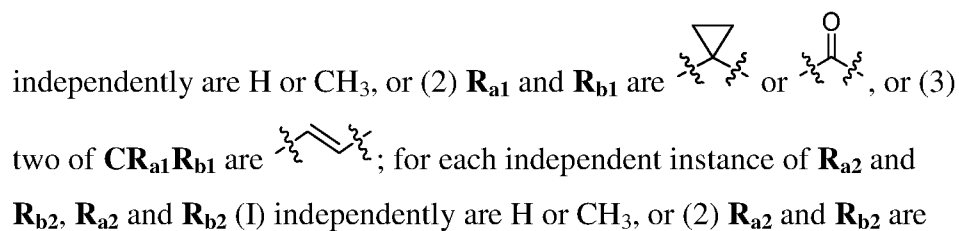
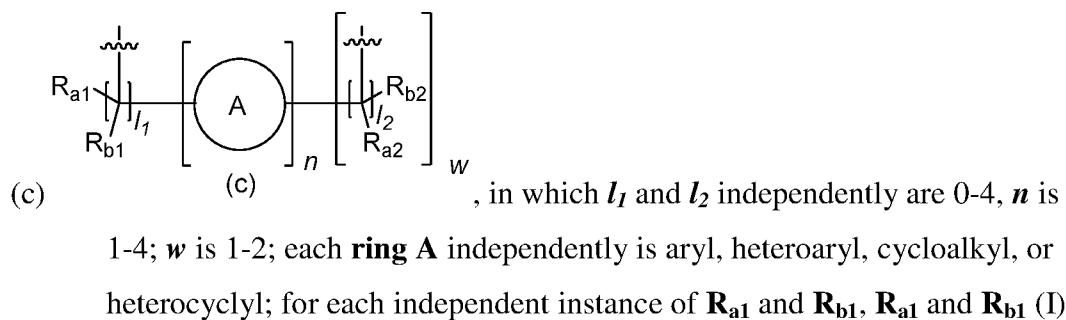
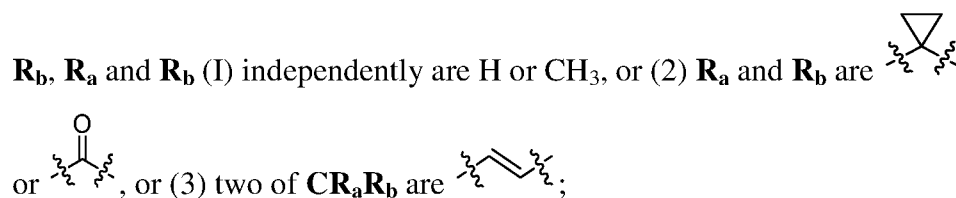
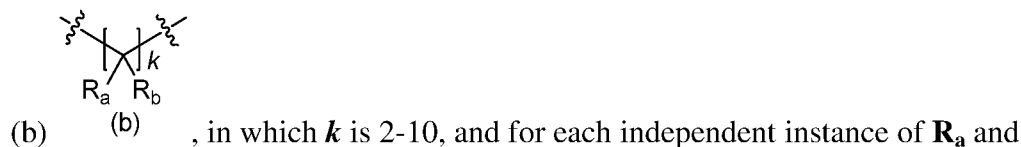
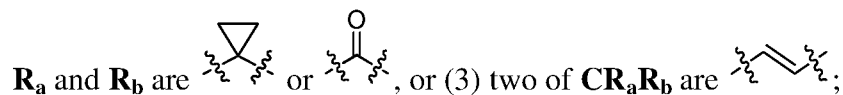
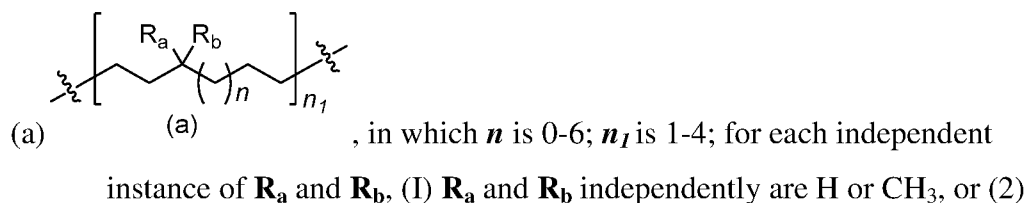
each **X** and **Y** independently is a positively charged moiety selected from (a) a 5-10 membered heteroaromatic ring and (b) a multiple-fused ring system comprising at least one 6-10 membered aromatic or 5-10 membered heteroaromatic ring;

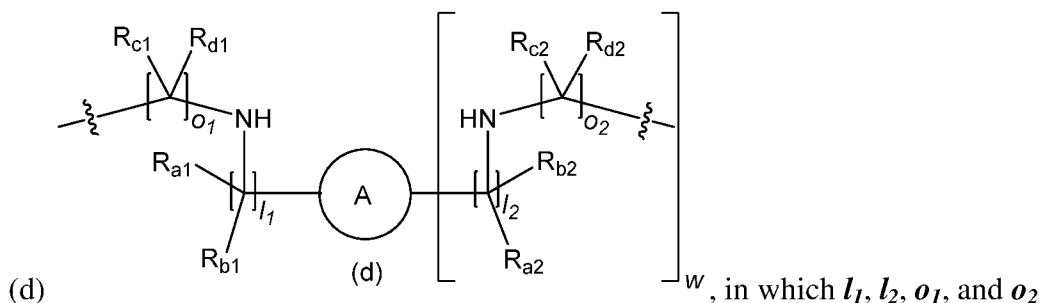
each **R_X** and **R_Y** independently is selected from the group consisting of **R**, -NH₂, -NHR, -NR₂, -N(**R**)₃⁺, -NHCOR, -NO₂, -OH, -OR, halo, C1-C6 perhaloalkyl, -CN, -SH, -SR, -SO₂H, -SO₃H, -CO₂H, -CO₂R, -CHO, and -COR, wherein **R** is (i) C1-C6 linear or branched alkyl, (ii) C3-C8 cycloalkyl, (iii) C2-C6 linear or branched alkenyl, (iv) C2-C6 linear or branched alkynyl, (v) C6-C10 aryl, or (vi) C5-C10 heteroaryl;

m₁ and **m₂** independently are 0 or an integer from 1-6;

V₁ and **V₂** independently are absent or are selected from -C(**R_Z**)₂-, -C(=O)-, -C(=O)O-, -C(=O)NR_Z-, -NR_Z-, -O-, -S-, -S(=O)-, -S(=O)₂-, -S(=O)O-, and -S(=O)NR_Z-, wherein each **R_Z** independently is H or C1-C6 linear or branched alkyl; and

L is a linker selected from the group consisting of:





independently are 0-4; w is 1-2; n is 1-4; each **ring A** independently is aryl, heteroaryl, cycloalkyl, or heterocyclyl; for each independent instance of R_{a1} and R_{b1} , (1) R_{a1} and R_{b1} independently are H or CH₃, (2) R_{a1} and

R_{b1} are or , or (3) two of $CR_{a1}R_{b1}$ are ; for each

independent instance of R_{a2} and R_{b2} , (1) R_{a2} and R_{b2} independently are H

or CH₃, (2) R_{a2} and R_{b2} are or , or (3) two of $CR_{a2}R_{b2}$ are

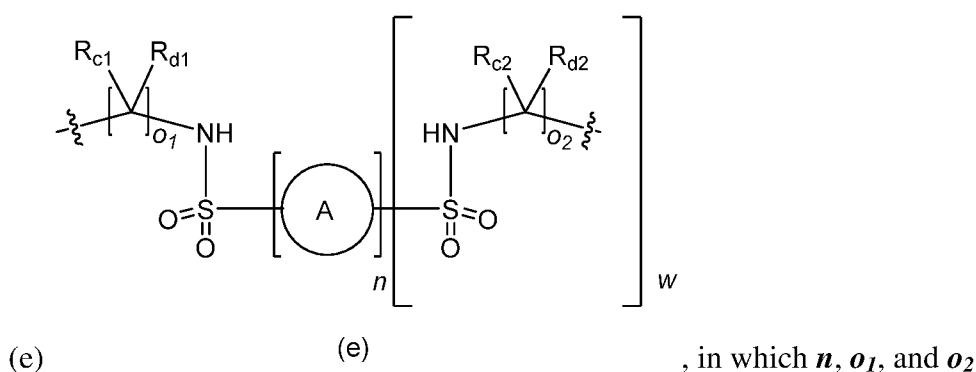
; for each independent instance of R_{c1} and R_{d1} , (1) R_{c1} and R_{d1}

independently are H or CH₃, (2) R_{c1} and R_{d1} are or , or (3)

two of $CR_{c1}R_{d1}$ are ; for each independent instance of R_{c2} and

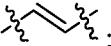
R_{d2} , (1) R_{c2} and R_{d2} independently are H or CH₃, (2) R_{c2} and R_{d2} are

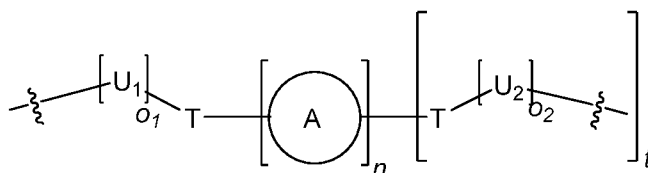
or , or (3) two of $CR_{c2}R_{d2}$ are .



independently are 1-4; w is 1-2; each **ring A** independently is aryl, heteroaryl, cycloalkyl, or heterocyclyl; for each independent instance of R_{c1} and R_{d1} , (1) R_{c1} and R_{d1} independently are H or CH₃, (2) R_{c1} and R_{d1}

independently are or , or (3) two of $CR_{c1}R_{d1}$ are ; for each independent instance of R_{c2} and R_{d2} , (1) R_{c2} and R_{d2} independently

are H or CH₃, (2) **R_{c2}** and **R_{d2}** independently are  or , or (3) two of **CR_{c2}R_{d2}** are ; and

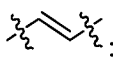


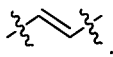
(f)

(f)

, in which **n**, **o₁**, and **o₂**

independently are 1-8; **t** is 1-3; each **ring A** independently is aryl, heteroaryl, cycloalkyl, or heterocyclyl; **T** is a moiety selected from –C(=O)NH–, –NH(C=O)–, –C(=O)–, –S–, –O–, –NH–, –S(=O)–, –S(=O)₂NH–, and –NHS(=O)₂–; **U₁** is a moiety selected from –C(**R_{c1}****R_{d1}**)–, –N–, –O–, or –S–, wherein no two –N–, –O–, or –S– are adjacent, and wherein for each independent instance of **R_{c1}** and **R_{d1}**, (1) **R_{c1}** and **R_{d1}** independently are H

or CH₃, (2) **R_{c1}** and **R_{d1}** independently are  or , or (3) two of **CR_{c1}R_{d1}** are ; **U₂** is a moiety selected from –C(**R_{c2}****R_{d2}**)–, –N–, –O–, or –S–, wherein no two –N–, –O–, or –S– are adjacent, and wherein for each independent instance of **R_{c2}** and **R_{d2}**, (1) **R_{c2}** and **R_{d2}** independently are H

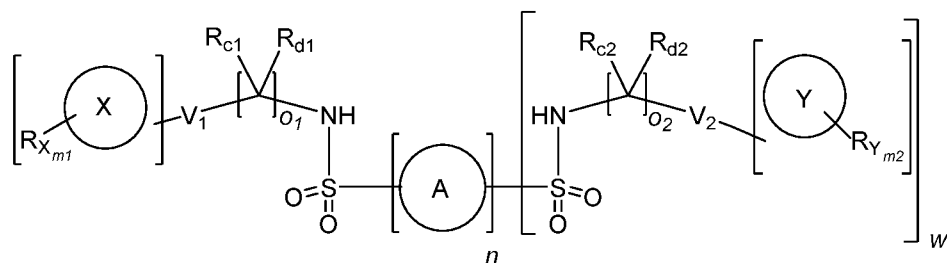
or CH₃, (2) **R_{c2}** and **R_{d2}** independently are  or , or (3) two of **CR_{c2}R_{d2}** are .

2. The method of claim 1, wherein the pellet is cultured for less than 5 days.
3. The method of claim 1, wherein the pellet is cultured for about 4 days.
4. The method of claim 1, wherein the pellet is cultured for less than 1 day.
5. The method of any of claims 1-4, wherein the pellet is cultured in the absence of TGFβ.

$$\left[\begin{array}{c} \text{X} \\ \text{R}_{Xm_1} \end{array} \right] - V_1 - \left[\begin{array}{c} R_a \\ R_b \\ \text{---} \\ \text{---} \end{array} \right]_n - V_2 - \left[\begin{array}{c} \text{Y} \\ \text{R}_{Ym_2} \end{array} \right]$$
$$\left[\text{X} \right]_{\text{R}_{\text{X}m_1}} - \text{V}_1 - \left[\text{C}(\text{R}_a)(\text{R}_b) \right]_k - \text{V}_2 - \left[\text{Y} \right]_{\text{R}_{\text{Y}m_2}}$$

(Id)

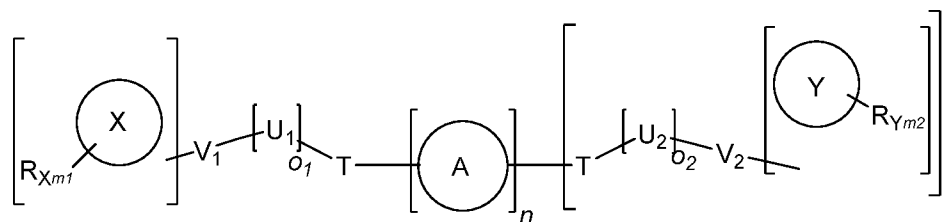
formula (Ie):



(Ie)

; and

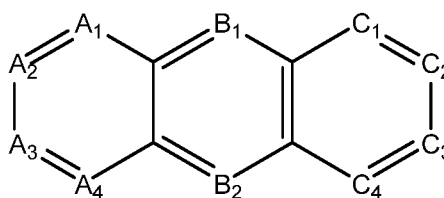
formula (If):



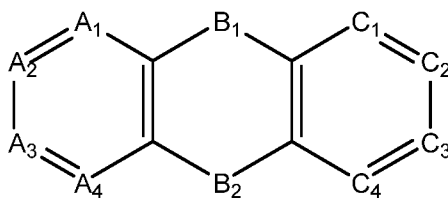
(If)

6. The method of any of claims 1-6, wherein

- (a) at least one of **X** and **Y** is a 5-10 membered heteroaromatic ring; or
- (b) at least one of **X** and **Y** is a multiple-fused ring system which comprises at least one 6-10 membered aromatic or 5-10 membered heteroaromatic ring; or
- (c) at least one of **X** and **Y** is a fused bicyclic ring system; or
- (d) at least one of **X** and **Y** is a fused tricyclic ring system; or

(e) at least one of **X** and **Y** is:

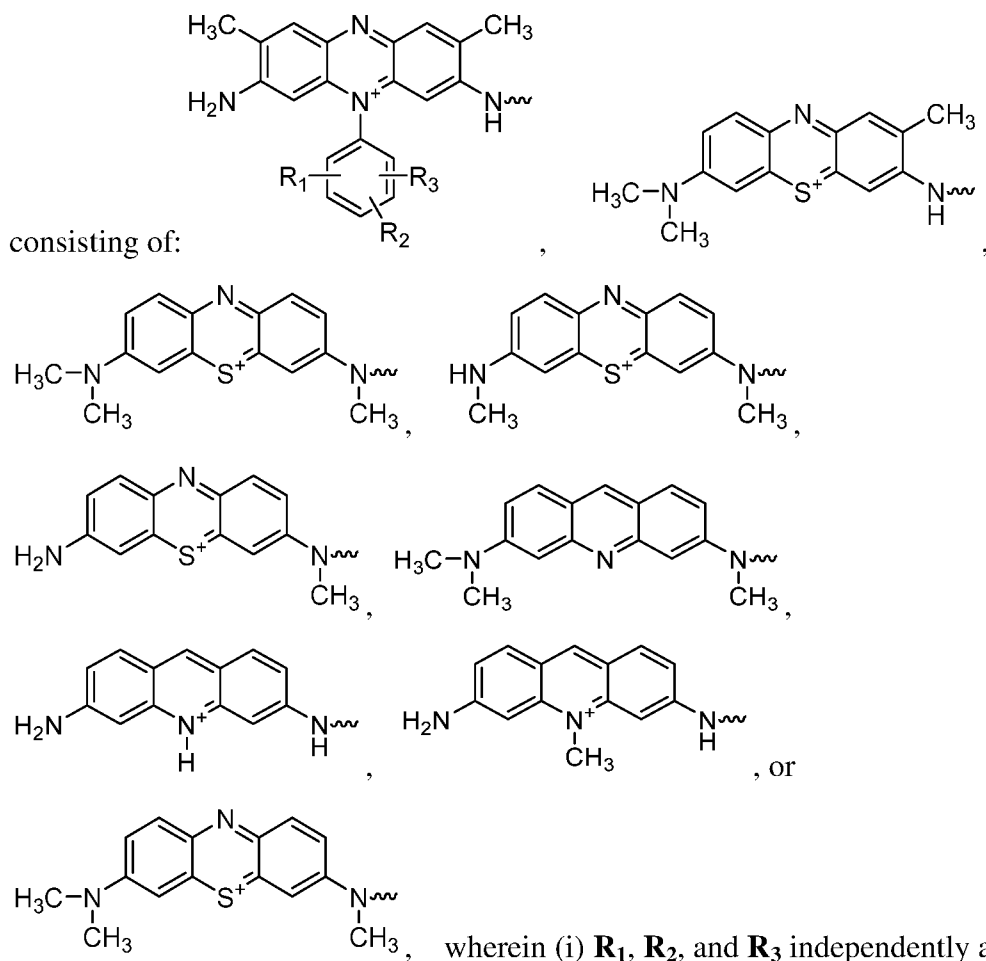
, wherein each A_1 , A_2 , A_3 , A_4 , C_1 , C_2 , C_3 , and C_4 is independently selected from N, CH, and $C(R_X)$; and each B_1 and B_2 is independently selected from $C(R_X)$, N, $N(R_X)^+$, and S^+ , provided that at least one of B_1 and B_2 is a heteroatom and provided that at least one of A_1 , A_2 , A_3 , A_4 , B_1 , B_2 , C_1 , C_2 , C_3 , C_4 , and R_X comprises a positive charge; or



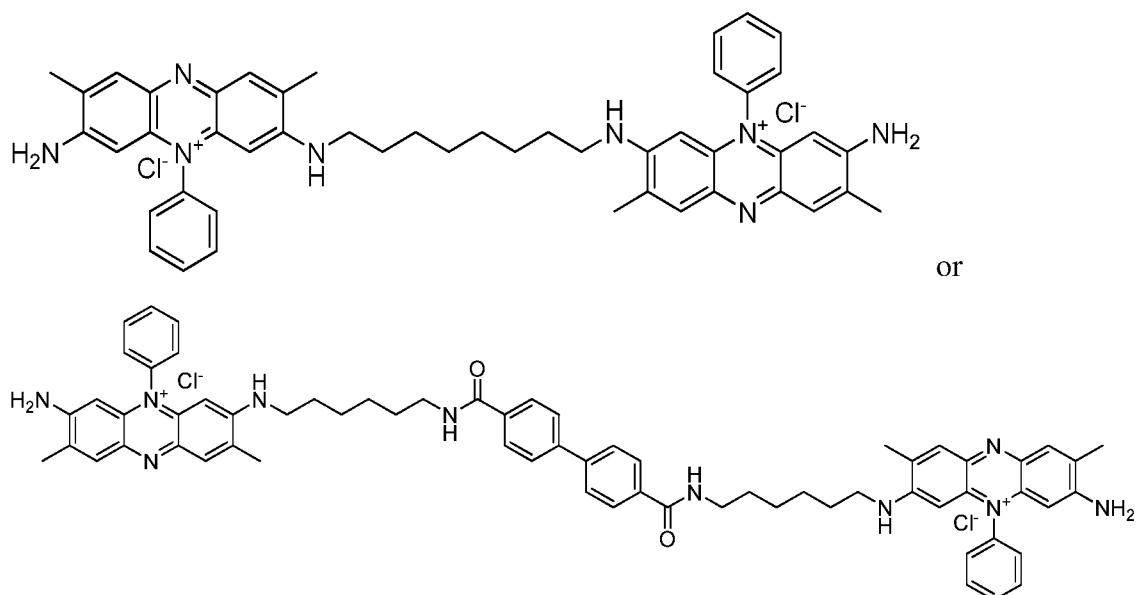
(f) at least one of **X** and **Y** is

A₁, A₂, A₃, A₄, C₁, C₂, C₃, and C₄ is independently selected from N, CH, and C(R_X); and each B₁ and B₂ is independently selected from C(R_X)₂, N(R_X), O, and S, provided that at least one of B₁ and B₂ is a heteroatom and provided that at least one of A₁, A₂, A₃, A₄, B₁, B₂, C₁, C₂, C₃, C₄, and R_X comprises a positive charge; or

(g) at least one of wherein at least one of **X** and **Y** is selected from the group

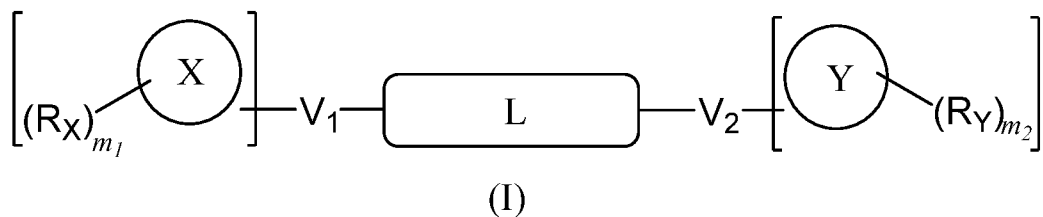


(h) the compound is



7. A pellet composition formed by the method of any of claims 1-6.

8. A pellet composition comprising a compound and one or more repair cells, wherein the compound is a compound of formula (I):



wherein:

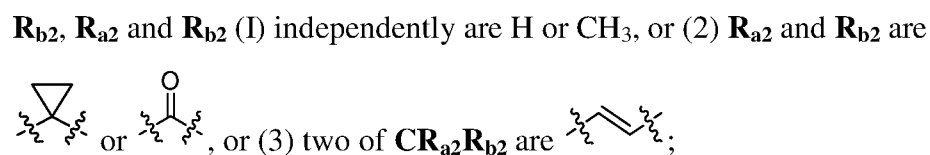
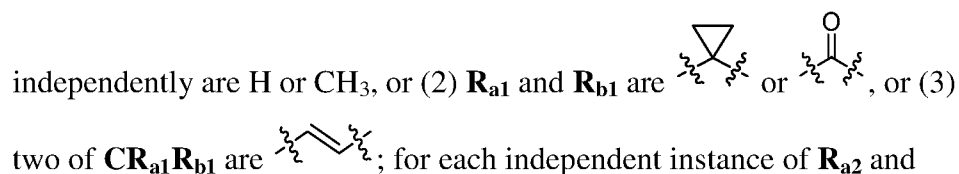
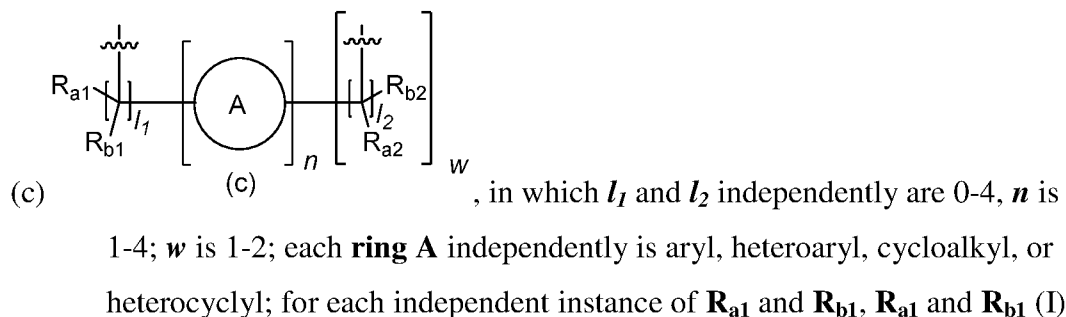
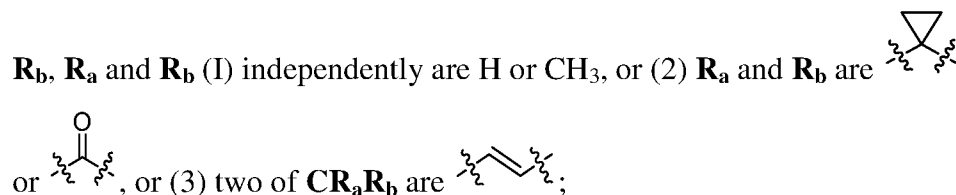
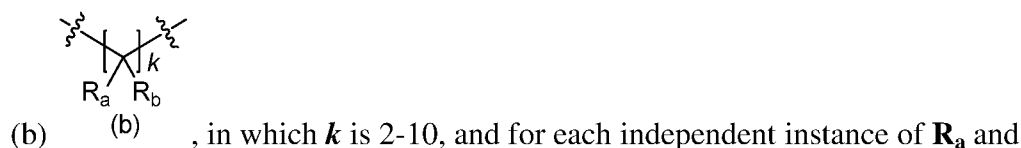
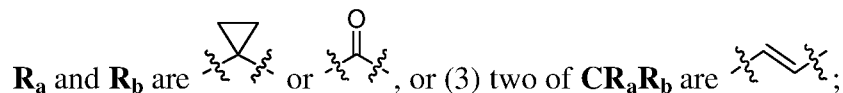
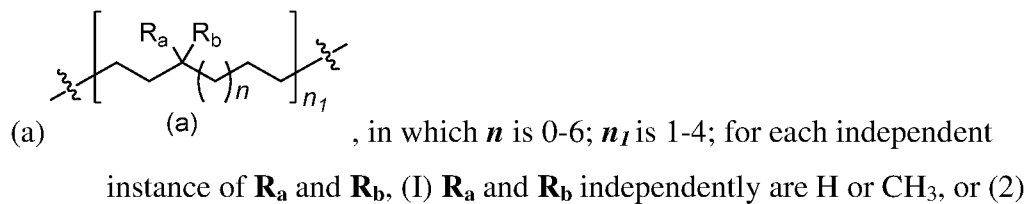
each **X** and **Y** independently is a positively charged moiety selected from (a) a 5-10 membered heteroaromatic ring and (b) a multiple-fused ring system comprising at least one 6-10 membered aromatic or 5-10 membered heteroaromatic ring;

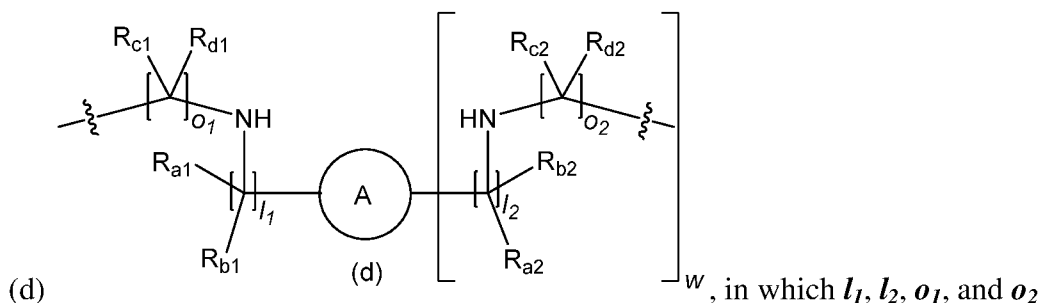
each **R_X** and **R_Y** independently is selected from the group consisting of **R**, -NH₂, -NHR, -NR₂, -N(**R**)₃⁺, -NHCOR, -NO₂, -OH, -OR, halo, C1-C6 perhaloalkyl, -CN, -SH, -SR, -SO₂H, -SO₃H, -CO₂H, -CO₂R, -CHO, and -COR, wherein **R** is (i) C1-C6 linear or branched alkyl, (ii) C3-C8 cycloalkyl, (iii) C2-C6 linear or branched alkenyl, (iv) C2-C6 linear or branched alkynyl, (v) C6-C10 aryl, or (vi) C5-C10 heteroaryl;

m₁ and **m₂** independently are 0 or an integer from 1-6;

V_1 and V_2 independently are absent or are selected from $-C(R_Z)_2-$, $-C(=O)-$, $-C(=O)O-$, $-C(=O)NR_Z-$, $-NR_Z-$, $-O-$, $-S-$, $-S(=O)-$, $-S(=O)_2-$, $-S(=O)O-$, and $-S(=O)NR_Z-$, wherein each R_Z independently is H or C1-C6 linear or branched alkyl; and

L is a linker selected from the group consisting of:





independently are 0-4; w is 1-2; n is 1-4; each **ring A** independently is aryl, heteroaryl, cycloalkyl, or heterocyclyl; for each independent instance of R_{a1} and R_{b1} , (1) R_{a1} and R_{b1} independently are H or CH₃, (2) R_{a1} and

R_{b1} are or , or (3) two of $CR_{a1}R_{b1}$ are ; for each

independent instance of R_{a2} and R_{b2} , (1) R_{a2} and R_{b2} independently are H

or CH₃, (2) R_{a2} and R_{b2} are or , or (3) two of $CR_{a2}R_{b2}$ are

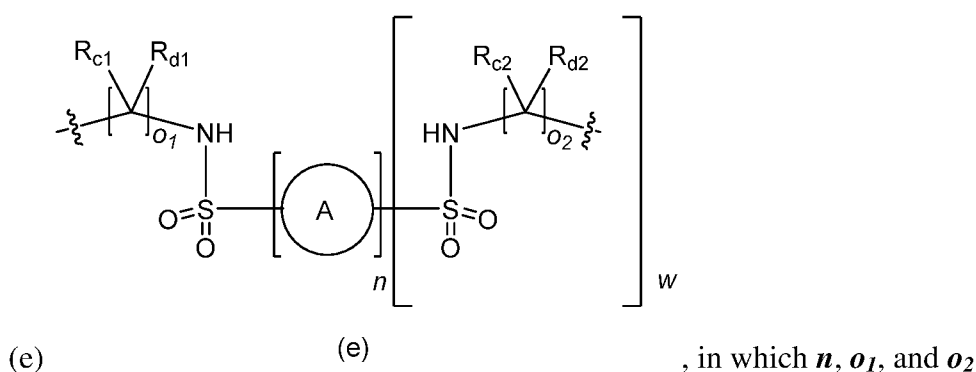
; for each independent instance of R_{c1} and R_{d1} , (1) R_{c1} and R_{d1}

independently are H or CH₃, (2) R_{c1} and R_{d1} are or , or (3)

two of $CR_{c1}R_{d1}$ are ; for each independent instance of R_{c2} and

R_{d2} , (1) R_{c2} and R_{d2} independently are H or CH₃, (2) R_{c2} and R_{d2} are

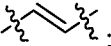
or , or (3) two of $CR_{c2}R_{d2}$ are .

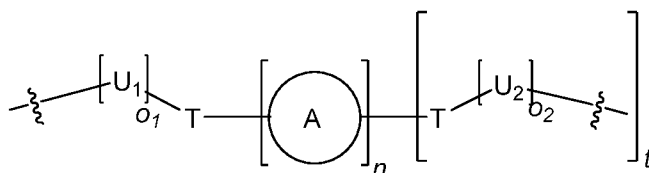


independently are 1-4; w is 1-2; each **ring A** independently is aryl, heteroaryl, cycloalkyl, or heterocyclyl; for each independent instance of R_{c1} and R_{d1} , (1) R_{c1} and R_{d1} independently are H or CH₃, (2) R_{c1} and R_{d1}

independently are or , or (3) two of $CR_{c1}R_{d1}$ are ; for

each independent instance of R_{c2} and R_{d2} , (1) R_{c2} and R_{d2} independently

are H or CH₃, (2) **R_{c2}** and **R_{d2}** independently are  or , or (3) two of **CR_{c2}R_{d2}** are ; and



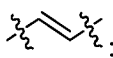
(f)

(f)

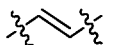
, in which **n**, **o₁**, and **o₂**

independently are 1-8; **t** is 1-3; each **ring A** independently is aryl, heteroaryl, cycloalkyl, or heterocyclyl; **T** is a moiety selected from –C(=O)NH–, –NH(C=O)–, –C(=O)–, –S–, –O–, –NH–, –S(=O)–, –S(=O)₂NH–, and –NHS(=O)₂–; **U₁** is a moiety selected from –C(**R_{c1}****R_{d1}**)–, –N–, –O–, or –S–, wherein no two –N–, –O–, or –S– are adjacent, and wherein for each independent instance of **R_{c1}** and **R_{d1}**, (1) **R_{c1}** and **R_{d1}** independently are H

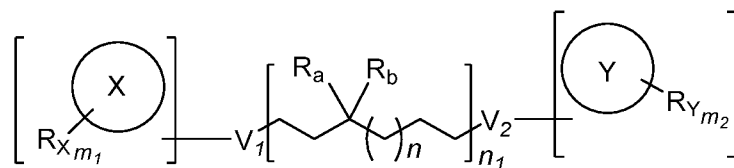
or CH₃, (2) **R_{c1}** and **R_{d1}** independently are  or , or (3) two of

CR_{c1}R_{d1} are ; **U₂** is a moiety selected from –C(**R_{c2}****R_{d2}**)–, –N–, –O–, or –S–, wherein no two –N–, –O–, or –S– are adjacent, and wherein for each independent instance of **R_{c2}** and **R_{d2}**, (1) **R_{c2}** and **R_{d2}** independently are H

or CH₃, (2) **R_{c2}** and **R_{d2}** independently are  or , or (3) two of

CR_{c2}R_{d2} are .

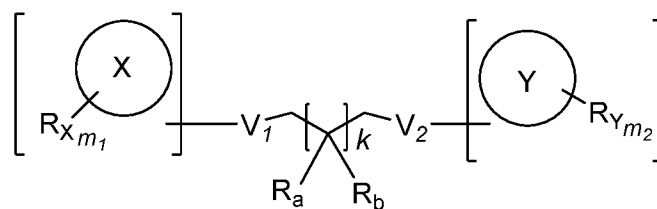
9. The pellet composition of claim 8, wherein the compound falls within a formula selected from the group consisting of:



formula (Ia):

(Ia)

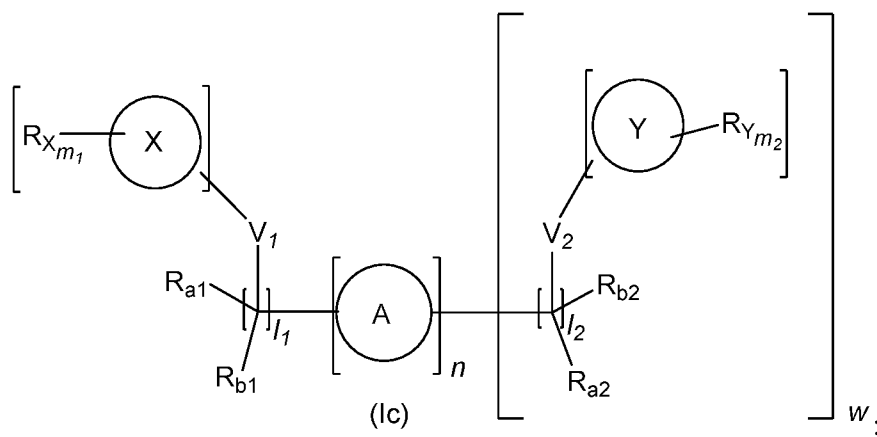
;



formula (Ib):

(Ib)

;

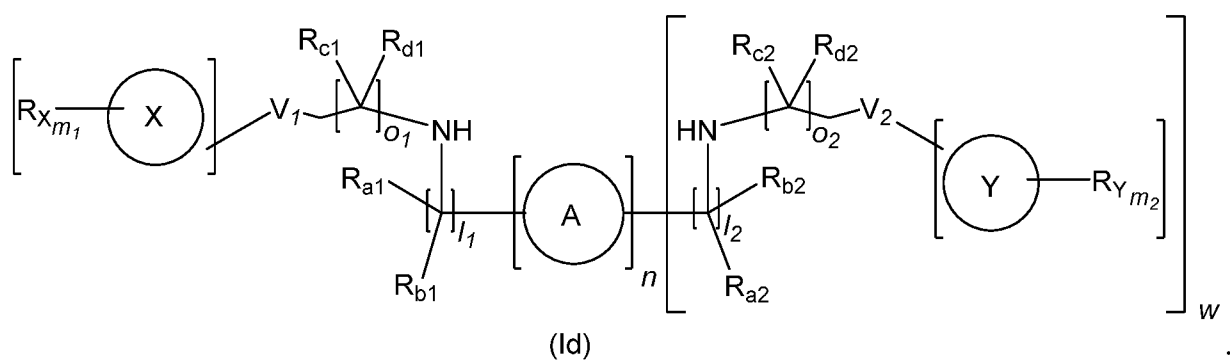


formula (Ic):

(Ic)

;

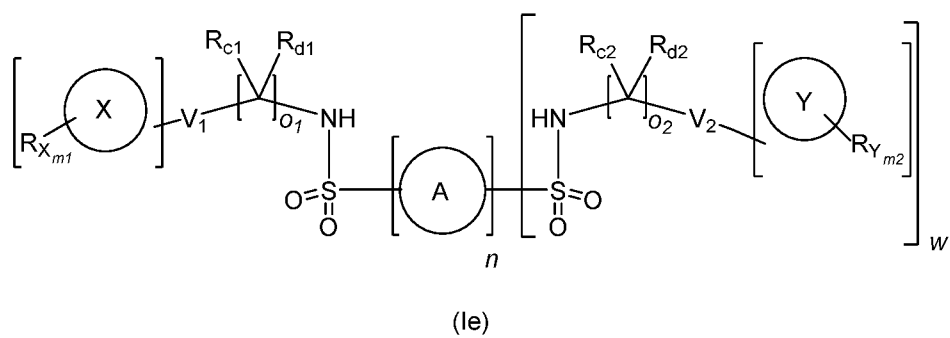
formula (Id):



(Id)

;

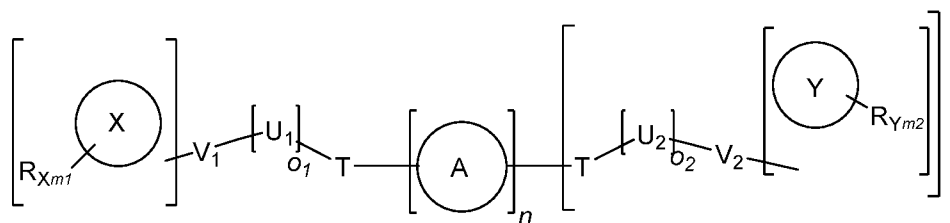
formula (Ie):



(Ie)

; and

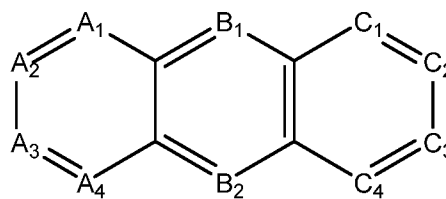
formula (If):



(If)

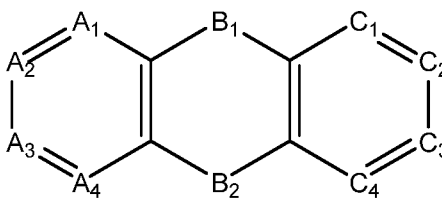
10. The pellet composition of claim 8 or claim 10, wherein

- (a) at least one of **X** and **Y** is a 5-10 membered heteroaromatic ring; or
- (b) at least one of **X** and **Y** is a multiple-fused ring system which comprises at least one 6-10 membered aromatic or 5-10 membered heteroaromatic ring; or
- (c) at least one of **X** and **Y** is a fused bicyclic ring system; or
- (d) at least one of **X** and **Y** is a fused tricyclic ring system; or



(e) at least one of **X** and **Y** is:

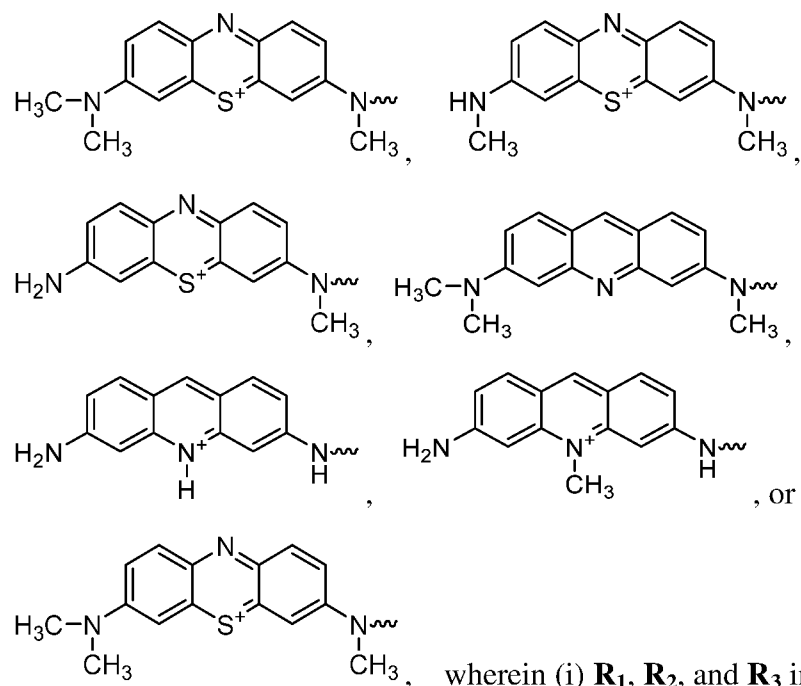
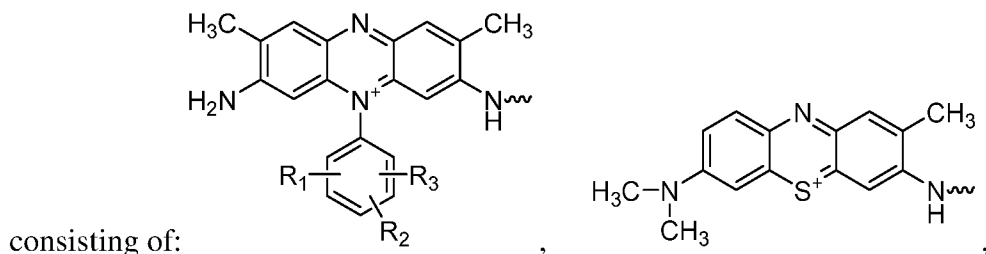
, wherein each $A_1, A_2, A_3, A_4, C_1, C_2, C_3,$ and C_4 is independently selected from N, CH, and $C(R_X)$; and each B_1 and B_2 is independently selected from $C(R_X), N, N(R_X)^+,$ and $S^+,$ provided that at least one of B_1 and B_2 is a heteroatom and provided that at least one of $A_1, A_2, A_3, A_4, B_1, B_2, C_1, C_2, C_3, C_4,$ and R_X comprises a positive charge; or



(f) at least one of **X** and **Y** is

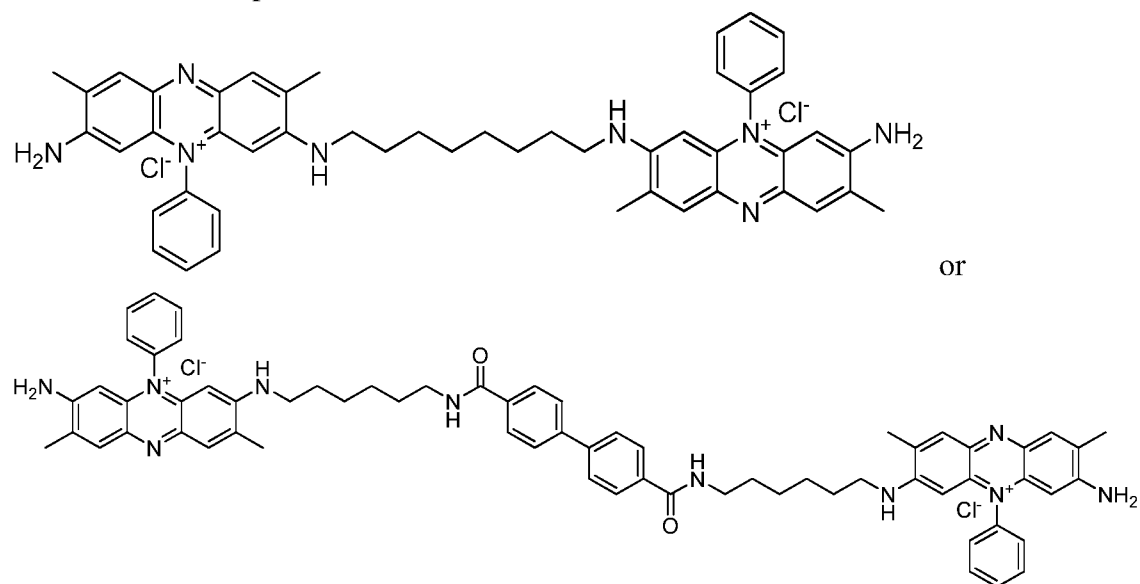
, wherein each $A_1, A_2, A_3, A_4, C_1, C_2, C_3,$ and C_4 is independently selected from N, CH, and $C(R_X)$; and each B_1 and B_2 is independently selected from $C(R_X)_2, N(R_X), O,$ and S, provided that at least one of B_1 and B_2 is a heteroatom and provided that at least one of $A_1, A_2, A_3, A_4, B_1, B_2, C_1, C_2, C_3, C_4,$ and R_X comprises a positive charge; or

(g) at least one of wherein at least one of **X** and **Y** is selected from the group



wherein (i) **R**₁, **R**₂, and **R**₃ independently are absent or independently are selected from -NH₂, -NHZ, -NZ₂, -OH, -O⁻, -NHCOCH₃, -NHCOZ, -OCH₃, -OR, -C₂H₅, -Z, -C₆H₅, -NO₂, -NZ₃⁺, F, Br, Cl, I, -CF₃, -Cl₃, -CBr₃, -CI₃, -CN, -SO₃H, -COOH, -COOZ, -CHO, and -COZ; (ii) **Z** is C1-C6 linear or branched alkyl; and (iii) ~ indicates the attachment site to the linker **L**; or

(h) the compound is



11. A pharmaceutical composition comprising the pellet composition of any of claims 7-10.

12. A method of repairing a tissue injury in an individual, comprising administering to an injured tissue:

- (a) the pellet composition of claim 7; or
- (b) the pellet composition of any of claims 8-10; or
- (c) the pharmaceutical composition of claim 11.

13. The method of claim 12, wherein the pellet composition of any of claims 8-10 is administered, wherein the pellet composition is not cultured before the step of administering.

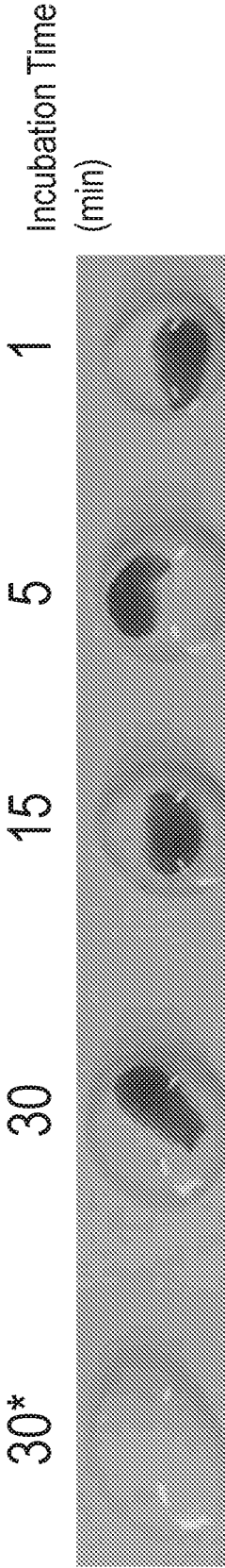
14. The method of claim 12 or claim 13, wherein the injured tissue is selected from cartilage, pancreas, kidney, intestine, and heart.

15. The method of any of claims 1-6 or 12-14, the pellet composition of any of claims 7-10, or the pharmaceutical composition of claim 11, wherein the repair cells are mesenchymal stem cells (MSCs).

16. The method or the pellet composition or the pharmaceutical composition of claim 15, wherein the MSCs are autologous MSCs.

17. Use of the pellet composition of any of claims 7-10 or the pharmaceutical composition of claim 11 for repairing a tissue injury in an individual.

Fig. 1



1/6

* The pellet of cells incubated with PBS were completely disrupted after releasing with PBS

Fig. 2A

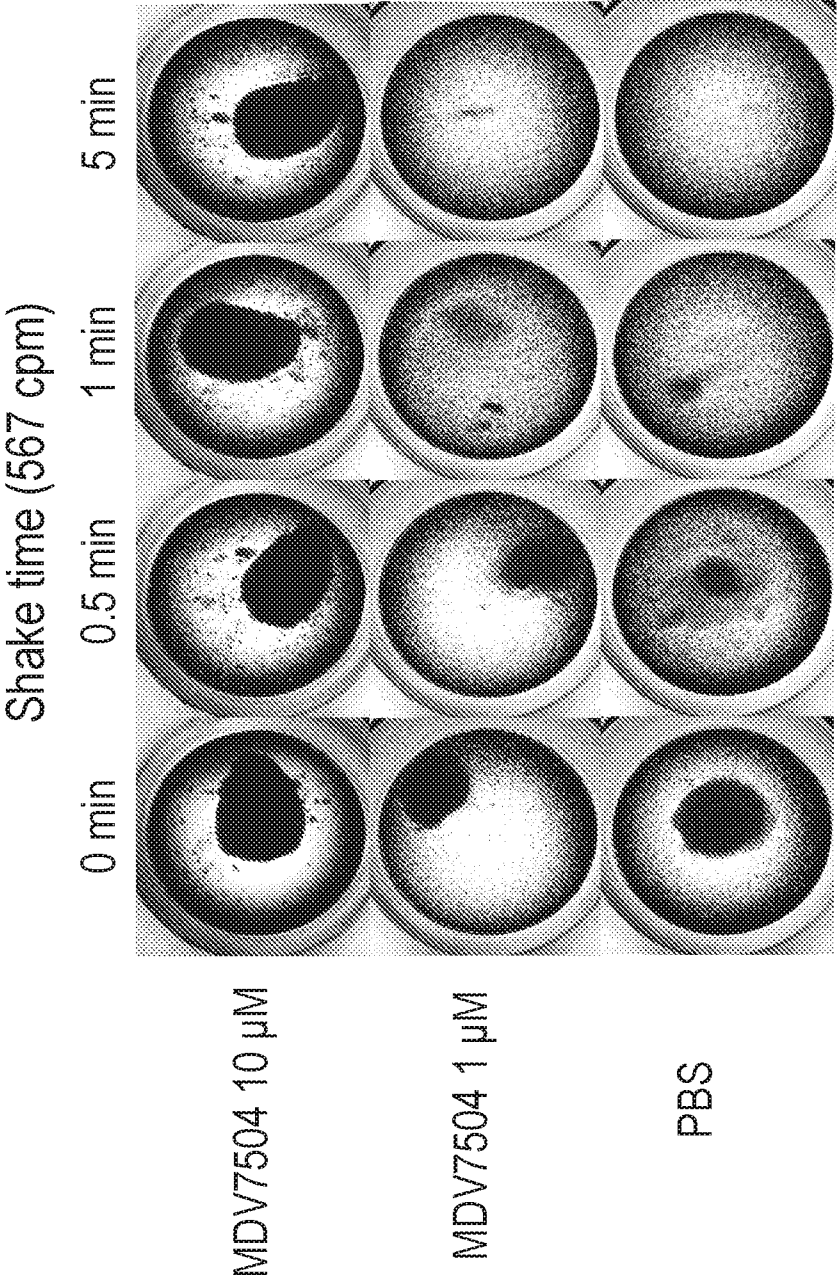
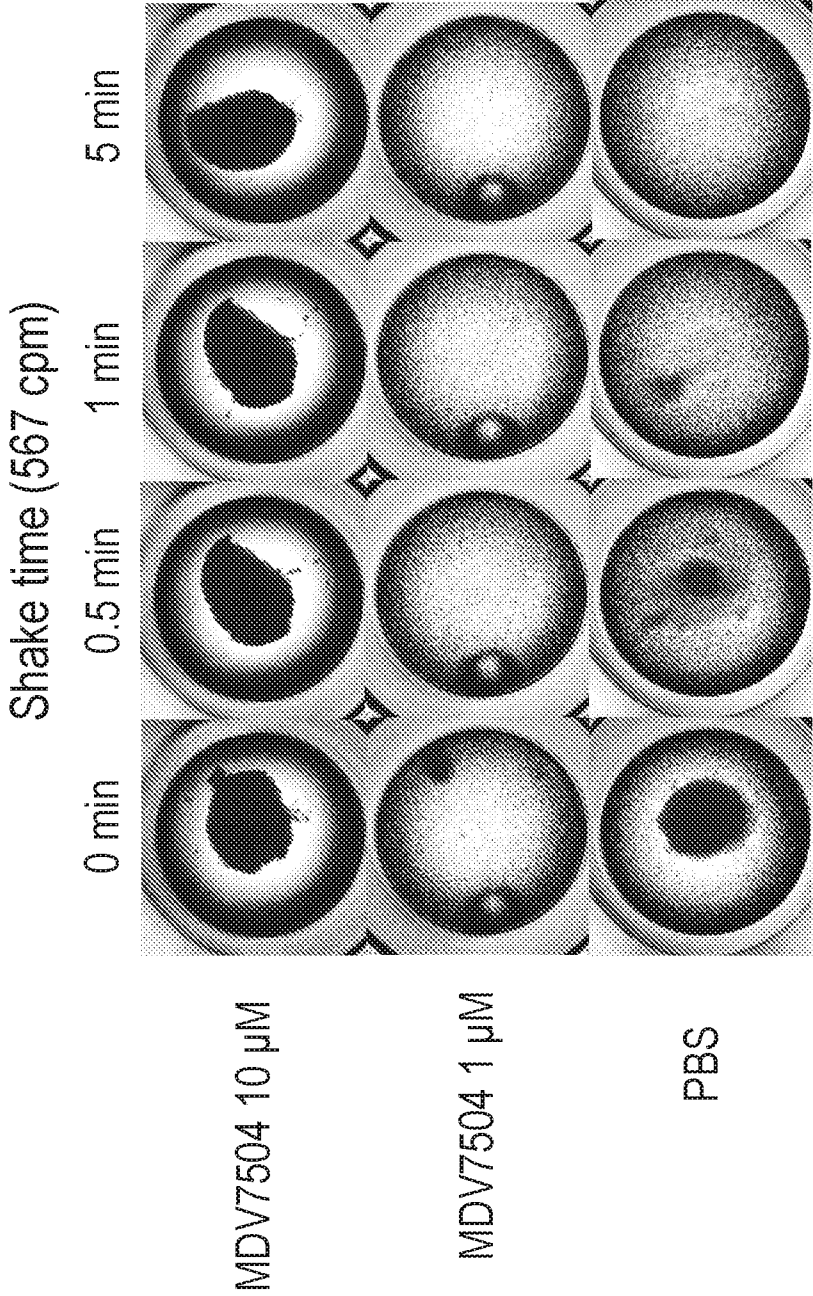


Fig. 2B



4/6

Fig. 3A

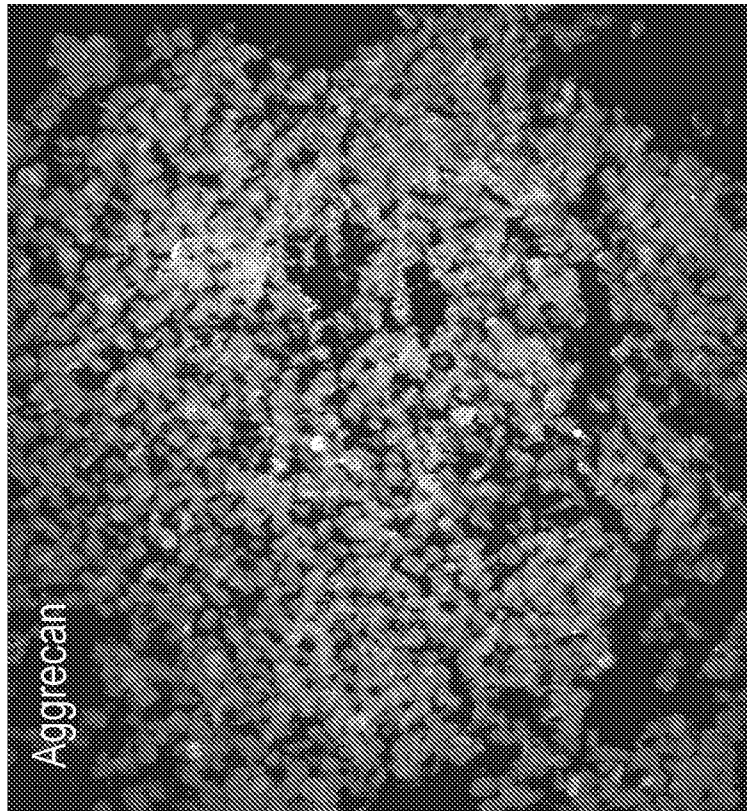
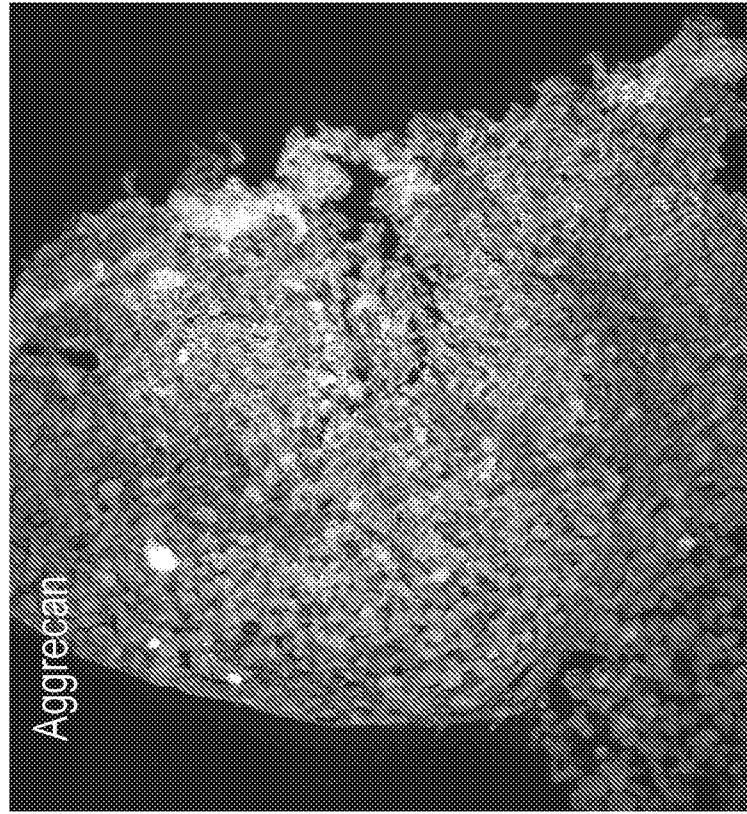


Fig. 3B



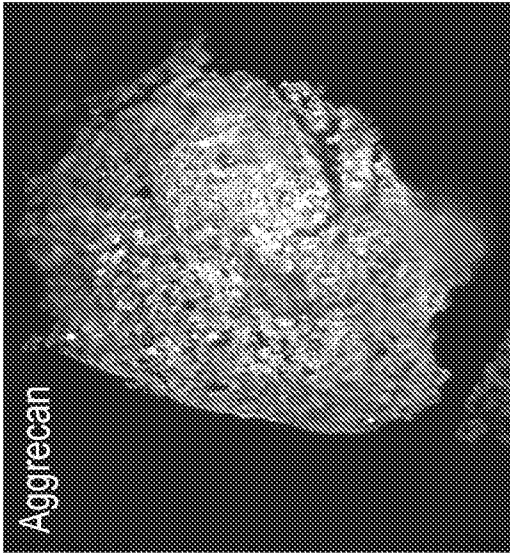


Fig. 4B

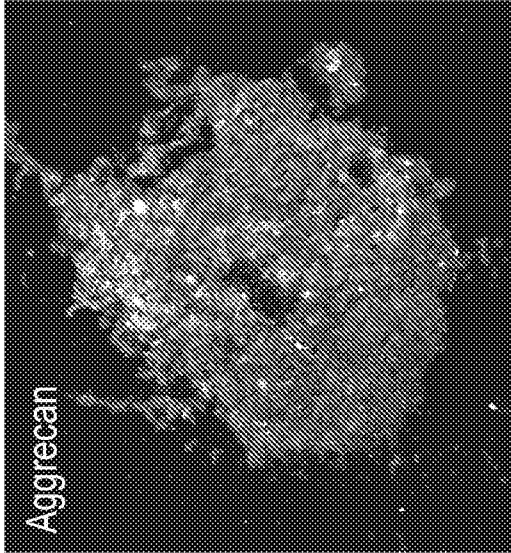


Fig. 4D

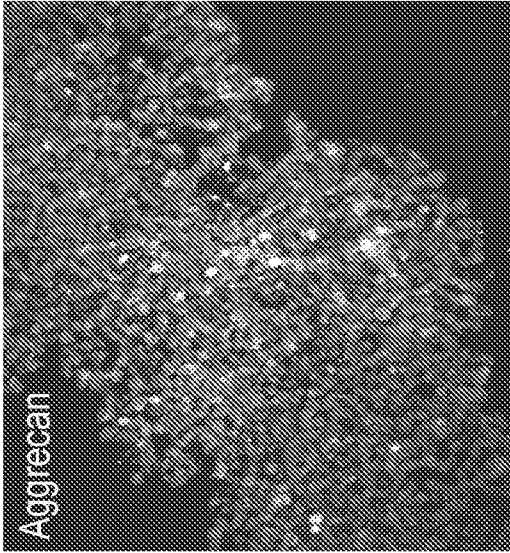


Fig. 4A

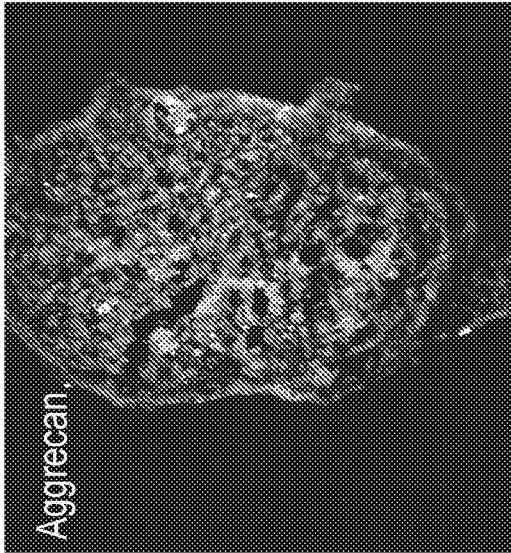


Fig. 4C

6/6

Fig. 5B

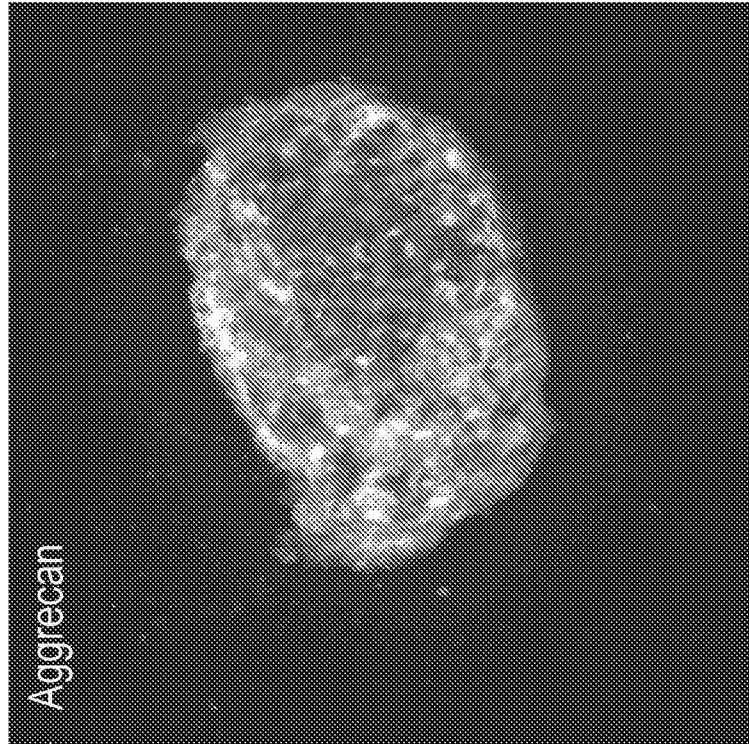
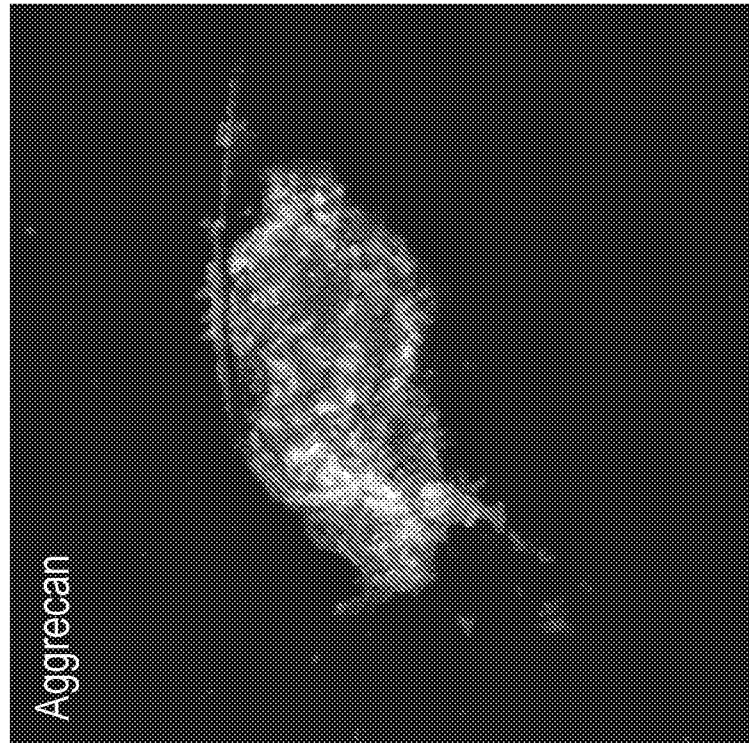


Fig. 5A



INTERNATIONAL SEARCH REPORT

International application No
PCT/US2016/044367

A. CLASSIFICATION OF SUBJECT MATTER INV. C12N5/00 A61K47/69 A61P19/02 A61P19/08 ADD.								
According to International Patent Classification (IPC) or to both national classification and IPC								
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) C12N A61K Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPO-Internal, BIOSIS, EMBASE, CHEM ABS Data, DISSERTATION ABS, PASCAL, WPI Data								
C. DOCUMENTS CONSIDERED TO BE RELEVANT <table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X</td> <td> QUINTAVALLA J ET AL: "Fluorescently labeled mesenchymal stem cells (MSCs) maintain multilineage potential and can be detected following implantation into articular cartilage defects", BIOMATERIALS, vol. 23, no. 1, 2002, pages 109-119, XP004322626, ISSN: 0142-9612, DOI: 10.1016/S0142-9612(01)00086-2 abstract page 110 page 111, right-hand column - page 115, left-hand column ----- -/-- </td> <td>1-17</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	QUINTAVALLA J ET AL: "Fluorescently labeled mesenchymal stem cells (MSCs) maintain multilineage potential and can be detected following implantation into articular cartilage defects", BIOMATERIALS, vol. 23, no. 1, 2002, pages 109-119, XP004322626, ISSN: 0142-9612, DOI: 10.1016/S0142-9612(01)00086-2 abstract page 110 page 111, right-hand column - page 115, left-hand column ----- -/--	1-17
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.						
X	QUINTAVALLA J ET AL: "Fluorescently labeled mesenchymal stem cells (MSCs) maintain multilineage potential and can be detected following implantation into articular cartilage defects", BIOMATERIALS, vol. 23, no. 1, 2002, pages 109-119, XP004322626, ISSN: 0142-9612, DOI: 10.1016/S0142-9612(01)00086-2 abstract page 110 page 111, right-hand column - page 115, left-hand column ----- -/--	1-17						
☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.								
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family								
Date of the actual completion of the international search		Date of mailing of the international search report						
13 October 2016		12/12/2016						
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016		Authorized officer Dullaart, Anwyn						

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2016/044367

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/026786 A1 (PITTINGER MARK F [US] ET AL) 6 February 2003 (2003-02-06) cited in the application examples 1,4 -----	1-17
X	US 2005/019865 A1 (KIHM ANTHONY J [US] ET AL) 27 January 2005 (2005-01-27) cited in the application example 15 -----	1-17
X	WO 97/18842 A1 (FIDIA ADVANCED BIOPOLYMERS SRL [IT]; ABATANGELO GIOVANNI [IT]; CALLEGA) 29 May 1997 (1997-05-29) example 6 -----	1-17
X	WO 2012/048093 A2 (OSIRIS THERAPEUTICS INC [US]; TOM SAMSON [US]; TON CHRISTOPHER [US]; D) 12 April 2012 (2012-04-12) example 30 -----	1-17
X	EMILY E. COATES ET AL: "Photocrosslinked alginate with hyaluronic acid hydrogels as vehicles for mesenchymal stem cell encapsulation and chondrogenesis", JOURNAL OF BIOMEDICAL MATERIALS RESEARCH. PART A, vol. 101A, no. 7, 5 July 2013 (2013-07-05), pages 1962-1970, XP055308553, ISSN: 1549-3296, DOI: 10.1002/jbm.a.34499 abstract page 1964 -----	1-17
X	SHIMAYA M ET AL: "Magnesium enhances adherence and cartilage formation of synovial mesenchymal stem cells through integrins", OSTEOARTHRITIS AND CARTILAGE, vol. 18, no. 10, October 2010 (2010-10), pages 1300-1309, XP027294616, ISSN: 1063-4584 [retrieved on 2010-07-13] abstract page 1302, right-hand column - page 1305, right-hand column figures page 1308, left-hand column -----	1-17
X	WO 2014/011540 A1 (UNIV EMORY [US]) 16 January 2014 (2014-01-16) page 29 - page 31 claims ----- -/--	1-17

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2016/044367

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CHIARA CAPELLI ET AL: "Minimally manipulated whole human umbilical cord is a rich source of clinical-grade human mesenchymal stromal cells expanded in human platelet lysate", CYTOTHERAPY, vol. 13, no. 7, August 2011 (2011-08), pages 786-801, XP055181970, ISSN: 1465-3249, DOI: 10.3109/14653249.2011.563294 abstract page 799 -----	1-17

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2016/044367

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-17(partially)

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-17(partially)

Method of preparing a pellet composition comprising a population of repair cells and a compound of formula (I), the (pharmaceutical) pellet composition thus prepared, and a method of repairing a tissue injury as defined, where in the compound of formula (I) (a) at least one of X and Y is a 5-10 membered heteroaromatic ring

2. claims: 1-17(partially)

Method of preparing a pellet composition comprising a population of repair cells and a compound of formula (I), the (pharmaceutical) pellet composition thus prepared, and a method of repairing a tissue injury as defined, where in the compound of formula (I) (b) at least one of X and Y is a multiple-fused ring system which comprises at least one 6-10 membered aromatic ring

3. claims: 1-17(partially)

Method of preparing a pellet composition comprising a population of repair cells and a compound of formula (I), the (pharmaceutical) pellet composition thus prepared, and a method of repairing a tissue injury as defined, where in the compound of formula (I) (b) at least one of X and Y is a multiple-fused ring system which comprises at least one 5-10 membered heteroaromatic ring

4. claims: 1-17(partially)

Method of preparing a pellet composition comprising a population of repair cells and a compound of formula (I), the (pharmaceutical) pellet composition thus prepared, and a method of repairing a tissue injury as defined, where in the compound of formula (I) (c) at least one of X and Y is a fused bicyclic ring system

5. claims: 1-17(partially)

Method of preparing a pellet composition comprising a population of repair cells and a compound of formula (I), the (pharmaceutical) pellet composition thus prepared, and a method of repairing a tissue injury as defined, where in the compound of formula (I) (d) at least one of X and Y is a fused tricyclic ring system

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

6. claims: 1-17(partially)

Method of preparing a pellet composition comprising a population of repair cells and a compound of formula (I), the (pharmaceutical) pellet composition thus prepared, and a method of repairing a tissue injury as defined, where in the compound of formula (I) corresponds to the definition in (e) of the second claim 6 and claim 10

7. claims: 1-17(partially)

Method of preparing a pellet composition comprising a population of repair cells and a compound of formula (I), the (pharmaceutical) pellet composition thus prepared, and a method of repairing a tissue injury as defined, where in the compound of formula (I) corresponds to the definition in (f) of the second claim 6 and claim 10

8. claims: 1-17(partially)

Method of preparing a pellet composition comprising a population of repair cells and a compound of formula (I), the (pharmaceutical) pellet composition thus prepared, and a method of repairing a tissue injury as defined, where in the compound of formula (I) corresponds to the definition in (g) of the second claim 6 and claim 10

9. claims: 1-17(partially)

Method of preparing a pellet composition comprising a population of repair cells and a compound of formula (I), the (pharmaceutical) pellet composition thus prepared, and a method of repairing a tissue injury as defined, where in the compound of formula (I) corresponds to the definition in (h) of the second claim 6 and claim 10

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PCT/US2016/044367

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