(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
15 September 2016 (15.09.2016)

WIPO | PCT

(10) International Publication Number
WO 2016/144351 A1

(51) International Patent Classification:

C07D 401/14 (2006.01)	*C07D 417/04* (2006.01)
C07D 413/14 (2006.01)	*C07D 417/14* (2006.01)
C07D 401/04 (2006.01)	*C07D 471/04* (2006.01)
C07D 403/04 (2006.01)	*C07D 513/04* (2006.01)
C07D 403/14 (2006.01)	*A01N 43/40* (2006.01)
C07D 407/14 (2006.01)	*A01N 43/52* (2006.01)
C07D 413/04 (2006.01)	*A01N 43/56* (2006.01)

(21) International Application Number: PCT/US2015/019924

(22) International Filing Date: 11 March 2015 (11.03.2015)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant: **E. I. DU PONT DE NEMOURS AND COMPANY** [US/US]; Chestnut Run Plaza, 974 Centre Road, P. O. Box 2915, Wilmington, Delaware 19805 (US).

(72) Inventors: **CLARK, David Alan**; 109 Stoney Ridge Road, Landenberg, Pennsylvania 19350 (US). **FRAGA, Breena Gloriana**; 9311 Road 29½, Madera, California 93637 (US). **ZHANG, Wenming**; 21 Charles Pointe, Newark, Delaware 19702 (US).

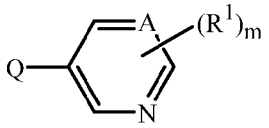
(74) Agent: **KUCHARCZYK, Roman**; E. I. du Pont de Nemours and Company, Legal Patent Records Center, Chestnut Run Plaza 721/2640, 974 Centre Road, PO Box 2915 Wilmington, Delaware 19805 (US).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

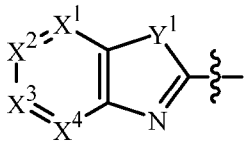
(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE,

[Continued on next page]

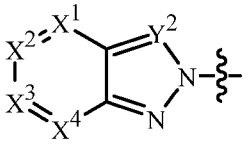
(54) Title: HETEROCYCLE-SUBSTITUTED BICYCLIC AZOLE PESTICIDES



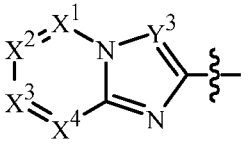
(1)



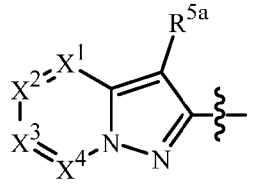
Q-1



Q-2



Q-3



Q-4

(57) Abstract: Disclosed are compounds of Formula (I), including all geometric and stereoisomers, *N*-oxides, and salts thereof, Formula (I) wherein Q is Formula (I) and A, R^1, m, X^1, X^2, X^3, X^4, Y^1, Y^2 and Y^3 are as defined in the disclosure. Also disclosed are compositions containing the compounds of Formula (I) and methods for controlling an invertebrate pest comprising contacting the invertebrate pest or its environment with a biologically effective amount of a compound or a composition of the invention.

WO 2016/144351 A1

DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

TITLE

HETEROCYCLE-SUBSTITUTED BICYCLIC AZOLE PESTICIDES

FIELD OF THE INVENTION

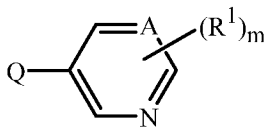
This invention relates to certain substituted bicyclic azoles, their *N*-oxides, salts and compositions suitable for agronomic and nonagronomic uses, and methods of their use for controlling invertebrate pests such as arthropods in both agronomic and nonagronomic environments.

BACKGROUND OF THE INVENTION

The control of invertebrate pests is extremely important in achieving high crop efficiency. Damage by invertebrate pests to growing and stored agronomic crops can cause significant reduction in productivity and thereby result in increased costs to the consumer. The control of invertebrate pests in forestry, greenhouse crops, ornamentals, nursery crops, stored food and fiber products, livestock, household, turf, wood products, and public and animal health is also important. Many products are commercially available for these purposes, but the need continues for new compounds that are more effective, less costly, less toxic, environmentally safer or have different sites of action.

SUMMARY OF THE INVENTION

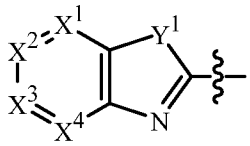
This invention is directed to compounds of Formula **1** (including all geometric and stereoisomers), *N*-oxides, and salts thereof, and compositions containing them and their use for controlling invertebrate pests:



1

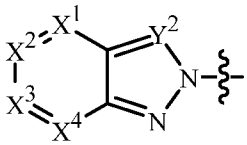
wherein

Q is



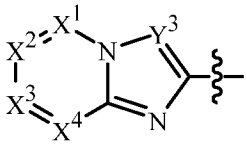
Q-1

,



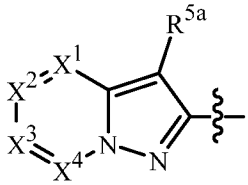
Q-2

,



Q-3

or



Q-4

;

A is CH, CR^1 or N;

each R^1 is independently halogen, cyano, nitro, C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy, C_1–C_4 haloalkoxy, C_1–C_4 alkylthio or C_1–C_4 haloalkylthio;

m is 0, 1, 2 or 3;

X^1, X^2, X^3 and X^4 are each independently CR^2, CR^3 or N, provided that (i) one of X^1, X^2, X^3 and X^4 is CR^2, and (ii) no more than one of X^1, X^2, X^3 and X^4 is N;

R^2 is $C(=Z)NR^6R^7$, $N(R^8)C(=Z)R^9$, $C(=NR^{10})R^{11}$ or Q^a;

each Z is independently O or S;

each R^3 is independently H, halogen, cyano, nitro, C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy or C_1–C_4 haloalkoxy;

Y^1 is O, S or NR^4;

Y^2 is N or CR^{5a};

Y^3 is N or CR^{5b};

R^4 is H or C_1–C_4 alkyl;

R^{5a} is H, halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy or C_1–C_4 haloalkoxy;

R^{5b} is H, halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy or C_1–C_4 haloalkoxy;

R^6 is H, $NR^{15}R^{16}$, OR^{17}, $C(=NR^{10})R^{11}$, $C(O)OR^{21}$, $C(O)NR^{15}R^{16}$, $C(O)R^{22}$, $S(O)_nR^{23}$ or Q^b; or C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_2–C_6 alkenyl or C_2–C_6 alkynyl, each unsubstituted or substituted with at least one R^x;

R^7 is H or Q^b; or C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_2–C_6 alkenyl or C_2–C_6 alkynyl, each unsubstituted or substituted with at least one R^x; or

R^6 and R^7 are taken together with the nitrogen atom to which they are attached to form a 3- to 10-membered ring containing ring members selected from carbon atoms

and up to 2 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 2 nitrogen atoms, wherein up to 2 carbon atom ring members are independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, said ring being unsubstituted or substituted with up to 4 R^x; or

R^6 and R^7 are taken together as $=S(O)_pR^{18}R^{19}$ or $=S(=NR^{20})R^{18}R^{19}$;

each R^x is independently halogen, cyano, nitro, hydroxy, C_1–C_6 alkyl, C_1–C_6 haloalkyl, C_3–C_6 cycloalkyl, C_1–C_6 alkoxy, C_1–C_6 haloalkoxy, C_3–C_6 cycloalkoxy, $C(=NR^{10})R^{11}$, $C(O)OR^{21}$, $C(O)NR^{15}R^{16}$, $OC(O)R^{22}$, $NR^{25}R^{26}$, $NR^{24}C(O)R^{22}$, $C(O)R^{22}$, $S(O)_nR^{23}$, $Si(R^{28})_3$, $OSi(R^{28})_3$ or Q^b;

R^8 is H, $C(O)OR^{21}$, $C(O)NR^{15}R^{16}$, $C(O)R^{22}$, $S(O)_nR^{23}$ or Q^b; or C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_2–C_6 alkenyl or C_2–C_6 alkynyl, each unsubstituted or substituted with at least one R^x;

R^9 is H, $C(=NR^{10})R^{11}$, OR^{21} or $NR^{15}R^{16}$; or C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_2–C_6 alkenyl or C_2–C_6 alkynyl, each unsubstituted or substituted with at least one R^x; or phenyl, phenoxy or a 5- or 6-membered heterocyclic aromatic ring, each unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy; or a 3- to 6-membered heterocyclic non-aromatic ring, each ring containing ring members selected from carbon atoms and up to 3 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 2 nitrogen atoms, wherein up to 1 carbon atom ring member is independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, each ring being unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{10} is independently OR^{12}, $S(O)_nR^{13}$ or NHR^{14};

each R^{11} is independently H; or C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_2–C_6 alkenyl or C_2–C_6 alkynyl, each unsubstituted or substituted with at least one R^x; or C_1–C_6 alkoxy, C_1–C_6 haloalkoxy, C_3–C_6 cycloalkoxy, $C(O)OR^{21}$, $C(O)NR^{15}R^{16}$, $NR^{25}R^{26}$, $NR^{24}C(O)R^{22}$, $C(O)R^{22}$ or Q^b;

each R^{12} is independently C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, $C(O)R^{22}$, $S(O)_nR^{13}$ or Q^b;

each R^{13} is independently C_1–C_4 alkyl or C_1–C_4 haloalkyl;

R^{14} is C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, $C(O)R^{22}$ or $C(O)OR^{21}$; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{15} is independently H, C_1–C_6 alkyl, C_1–C_4 haloalkyl, $C(O)R^{27}$ or $S(O)_2R^{27}$; or phenyl or a 5- or 6-membered heterocyclic aromatic ring, each unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{16} is independently H, C_1–C_6 alkyl or C_1–C_4 haloalkyl; or

R^{15} and R^{16} are taken together with the nitrogen atom to which they are attached to form a 3- to 7-membered ring containing ring members selected from carbon atoms and up to 2 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 2 nitrogen atoms, wherein up to 2 carbon atom ring members are independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, said ring being unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

R^{17} is C_1–C_4 alkyl, C_3–C_6 cycloalkyl or C_1–C_4 haloalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{18} is independently C_1–C_4 alkyl or C_1–C_4 haloalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{19} is independently C_1–C_4 alkyl or C_1–C_4 haloalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy; or

R^{18} and R^{19} are taken together with the sulfur atom to which they are attached to form a ring;

R^{20} is H, cyano, C_1–C_4 alkyl, C_1–C_4 haloalkyl or $C(O)R^{22}$; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group

consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{21} is independently C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_3–C_6 cycloalkyl or C_3–C_6 halocycloalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{22} is independently C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_3–C_6 cycloalkyl or C_3–C_6 halocycloalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{23} is independently C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_3–C_6 cycloalkyl, C_3–C_6 halocycloalkyl, C_3–C_6 cycloalkylalkyl or C_3–C_6 halocycloalkylalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{24} is independently C_1–C_4 alkyl;

each R^{25} is independently H, C_1–C_4 alkyl or C_1–C_4 haloalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{26} is independently C_1–C_4 alkyl or C_1–C_4 haloalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy; or

R^{25} and R^{26} are independently taken together with the nitrogen atom to which they are attached to form a 3- to 7-membered ring containing ring members selected from carbon atoms and up to 2 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 2 nitrogen atoms, wherein up to 2 carbon atom ring members are independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, said ring being unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{27} is independently C_1–C_6 alkyl, C_1–C_6 haloalkyl, C_1–C_6 alkoxy, C_1–C_6 haloalkoxy or $NR^{29}R^{30}$; or phenyl or a 5- or 6-membered heterocyclic aromatic ring, each unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{28} is independently C_1–C_6 alkyl, C_3–C_6 cycloalkyl or phenyl;

each R^{29} is independently H or Q^b; or C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_2–C_6 alkenyl or C_2–C_6 alkynyl, each unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{30} is independently H or Q^b; or C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_2–C_6 alkenyl or C_2–C_6 alkynyl, each unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy; or

R^{29} and R^{30} are taken together with the nitrogen atom to which they are attached to form a 3- to 10-membered ring containing ring members selected from carbon atoms and up to 2 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 2 nitrogen atoms, wherein up to 2 carbon atom ring members are independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, said ring being unsubstituted or substituted with up to 4 substituents independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

Q^a is a 5- to 10-membered aromatic ring or ring system, each ring or ring system containing ring members selected from carbon atoms and up to 3 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 3 nitrogen atoms, wherein up to 2 carbon atom ring members are independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, each ring or ring system being unsubstituted or substituted with at least one R^x; or a 3- to 6-membered partially saturated ring, each ring containing ring members selected from carbon atoms and up to 2 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 2 nitrogen atoms, wherein up to 2 carbon atom ring members are independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, each ring unsubstituted or substituted with at

least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each Q^b is independently phenyl, a 5- or 6-membered heterocyclic aromatic ring or a 3- to 6-membered heterocyclic non-aromatic ring, each ring containing ring members selected from carbon atoms and up to 2 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 2 nitrogen atoms, wherein up to 2 carbon atom ring members are independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, each ring unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each n is independently 0, 1 or 2; and

p is 1 or 2.

This invention also provides a composition comprising a compound of Formula **1**, an *N*-oxide or a salt thereof, and at least one additional component selected from the group consisting of surfactants, solid diluents and liquid diluents. In one embodiment, this invention also provides a composition for controlling an invertebrate pest comprising a compound of Formula **1**, an *N*-oxide or a salt thereof, and at least one additional component selected from the group consisting of surfactants, solid diluents and liquid diluents, said composition optionally further comprising at least one additional biologically active compound or agent.

This invention further provides a spray composition for controlling an invertebrate pest comprising a compound of Formula **1**, an *N*-oxide or a salt thereof, or the compositions described above, and a propellant. This invention also provides a bait composition for controlling an invertebrate pest comprising a compound of Formula **1**, an *N*-oxide or a salt thereof, or the compositions described in the embodiments above, one or more food materials, optionally an attractant, and optionally a humectant.

This invention further provides a trap device for controlling an invertebrate pest comprising said bait composition and a housing adapted to receive said bait composition, wherein the housing has at least one opening sized to permit the invertebrate pest to pass through the opening so the invertebrate pest can gain access to said bait composition from a location outside the housing, and wherein the housing is further adapted to be placed in or near a locus of potential or known activity for the invertebrate pest.

This invention provides a method for controlling an invertebrate pest comprising contacting the invertebrate pest or its environment with a biologically effective amount of a

compound of Formula **1**, an *N*-oxide or a salt thereof, (e.g., as a composition described herein). This invention also relates to such method wherein the invertebrate pest or its environment is contacted with a composition comprising a biologically effective amount of a compound of Formula **1**, an *N*-oxide or a salt thereof, and at least one additional component selected from the group consisting of surfactants, solid diluents and liquid diluents, said composition optionally further comprising a biologically effective amount of at least one additional biologically active compound or agent.

This invention also provides a method for protecting a seed from an invertebrate pest comprising contacting the seed with a biologically effective amount of a compound of Formula **1**, an *N*-oxide or a salt thereof, (e.g., as a composition described herein). This invention also relates to the treated seed. This invention further provides a method for protecting an animal from an invertebrate parasitic pest comprising administering to the animal a parasiticidally effective amount of a compound of Formula **1**, an *N*-oxide or a salt thereof, (e.g., as a composition described herein). This invention also provides for the use of a compound of Formula **1**, an *N*-oxide or a salt thereof, (e.g., as a composition described herein) in protecting an animal from an invertebrate pest.

This invention also provides a method for increasing vigor of a crop plant comprising contacting the crop plant, the seed from which the crop plant is grown or the locus (e.g., growth medium) of the crop plant with a biologically effective amount of a compound of Formula **1** (e.g., as a composition described herein).

DETAILS OF THE INVENTION

As used herein, the terms "comprises," "comprising," "includes," "including," "has," "having," "contains", "containing," "characterized by" or any other variation thereof, are intended to cover a non-exclusive inclusion, subject to any limitation explicitly indicated. For example, a composition, mixture, process or method that comprises a list of elements is not necessarily limited to only those elements but may include other elements not expressly listed or inherent to such composition, mixture, process or method.

The transitional phrase "consisting of" excludes any element, step, or ingredient not specified. If in the claim, such would close the claim to the inclusion of materials other than those recited except for impurities ordinarily associated therewith. When the phrase "consisting of" appears in a clause of the body of a claim, rather than immediately following the preamble, it limits only the element set forth in that clause; other elements are not excluded from the claim as a whole.

The transitional phrase "consisting essentially of" is used to define a composition or method that includes materials, steps, features, components, or elements, in addition to those literally disclosed, provided that these additional materials, steps, features, components, or

elements do not materially affect the basic and novel characteristic(s) of the claimed invention. The term "consisting essentially of" occupies a middle ground between "comprising" and "consisting of".

Where applicants have defined an invention or a portion thereof with an open-ended term such as "comprising," it should be readily understood that (unless otherwise stated) the description should be interpreted to also describe such an invention using the terms "consisting essentially of" or "consisting of."

Further, unless expressly stated to the contrary, "or" refers to an inclusive or and not to an exclusive or. For example, a condition A or B is satisfied by any one of the following: A is true (or present) and B is false (or not present), A is false (or not present) and B is true (or present), and both A and B are true (or present).

Also, the indefinite articles "a" and "an" preceding an element or component of the invention are intended to be nonrestrictive regarding the number of instances (i.e. occurrences) of the element or component. Therefore "a" or "an" should be read to include one or at least one, and the singular word form of the element or component also includes the plural unless the number is obviously meant to be singular.

As referred to in this disclosure, the term "invertebrate pest" includes arthropods, gastropods, nematodes and helminths of economic importance as pests. The term "arthropod" includes insects, mites, spiders, scorpions, centipedes, millipedes, pill bugs and symphylans. The term "gastropod" includes snails, slugs and other Stylommatophora. The term "nematode" includes members of the phylum Nematoda, such as phytophagous nematodes and helminth nematodes parasitizing animals. The term "helminth" includes all of the parasitic worms, such as roundworms (phylum Nematoda), heartworms (phylum Nematoda, class Secernentea), flukes (phylum Platyhelminthes, class Tematoda), acanthocephalans (phylum Acanthocephala), and tapeworms (phylum Platyhelminthes, class Cestoda).

In the context of this disclosure "invertebrate pest control" means inhibition of invertebrate pest development (including mortality, feeding reduction, and/or mating disruption), and related expressions are defined analogously.

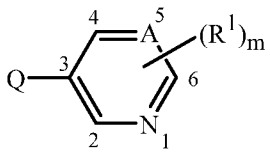
The term "agronomic" refers to the production of field crops such as for food and fiber and includes the growth of maize or corn, soybeans and other legumes, rice, cereal (e.g., wheat, oats, barley, rye and rice), leafy vegetables (e.g., lettuce, cabbage, and other cole crops), fruiting vegetables (e.g., tomatoes, pepper, eggplant, crucifers and cucurbits), potatoes, sweet potatoes, grapes, cotton, tree fruits (e.g., pome, stone and citrus), small fruit (e.g., berries and cherries) and other specialty crops (e.g., canola, sunflower and olives).

The term "nonagronomic" refers to other than field crops, such as horticultural crops (e.g., greenhouse, nursery or ornamental plants not grown in a field), residential, agricultural, commercial and industrial structures, turf (e.g., sod farm, pasture, golf course, lawn, sports field, etc.), wood products, stored product, agro-forestry and vegetation management, public health (i.e. human) and animal health (e.g., domesticated animals such as pets, livestock and poultry, undomesticated animals such as wildlife) applications.

The term "crop vigor" refers to rate of growth or biomass accumulation of a crop plant. An "increase in vigor" refers to an increase in growth or biomass accumulation in a crop plant relative to an untreated control crop plant. The term "crop yield" refers to the return on crop material, in terms of both quantity and quality, obtained after harvesting a crop plant. An "increase in crop yield" refers to an increase in crop yield relative to an untreated control crop plant.

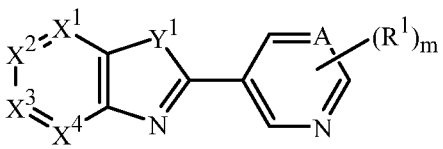
The term "biologically effective amount" refers to the amount of a biologically active compound (e.g., a compound of Formula **1**) sufficient to produce the desired biological effect when applied to (i.e. contacted with) an invertebrate pest to be controlled or its environment, or to a plant, the seed from which the plant is grown, or the locus of the plant (e.g., growth medium) to protect the plant from injury by the invertebrate pest or for other desired effect (e.g., increasing plant vigor).

The position of the variable R^1 in the structure of Formula **1** is described by the numbering system shown below.



1

A wavy line in a structure fragment denotes the attachment point of the fragment to the remainder of the molecule. For example, when the variable Q in Formula **1** is defined as Q-1, the wavy line bisecting the bond in Q-1 means that Q-1 is attached to the remainder of the structure of Formula **1** at said position, as shown below.



In structures Q-1, Q-2, Q-3 and Q-4, the variables X^1, X^2, X^3 and X^4 are defined as each being independently CR^2, CR^3 or N, provided that (i) one of X^1, X^2, X^3 and X^4 is CR^2, and (ii) no more than one of X^1, X^2, X^3 and X^4 is N. This definition of X^1, X^2, X^3 and X^4 describes sixteen possible combinations of X^1, X^2, X^3 and X^4, shown in the table below.

Combination	X^1	X^2	X^3	X^4
1	CR^2	CR^3	CR^3	CR^3
2	CR^2	N	CR^3	CR^3
3	CR^2	CR^3	N	CR^3
4	CR^2	CR^3	CR^3	N
5	CR^3	CR^2	CR^3	CR^3
6	N	CR^2	CR^3	CR^3
7	CR^3	CR^2	N	CR^3
8	CR^3	CR^2	CR^3	N
9	CR^3	CR^3	CR^2	CR^3
10	N	CR^3	CR^2	CR^3
11	CR^3	N	CR^2	CR^3
12	CR^3	CR^3	CR^2	N
13	CR^3	CR^3	CR^3	CR^2
14	N	CR^3	CR^3	CR^2
15	CR^3	N	CR^3	CR^2
16	CR^3	CR^3	N	CR^2

In the above recitations, the term “alkyl”, used either alone or in compound words such as “alkylthio” or “haloalkyl” includes straight-chain or branched alkyl, such as, methyl, ethyl, *n*-propyl, *i*-propyl, or the different butyl, pentyl or hexyl isomers. “Alkenyl” includes straight-chain or branched alkenes such as ethenyl, 1-propenyl, 2-propenyl, and the different butenyl, pentenyl and hexenyl isomers. “Alkenyl” also includes polyenes such as 1,2-propadienyl and 2,4-hexadienyl. “Alkynyl” includes straight-chain or branched alkynes such as ethynyl, 1-propynyl, 2-propynyl and the different butynyl, pentynyl and hexynyl isomers. “Alkynyl” can also include moieties comprised of multiple triple bonds such as 2,5-hexadiynyl.

“Alkoxy” includes, for example, methoxy, ethoxy, *n*-propyloxy, isopropyloxy and the different butoxy, pentoxy and hexyloxy isomers. “Alkylthio” includes branched or

straight-chain alkylthio moieties such as methylthio, ethylthio, and the different propylthio, butylthio, pentylthio and hexylthio isomers.

"Cycloalkyl" includes, for example, cyclopropyl, cyclobutyl, cyclopentyl and cyclohexyl.

The term "halogen", either alone or in compound words such as "haloalkyl", or when used in descriptions such as "alkyl substituted with halogen" includes fluorine, chlorine, bromine or iodine. Further, when used in compound words such as "haloalkyl", or when used in descriptions such as "alkyl substituted with halogen" said alkyl may be partially or fully substituted with halogen atoms which may be the same or different. Examples of "haloalkyl" or "alkyl substituted with halogen" include F_3C-, $ClCH_2$-, CF_3CH_2- and CF_3CCl_2-. The terms "halocycloalkyl", "haloalkoxy", "haloalkylthio", "haloalkenyl", "haloalkynyl", and the like, are defined analogously to the term "haloalkyl". Examples of "haloalkoxy" include CF_3O-, CCl_3CH_2O-, $HCF_2CH_2CH_2O$- and CF_3CH_2O-. Examples of "haloalkylthio" include CCl_3S-, CF_3S-, CCl_3CH_2S- and $ClCH_2CH_2CH_2S$-.

The chemical abbreviations S(O) and S(=O) as used herein represent a sulfinyl moiety. The chemical abbreviations SO_2, $S(O)_2$ and $S(=O)_2$ as used herein represent a sulfonyl moiety. The chemical abbreviations C(O) and C(=O) as used herein represent a carbonyl moiety. The chemical abbreviations CO_2, C(O)O and C(=O)O as used herein represent an oxycarbonyl moiety. "CHO" means formyl.

The total number of carbon atoms in a substituent group is indicated by the "C_i–C_j" prefix where i and j are numbers from 1 to 6. For example, C_1–C_4 alkylsulfonyl designates methylsulfonyl through butylsulfonyl; C_2 alkoxyalkyl designates CH_3OCH_2-; C_3 alkoxyalkyl designates, for example, $CH_3CH(OCH_3)$-, $CH_3OCH_2CH_2$- or $CH_3CH_2OCH_2$-; and C_4 alkoxyalkyl designates the various isomers of an alkyl group substituted with an alkoxy group containing a total of four carbon atoms, examples including $CH_3CH_2CH_2OCH_2$- and $CH_3CH_2OCH_2CH_2$-.

When a compound is substituted with a substituent bearing a subscript that indicates the number of said substituents can exceed 1, said substituents (when they exceed 1) are independently selected from the group of defined substituents, e.g., $(R^1)_m$, m is 0, 1, 2 or 3. Further, when the subscript indicates a range, e.g. $(R)_{i-j}$, then the number of substituents may be selected from the integers between i and j inclusive. When a group contains a substituent which can be hydrogen, for example R^3 or R^4, then when this substituent is taken as hydrogen, it is recognized that this is equivalent to said group being unsubstituted. When a variable group is shown to be optionally attached to a position, for example $(R^1)_m$ wherein m may be 0, then hydrogen may be at the position even if not recited in the variable group

definition. When one or more positions on a group are said to be "not substituted" or "unsubstituted", then hydrogen atoms are attached to take up any free valency.

Unless otherwise indicated, a "ring" or "ring system" as a component of Formula **1** (e.g., substituent Q^a) is carbocyclic or heterocyclic. The term "ring system" denotes two or more fused rings. The terms "bicyclic ring system" and "fused bicyclic ring system" denote a ring system consisting of two fused rings, which can be "ortho-fused", "bridged bicyclic" or "spirobicyclic". An "ortho-fused bicyclic ring system" denotes a ring system wherein the two constituent rings have two adjacent atoms in common. A "bridged bicyclic ring system" is formed by bonding a segment of one or more atoms to nonadjacent ring members of a ring. A "spirobicyclic ring system" is formed by bonding a segment of two or more atoms to the same ring member of a ring. The term "fused heterobicyclic ring system" denotes a fused bicyclic ring system in which at least one ring atom is not carbon. The term "ring member" refers to an atom or other moiety (e.g., C(=O), C(=S), S(O) or $S(O)_2$) forming the backbone of a ring or ring system.

The terms "carbocyclic ring", "carbocycle" or "carbocyclic ring system" denote a ring or ring system wherein the atoms forming the ring backbone are selected only from carbon. The terms "heterocyclic ring", "heterocycle" or "heterocyclic ring system" denote a ring or ring system in which at least one atom forming the ring backbone is not carbon, e.g., nitrogen, oxygen or sulfur. Typically a heterocyclic ring contains no more than 4 nitrogens, no more than 2 oxygens and no more than 2 sulfurs. Unless otherwise indicated, a carbocyclic ring or heterocyclic ring can be a saturated or unsaturated ring. "Saturated" refers to a ring having a backbone consisting of atoms linked to one another by single bonds; unless otherwise specified, the remaining atom valences are occupied by hydrogen atoms. Unless otherwise stated, an "unsaturated ring" may be partially unsaturated or fully unsaturated. The expression "fully unsaturated ring" means a ring of atoms in which the bonds between atoms in the ring are single or double bonds according to valence bond theory and furthermore the bonds between atoms in the ring include as many double bonds as possible without double bonds being cumulative (i.e. no C=C=C or C=C=N). The term "partially unsaturated ring" denotes a ring comprising at least one ring member bonded to an adjacent ring member through a double bond and which conceptually potentially accommodates a number of non-cumulated double bonds between adjacent ring members (i.e. in its fully unsaturated counterpart form) greater than the number of double bonds present (i.e. in its partially unsaturated form).

Unless otherwise indicated, heterocyclic rings and ring systems can be attached through any available carbon or nitrogen by replacement of a hydrogen on said carbon or nitrogen.

"Aromatic" indicates that each of the ring atoms is essentially in the same plane and has a *p*-orbital perpendicular to the ring plane, and in which (4n + 2) π electrons, where n is a positive integer, are associated with the ring to comply with Hückel's rule. The term "aromatic ring system" denotes a carbocyclic or heterocyclic ring system in which at least one ring of the ring system is aromatic. When a fully unsaturated carbocyclic ring satisfies Hückel's rule, then said ring is also called an "aromatic ring" or "aromatic carbocyclic ring". The term "aromatic carbocyclic ring system" denotes a carbocyclic ring system in which at least one ring of the ring system is aromatic. When a fully unsaturated heterocyclic ring satisfies Hückel's rule, then said ring is also called a "heteroaromatic ring", "aromatic heterocyclic ring" or "heterocyclic aromatic ring". The term "aromatic heterocyclic ring system" denotes a heterocyclic ring system in which at least one ring of the ring system is aromatic. The term "nonaromatic ring system" denotes a carbocyclic or heterocyclic ring system that may be fully saturated, as well as partially or fully unsaturated, provided that none of the rings in the ring system are aromatic. The term "nonaromatic carbocyclic ring system" denotes a carbocyclic ring in which no ring in the ring system is aromatic. The term "nonaromatic heterocyclic ring system" denotes a heterocyclic ring system in which no ring in the ring system is aromatic.

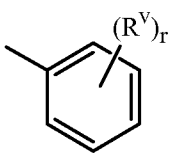
The term "optionally substituted" in connection with the heterocyclic rings refers to groups which are unsubstituted or have at least one non-hydrogen substituent that does not extinguish the biological activity possessed by the unsubstituted analog. As used herein, the following definitions shall apply unless otherwise indicated. The term "optionally substituted" is used interchangeably with the phrase "substituted or unsubstituted" or with the term "(un)substituted." Unless otherwise indicated, an optionally substituted group may have a substituent at each substitutable position of the group, and each substitution is independent of the other.

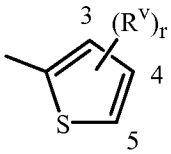
When a substituent is a 5- or 6-membered nitrogen-containing heterocyclic ring, it may be attached to the remainder of Formula **1** though any available carbon or nitrogen ring atom, unless otherwise described. As noted above, Q^a can be (among others) phenyl optionally substituted with one or more substituents selected from a group of substituents as defined in the Summary of Invention. An example of phenyl optionally substituted with one to five substituents is the ring illustrated as U-1 in Exhibit 1, wherein R^v is R^x as defined in the Summary of the Invention for Q^a and r is an integer from 0 to 5.

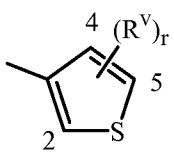
As noted above, Q^b can be (among others) a 5- or 6-membered heterocyclic aromatic ring, optionally substituted with one or more substituents selected from a group of substituents as defined in the Summary of Invention. Examples of a 5- or 6-membered unsaturated aromatic heterocyclic ring optionally substituted with from one or more

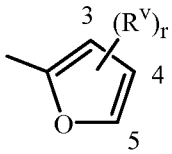
substituents include the rings U-2 through U-61 illustrated in Exhibit 1 wherein R^v is any substituent as defined in the Summary of the Invention for Q^b and r is an integer from 0 to 4, limited by the number of available positions on each U group. As U-29, U-30, U-36, U-37, U-38, U-39, U-40, U-41, U-42 and U-43 have only one available position, for these U groups r is limited to the integers 0 or 1, and r being 0 means that the U group is unsubstituted and a hydrogen is present at the position indicated by $(R^v)_r$.

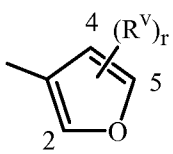
Exhibit 1

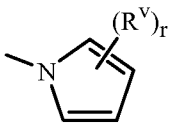

U-1

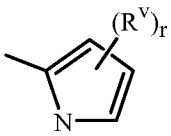

U-2

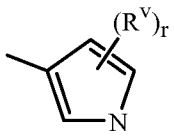

U-3

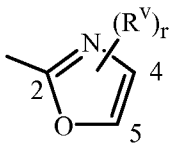

U-4

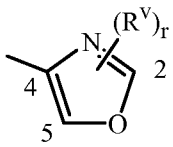

U-5

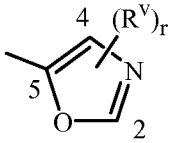

U-6

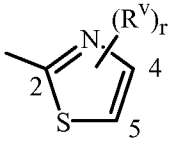

U-7

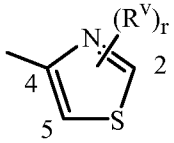

U-8

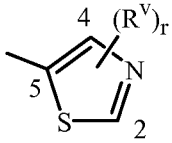

U-9

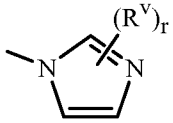

U-10

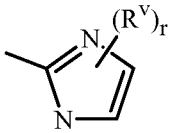

U-11

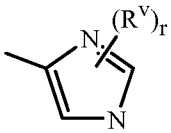

U-12

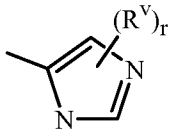

U-13

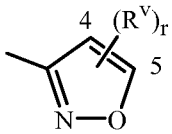

U-14

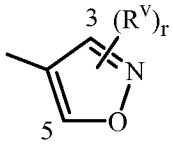

U-15

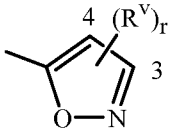

U-16

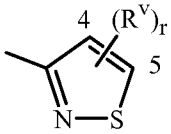

U-17

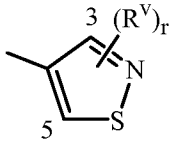

U-18

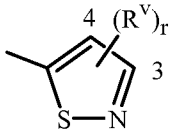

U-19

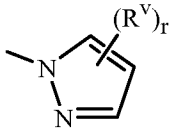

U-20

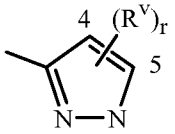

U-21

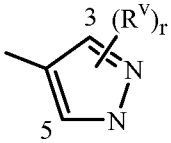

U-22

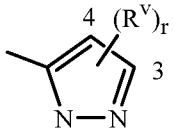

U-23

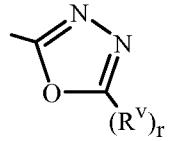

U-24

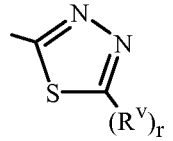

U-25

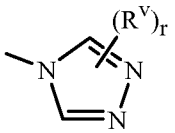

U-26

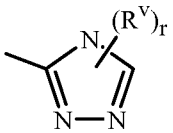

U-27

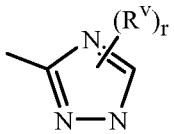

U-28

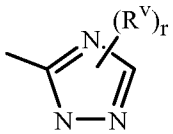

U-29

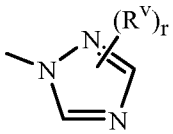

U-30

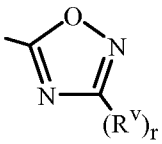

U-31 ,

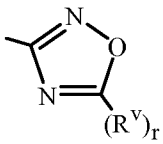

U-32 ,

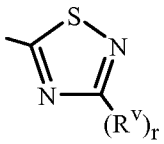

U-33 ,

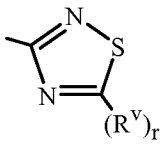

U-34 ,

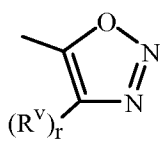

U-35 ,


U-36 ,


U-37 ,


U-38 ,

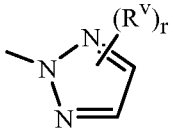

U-39 ,

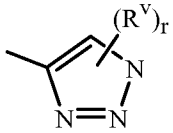

U-40 ,

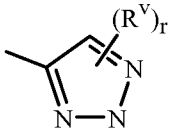
U-41 ,

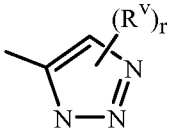
U-42 ,

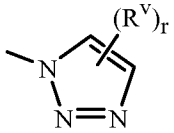
U-43 ,

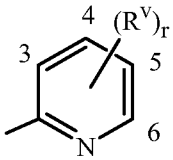

U-44 ,

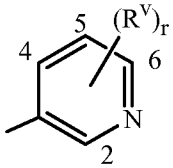

U-45 ,

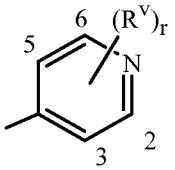

U-46 ,

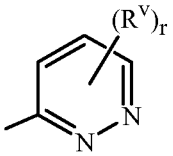

U-47 ,

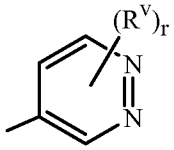

U-48 ,

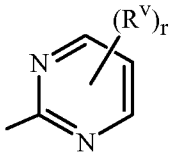

U-49 ,

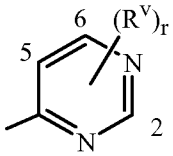

U-50 ,

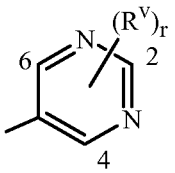

U-51 ,

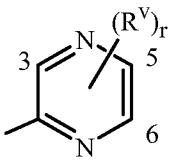

U-52 ,

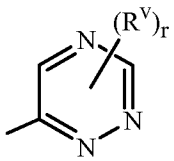

U-53 ,

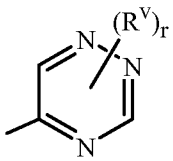

U-54 ,

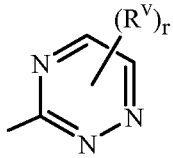

U-55 ,

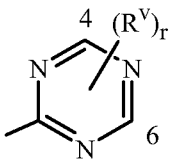

U-56 ,


U-57 ,


U-58 ,


U-59 ,

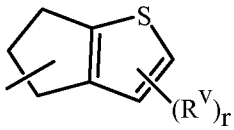

U-60 and

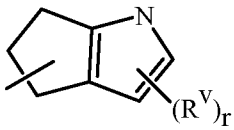

U-61 .

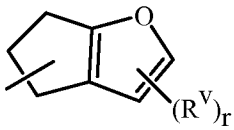
As noted above, Q^a can be (among others) an 8-, 9- or 10-membered ortho-fused bicyclic ring system optionally substituted with one or more substituents selected from a group of substituents as defined in the Summary of Invention. Examples of 8-, 9- or 10-

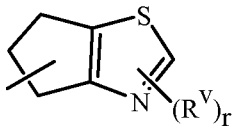
membered ortho-fused bicyclic ring system optionally substituted with from one or more substituents include the rings U-81 through U-123 illustrated in Exhibit 3 wherein R^v is any substituent as defined in the Summary of the Invention for Q^a, and r is typically an integer from 0 to 4.

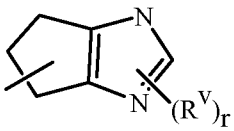
Exhibit 3

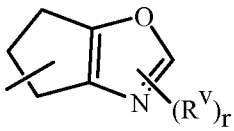

U-81

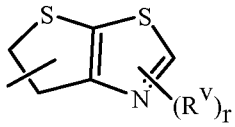

U-82

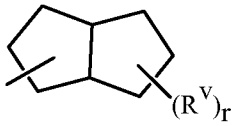

U-83

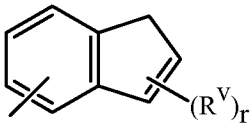

U-84

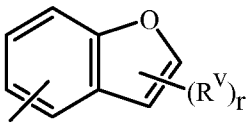

U-85

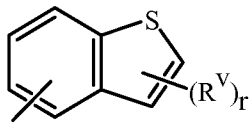

U-86

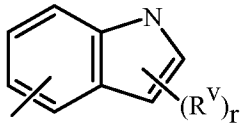

U-87

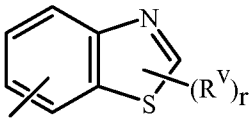

U-88

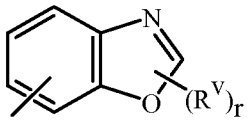

U-89

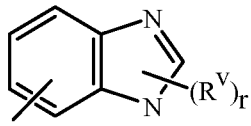

U-90

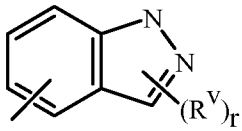

U-91

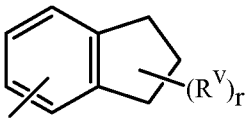

U-92

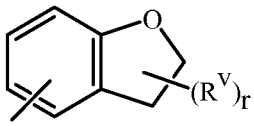

U-93

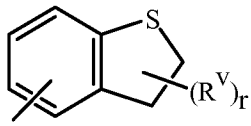

U-94

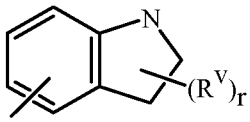

U-95

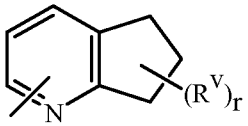

U-96

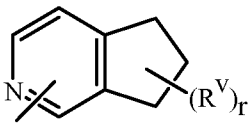

U-97

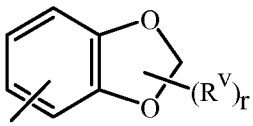

U-98

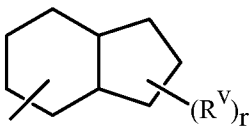

U-99

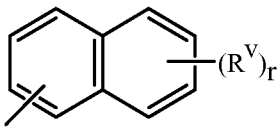

U-100

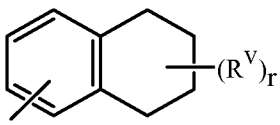

U-101

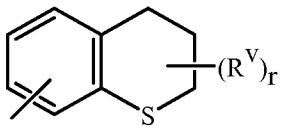

U-102

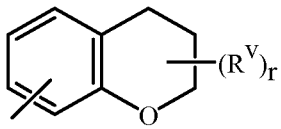

U-103

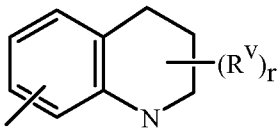

U-104

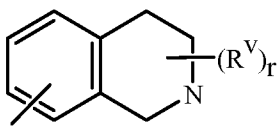

U-105

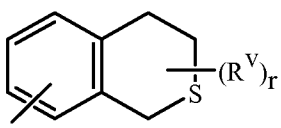

U-106

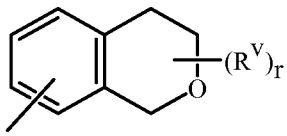

U-107

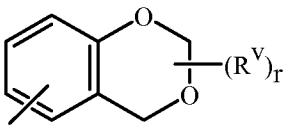

U-108

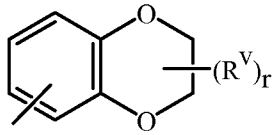

U-109

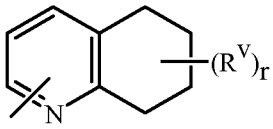

U-110

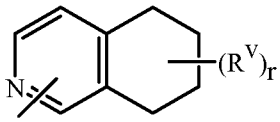

U-111

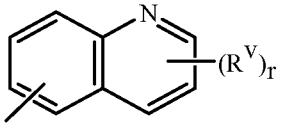

U-112

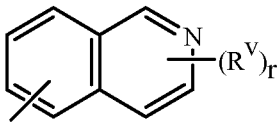

U-113

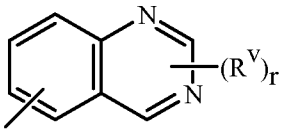

U-114

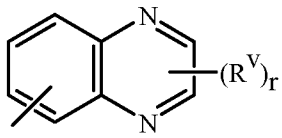

U-115

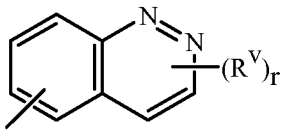

U-116

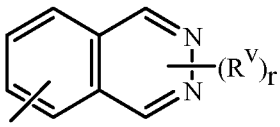

U-117


U-118

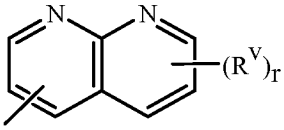

U-119


U-120


U-121


U-122

and


U-123

Although R^V groups are shown in the structures U-1 through U-123, it is noted that they do not need to be present since they are optional substituents. Note that when R^V is H when attached to an atom, this is the same as if said atom is unsubstituted. The nitrogen atoms that require substitution to fill their valence are substituted with H or R^V. Note that when the attachment point between $(R^V)_r$ and the U group is illustrated as floating, $(R^V)_r$ can be attached to any available carbon atom or nitrogen atom of the U group. Note that when the attachment point on the U group is illustrated as floating, the U group can be attached to the remainder of Formula **1** through any available carbon or nitrogen of the U group by replacement of a hydrogen atom. Note that some U groups can only be substituted with less than 4 R^V groups (e.g., U-2 through U-5, U-7 through U-48, and U-52 through U-61).

A wide variety of synthetic methods are known in the art to enable preparation of aromatic and nonaromatic heterocyclic rings and ring systems; for extensive reviews see the eight volume set of *Comprehensive Heterocyclic Chemistry*, A. R. Katritzky and C. W. Rees editors-in-chief, Pergamon Press, Oxford, 1984 and the twelve volume set of *Comprehensive Heterocyclic Chemistry II*, A. R. Katritzky, C. W. Rees and E. F. V. Scriven editors-in-chief, Pergamon Press, Oxford, 1996.

Compounds of this invention can exist as one or more stereoisomers. Stereoisomers are isomers of identical constitution but differing in the arrangement of their atoms in space and include enantiomers, diastereomers, cis-trans isomers (also known as geometric isomers) and atropisomers. Atropisomers result from restricted rotation about single bonds where the rotational barrier is high enough to permit isolation of the isomeric species. One skilled in the art will appreciate that one stereoisomer may be more active and/or may exhibit beneficial effects when enriched relative to the other stereoisomer(s) or when separated from the other stereoisomer(s). Additionally, the skilled artisan knows how to separate, enrich, and/or to selectively prepare said stereoisomers. For a comprehensive discussion of all

aspects of stereoisomerism, see Ernest L. Eliel and Samuel H. Wilen, *Stereochemistry of Organic Compounds*, John Wiley & Sons, 1994.

This invention comprises all stereoisomers, conformational isomers and mixtures thereof in all proportions as well as isotopic forms such as deuterated compounds.

One skilled in the art will appreciate that not all nitrogen-containing heterocycles can form *N*-oxides since the nitrogen requires an available lone pair for oxidation to the oxide; one skilled in the art will recognize those nitrogen-containing heterocycles which can form *N*-oxides. One skilled in the art will also recognize that tertiary amines can form *N*-oxides. Synthetic methods for the preparation of *N*-oxides of heterocycles and tertiary amines are very well known by one skilled in the art including the oxidation of heterocycles and tertiary amines with peroxy acids such as peracetic and 3-chloroperbenzoic acid (MCPBA), hydrogen peroxide, alkyl hydroperoxides such as *t*-butyl hydroperoxide, sodium perborate, and dioxiranes such as dimethyldioxirane. These methods for the preparation of *N*-oxides have been extensively described and reviewed in the literature, see for example: T. L. Gilchrist in *Comprehensive Organic Synthesis*, vol. 7, pp 748–750, S. V. Ley, Ed., Pergamon Press; M. Tisler and B. Stanovnik in *Comprehensive Heterocyclic Chemistry*, vol. 3, pp 18–20, A. J. Boulton and A. McKillop, Eds., Pergamon Press; M. R. Grimmett and B. R. T. Keene in *Advances in Heterocyclic Chemistry*, vol. 43, pp 149–161, A. R. Katritzky, Ed., Academic Press; M. Tisler and B. Stanovnik in *Advances in Heterocyclic Chemistry*, vol. 9, pp 285–291, A. R. Katritzky and A. J. Boulton, Eds., Academic Press; and G. W. H. Cheeseman and E. S. G. Werstiuk in *Advances in Heterocyclic Chemistry*, vol. 22, pp 390–392, A. R. Katritzky and A. J. Boulton, Eds., Academic Press.

One skilled in the art recognizes that because in the environment and under physiological conditions salts of chemical compounds are in equilibrium with their corresponding nonsalt forms, salts share the biological utility of the nonsalt forms. Thus a wide variety of salts of the compounds of Formula **1** are useful for control of invertebrate pests. The salts of the compounds of Formula **1** include acid-addition salts with inorganic or organic acids such as hydrobromic, hydrochloric, nitric, phosphoric, sulfuric, acetic, butyric, fumaric, lactic, maleic, malonic, oxalic, propionic, salicylic, tartaric, 4-toluenesulfonic or valeric acids. When a compound of Formula **1** contains an acidic moiety such as a carboxylic acid or phenol, salts also include those formed with organic or inorganic bases such as pyridine, triethylamine or ammonia, or amides, hydrides, hydroxides or carbonates of sodium, potassium, lithium, calcium, magnesium or barium. Accordingly, the present invention comprises compounds selected from Formula **1**, *N*-oxides and suitable salts thereof.

Compounds selected from Formula **1**, stereoisomers, tautomers, *N*-oxides, and salts thereof, typically exist in more than one form, and Formula **1** thus includes all crystalline and non-crystalline forms of the compounds that Formula **1** represents. Non-crystalline forms include embodiments which are solids such as waxes and gums as well as embodiments which are liquids such as solutions and melts. Crystalline forms include embodiments which represent essentially a single crystal type and embodiments which represent a mixture of polymorphs (i.e. different crystalline types). The term "polymorph" refers to a particular crystalline form of a chemical compound that can crystallize in different crystalline forms, these forms having different arrangements and/or conformations of the molecules in the crystal lattice. Although polymorphs can have the same chemical composition, they can also differ in composition due to the presence or absence of co-crystallized water or other molecules, which can be weakly or strongly bound in the lattice. Polymorphs can differ in such chemical, physical and biological properties as crystal shape, density, hardness, color, chemical stability, melting point, hygroscopicity, suspensibility, dissolution rate and biological availability. One skilled in the art will appreciate that a polymorph of a compound represented by Formula **1** can exhibit beneficial effects (e.g., suitability for preparation of useful formulations, improved biological performance) relative to another polymorph or a mixture of polymorphs of the same compound represented by Formula **1**. Preparation and isolation of a particular polymorph of a compound represented by Formula **1** can be achieved by methods known to those skilled in the art including, for example, crystallization using selected solvents and temperatures. Compounds of this invention may exist as one or more crystalline polymorphs. This invention comprises both individual polymorphs and mixtures of polymorphs, including mixtures enriched in one polymorph relative to others. For a comprehensive discussion of polymorphism see R. Hilfiker, Ed., *Polymorphism In the Pharmaceutical Industry*, Wiley-VCH, Weinheim, 2006.

Embodiments of the present invention as described in the Summary of the Invention include those described below. In the following Embodiments, reference to "a compound of Formula **1**" includes the definitions of substituents specified in the Summary of the Invention unless further defined in the Embodiments.

Embodiment 1. A compound of Formula **1** wherein Q is Q-1, Q-2 or Q-3.

Embodiment 2. A compound of Formula **1** wherein Q is Q-1, Q-2 or Q-3, and Y^3 is CR^{5b}.

Embodiment 3. A compound of Formula **1** wherein Q is Q-1 or Q-2.

Embodiment 4. A compound of Formula **1** wherein Q is Q-1.

Embodiment 5. A compound of Formula **1** wherein Q is Q-1, and Y^1 is O or S.

Embodiment 6. A compound of Formula **1** wherein Q is Q-1, and Y^1 is S.

Embodiment 7. A compound of Formula **1** wherein Q is Q-1, and Y^1 is O.

Embodiment 8. A compound of Formula **1** wherein Q is Q-2.

Embodiment 9. A compound of Formula **1** wherein Q is Q-2, and Y^2 is CR^{5a}.

Embodiment 10. A compound of Formula **1** or any of Embodiments 1–9 wherein A is CH, CR^1 or N, and R^1 is halogen.

Embodiment 11. A compound of Embodiment 10 wherein A is CH, CF or N.

Embodiment 11a. A compound of Embodiment 10 wherein A is CF or N.

Embodiment 12. A compound of Embodiment 10 wherein A is CH or CF.

Embodiment 13. A compound of Embodiment 10 wherein A is CH.

Embodiment 14. A compound of Embodiment 10 wherein A is N.

Embodiment 15. A compound of Formula **1** or any of Embodiments 1–9 wherein m is 1, and R^1 is C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy or halogen.

Embodiment 16. A compound of Embodiment 15 wherein R^1 is CF_3, OMe, Me, or F.

Embodiment 17. A compound of Embodiment 16 wherein R^1 is CF_3, OMe, Me, or F, and is in the 4-position.

Embodiment 18. A compound of Embodiment 17 wherein R^1 is CF_3, and is in the 4-position.

Embodiment 19. A compound of Formula **1** or any of Embodiments 1–9 wherein m is 0.

Embodiment 20. A compound of Formula **1** or any of Embodiments 1–19 wherein X^1 is CR^2, and X^2, X^3 and X^4 are each independently CR^3; or X^2 is CR^2, and X^1, X^3 and X^4 are each independently CR^3.

Embodiment 21. A compound of Embodiment 20 wherein X^1 is CR^2, and X^2, X^3 and X^4 are each independently CR^3.

Embodiment 22. A compound of Embodiment 20 wherein X^2 is CR^2, and X^1, X^3 and X^4 are each independently CR^3.

Embodiment 23. A compound of Formula **1** or any of Embodiments 1–22 wherein each R^3 is independently H or halogen.

Embodiment 24. A compound of Embodiment 23 wherein each R^3 is independently H or F.

Embodiment 25. A compound of Embodiment 24 wherein each R^3 is H.

Embodiment 26. A compound of Formula **1** or any of Embodiments 1–25 wherein R^2 is $C(=Z)NR^6R^7$, $C(=NR^{10})R^{11}$ or Q^a.

Embodiment 27. A compound of Formula **1** or any of Embodiments 1–25 wherein R^2 is $C(=NR^{10})R^{11}$.

Embodiment 28. A compound of Formula **1** or any of Embodiments 1–25 wherein R^2 is $C(=NR^{10})R^{11}$; R^{10} is C_1–C_4 alkoxy; and R^{11} is C_1–C_4 alkyl substituted with $S(O)_nR^{23}$.

Embodiment 29. A compound of Formula **1** or any of Embodiments 1–25 wherein R^2 is $C(=Z)NR^6R^7$ or Q^a.

Embodiment 30. A compound of Formula **1** or any of Embodiments 1–25 wherein R^2 is $C(=Z)NR^6R^7$.

Embodiment 31. A compound of Formula **1** or any of Embodiments 1–25 wherein R^2 is $C(=O)NR^6R^7$.

Embodiment 32. A compound of Formula **1** or any of Embodiments 1–25 wherein R^2 is $C(=S)NR^6R^7$.

Embodiment 33. A compound of Formula **1** or any of Embodiments 1–25 wherein R^2 is $C(=O)NR^6R^7$; and R^6 is H, $C(O)OR^{21}$, $C(O)R^{22}$ or C_1–C_6 alkyl.

Embodiment 35. A compound of Formula **1** or any of Embodiments 1–25 wherein R^2 is $C(=O)NR^6R^7$; and R^6 is H, C(O)OMe, C(O)Me or methyl.

Embodiment 36. A compound of Formula **1** or any of Embodiments 1–25 wherein R^2 is $C(=O)NR^6R^7$; and R^6 is H.

Embodiment 36a. A compound of Formula **1** or any of Embodiments 1–25 wherein R^2 is $C(=O)NR^6R^7$; and R^6 is C(O)OMe.

Embodiment 36b. A compound of Formula **1** or any of Embodiments 1–25 wherein R^2 is $C(=O)NR^6R^7$; and R^6 is C(O)Me.

Embodiment 36c. A compound of Formula **1** or any of Embodiments 1–25 wherein R^2 is $C(=O)NR^6R^7$; and R^6 is methyl.

Embodiment 37. A compound of Formula **1** or any of Embodiments 1–25 wherein R^2 is Q^a.

Embodiment 38. A compound of Formula **1** or any of Embodiments 1–25 wherein R^2 is Q^a; and Q^a is a 5- or 6-membered aromatic ring, each ring containing ring members selected from carbon atoms and up to 3 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 3 nitrogen atoms, each ring being unsubstituted or substituted with at least one R^x.

Embodiment 39. A compound of Formula **1** or any of Embodiments 1–25 wherein R^2 is Q^a; and Q^a is a 5- or 6-membered heteroaromatic ring, each ring containing ring members selected from carbon atoms and up to 3 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 3 nitrogen atoms, each ring being unsubstituted or substituted with at least one R^x.

Embodiment 40. A compound of Embodiment 39 wherein the heteroaromatic ring is a 5-membered heteroaromatic ring.

Embodiment 41. A compound of Embodiment 40 wherein the heteroaromatic ring is a 5-membered heteroaromatic ring having a nitrogen atom at the 2-position.

Embodiment 42. A compound of Embodiment 39 wherein the heteroaromatic ring is a 6-membered heteroaromatic ring.

Embodiment 43. A compound of Embodiment 42 wherein the heteroaromatic ring is a 6-membered heteroaromatic ring having a nitrogen atom at the 2-position.

Embodiment 44. A compound of Embodiment 43 wherein the heteroaromatic ring is a 6-membered heteroaromatic ring having a nitrogen atom at the 2-position and substituted with C_1–C_4 haloalkyl.

Embodiment 45. A compound of Embodiment 44 wherein the heteroaromatic ring is a 6-membered heteroaromatic ring having a nitrogen atom at the 2-position and substituted with CF_3.

Embodiments of this invention, including Embodiments 1–45 above as well as any other embodiments described herein, can be combined in any manner, and the descriptions of variables in the embodiments pertain not only to the compounds of Formula **1** but also to the starting compounds and intermediate compounds useful for preparing the compounds of Formula **1**. In addition, embodiments of this invention, including Embodiments 1–45 above as well as any other embodiments described herein, and any combination thereof, pertain to the compositions and methods of the present invention.

Combinations of Embodiments 1–45 are illustrated by:

Embodiment A. A compound of Formula **1** wherein
X^1 or X^2 is CR^2.

Embodiment B. A compound of Embodiment A wherein
Q is Q-1 or Q-2.

Embodiment C. A compound of Embodiment B wherein
Q is Q-1; and
Y^1 is O or S.

Embodiment D. A compound of Embodiment C wherein
Q is Q-2; and
Y^2 is CR^{5a}.

Embodiment E. A compound of any of Embodiments A–D wherein
A is CH or CF; and
m is 0.

Embodiment F. A compound of Formula **1** wherein

A is CH or CF;
m is 0;
Q is Q-2;
Y^2 is CR^{5a};
X^1 is CR^2 and X^2, X^3 and X^4 are each CH; or X^2 is CR^2 and X^1, X^3 and X^4 are CH;
R^2 is $C(=Z)NR^6R^7$ or Q^a.

Embodiment G. A compound of Formula **1** wherein
A is CH or CF;
m is 0;
Q is Q-2;
Y^2 is CR^{5a};
X^1 is CR^2 and X^2, X^3 and X^4 are each CH;
R^2 is $C(=Z)NR^6R^7$ or Q^a.

Embodiment H. A compound of Formula **1** wherein
A is CH or CF;
m is 0;
Q is Q-2;
Y^2 is CR^{5a};
X^2 is CR^2 and X^1, X^3 and X^4 are CH;
R^2 is $C(=Z)NR^6R^7$ or Q^a.

Embodiment I. A compound of Formula **1** wherein
A is CH;
m is 0;
Q is Q-2;
Y^2 is CR^{5a};
R^{5a} is H;
X^1 is CR^2 and X^2, X^3 and X^4 are each CH; or X^2 is CR^2 and X^1, X^3 and X^4 are CH;
R^2 is $C(O)NR^6R^7$; and
R^6 is H.

Embodiment J. A compound of Formula **1** wherein
A is CH;
m is 0;
Q is Q-2;
Y^2 is CR^{5a};
R^{5a} is H;
X^1 is CR^2 and X^2, X^3 and X^4 are each CH;

R^2 is $C(O)NR^6R^7$; and

R^6 is H.

Embodiment K. A compound of Formula **1** wherein

A is CH;

m is 0;

Q is Q-2;

Y^2 is CR^{5a};

R^{5a} is H;

X^2 is CR^2 and X^1, X^3 and X^4 are CH;

R^2 is $C(O)NR^6R^7$; and

R^6 is H.

Further combinations of Embodiments 1–45 are illustrated by:

Embodiment A1. A compound of Formula **1** wherein

Q is Q-2;

A is CH, CR^1 or N;

each R^1 is independently halogen, cyano, nitro, C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy, C_1–C_4 haloalkoxy, C_1–C_4 alkylthio or C_1–C_4 haloalkylthio;

m is 0 or 1;

X^1, X^2, X^3 and X^4 are each independently CR^2, CR^3 or N, provided that (i) one of X^1, X^2, X^3 and X^4 is CR^2, and (ii) no more than one of X^1, X^2, X^3 and X^4 is N;

R^2 is $C(=Z)NR^6R^7$, $N(R^8)C(=Z)R^9$, $C(=NR^{10})R^{11}$ or Q^a;

each Z is independently O or S;

each R^3 is independently H, halogen, cyano, nitro, C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy or C_1–C_4 haloalkoxy;

Y^2 is N or CR^{5a};

R^{5a} is H, halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy or C_1–C_4 haloalkoxy;

R^6 is H, $NR^{15}R^{16}$, OR^{17}, $C(=NR^{10})R^{11}$, $C(O)OR^{21}$, $C(O)NR^{15}R^{16}$, $C(O)R^{22}$, $S(O)_nR^{23}$ or Q^b; or C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_2–C_6 alkenyl or C_2–C_6 alkynyl, each unsubstituted or substituted with at least one R^x;

R^7 is H or Q^b; or C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_2–C_6 alkenyl or C_2–C_6 alkynyl, each unsubstituted or substituted with at least one R^x; or

R^6 and R^7 are taken together with the nitrogen atom to which they are attached to form a 3- to 10-membered ring containing ring members selected from carbon atoms and up to 2 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 2 nitrogen atoms, wherein up to 2 carbon atom ring

members are independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, said ring being unsubstituted or substituted with up to 4 R^x; or

R^6 and R^7 are taken together as $=S(O)_pR^{18}R^{19}$ or $=S(=NR^{20})R^{18}R^{19}$;

each R^x is independently halogen, cyano, nitro, hydroxy, C_1–C_6 alkyl, C_1–C_6 haloalkyl, C_3–C_6 cycloalkyl, C_1–C_6 alkoxy, C_1–C_6 haloalkoxy, C_3–C_6 cycloalkoxy, $C(=NR^{10})R^{11}$, $C(O)OR^{21}$, $C(O)NR^{15}R^{16}$, $OC(O)R^{22}$, $NR^{25}R^{26}$, $NR^{24}C(O)R^{22}$, $C(O)R^{22}$, $S(O)_nR^{23}$, $Si(R^{28})_3$, $OSi(R^{28})_3$ or Q^b;

R^8 is H, $C(O)OR^{21}$, $C(O)NR^{15}R^{16}$, $C(O)R^{22}$, $S(O)_nR^{23}$ or Q^b; or C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_2–C_6 alkenyl or C_2–C_6 alkynyl, each unsubstituted or substituted with at least one R^x;

R^9 is H, $C(=NR^{10})R^{11}$, OR^{21} or $NR^{15}R^{16}$; or C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_2–C_6 alkenyl or C_2–C_6 alkynyl, each unsubstituted or substituted with at least one R^x; or phenyl, phenoxy or a 5- or 6-membered heterocyclic aromatic ring, each unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy; or a 3- to 6-membered heterocyclic non-aromatic ring, each ring containing ring members selected from carbon atoms and up to 3 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 2 nitrogen atoms, wherein up to 1 carbon atom ring member is independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, each ring being unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{10} is independently OR^{12}, $S(O)_nR^{13}$ or NHR^{14};

each R^{11} is independently H; or C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_2–C_6 alkenyl or C_2–C_6 alkynyl, each unsubstituted or substituted with at least one R^x; or C_1–C_6 alkoxy, C_1–C_6 haloalkoxy, C_3–C_6 cycloalkoxy, $C(O)OR^{21}$, $C(O)NR^{15}R^{16}$, $NR^{25}R^{26}$, $NR^{24}C(O)R^{22}$, $C(O)R^{22}$ or Q^b;

each R^{12} is independently C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, $C(O)R^{22}$, $S(O)_nR^{13}$ or Q^b;

each R^{13} is independently C_1–C_4 alkyl or C_1–C_4 haloalkyl;

R^{14} is C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, $C(O)R^{22}$ or $C(O)OR^{21}$; or phenyl, unsubstituted or substituted with at least one substituent independently

selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{15} is independently H, C_1–C_6 alkyl, C_1–C_4 haloalkyl, $C(O)R^{27}$ or $S(O)_2R^{27}$; or phenyl or a 5- or 6-membered heterocyclic aromatic ring, each unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{16} is independently H, C_1–C_6 alkyl or C_1–C_4 haloalkyl; or

R^{15} and R^{16} are taken together with the nitrogen atom to which they are attached to form a 3- to 7-membered ring containing ring members selected from carbon atoms and up to 2 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 2 nitrogen atoms, wherein up to 2 carbon atom ring members are independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, said ring being unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

R^{17} is C_1–C_4 alkyl, C_3–C_6 cycloalkyl or C_1–C_4 haloalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{18} is independently C_1–C_4 alkyl or C_1–C_4 haloalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{19} is independently C_1–C_4 alkyl or C_1–C_4 haloalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy; or

R^{18} and R^{19} are taken together with the sulfur atom to which they are attached to form a ring;

R^{20} is H, cyano, C_1–C_4 alkyl, C_1–C_4 haloalkyl or $C(O)R^{22}$; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{21} is independently C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_3–C_6 cycloalkyl or C_3–C_6 halocycloalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{22} is independently C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_3–C_6 cycloalkyl or C_3–C_6 halocycloalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{23} is independently C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_3–C_6 cycloalkyl, C_3–C_6 halocycloalkyl, C_3–C_6 cycloalkylalkyl or C_3–C_6 halocycloalkylalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{24} is independently C_1–C_4 alkyl;

each R^{25} is independently H, C_1–C_4 alkyl or C_1–C_4 haloalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{26} is independently C_1–C_4 alkyl or C_1–C_4 haloalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy; or

R^{25} and R^{26} are independently taken together with the nitrogen atom to which they are attached to form a 3- to 7-membered ring containing ring members selected from carbon atoms and up to 2 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 2 nitrogen atoms, wherein up to 2 carbon atom ring members are independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, said ring being unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{27} is independently C_1–C_6 alkyl, C_1–C_6 haloalkyl, C_1–C_6 alkoxy, C_1–C_6 haloalkoxy or $NR^{29}R^{30}$; or phenyl or a 5- or 6-membered heterocyclic aromatic ring, each unsubstituted or substituted with at least one substituent independently

selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{28} is independently C_1–C_6 alkyl, C_3–C_6 cycloalkyl or phenyl;

each R^{29} is independently H or Q^b; or C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_2–C_6 alkenyl or C_2–C_6 alkynyl, each unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{30} is independently H or Q^b; or C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_2–C_6 alkenyl or C_2–C_6 alkynyl, each unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy; or

R^{29} and R^{30} are taken together with the nitrogen atom to which they are attached to form a 3- to 10-membered ring containing ring members selected from carbon atoms and up to 2 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 2 nitrogen atoms, wherein up to 2 carbon atom ring members are independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, said ring being unsubstituted or substituted with up to 4 substituents independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

Q^a is a 5- to 10-membered aromatic ring or ring system, each ring or ring system containing ring members selected from carbon atoms and up to 3 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 3 nitrogen atoms, wherein up to 2 carbon atom ring members are independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, each ring or ring system being unsubstituted or substituted with at least one R^x; or a 3- to 6-membered partially saturated ring, each ring containing ring members selected from carbon atoms and up to 2 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 2 nitrogen atoms, wherein up to 2 carbon atom ring members are independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, each ring unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each Q^b is independently phenyl, a 5- or 6-membered heterocyclic aromatic ring or a 3- to 6-membered heterocyclic non-aromatic ring, each ring containing ring members selected from carbon atoms and up to 2 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 2 nitrogen atoms, wherein up to 2 carbon atom ring members are independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, each ring unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each n is independently 0, 1 or 2; and

p is 1 or 2.

Embodiment B1. A compound of Embodiment A1 wherein

R^2 is $C(=O)NR^6R^7$ or Q^a.

Embodiment C1. A compound of Embodiment B1 wherein

X^1 is CR^2, and X^2, X^3 and X^4 are each independently CR^3; or X^2 is CR^2, and X^1, X^3 and X^4 are each independently CR^3; and

Q^a is a 5- or 6-membered heteroaromatic ring, each ring containing ring members selected from carbon atoms and up to 3 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 3 nitrogen atoms, each ring being unsubstituted or substituted with at least one R^x.

Embodiment D1. A compound of Embodiment C1 wherein

A is CH or CR^1; and

each R^1 is independently halogen, cyano, C_1–C_4 alkyl, C_1–C_4 alkoxy or C_1–C_4 alkylthio.

Embodiment E1. A compound of Embodiment D1 wherein

A is CH or CR^1; and

each R^1 is independently cyano, F, CH_3, OCH_3 or SCH_3.

Embodiment F1. A compound of Embodiment E1 wherein

m is 0; and

A is CH or CF.

Specific embodiments include compounds of Formula **1** selected from the group consisting of (compound numbers refer to Index Tables A-N):

N-(1-methylethyl)-2-(3-pyridinyl)-2*H*-indazole-4-carboxamide (compound 8);

N-cyclopropyl-2-(3-pyridinyl)-2*H*-indazole-4-carboxamide (compound 14);

N-cyclohexyl-2-(3-pyridinyl)-2*H*-indazole-4-carboxamide (compound 16);

2-(3-pyridinyl)-*N*-(2,2,2-trifluoroethyl)-2*H*-indazole-4-carboxamide (compound 19);

2-(3-pyridinyl)-*N*-[(tetrahydro-2-furanyl)methyl]-2*H*-indazole-5-carboxamide (compound 41); methyl 2-[[2-(3-pyridinyl)-2*H*-indazol-5-yl]carbonyl]hydrazinecarboxylate (compound 42); *N*-[(2,2-difluorocyclopropyl)methyl]-2-(3-pyridinyl)-2*H*-indazole-5-carboxamide (compound 51); *N*-(2,2-difluoropropyl)-2-(3-pyridinyl)-2*H*-indazole-5-carboxamide (compound 54); 2-(3-pyridinyl)-*N*-(2-pyrimidinylmethyl)-2*H*-indazole-5-carboxamide (compound 55); and *N*-[(5-methyl-2-pyrazinyl)methyl]-2-(3-pyridinyl)-2*H*-indazole-5-carboxamide (compound 76).

Further specific embodiments include compounds of Formula **1** selected from the group consisting of (compound numbers refer to Index Tables A-N):
compound 19;
compound 42;
compound 55;
compound 345;
compound 348;
compound 636;
compound 644;
compound 645;
compound 647;
compound 648;
compound 658;
compound 683;
compound 684;
compound 685;
compound 686;
compound 736;
compound 804;
compound 818;
compound 819;
compound 826;
compound 836;
compound 839;
compound 843;
compound 844;
compound 855; and
compound 865.

Of note is that compounds of this invention are characterized by favorable metabolic and/or soil residual patterns and exhibit activity controlling a spectrum of agronomic and nonagronomic invertebrate pests.

Of particular note, for reasons of invertebrate pest control spectrum and economic importance, protection of agronomic crops from damage or injury caused by invertebrate pests by controlling invertebrate pests are embodiments of the invention. Compounds of this invention because of their favorable translocation properties or systemicity in plants also protect foliar or other plant parts which are not directly contacted with a compound of Formula **1** or a composition comprising the compound.

Also noteworthy as embodiments of the present invention are compositions comprising a compound of any of the preceding Embodiments, as well as any other embodiments described herein, and any combinations thereof, and at least one additional component selected from the group consisting of a surfactant, a solid diluent and a liquid diluent, said compositions optionally further comprising at least one additional biologically active compound or agent.

Further noteworthy as embodiments of the present invention are compositions for controlling an invertebrate pest comprising a compound of any of the preceding Embodiments, as well as any other embodiments described herein, and any combinations thereof, and at least one additional component selected from the group consisting of a surfactant, a solid diluent and a liquid diluent, said compositions optionally further comprising at least one additional biologically active compound or agent. Embodiments of the invention further include methods for controlling an invertebrate pest comprising contacting the invertebrate pest or its environment with a biologically effective amount of a compound of any of the preceding Embodiments (e.g., as a composition described herein).

Embodiments of the invention also include a composition comprising a compound of any of the preceding Embodiments, in the form of a soil drench liquid formulation. Embodiments of the invention further include methods for controlling an invertebrate pest comprising contacting the soil with a liquid composition as a soil drench comprising a biologically effective amount of a compound of any of the preceding Embodiments.

Embodiments of the invention also include a spray composition for controlling an invertebrate pest comprising a biologically effective amount of a compound of any of the preceding Embodiments and a propellant. Embodiments of the invention further include a bait composition for controlling an invertebrate pest comprising a biologically effective amount of a compound of any of the preceding Embodiments, one or more food materials, optionally an attractant, and optionally a humectant. Embodiments of the invention also include a device for controlling an invertebrate pest comprising said bait composition and a

housing adapted to receive said bait composition, wherein the housing has at least one opening sized to permit the invertebrate pest to pass through the opening so the invertebrate pest can gain access to said bait composition from a location outside the housing, and wherein the housing is further adapted to be placed in or near a locus of potential or known activity for the invertebrate pest.

Embodiments of the invention also include methods for protecting a seed from an invertebrate pest comprising contacting the seed with a biologically effective amount of a compound of any of the preceding Embodiments.

Embodiments of the invention also include methods for protecting an animal from an invertebrate parasitic pest comprising administering to the animal a parasiticidally effective amount of a compound of any of the preceding Embodiments.

Embodiments of the invention also include methods for controlling an invertebrate pest comprising contacting the invertebrate pest or its environment with a biologically effective amount of a compound of Formula **1**, an *N*-oxide or a salt thereof, (e.g., as a composition described herein), provided that the methods are not methods of medical treatment of a human or animal body by therapy.

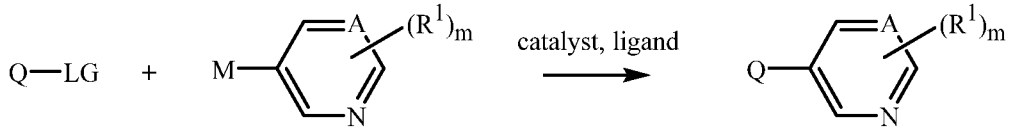
This invention also relates to such methods wherein the invertebrate pest or its environment is contacted with a composition comprising a biologically effective amount of a compound of Formula **1**, an *N*-oxide or a salt thereof, and at least one additional component selected from the group consisting of surfactants, solid diluents and liquid diluents, said composition optionally further comprising a biologically effective amount of at least one additional biologically active compound or agent, provided that the methods are not methods of medical treatment of a human or animal body by therapy.

The compounds of Formula **1** can be prepared by one or more of the following methods and variations as described in Schemes 1–13. The definitions of substituents in the compounds of Formulae **1**–**23** below are as defined above in the Summary of the Invention unless otherwise noted. Compounds of Formulae **1a**–**1g** are various subsets of the compounds of Formula **1**, and all substituents for Formulae **1a**–**1g** are as defined above for Formula **1**. The following abbreviations are used: THF is tetrahydrofuran, DMF is *N*,*N*-dimethylformamide, NMP is *N*-methylpyrrolidinone, Ac is acetate, MS is mesylate, Tf is triflate, and Nf is nonaflate.

Compounds of Formula **1a** (Formula **1** wherein Q is Q-1, Q-3 or Q-4) can be prepared as shown in Scheme 1 by the coupling of a heterocyclic compound of Formula **2** (wherein LG is a suitable leaving group such as Cl, Br, I, Tf or Nf) with a heterocyclic compound of Formula **3** (wherein M is a suitable metal or metalloid such as a Mg, Zn or B species) in the presence of a catalyst and appropriate ligand. Catalysts can be generated from transition

metals such as Pd (for example $Pd(OAc)_2$ or $Pd_2(dba)_3$ and mono- or bi-dentate ligands such as PPh_3, PCy_3, Pt-Bu_3, x-phos, xantphos, s-phos, and dppf. Typical bases used include carbonates such as sodium carbonate or cesium carbonate, phosphates such as potassium triphosphate, amines such as ethyldiisopropylamine, or alkoxides such as sodium tert-butoxide. Typical solvents include THF, dioxane, toluene, ethanol, DMF, water or mixtures thereof. Typical reaction temperatures range from ambient temperature to the boiling point of the solvent.

Scheme 1

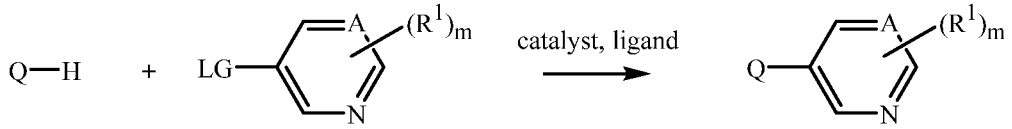


2 **3** **1a**

wherein Q is Q-1, Q-3 or Q-4

Compounds of Formula **1a** (Formula **1** wherein Q is Q-1, Q-3 or Q-4) can also be prepared as shown in Scheme 2 by the coupling of a compound of Formula **4** with a compound of Formula **5** (wherein LG is a suitable leaving group such as Cl, Br, I, Tf or Nf) in the presence of a catalyst and an appropriate ligand. A variety of catalysts can be used in the method of Scheme 2, and these can be generated from a transition metal species such as copper or Pd (for example complexes such as $Pd(OAc)_2$ or $Pd_2(dba)_3$) and a ligand. Typical ligands may be mono- or bi-dentate, and include PPh_3, PCy_3, Pt-Bu_3, x-phos, xantphos, s-phos, and dppf. Typical bases used include carbonates such as sodium carbonate or cesium carbonate, phosphates such as potassium triphosphate, amines such as ethyldiisopropylamine or alkoxides such as sodium tert-butoxide. Additives such as molecular sieves, $Bu_4N^+Br^-$ or copper or silver salts (e.g., AgOAc) can be beneficial. Typical reaction solvents include THF, dioxane, toluene, ethanol, DMF, water, or mixtures thereof. Typical reaction temperatures range from ambient temperature to the boiling point of the solvent. For examples, see *Chemical Communications* **2011**, *47*(17), pages 5043-5045; *Journal of the American Chemical Society* **2010**, *132*(11), pages 3674-3675; *Heterocycles* **2011**, *83*(6), pages 1371-1376; U.S. Patent Application Publication 20090076266; *Bulletin of the Chemical Society of Japan* **1998**, *71*(2), pages 467-473; *Tetrahedron Letters* **2008**, *49*(10), pages 1598-1600; and *Tetrahedron Letters* **2010**, *51*(42), pages 5624-5627.

Scheme 2



4 **5** **1a**

wherein Q is Q-1, Q-3 or Q-4

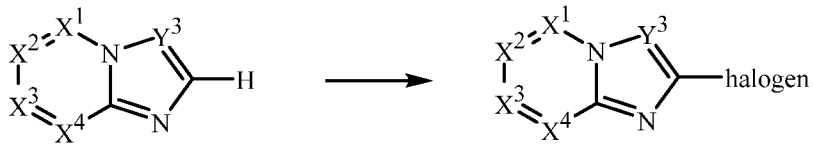
Compounds of Formula **2** wherein LG is halogen can be prepared from the corresponding amines by treatment with a source of ON^+ such as isoamyl nitrite or t-butyl nitrite or nitrous acid in the presence of a halogen source such as $CuBr_2$ or $BnNEt_3^+Br^-$. Preferred reaction conditions include aqueous or organic solvents such as THF or acetonitrile, and reaction temperatures ranging from 0 °C to the boiling point of the solvent.

Compounds of Formula **2** wherein LG is Cl or Br can also be prepared from the corresponding hydroxy compounds by treatment with a halogenating agent such as $POCl_3$, PCl_5, PBr_3 or $SOCl_2$. Compounds of Formula **2** wherein LG is OMS or OTf can also be prepared from the corresponding hydroxy compounds by treatment with MsCl or Tf_2O.

Compounds of Formula **4** can be prepared from the corresponding amine compounds by treatment with a source of ON^+ such as isoamyl nitrite or t-butyl nitrite. Preferred reaction conditions include ethereal solvents such as THF at temperatures ranging from ambient temperature to the boiling point of the solvent.

Compounds of Formula **6** can be prepared by electrophilic halogenation of the corresponding compounds of Formula **7** by treatment with a halogenating agent such as *N*-bromosuccinimide in a suitable solvent such as DMF, NMP or acetic acid at temperatures ranging from ambient temperature up to the boiling point of the solvent (Scheme 3).

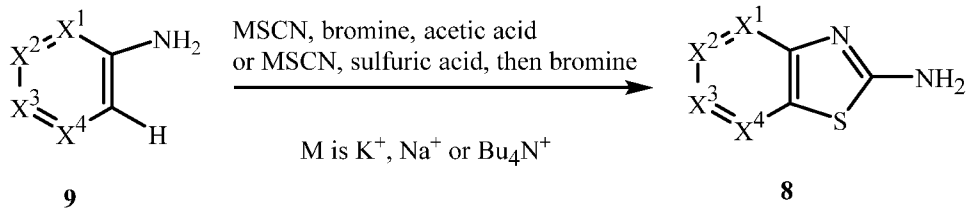
Scheme 3



7 **6**

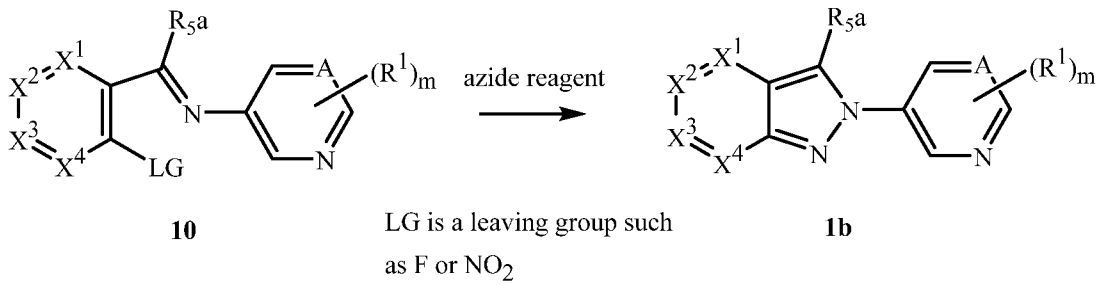
2-Aminobenzothiazoles of Formula **8** can be prepared from ortho-unsubstituted anilines of Formula **9** and a thiocyanate anion (wherein M is K^+, Na^+ or Bu_4N^+) as shown in Scheme 4. The reaction can be conducted in a single step in acetic acid for example, or through the intermediacy of a thio-urea followed by oxidation. Suitable oxidants include bromine.

Scheme 4



Compounds of Formula **1b** can be prepared from compounds of Formula **10** by the method shown in Scheme 5, in which a compound of Formula **10** is treated with an azide reagent (for example, sodium azide or tetrabutylammonium azide). Typical reaction conditions include DMF or NMP as solvent, and reaction temperatures ranging from 80 °C to the boiling point of the solvent.

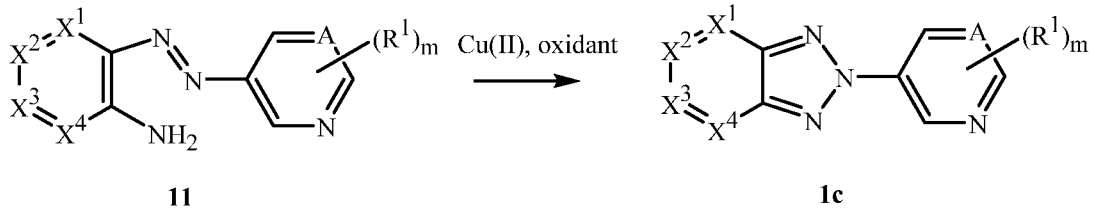
Scheme 5



Compounds of Formula **10** are Schiff bases and can be prepared by methods known in the art (see, for example, March, J., *Advanced Organic Chemistry*, Wiley, **1992**, pages 896-898.

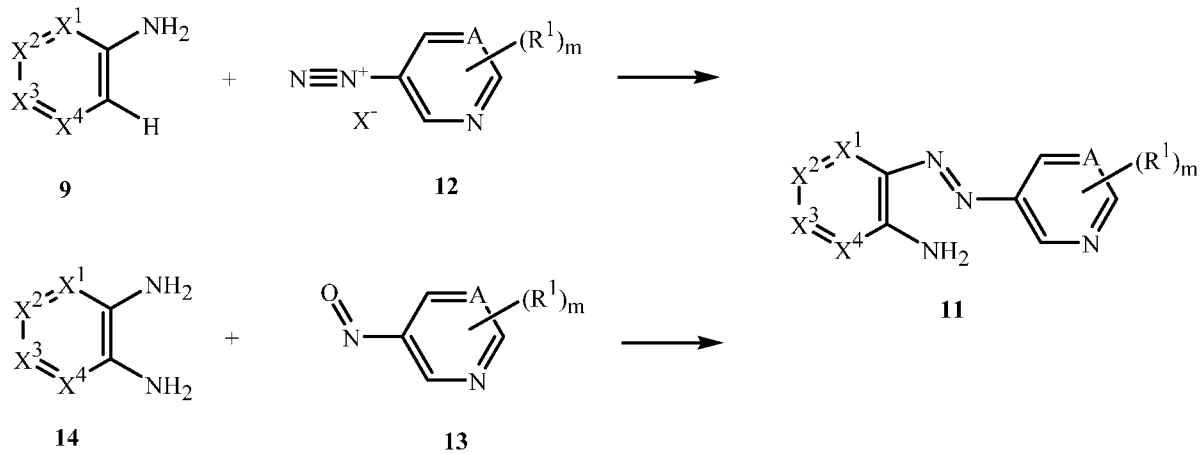
Compounds of Formula **1c** can be prepared from compounds of Formula **11** by the method shown in Scheme 6 via oxidation of a compound of Formula **11** with molecular oxygen or a peroxide such as t-butyl hydroperoxide in the presence of a copper (II) catalyst such as $Cu(OAc)_2$ or $CuBr_2$. Typical reaction conditions included alcoholic solvents such as t-amyl alcohol, DMF, NMP or aqueous ammonia, and reaction temperatures from 60 °C to the boiling point of the solvent.

Scheme 6



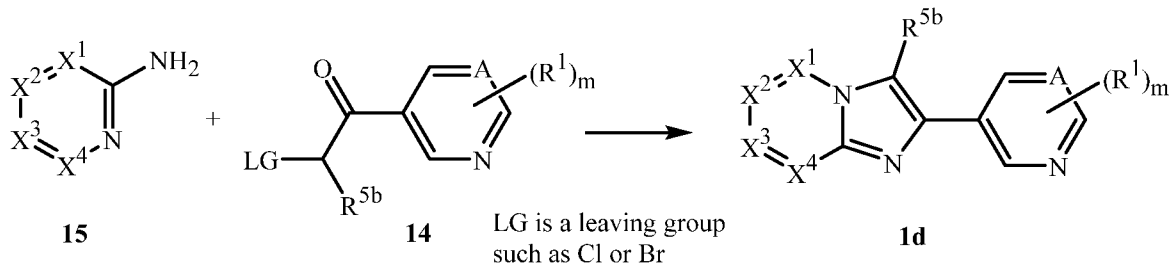
2-Aminoazo compounds of Formula **11** can be prepared by reaction of an aniline of Formula **9** with a diazonium salt of Formula **12** by methods known in the art (see, for example, March, J., *Advanced Organic Chemistry*, Wiley, **1992**, pages 525-526). Compounds of Formula **11** can also be prepared by reaction of an aryl nitroso compound of Formula **13** with a diamine of Formula **14** in a solvent such as acetic acid. These two methods are shown in Scheme 7.

Scheme 7



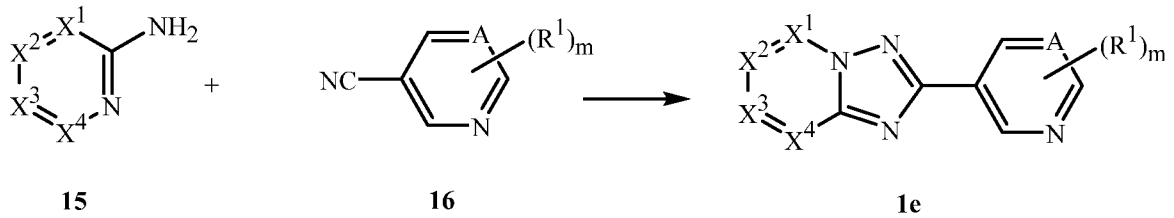
Compounds of Formula **1d** can be prepared by condensation of a compound of Formula 14 (wherein Lg is a suitable leaving group such as Cl or Br) with an aminopyridine or aminodiazine of Formula **16** as shown in Scheme 8. Typical reaction conditions include an alcoholic solvent such as ethanol or toluene, and a reaction temperature range from ambient temperature to the boiling point of the solvent. The pyridine nitrogen can optionally be protected as a BH_3 adduct, an N-oxide, or a 2- or 6-halopyridine derivative.

Scheme 8



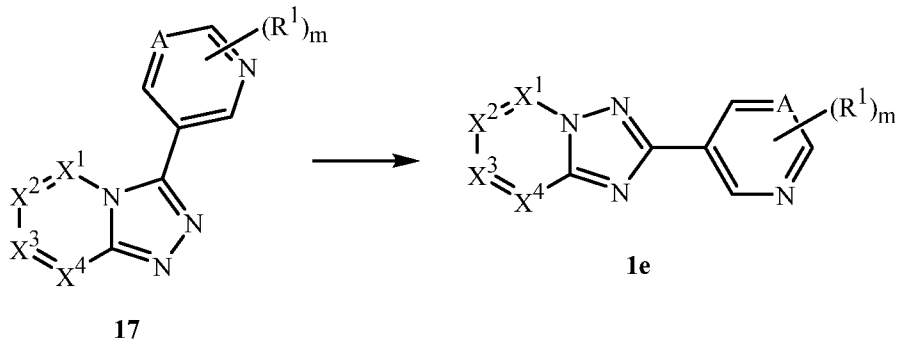
Compounds of Formula **1e** can be prepared as shown in Scheme 9 by the cycloaddition of 2-aminopyridines of Formula **15** with arylnitriles of Formula **16** (see, for example, *Journal of the American Chemical Society* **2009**, *131*(42), pages 15080-15081, and WO 2013041472.

Scheme 9



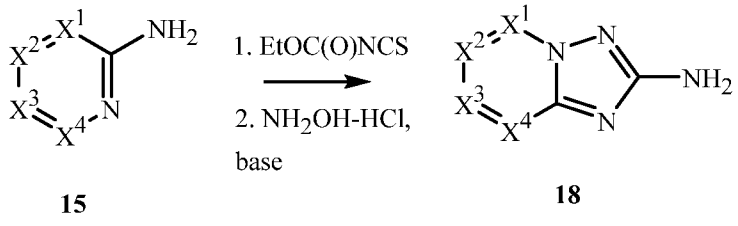
Compounds of Formula **1e** can also be prepared by rearrangement of compounds of Formula **17** by treatment with base as shown in Scheme 10 (see, for example, *J. Het Chem* **1970**, *7* page 1019). Compounds of Formula **17** can be prepared by methods described in WO 2008006540 and *J. Org. Chem.*, **1966**, page 251.

Scheme 10



Intermediates of Formula **18** can be prepared by the method shown in Scheme 11 by treatment of a 2-aminopyridine of Formula **15** with an isocyanate followed by hydroxylamine and a suitable base such as triethylamine.

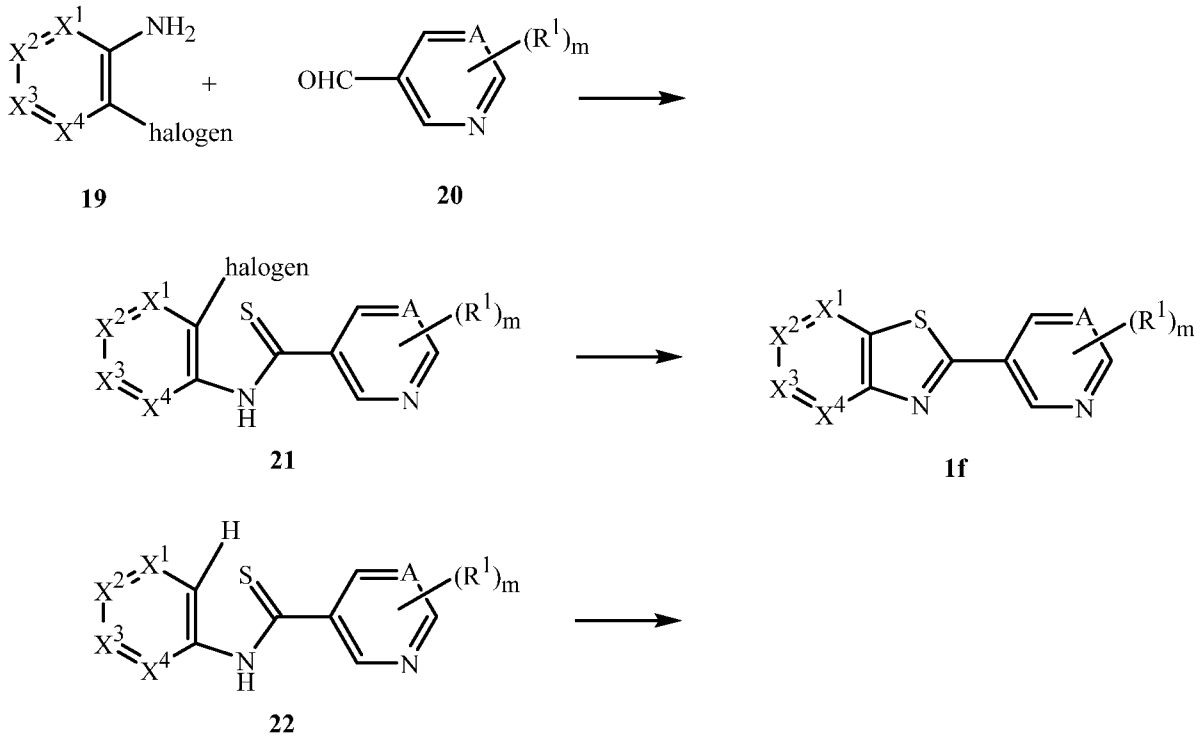
Scheme 11



Compounds of Formula **1** wherein Q is Q-4 can also be prepared by the method described in Synthesis Example 6.

Compounds of Formula **1f** can be prepared as shown in Scheme 12 by oxidative cyclization of an aryl aldehyde of Formula **20** with an aniline of Formula **19** bearing an ortho-halogen, preferably iodine, in the presence of sulfur which acts as both a source of sulfur and as an oxidizing agent. The reaction is carried out in the presence of a base such as K_2CO_3 in a suitable solvent such as water or DMF, and is catalyzed by the addition of copper salts (for example, CuI or $CuCl_2$) and preferably a suitable ligand such as 1,10-phenanthroline. Typical reaction temperatures range from 70 °C to the boiling point of the solvent.

Scheme 12



Compounds of Formula **1f** can also be prepared by cyclization of 2-halothioamides of Formula **21** as shown in the second reaction of Scheme 12 with a base such as KOtBu, NaH, DBU or Cs_2CO_3 in a suitable solvent such as toluene or DMF, optionally with the addition of copper salts such as CuI, and preferably a suitable ligand such as 1,10-phenanthroline. This reaction can also be catalyzed by Pd species such as that prepared from $Pd_2(dba)_3$ and $(t\text{-}Bu)_2P$-*o*-biphenyl, a base such as Cs_2CO_3 in a suitable solvent, such as 1,2-dimethoxyethane or dioxane. Typical reaction temperatures range from 80 °C to the boiling point of the solvent. For copper- and Pd-catalyzed reactions, the halogen substituent on the

compound of Formula **21** is preferably Br or I. For example, see *Journal of Organic Chemistry* **2006**, *71*(5), pages 1802-1808; *Tetrahedron Letters* **2003**, *44*(32), pages 6073-6077; *Synthetic Communications* **1991**, *21*(5), pages 625-33; and Eur. Pat. Appl. No. 450420.

Compounds of Formula **1f** can also be prepared by the oxidative cyclization of thioamides of Formula **22** as shown in the third reaction of Scheme 12. Oxidants typically used in this method include bromine or iodine, DDQ and $K_3Fe(CN)_6$. For example, see *Tetrahedron* **2007**, *63*(41), pages 10276-10281; *Synthesis* **2007**, (6), 819-823; and U.S. Pat. Appl. Publ., 20120215154.

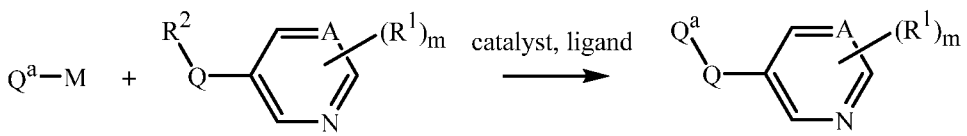
The three methods described in Scheme 12 can be used to prepare compounds wherein X^1-X^4 are carbon atoms, or wherein one of X^1-X^4 is a nitrogen (for example, see *J. Heterocyclic Chem.* **2009**, 46, page 1125 and references cited therein).

Compounds of Formula **1**, and intermediates used in the preparation of compounds of Formula **1**, wherein Z is S can be prepared by thionation of the corresponding compounds wherein Z is O with, for example, Lawesson's reagent (CAS No. 19172-47-5), Belleau's reagent (CAS No. 88816-02-8) or P_2S_5. The thionation reactions are typically conducted in solvents such as toluene, xylenes or dioxane, and at elevated temperature from 80 °C to the boiling point of the solvent.

Compounds of Formula **1** wherein R^2 is $C(O)NR^6R^7$ can be prepared by carbonylation of the corresponding compounds wherein R^2 is halogen (preferably Br or I), or wherein R^2 is a sulfonate (for example, triflate or nonaflate). The reaction is performed in the presence of a source of carbon monoxide such as carbon monoxide gas or $Mo(CO)_6$ at pressures between atmospheric pressure and 25 bar, optionally with microwave heating, and generally at elevated temperatures in the range of 80 to 160 °C. Typical reaction solvents include DMF, NMP, toluene or ethereal solvents such as THF or dioxane.

Compounds of Formula **1** wherein R^2 is Q^a can be prepared as shown in Scheme 13. The method of Scheme 13 is similar to the method described in Scheme 1; M is a suitable metal or metalloid such as a Mg, Zn or B species, and R^2 corresponds to LG in Scheme 1 and is a suitable leaving group such as Cl, Br, I, Tf or Nf.

Scheme 13



23 **1** **1g**

Compounds of Formula **1** wherein R^2 is Q^a and Q^a is bonded to Q via a nitrogen atom in Q^a can be prepared by a method similar to that of Scheme 13. In this method, M in the compound of Formula **23** is hydrogen. Coupling reagents include copper(I) salts such as CuI, and a suitable ligand such as *trans*-bis(*N*,*N*-dimethyl-1,2-cyclohexanediamine. Typical reaction conditions include a solvent such as toluene or dioxane, and an elevated reaction temperature ranging from 80 °C to the boiling point of the solvent.

It is recognized that some reagents and reaction conditions described above for preparing compounds of Formula **1** may not be compatible with certain functionalities present in the intermediates. In these instances, the incorporation of protection/deprotection sequences or functional group interconversions into the synthesis will aid in obtaining the desired products. The use and choice of the protecting groups will be apparent to one skilled in chemical synthesis (see, for example, Greene, T. W.; Wuts, P. G. M. *Protective Groups in Organic Synthesis*, 2nd ed.; Wiley: New York, 1991). One skilled in the art will recognize that, in some cases, after introduction of the reagents depicted in the individual schemes, additional routine synthetic steps not described in detail may be needed to complete the synthesis of compounds of Formula **1**. One skilled in the art will also recognize that it may be necessary to perform a combination of the steps illustrated in the above schemes in an order other than that implied by the particular sequence presented to prepare the compounds of Formula **1**.

One skilled in the art will also recognize that compounds of Formula **1** and the intermediates described herein can be subjected to various electrophilic, nucleophilic, radical, organometallic, oxidation, and reduction reactions to add substituents or modify existing substituents.

Without further elaboration, it is believed that one skilled in the art using the preceding description can utilize the present invention to its fullest extent. The following Synthesis Examples are, therefore, to be construed as merely illustrative, and not limiting of the disclosure in any way whatsoever. Steps in the following Synthesis Examples illustrate a procedure for each step in an overall synthetic transformation, and the starting material for each step may not have necessarily been prepared by a particular preparative run whose procedure is described in other Examples or Steps. Percentages are by weight except for chromatographic solvent mixtures or where otherwise indicated. Parts and percentages for chromatographic solvent mixtures are by volume unless otherwise indicated. ^{1}H NMR spectra are reported in ppm downfield from tetramethylsilane; “s” means singlet, “d” means doublet, “t” means triplet, “q” means quartet, “m” means multiplet, “dd” means doublet of doublets, “dt” means doublet of triplets, “br s” means broad singlet. DMF means *N*,*N*-dimethylformamide. Compound numbers refer to Index Tables A-N.

SYNTHESIS EXAMPLE 1

Preparation of *N*-[2-(methylthio)ethyl]-2-(3-pyridinyl)-7-benzothiazolecarboxamide (compound 84)

Step A: Preparation of 3-[(aminothioxomethyl)amino]benzoic acid ethyl ester

Ethyl 3-aminobenzoate (35.25 g, 213.6 mmol) was dissolved in chlorobenzene (250 mL) and cooled to -10 °C. Concentrated sulfuric acid (5.93 mL) was added followed by KSCN (21.76 g) and 18-crown-6 (600 mg), and the reaction mixture was heated at 100 °C for 14 hours. Hexanes was added to the cooled mixture, and the precipitated solid was isolated by filtration. The solid was slurried in a mixture of water and hexanes, and the slurry was stirred for 1 hour. The solid was isolated by filtration and dried *in vacuo* overnight to give the title compound as a gray solid (40.7 g). ^{1}H NMR (DMSO-d_6) δ: 10.10 + 9.87 (two s, 1H), 8.08 + 8.05 (two s, 1H), 7.66-7.80 (m, 2H), 7.43-7.51 (m, 1H), 8.0-7.0 (br s, 2H), 4.28-4.35 (m, 2H), 1.29-1.35 (m, 3H).

Step B: Preparation of 2-amino-7-benzothiazolecarboxylic acid ethyl ester

The product of Step A was taken up in chloroform (300 mL) and acetic acid (200 mL) and bromine (21 mL) in chloroform (100 mL) was added dropwise over 1.5 hours. The reaction mixture was then heated at 70 °C for 4 hours, cooled, filtered, and the isolated solid was washed with 50 mL of 1:1 acetone/chloroform. The solid was added to a solution of Na_2CO_3 (25 g) in water (400 mL) and stirred for 20 minutes. The suspension was filtered, and the isolated solid was washed with water, and dried *in vacuo* overnight to give the title compound (6.73 g) as a white solid. The organic filtrate was concentrated and re-slurried in 100 mL of 1:1 chloroform/acetone, and processed as described above to give an additional 8.1 g of white solid (90% purity, the remaining 10% being the regioisomeric benzothiazole). ^{1}H NMR (DMSO-d_6) δ: 7.66 (dd, J=7.7, 0.9 Hz, 1H), 7.60 (s, 1H), 7.57 (dd, 1H), 7.35 (t, J=7.8 Hz, 1H), 4.37 (q, J=7.1 Hz, 2H), 1.36 (t, J=7.1 Hz, 3H).

Step C: Preparation of 2-chloro-7-benzothiazolecarboxylic acid ethyl ester

The product of Step B (7.97 g, 9:1 mixture of regioisomers, 35.9 mmol) was added portionwise over 45 minutes to a mixture of *tert*-butylnitrite (7.1 mL) and $CuCl_2$ (5.31 g) in acetonitrile (360 mL) at 65 °C. After stirring for an additional 15 minutes, the cooled mixture was extracted 6 times with hexanes. The combined extracts were concentrated to give the title compound (5.85 g) as a yellow solid. The acetonitrile layer was diluted with water (200 mL), extracted with hexanes, and the hexane fraction was filtered through a pad of silica gel eluting with butyl chloride to yield an additional 0.55 g of product upon

concentration. ^{1}H NMR ($CDCl_3$) δ: 8.14 (d, 2H), 7.58 (t, 1H), 4.49 (q, J=7.1 Hz, 2H), 1.47 (t, J=7.2 Hz, 3H).

Step D: Preparation of 2-(3-pyridinyl)-7-benzothiazolecarboxylic acid

The product of Step C (6.2 g, 9:1 mixture of regioisomers) was combined with 3-pyridinylboronic acid (3.79 g), PPh_3 (1.35 g) and Na_2CO_3 (5.44 g) in toluene (100 mL), water (25 mL) and ethanol (15 mL), and the reaction mixture was sparged with nitrogen for 5 minutes. Pd_2dba_3 (588 mg) was added, and the reaction mixture was heated at reflux for 4 hours. The cooled reaction mixture was diluted with water, extracted twice with dichloromethane, and the combined organic extracts were dried over $MgSO_4$ and concentrated. The residue was purified by column chromatography (silica gel eluted with 10% to 50% ethyl acetate in hexanes) to give an orange solid (6.7 g) Recrystallization from ethanol (25 mL) yielded the ethyl ester of the title compound (5.65 g) as the single desired regioisomer. ^{1}H NMR ($CDCl_3$) δ: 9.38 (br s, 1H), 8.75 (br s, 1H), 8.44 (dt, J=8.0, 1.9 Hz, 1H), 8.30 (dd, J=8.2, 1.1 Hz, 1H), 8.19 (dd, J=7.6, 1.1 Hz, 1H), 7.62 (t, 1H), 7.47 (dd, J=8.4, 4.4 Hz, 1H), 4.53 (q, J=7.2 Hz, 2H), 1.50 (t, J=7.2 Hz, 3H).

The product obtained above was dissolved in ethanol (100 mL) and treated with a 1N solution of NaOH (24.8 mL). The reaction mixture was heated at reflux for 1.5 hours before being cooled, neutralized with concentrated HCl (2.0 mL), and concentrated. The residue was dried *in vacuo* to give a mixture of the title compound and NaCl, which was used without further purification in the next step.

Step E: Preparation of *N*-[2-(methylthio)ethyl]-2-(3-pyridinyl)-7-benzothiazolecarboxamide

Thionyl chloride (40 mL) was added to the product of Step D (0.55 g), and the reaction mixture was heated at reflux for 3 hour. The reaction mixture was then cooled and concentrated. The resulting residue was suspended in toluene and concentrated to yield the crude acid chloride, which was used without further purification.

The crude acid chloride (containing 120 mol% NaCl, 114 mg, 0.3 mmol) was treated with dichloromethane (5 mL), $MeSCH_2CH_2NH_2$ (33 μL) and triethylamine (125 μL), and the reaction mixture was then stirred at ambient temperature for 14 hours. The reaction mixture was diluted with a saturated aqueous solution of $NaHCO_3$, extracted twice with dichloromethane, and dried over $MgSO_4$. The combined organic layers were concentrated, and the residue was purified by column chromatography (silica gel eluted with 30% ethyl acetate in hexanes to 100% ethyl acetate) to give 65 mg of the title compound, a compound of this invention. ^{1}H NMR ($CDCl_3$) δ: 9.39 (d, J=1.7 Hz, 1H), 8.74 (d, J=3.3 Hz, 1H), 8.40-

8.47 (dt, 1H), 8.26 (dd, J=8.0, 0.9 Hz, 1H), 7.71 (dd, J=7.6, 0.9 Hz, 1H), 7.58-7.64 (t, 1H), 7.47 (dd, J=7.2, 5.0 Hz, 1H), 6.94 (br t, 1H), 3.75-3.82 (q, 2H), 2.80-2.88 (t, 2H), 2.18 (s, 3H).

SYNTHESIS EXAMPLE 2

Preparation of 2-(5-fluoro-3-pyridinyl)-*N*-(2,2,2-trifluoroethyl)-6-benzothiazolecarboxamide (compound 127)

Step A: Preparation of 2-(5-fluoro-3-pyridinyl)-6-benzothiazolecarboxylic acid

Methyl 4-amino-3-iodobenzoate (1.93 g, 6.96 mmol) was combined with K_2CO_3 (1.92 g), S_8 (668 mg), $CuCl_2$-$2H_2O$ (119 mg), 1,10-phenanthroline (125 mg) and 5-fluoro-3-pyridinecarboxaldehyde (957 mg) in H_2O (30 mL), and the reaction mixture was heated at reflux 16 hours. The cooled reaction mixture was filtered, and the filtrate was treated with NH_4Cl (1.49 g). The reaction mixture was stirred at ambient temperature for 10 minutes, filtered, and the solid was dried *in vacuo* to yield a gray solid. The solid was suspended in dioxane, the suspension was heated to reflux, cooled, and filtered to isolate a solid. The solid was rinsed with ethyl ether to give the title compound (0.66 g). ^{1}H NMR (DMSO-d_6) δ: 9.15 (s, 1H), 8.80 (d, J=2.7 Hz, 1H), 8.65 (s, 1H), 8.39 (dt, J=9.5, 2.2 Hz, 1H), 8.10 (d, 1H), 8.05 (d, 1H), 8.0-6.5 (br s).

Step B: Preparation of 2-(5-fluoro-3-pyridinyl)-*N*-(2,2,2-trifluoroethyl)-6-benzothiazolecarboxamide

Thionyl chloride (5 mL) was added to the product of Step A (0.66 g), and the mixture was heated at reflux for 16 hours. The reaction mixture was then cooled and concentrated. The resulting residue was suspended in toluene and concentrated to provide the crude acid chloride, which was used without further purification.

The crude acid chloride (103 mg, 0.31 mmol) was treated with dichloromethane (5 mL), triethylamine (131 μL) and $CF_3CH_2NH_2$ (29 μL), and the reaction mixture was stirred at ambient temperature for 3 days. The reaction mixture was diluted with a saturated aqueous solution of $NaHCO_3$, extracted twice with dichloromethane, and dried over $MgSO_4$. The combined organic layers were concentrated, and the residue was purified by column chromatography (silica gel eluted with 20% to 40% ethyl acetate in hexanes) to give the title compound, a compound of this invention, as a white solid (52 mg). ^{1}H NMR ($CDCl_3$) δ: 9.32 (br s, 1H), 8.77 (d, J=4.3 Hz, 1H), 8.48 (d, J=1.4 Hz, 1H), 8.40 (dt, J=7.9, 2.0 Hz, 1H), 8.16 (d, J=8.5 Hz, 1H), 7.90 (dd, J=8.5, 1.7 Hz, 1H), 7.48 (dd, J=7.8, 4.7 Hz, 1H), 6.48 (br t, 1H), 4.20 (qd, J=9.0 Hz, 1H).

SYNTHESIS EXAMPLE 3

Preparation of *N*-(1-methylethyl)-2-(3-pyridinyl)-2*H*-indazole-4-carboxamide (compound 8)

Step A: Preparation of *N*-[(2-bromo-6-fluorophenyl)methylene]-3-pyridinamine

A solution of 2-bromo-6-fluorobenzaldehyde (5 g, 24.6 mmol) and 3-aminopyridine (2.7 g, 29.5 mmol) in EtOH (4 mL) was heated to reflux overnight. The reaction mixture was concentrated and the resulting solid was purified by column chromatography (silica gel eluted with 0-40% ethyl acetate in hexanes) to afford the title compound (4.5 g) as an orange solid. ^{1}H NMR ($CDCl_3$) δ: 8.66-8.70 (s, 1H), 8.48-8.53 (m, 2H), 7.52-7.58 (m, 1H), 7.41-7.48 (m, 1H), 7.31-7.37 (m, 1H), 6.95-7.06 (m, 2H).

Step B: Preparation of 4-bromo-2-(3-pyridinyl)-2*H*-indazole

A solution of the product of Step A (4.5 g, 16.1. mmol) and NaN_3 (1.2 g, 19.3 mmol) in DMF (20 mL) was heated to 90 °C for 24 hours. The cooled mixture was diluted with water and extracted 3 times with dichloromethane. The combined organic layers were dried ($MgSO_4$), filtered, concentrated, and the residue was purified by column chromatography (silica gel eluted with 0-30% ethyl acetate in hexanes) to give the title compound (4.0 g) as a yellow solid. ^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.4 Hz, 1H), 8.69 (dd, J=4.8, 1.3 Hz, 1H), 8.46-8.49 (d, 1H), 8.28 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 7.73 (d, J=8.7 Hz, 1H), 7.50 (ddd, J=8.2, 4.8, 0.7 Hz, 1H), 7.31 (d, 1H), 7.21 (dd, J=8.7, 7.3 Hz, 1H).

Step C: Preparation of *N*-(1-methylethyl)-2-(3-pyridinyl)-2*H*-indazole-4-carboxamide

The product of Step B (200 mg, 0.727 mmol), isopropylamine (183 μL, 2.18 mmol), *trans*-bis(acetato)bis[o-(di-o-tolylphosphino)benzyl]dipalladium(II) (17 mg, 0.018 mmol), tri-*tert*-butylphosphonium tetrafluoroborate (10.5 mg, 0.036 mmol), molybdenum hexacarbonyl (192 mg, 0.727 mmol, 1,8-diazabicycloundec-7-ene (473 μL, 2.18 mmol) and DMF (5 mL) were placed in a microwave vial and irradiated at 160 °C for 40 minutes. The reaction mixture was then cooled to room temperature and filtered through a pad of Celite®. The filtrate was diluted with a saturated solution of $NaHCO_3$ and extracted with dichloromethane. The organic layer was dried ($MgSO_4$), filtered, concnentrated, and the residue was purified by column chromatography (silica gel eluted with 0-10% acetone in chloroform). Trituration of the resulting solid with ethyl ether provided the title compound, a compound of this invention, as a white solid (45 mg). ^{1}H NMR ($CDCl_3$) δ: 9.26 (d, J=2.2 Hz, 1H), 9.09 (d, J=0.9 Hz, 1H), 8.67 (dd, J=4.7, 1.4 Hz, 1H), 8.29 (ddd, J=8.3, 2.6, 1.4 Hz,

1H), 7.92 (dt, J=8.5, 0.9 Hz, 1H), 7.48 (m, 1H), 7.31-7.41 (m, 2H), 6.15 (s, 1H), 4.31-4.41 (m, 1H), 1.33 (d, J=6.6 Hz, 6H).

SYNTHESIS EXAMPLE 4

5 Preparation of 2-(3-pyridinyl)-*N*-[1-(2,2,2-trifluoroethyl)]imidazo[1,2-*a*]pyridine-6-carboxamide (compound 457)

Step A: Preparation of 2-(3-pyridinyl)imidazo[1,2-*a*]pyridine-6-carboxylic acid methyl ester

10 Following the procedure described in US Patent Application Publication No. 20110189794, to a mixture of methyl 6-aminonicotinate (5.0 g, 33 mmol) in ethanol (140 mL) at 60 °C was added solid sodium bicarbonate (5.52 g, 65.7 mmol), followed by 3-(bromoacetyl)pyridine hydrogen bromide salt (10.16 g, 36.2 mmol). The resulting mixture was heated to reflux for 9 hours. The reaction mixture was then cooled, concentrated, and 15 saturated aqueous sodium bicarbonate solution (50 mL) and dichloromethane (50 mL) were added to the resulting residue. The aqueous phase was extracted with dichloromethane (5 X 30 mL). The combined organic phases were concentrated and purified by column chromatography (silica gel eluted with ethyl acetate) to give the title compound.

20 Step B: Preparation of 2-(3-pyridinyl)-*N*-[1-(2,2,2-trifluoroethyl)]imidazo[1,2-*a*] pyridine-6-carboxamide

A mixture of the ester prepared in Step A (0.4 g, 2.4 mmol) and aqueous NaOH (1 N, 7.1 mL, 7.1 mmol) was stirred in methanol (10 mL) for 2 hours. The reaction mixture was then concentrated under reduced pressure to remove methanol, and the resulting aqueous 25 solution was neutralized with 1N HCl to pH 5 to precipitate the carboxylic acid. The solid carboxylic acid was isolated by filtration, dried, and used directly in the next step without further purification.

A mixture of the carboxylic acid prepared above (0.31 g, 1.30 mmol), EDC-HCl (0.27 g, 1.43 mmol), HOBt-H_2O (0.22 g, 1.43 mmol), and triethylamine (0.72 mL, 5.2 mmol) in 30 DMF (10 mL) was stirred at 40 °C for 30 minutes. A quarter of the reaction mixture volume was then removed, treated with $CF_3CH_2NH_2$ (0.13 g, 1.3 mmol), and stirred at 40 °C overnight. The reaction mixture was then concentrated under vacuum to remove DMF, and the residue was purified by column chromatography (silica gel eluted with ethyl acetate:methanol:triethylamine, 8:8:1) to obtain 43.8 mg of the title compound, a compound 35 of this invention.

SYNTHESIS EXAMPLE 5

Preparation of methyl 2-[[2-(3-pyridinyl)-2*H*-indazol-5-yl]carbonyl]hydrazinecarboxylate (compound 42)

5 Step A: Preparation of 4-nitro-[(3-pyridinylimino)methyl]benzoic acid methyl ester

A solution of methyl 3-formyl-4-nitrobenzoate (5 g, 25 mmol) and 3-aminopyridine (2.7 g, 30 mmol) in ethanol (4 mL) was heated to reflux overnight. The reaction mixture was then cooled, concentrated under reduced pressure, and the resulting crude solid was purified by silica gel chromatography (eluting with 0-40% ethyl acetate/hexanes) to afford 10 4.5 g of the title product as an orange solid.

Step B: Preparation of 2-(3-pyridinyl)-2*H*-indazole-4-carboxylic acid methyl ester

A solution of the product of Step A (4.5 g, 16 mmol) and sodium azide (1.2 g, 19 mmol) in DMF (20 mL) was heated to 90 °C for 16 hours. The reaction mixture was then 15 cooled to room temperature and diluted with water. The resulting two layers were separated, and the aqueous layer was extracted three times with dichloromethane. The combined organic layers were dried over magnesium sulfate, filtered, and concentrated under reduced pressure. The resulting crude solid was purified by silica gel chromatography (0-30% ethyl acetate/hexantes) to afford 4.0 g of the title product as a yellow solid.

20

Step C: Preparation of 2-(3-pyridinyl)-2*H*-indazole-4-carbonyl chloride

The methyl ester prepared in Step B (4.1 g, 16 mmol) was dissolved in methanol (150 mL), 50% sodium hydroxide in water (7.1 mL) was added, and the reaction mixture was heated to reflux for 4 hours. The reaction mixture was then cooled to room temperature, and 25 the solvent was removed under reduced pressure. The crude product was acidified with aqueous 1N HCl, and the resulting precipitate was isolated by filtration, washed with diethyl ether, and dried under reduced pressure at 60 °C overnight. The crude carboxylic acid was then redissolved in thionyl chloride (60 mL), and the reaction mixture was heated to 75 °C. The reaction mixture was then cooled to room temperature and the solvent was removed 30 under reduced pressure. The crude carbonyl chloride was used in the next step without further purification.

Step D: Preparation of methyl 2-[[2-(3-pyridinyl)-2*H*-indazol-5-yl]carbonyl]hydrazinecarboxylate

35 The acyl chloride prepared in Step C (200 mg, 0.836 mmol) was combined with hydrazinocarboxylate (82 mg, 0.91 mmol) in dichloromethane (5 mL). The reaction mixture

was cooled to 0 °C, and triethylamine (360 μl, 2.51 mmol) was added dropwise. The reaction was warmed to room temperature and allowed stirred overnight. The reaction mixture was then cooled and quenched with saturated aqueous sodium bicarbonate solution. The two layers were separated, and the aqueous layer was extracted three times with dichloromethane. The combined organic layers were dried over magnesium sulfate, filtered, and concentrated under reduced pressure. The resulting crude solid was purified by silica gel chromatography (20-80% ethyl acetate/hexanes) to yield the title compound, a compound of this invention, as a white solid.

SYNTHESIS EXAMPLE 6

Preparation of 2-(3-pyridinyl)-*N*-[(tetrahydro-2-furanyl)methyl]pyrazolo[1,5-*a*]pyridine-5-carboxamide (compound 467)

Step A: Preparation of 3-(dimethoxymethyl)-5-(3-pyridinyl)-1*H*-pyrazole

Lithium hexamethyldisilane (55 mL of a 1.0M solution in tetrahydrofuran, 55 mmoles) was added to a solution of 3-acetylpyridine (5.5 mL, 50 mmoles), methyl dimethoxy acetate (6.7 mL, 55 mmoles) and anhydrous tetrahydrofuran (100 mL) with cooling at -45 °C. The resulting reaction mixture was allowed to warm to 25 °C over 1 hour, and stirred at this temperature for 3 hours. The reaction mixture was then concentrated under reduced pressure, and the residue was suspended in methanol (50 mL) and concentrated under reduced pressure. The resulting residue was suspended in methanol (150 mL) and treated with hydrazine monohydrate (2.62 mL, 55 mmoles) and glacial acetic acid (6.29 mL, 110 mmoles), and the reaction mixture was heated at reflux for 14 hours. The resulting reaction mixture was cooled to 25 °C and concentrated under reduced pressure. The residue was partitioned between ethyl acetate (200 mL) and 1N aqueous sodium hydroxide solution (100 mL). The layers were separated, and the organic layer was washed successively with 1N aqueous sodium hydroxide solution (50 mL) and brine (50 mL), dried over anhydrous magnesium sulfate, and concentrated under reduced pressure to yield 8.83 g of the title compound as a beige solid.

^{1}H NMR ($CDCl_3$): δ 10.5 (br s, 1H) 9.03 (d, 1H), 8.57 (dd, 1H), 8.09 (dt, 1H), 7.34 (dd, 1H), 6.65 (s, 1H), 5.63 (s, 1H), 3.39 (s, 6H).

Step B: Preparation of 5-(3-pyridinyl)-1*H*-pyrazole-3-carboxaldehyde

To a solution of the product from Step A (715 mg, 3.3 mmoles) and chloroform (5 mL) was added a solution of trifluoroacetic acid (2.5 mL) and water (2.5 mL); the reaction

mixture temperature was maintained below 5 °C with an ice-water bath. The reaction mixture was then stirred at 0-5 °C for 2 hours, treated with triethylamine (5 mL) at 0 °C, stirred for 15 minutes, treated with water (10 mL), and filtered to isolate a brown solid. This solid was washed with chloroform (20 mL) and water (20 mL), and air dried to yield 605 mg of the title compound as a light beige solid that was used in the next step without further purification.

Step C: Preparation of 2-(3-pyridinyl)pyrazolo[1,5-*a*]pyridine-5-carboxylic acid ethyl ester

A mixture of the product from Step B (596 mg, 3.4 mmoles), ethyl-4-bromocrotonate (75%, 0.95 mL, 5.2 mmoles), anhydrous potassium carbonate (1.42 g, 10.3 mmoles) and anhydrous *N*,*N*-dimethylformamide (17 mL) was stirred at 25 °C for 14 hours. The reaction mixture was then partitioned between ethyl acetate and saturated aqueous ammonium chloride solution, and the organic layer was separated, washed with water (3X), brine, dried over anhydrous magnesium sulfate, and concentrated under reduced pressure to give a crude product. This resulting product was purified by MPLC on a 24 g silica column eluting with 0 to 100% ethyl acetate in hexanes to give the title compound as a light beige solid (105 mg).

^{1}H NMR ($CDCl_3$): δ 9.20 (d, 1H), 8.63 (dd, 1H), 8.50 (d, 1H), 8.33 (d, 1H), 8.27 (dt, 1H), 7.43-7.35 (m, 2H), 7.05 (s, 1H), 4.43 (q, 2H), 1.44 (t, 3H).

Step D: Preparation of 2-(3-pyridinyl)-*N*-[(tetrahydro-2-furanyl)methyl]pyrazolo[1,5-*a*]pyridine-5-carboxamide

To a solution of the product from Step C (31 mg, 0.11 mmoles), tetrahydrofurfurylamine (0.12 mL, 1.2 mmoles), and anhydrous toluene (2.3 mL) was added trimethylaluminum (0.6 mL of a 2.0M solution in toluene, 1.2 mmoles). The resulting solution was stirred for 2 hours at 25 °C, for 2 hours at 80 °C, and then cooled to 0 °C and treated carefully with water (3 mL). The resulting reaction mixture was stirred at 25 °C for 15 minutes, treated with a saturated aqueous solution of sodium-potassium tartrate (2 mL), stirred for 30 minutes, and then partitioned between dichloromethane and water. The organic layer was separated, dried over anhydrous magnesium sulfate, and concentrated under reduced pressure to isolate a brown residue that was triturated with diethyl ether to yield the title compound, a compound of this invention, as a beige solid (15 mg).

^{1}H NMR ($CDCl_3$): δ 9.19 (d, 1H), 8.63 (dd, 1H), 8.51 (d, 1H), 8.26 (dt, 1H), 8.03 (s, 1H), 7.39 (dd, 1H), 7.16 (dd, 1H), 7.00 (s, 1H), 6.60 (br s, 1H), 4.10 (qd, 1H), 3.93 (dt, 1H), 3.89-3.76 (m, 2H), 3.38-3.29 (m, 1H), 2.11-2.02 (m, 1H), 2.00-1.83 (m, 3H).

SYNTHESIS EXAMPLE 7

Preparation of *N*-(1-cyano-1-methylethyl)-2-(3-pyridinyl)-2*H*-indazole-4-carboxamide (compound 636)

Step A: Preparation of 2-(3-pyridinyl)-2*H*-indazole-4-carbonitrile

A solution of 4-bromo-2-(3-pyridinyl)-2*H*-indazole (6.0 g, 21.9 mmol), zinc cyanide (3.85 g, 21.9 mmol), and tetrakis(triphenylphosphine)palladium(0) (2.53 g, 2.2 mmol) in degassed *N*-methyl pyrrolidinone (60 mL) was heated to 110 °C for 2 hours under an atmosphere of nitrogen. The reaction mixture was cooled, filtered through a pad of Celite®, and the Celite® pad was washed with ethyl acetate (200 mL). The combined organic filtrates were washed with water (4 x100 mL), dried over sodium sulfate, filtered and concentrated. The resulting crude solid was triturated with 40% ethyl acetate/hexane, isolated by filtration, and dried to yield the title compound as a tan solid, which was used in the next step without further purification. ^{1}H NMR (500 MHz, DMSO-d_6) δ ppm 9.60 (d, *J*=1.10 Hz, 1H), 9.42 (m, 1H), 8.71 (m, 1H), 8.59 (m, 1H), 8.17 (m, 1H), 7.84 (m, 1H), 7.69 (m, 1H), 7.52 (m, 1H).

Step B: Preparation of 2-(3-pyridinyl)-2*H*-indazole-4-carboxylic acid

To a solution of 2-(3-pyridinyl)-2*H*-indazole-4-carbonitrile (2.5 g, 11.4 mmol) in ethanol (100 mL) and water (28 mL) was added solid KOH (12.7 g, 227 mmol). The resulting solution was heated to reflux for 4 hours. After cooling to room temperature, the ethanol was removed under reduced pressure. The remaining aqueous solution was washed with dichloromethane (3 x 100 mL), and acidified with concentrated HCl to pH 4 while being cooled in an ice bath to form a white precipitate. This solid was isolated by filtration, and dried to yield the title compound (2.7 g) as an off-white solid. ^{1}H NMR (500 MHz, DMSO-d_6) δ ppm 13.22 (br s, 1H), 9.39 (m, 1H), 9.31 (d, *J*=0.95 Hz, 1H), 8.68 (m, 1H), 8.58 (m, 1H), 8.05 (m, 1H), 7.88 (m, 1H), 7.65 (m, 1H), 7.48 (m, 1H).

Step C: Preparation of *N*-(1-cyano-1-methylethyl)-2-(3-pyridinyl)-2*H*-indazole-4-carboxamide

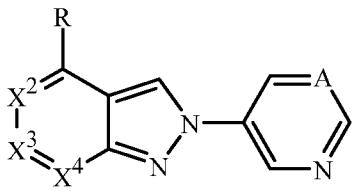
A solution of 2-(3-pyridinyl)-2*H*-indazole-4-carboxylic acid (2.0 g, 8.4 mmol) in acetonitrile (40 mL) at 0 °C was treated with propylphosphonic anhydride (50 wt% in ethyl acetate, 8.96 mL, 15 mmol), 2-amino-2-methylpropanenitrile (1.4 g, 16.8 mmol), triethyamine (2.5 g, 25 mmol), and 4-dimethylaminopyridine (0.002 g, 0.01 mmol). The reaction mixture was stirred for 30 minutes at 0 °C, warmed to room temperature, and then heated to 40 °C for 2 hours. The reaction mixture was cooled to room temperature, the

solvent was removed *in vacuo*. The residue was partitioned between ethyl acetate and water, the phases were separated, and the water phase was washed with ethyl acetate (3 x 100 mL). The combined organic layers were dried over sodium sulfate, filtered, and concentrated. The crude residue was purified by normal phase column chromatography (silica gel, 0-100% ethyl acetate/hexane) to yield 1.45 g of the title compound, a compound of this invention, as a white solid. ^{1}H NMR (500 MHz, $CDCl_3$) δ ppm 9.29 (m, 1H), 9.17 (d, *J*=0.95 Hz, 1H), 8.67-8.71 (m, 1H), 8.30 (m, 1H), 8.00 (m, 1H), 7.50 (m, 1H), 7.33-7.42 (m, 2H), 6.29 (s, 1H), 1.89 (s, 6H).

Specific compounds of Formula **1**, prepared by the methods and variations as described in preceding Schemes 1–13 and Synthesis Examples 1-7, are shown in the following Index Tables.

Abbreviations used in the Index Tables may include: Cmpd means Compound, *t* is tertiary, *c* is cyclo, Me is methyl, Et is ethyl, Pr is propyl, *i*-Pr is isopropyl, Bu is butyl, *c*-Pr is cyclopropyl, *c*-Pn is cyclopentyl, *c*-Hx is cyclohexyl, *t*-Bu is *tertiary*-butyl, Ph is phenyl, OMe is methoxy, SMe is methylthio, and SO_2Me means methylsulfonyl. A wavy line or "–" in a structure fragment denotes the attachment point of the fragment to the remainder of the molecule. In the column titled "Analytical Data", an asterisk (*) means that NMR data is provided in Index Table O; a single number represents a mass spectral parent peak (M+1); and a numerical range represents a melting point range.

INDEX TABLE A



Cmpd. No.	R	X^2	X^3	X^4	A	Analytical Data
1	–C(O)(1-pyrrolidinyl)	CH	CH	CH	CH	*
2	–C(O)NH(2-pyrimidinyl)	CH	CH	CH	CH	*
3	–C(O)(morpholino)	CH	CH	CH	CH	*
4	–C(O)NH(2-pyridinyl)	CH	CH	CH	CH	*
5	–C(O)NH(phenyl)	CH	CH	CH	CH	*
6	–C(O)NHCH(Me)C(O)NH(t-butyl)	CH	CH	CH	CH	*
7	–C(O)NHCH(Me)C(O)NH(isopropyl)	CH	CH	CH	CH	*
8	–C(O)NH(isopropyl)	CH	CH	CH	CH	*
9	–C(O)NHCH$_2$(2-pyridinyl)	CH	CH	CH	CH	*

10	–C(O)NHCH$_2$CH(OMe)$_2$	CH	CH	CH	CH	*
11	–C(O)NHCH$_2$(2-thiazolyl)	CH	CH	CH	CH	*
12	–C(O)NHCH$_2$(tetrahydro-2-furanyl)	CH	CH	CH	CH	*
13	–C(O)NHCH$_2$CH$_2$SMe	CH	CH	CH	CH	*
14	–C(O)NH(cyclopropyl)	CH	CH	CH	CH	*
15	–C(O)NH(1-piperidinyl)	CH	CH	CH	CH	*
16	–C(O)NH(cyclohexyl)	CH	CH	CH	CH	*
17	3-(trifluoromethyl)-1-pyrazolyl	CH	CH	CH	CH	*
18	2-pyrimidinyl	CH	CH	CH	CH	*
19	–C(O)NHCH$_2$CF$_3$	CH	CH	CH	CH	*
20	6-(2-pyrimidinyl)pyridin-2-yl	CH	CH	CH	CH	*
21	–C(O)NHCH$_2$(2-pyrimidinyl)	CH	CH	CH	CH	*
22	2-(2-pyridinyl)thiazol-4-yl	CH	CH	CH	CH	*
23	2-(2-thiazolyl)thiazol-4-yl	CH	CH	CH	CH	*
24	–C(O)NHCH$_2$CHF$_2$	CH	CH	CH	CH	*
129	–C(O)NHCH$_2$(2-pyrimidinyl)	CH	N	CH	CF	*
130	–C(O)NH(isopropyl)	CH	N	CH	CF	*
300	–C(O)NHCH$_2$(2-pyrimidinyl)	CH	CH	CH	CF	*
301	–C(O)NHCH$_2$CF$_3$	CH	CH	CH	N	*
302	–C(O)NHCH$_2$(2-pyrimidinyl)	CH	CH	CH	N	*
303	1,2,4-oxadiazol-3-yl	CH	CH	CH	CH	*
304	5-(trifluoromethyl)-2-pyridinyl	CH	CH	CH	CH	*
305	–C(O)NHCH$_2$(5-methyl-2-pyrazinyl)	CH	CH	CH	CH	*
306	–C(S)NH(cyclohexyl)	CH	CH	CH	CH	*
307	–C(O)NHCH$_2$CF$_3$	CH	CH	CH	CF	*
308	–C(O)NHCH$_2$(tetrahydro-2-furanyl)	CH	CH	CH	CF	*
309	–C(O)NH(isopropyl)	CH	CH	CH	CF	*
310	–C(O)NHCH$_2$(2-pyrimidinyl)	CH	N	CH	CH	*
311	–C(O)NH(cyclopropyl)	CH	N	CH	CH	*
312	–C(O)NHCH$_2$(tetrahydro-2-furanyl)	CH	N	CH	CH	*
313	–C(O)NHCH$_2$CH(OMe)$_2$	CH	N	CH	CH	*
314	–C(O)NHCH(Me)(cyclopropyl)	CH	N	CH	CH	*
315	2-thiomethoxy-4-pyrimidinyl	CH	CH	CH	CH	*
316	–C(S)NH(isopropyl)	CH	CH	CH	CH	*
500	–C(O)NH(isopropyl)	CF	CH	CH	CH	299
501	–C(O)NH(isopropyl)	CH	CH	CF	CH	299
502	–C(O)NHCH$_2$CH$_2$SMe	CH	CH	CF	CH	331
503	–C(O)NHCH$_2$CH$_2$SMe	CF	CH	CH	CH	331
504	–C(O)NHCH$_2$CH(OMe)$_2$	CH	CH	CH	CF	*
600	–C(O)NHCH$_2$(2,2-difluorocyclopropyl)	CH	CH	CH	CH	*
601	–C(O)NH(3,3,3-trifluoropropyl)	CH	CH	CH	CH	*
602	–C(O)NHCH$_2$CN	CH	CH	CH	CH	*

603	–C(O)NHNHC(O)OMe	CH	CH	CH	CH	*
604	–C(O)NHCH(Me)(cyclopropyl)	CH	CH	CH	CH	*
605	–C(O)N(Me)Et	CH	CH	CH	CH	281.3
606	–C(O)NHCH$_2$CH$_2$OMe	CH	CH	CH	CH	297.3
607	–C(O)NHCH$_2$CH$_2$N(Me)$_2$	CH	CH	CH	CH	310.3
608	–C(O)N(Me)Pr	CH	CH	CH	CH	295.3
609	–C(O)NHCH(Me)CH$_2$OMe	CH	CH	CH	CH	311.3
610	–C(O)NHCH$_2$(2,2-dimethyl-1,3-dioxolan-4-yl)	CH	CH	CH	CH	353.3
611	–C(O)NHCH$_2$(1,3-dioxolan-2-yl)	CH	CH	CH	CH	325.3
612	–C(O)(4,4-difluoro-1-piperidinyl)	CH	CH	CH	CH	343.3
613	–C(O)NHMe	CH	CH	CH	CH	253.2
614	–C(O)NHEt	CH	CH	CH	CH	267.3
615	–C(O)NHPr	CH	CH	CH	CH	281.3
616	–C(O)NHBu	CH	CH	CH	CH	295.3
617	–C(O)NH(isobutyl)	CH	CH	CH	CH	295.3
618	–C(O)(1-azetidinyl)	CH	CH	CH	CH	279.3
619	–C(O)NHCH$_2$CH$_2$SCH$_2$CH$_2$CF$_3$	CH	CH	CH	CH	395.3
620	–C(O)NHCH$_2$CH$_2$SO$_2$CH$_2$CH$_2$CF$_3$	CH	CH	CH	CH	427.3
621	–C(O)NHCH$_2$CH$_2$SCH$_2$CF$_3$	CH	CH	CH	CH	381.3
622	–C(O)NHCH$_2$CH$_2$SO$_2$CH$_2$CF$_3$	CH	CH	CH	CH	413.3
623	–C(O)NHCH$_2$CH$_2$SO$_2$Me	CH	CH	CH	CH	345.3
624	–C(O)NHCH$_2$CH$_2$S(O)CH$_2$CF$_3$	CH	CH	CH	CH	397.3
625	–C(O)NHCH$_2$CH$_2$S(O)CH$_2$CH$_2$CF$_3$	CH	CH	CH	CH	411.3
626	–C(O)NHCH$_2$CH$_2$OCH$_2$CH$_3$	CH	CH	CH	CH	311.3
627	–C(O)NHCH$_2$CH$_2$OCH(Me)$_2$	CH	CH	CH	CH	325.3
628	–C(O)N(Me)CH$_2$CH$_2$OMe	CH	CH	CH	CH	311.3
629	–C(O)N(Me)(cyclopropyl)	CH	CH	CH	CH	293.3
630	–C(O)N(Me)(isopropyl)	CH	CH	CH	CH	295.3
631	–C(O)NHCH$_2$CH$_2$F	CH	CH	CH	CH	285.3
632	–C(O)NHCH$_2$CF$_3$	CH	CH	CH	CMe	335
633	–C(O)NH(isopropyl)	CH	CH	CH	CMe	295
634	–C(O)NH(cyclopropyl)	CH	CH	CH	CMe	293
635	–C(O)NH(cyclohexyl)	CH	CH	CH	CMe	335
636	–C(O)NHC(Me)$_2$CN	CH	CH	CH	CH	306.3
637	–C(O)NHCH$_2$CF$_3$	CH	CH	CF	CH	331

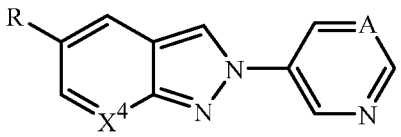
638	–C(O)NHCH$_2$CH$_2$OMe	CH	CH	CF	CH	315
639	–C(O)NH(isobutyl)	CF	CH	CH	CH	313
640	–C(O)NHPr	CF	CH	CH	CH	299
641	–C(O)NHMe	CF	CH	CH	CH	271
642	–C(O)NHBu	CF	CH	CH	CH	313
643	–C(O)NHEt	CF	CH	CH	CH	285
644	–C(O)NHCH$_2$CF$_3$	CF	CH	CH	CH	339
645	–C(O)NHCH$_2$CH$_2$CF$_3$	CF	CH	CH	CH	353
646	–C(O)NH(t-butyl)	CH	CH	CH	CH	295.5
647	–C(O)NHCH$_2$C≡CH	CH	CH	CH	CH	277.3
648	–C(O)NHC(Me)$_2$C≡CH	CH	CH	CH	CH	305.3
649	–C(O)NHCH(Me)C≡CH	CH	CH	CH	CH	291.3
650	–C(O)NH(1-cyanocyclopropyl)	CH	CH	CH	CH	304.3
651	–C(O)NHCH$_2$CO$_2$Me	CH	CH	CH	CH	311.3
652	–C(O)NHCH(Me)CO$_2$Me	CH	CH	CH	CH	325.3
653	–C(O)NHCH$_2$CO$_2$Et	CH	CH	CH	CH	325.3
654	–C(O)NHCH(isopropyl)CO$_2$Me	CH	CH	CH	CH	353.3
655	–C(O)NHCH$_2$CH$_2$CN	CH	CH	CH	CH	292.3
656	–C(O)NHCH$_2$CH=CH$_2$	CH	CH	CH	CH	279.3
657	–C(O)NMe$_2$	CH	CH	CH	CH	267.3
658	–C(O)NEt$_2$	CH	CH	CH	CH	295.3
659	–C(O)NHCH(Me)CN	CH	CH	CH	CH	292.3
660	–C(O)NHCH$_2$C(O)NHEt	CH	CH	CH	CH	324.3
661	–C(O)NHCH$_2$C(O)NHMe	CH	CH	CH	CH	310.3
662	–C(O)NHC(Me)$_2$CN	CH	CH	CH	CF	*
663	–C(O)NH(cyclopropyl)	CH	CH	CH	CF	*
664	–C(O)NHCH$_2$CF$_3$	CH	CH	CH	CC(O)NH$_2$	364
665	–C(O)NH(isopropyl)	CH	CH	CH	CC(O)NH$_2$	324
666	–C(O)NH(cyclopropyl)	CH	CH	CH	CC(O)NH$_2$	322
667	–C(O)N(Me)OMe	CH	CH	CH	CH	283.5
676	–C(O)NHC(Me)$_2$CN	CCl	CH	CH	CH	198-201
677	–C(O)NHCH$_2$CF$_3$	CCl	CH	CH	CH	201-204
678	–C(O)NHC(Me)$_2$C(O)NHMe	CH	CH	CH	CH	213-217
679	–C(O)NHCH(Et)CO$_2$Me	CH	CH	CH	CH	112-116
680	–C(O)NHCH(Me)C(O)NHEt	CH	CH	CH	CH	195-199

681	–C(O)NHC(Me)$_2$C(O)NMe$_2$	CH	CH	CH	CH	231-236
682	–C(O)NHCH(isopropyl)C(O)NMe$_2$	CH	CH	CH	CH	177-180
683	–C(O)NHCH(isopropyl)C(O)NHEt	CH	CH	CH	CH	232-236
684	–C(O)NHC(Me)$_2$CO$_2$Me	CH	CH	CH	CH	199-203
685	–C(O)NHC(Me)$_2$C(O)NHEt	CH	CH	CH	CH	269-273
686	–C(O)NHCH(Me)C(O)NMe$_2$	CH	CH	CH	CH	338.31
687	–C(O)NHCH(Me)CH$_2$OMe	CH	CH	CH	CH	147-150
688	–C(O)NHCH(Me)CO$_2$Et	CH	CH	CH	CH	114-117
689	–C(O)NHCH(isopropyl)CO$_2$Et	CH	CH	CH	CH	367.31
690	–C(O)NH(isopropyl)	CH	CH	CMe	CH	217-220
691	–C(O)NHCH(Me)CF$_3$	CH	CH	CH	CH	211-214
692	–C(O)NH(isopropyl)	CCl	CH	CH	CH	204-206
693	–C(O)NH(cyclopropyl)	CCl	CH	CH	CH	194-197
694	–C(O)NHCH(t-butyl)CO$_2$Me	CH	CH	CH	CH	367.28
695	–C(O)NHCH(isopropyl)C(O)NHMe	CH	CH	CH	CH	248-252
696	–C(O)NHCH(Me)CH$_2$SO$_2$Me	CH	CH	CH	CH	221-224
697	–C(O)NHCH(Me)CH$_2$CN	CH	CH	CH	CH	173-176
698	–C(O)NH(isopropyl)	CMe	CH	CH	CH	198-201
699	–C(O)NH(cyclopropyl)	CMe	CH	CH	CH	226-229
700	–C(O)NHCH$_2$CF$_3$	CMe	CH	CH	CH	220-223
701	–C(O)NHBu	CCl	CH	CH	CH	168-171
702	–C(O)NHC(Me)$_2$CO$_2$Et	CH	CH	CH	CH	183-186
703	–C(O)NHCH(Me)CH$_2$OMe	CH	CH	CMe	CH	112-115
704	–C(O)NHCH$_2$CH$_2$OMe	CH	CH	CMe	CH	146-150
705	–C(O)NHCH(Me)C(O)NHMe	CH	CH	CH	CH	214-217
706	–C(O)NHCH$_2$C(O)NMe$_2$	CH	CH	CH	CH	170-173
707	–C(O)NHCH$_2$CF$_3$	CH	CH	CMe	CH	219-222
708	–C(O)NH(cyclopropyl)	CH	CH	CMe	CH	236-239
709	–C(O)NHC(Me)$_2$CN	CH	CH	CMe	CH	214-217
710	–C(O)NHC(Me)$_2$CF$_3$	CH	CH	CH	CH	128-132
711	–C(O)NHCH(Me)CH$_2$OMe	CMe	CH	CH	CH	135-137
712	–C(O)NHBu	CMe	CH	CH	CH	183-186
834	5-(trifluoromethyl)-2-pyridinyl	CH	CH	CH	CH	*
846	5-(trifluoromethyl)-2-pyrazinyl	CH	CH	CH	CH	236-239
847	2-methylthio-4-pyrimidinyl	CH	CH	CH	CH	*

851	6-(trifluoromethyl)-2-pyridinyl	CH	CH	CH	CH	159-163
860	4-(trifluoromethyl)-2-pyridinyl	CH	CH	CH	CH	142-145
861	3-(trifluoromethyl)-2-pyridinyl	CH	CH	CH	CH	149-152
862	2-(trifluoromethyl)-4-pyridinyl	CH	CH	CH	CH	138-141
900	–C(=NOC(Me)$_3$)Me	CH	CH	CH	CH	309.4
901	–C(O)NH(isopropyl)	CH	CH	CCl	CH	230-234
902	–C(O)NHCH(Me)CH$_2$OMe	CH	CH	CCl	CH	140-144
903	–C(O)NHCH$_2$C(Me)$_2$CN	CH	CH	CH	CH	171-174
905	3-pyridazinyl	CH	CH	CH	CH	192-196
906	–C(O)NHCH$_2$CH(Me)CN	CH	CH	CH	CH	211-214
907	5-chloro-2-pyridinyl	CH	CH	CH	CH	185-188
908	–C(O)NHCH(Me)CH$_2$SMe	CH	CH	CH	CH	151-154
909	–C(O)NH(isopropyl)	CH	CH	COMe	CH	232-235
910	–C(O)NHCH(Me)CH$_2$OMe	CH	CH	COMe	CH	188-191
911	5-(trifluoromethyl)-3-pyridinyl	CH	CH	CH	CH	201-205

* See Index Table O for ^{1}H NMR data.

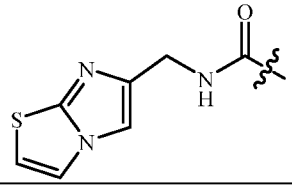
INDEX TABLE B



X^4 is CH

Cmpd. No.	R	A	Analytical Data
25	–C(O)(1-pyrrolidinyl)	CH	*
26	–C(O)NH(2-pyrimidinyl)	CH	*
27	1-pyrazolyl	CH	*
28	–C(O)NH(2-pyridinyl)	CH	*
29	–C(O)NH(phenyl)	CH	*
30	–NHC(O)(phenyl)	CH	*
31	–NHC(O)(2-pyridinyl)	CH	*
32	– (*R*)-C(O)NHCH(Me)C(O)NH(t-butyl)	CH	*
33	–C(O)NMe$_2$	CH	*
34	–C(O)NHCH$_2$CF$_3$	CH	*
35	–C(O)NH(isopropyl)	CH	*
36	–C(O)(1-piperidinyl)	CH	*
37	–C(O)NH(cyclopropyl)	CH	*
38	–C(O)NHCH$_2$CH(-OCH$_2$CH$_2$O-)	CH	*

39	–C(O)NHCH$_2$CH(OMe)$_2$	CH	*
40	–C(O)NHCH$_2$(2-thiazolyl)	CH	*
41	–C(O)NHCH$_2$(tetrahydro-2-furanyl)	CH	*
42	–C(O)NHNHCO$_2$Me	CH	*
43	–C(O)(4-methyl-1-piperazinyl)	CH	*
44	–C(O)(morpholino)	CH	*
45	–C(O)NHOCH$_2$CH=CH$_2$	CH	*
46	–C(O)NHCH$_2$CH$_2$SEt	CH	*
47	–C(O)NHOCH$_2$(cyclopropyl)	CH	*
48	–C(O)NHS(O)$_2$(4-chlorophenyl)	CH	*
49	–C(O)NHCH$_2$CN	CH	*
50	–C(O)N(-CH$_2$CH(CF$_3$)CH$_2$CH$_2$CH$_2$-)	CH	*
51	–C(O)NHCH$_2$(2,2-difluorocyclopropyl)	CH	*
52	–C(O)NHCH$_2$CH$_2$CF$_3$	CH	*
53	–C(O)NHCH$_2$(cyclopropyl)	CH	*
54	–C(O)NHCH$_2$C(Me)F$_2$	CH	*
55	–C(O)NHCH$_2$(2-pyrimidinyl)	CH	*
56	–C(O)NHCH$_2$(6-bromo-2-pyridinyl)	CH	*
57	–C(O)NHCH$_2$CH$_2$SMe	CH	*
58	–C(O)N(CH$_2$CH$_2$SMe)(CH$_2$OEt)	CH	*
59	–C(O)NHCH$_2$CH$_2$CH$_2$(1-imidazolyl)	CH	*
60	–C(O)NHCH$_2$(2-furanyl)	CH	*
61	–C(O)N(Et)(cyclohexyl)	CH	*
62	–C(O)NH(3,3-difluorocyclobutyl)	CH	*
63	–C(O)NHCH(isopropyl)CO$_2$Me	CH	*
64	–C(O)N(Me)CH$_2$CF$_3$	CH	*
65	–C(O)NHCH$_2$(2-thienyl)	CH	*
66	–C(O)N(CH$_2$CH$_2$CN)(CH$_2$(3-pyridinyl))	CH	*
67	–C(O)N(Me)(cyclopropyl)	CH	*
68	–C(O)NHCH(Me)CH$_2$OMe	CH	*
69	–C(O)N(CH$_2$CCH)$_2$	CH	*
70	–C(O)NHCH$_2$CH$_2$N(isopropyl)$_2$	CH	*
71	–C(O)NHCH$_2$((3-trifluoromethoxy)phenyl)	CH	*
72	–C(O)N(-CH$_2$CH$_2$N(C(O)(cyclopropyl))CH$_2$CH$_2$-)	CH	*
73	–C(O)NHCH$_2$(2,2-dimethyl-1,3-dioxolan-4-yl)	CH	*
74	–C(O)N(-CH=NC(Me)$_2$CH$_2$-)	CH	*
75	–C(O)(thiomorpholino)	CH	*
76	–C(O)NHCH$_2$(5-methyl-2-pyrazinyl)	CH	*
131	–C(O)NHCH$_2$(tetrahydro-2-furanyl)	CF	*

132	$-C(O)NHCH_2C(Me)F_2$	CF	*
133	$-C(O)NHCH_2CH(OMe)_2$	CF	*
134		CH	*
320	2-pyrimidinyl	CH	*
321	2-oxazolyl	CH	*
322	5-(3-pyridinyl)-1,2,4-oxadiazol-3-yl	CH	*
323	$-C(O)NHCH_2CH_2OH$	CH	*
324	2-pyrazinyl	CH	*
325	3-pyridinyl	CH	*
326	2-thiomethoxy-4-pyrimidinyl	CH	*
327	6-chloro-2-(SCH_2CO_2Et)-4-pyrimidinyl	CH	*
328	$-C(O)NHCH_2CO_2Me$	CH	*
329	$-C(O)N(Me)CH_2$(2,2-difluorocyclopropyl)	CH	343
330	$-C(O)N(Me)CH_2CH(OMe)_2$	CH	341
331	$-C(O)NHCH_2CH_2OMe$	CH	297
332	$-C(O)NHCH_2CH_2OEt$	CH	311
333	$-C(O)NHCH_2CH_2O$(isopropyl)	CH	325
334	$-C(O)NHCH_2CH(Me)OMe$	CH	311
335	$-C(O)NHCH_2CH_2CH_2OMe$	CH	311
336	$-C(O)NH$(3-methoxycyclobutyl)	CH	323
338	$-C(O)N(-CH_2CH_2CH_2-)$	CH	279
339	$-C(O)NHCH_2CH_2N(Me)_2$	CH	310
340	1,3,4-oxadiazol-2-yl	CH	*
341	2-(SCH_2CO_2Et)-4-pyrimidinyl	CH	*
342	$-C(O)NHNHCO_2$(t-butyl)	CH	*
343	$-C(O)NHCH_2CHF_2$	CH	303
344	$-C(O)NHCH_2CH_2F$	CH	285
345	$-C(O)N(Me)Et$	CH	281
346	$-C(O)N(Me)Pr$	CH	295
347	$-C(O)NHCH_2$(tetrahydro-2-furanyl)	CH	*
348	5-(trifluoromethyl)-2-pyridinyl	CH	*
349	$-C(S)NH_2$	CH	*
350	$-C(O)NHMe$	CH	253
351	$-C(O)NHEt$	CH	267
352	$-C(O)NHPr$	CH	281
353	$-C(O)N(-CH_2CH_2CF_2CH_2CH_2-)$	CH	343
354	$-C(O)NHBu$	CH	295
355	2-thiazolinyl	CH	*
356	$-NHC(O)$(2-furanyl)	CH	*

357	–NHC(O)CH_2SPh	CH	*
358	–NHC(O)(cyclopropyl)	CH	*
359	–NHC(O)CH_2Ph	CH	*
360	–NHC(O)CH(Me)Et	CH	*
361	–C(O)NHCH_2(5-pyrimidinyl)	CH	*
362	–NHC(O)CH_2CH$(Me)_2$	CH	*
363	–C(O)NHNH(cyclohexyl)	CH	*
364	–C(O)NHCH_2(2-pyrimidinyl)	C(OMe)	*
365	–C(O)NHCH(Me)CF_3	CF	*
366	–C(O)NHCH(Me)(cyclopropyl)	CF	*
367	–C(O)NHCH$(CH_2OMe)_2$	CF	*
368	–C(O)NHCH(isopropyl)CF_3	CF	*
369	–C(O)NHCH_2CO_2Et	CF	*
370	–C(O)NHCH(Me)CH_2OMe	CF	*
371	–C(O)NHCH_2CH_2S(t-butyl)	CH	*
372	–C(O)NHCH(Me)Et	CH	*
373	–C(O)NHNHC(O)(2-thienyl)	CH	*
374	–C(O)NHCH_2(5-pyrimidinyl)	CF	*
375	–C(O)NHNHCO_2Me	CF	*
376	–C(O)NHNHC(O)(t-butyl)	CH	*
377	–C(O)NHNHC(O)(2-furanyl)	CH	*
378	–C(O)NHNHC(O)phenyl	CH	*
379	–C(O)NHNHC(O)CF_3	CH	*
380	–C(O)NHNHCO_2Me	N	*
381	–C(O)NHCH(-C(O)SCH_2CH_2-)	CH	*
382	–C(O)N(-$CH_2CH_2CH_2$-)	CF	*
383	–C(O)NHCH_2(2-benzimidazole)	CF	*
384	–C(O)NHCH_2CH(-CH_2N(CO_2(t-butyl))$CH_2CH_2CH_2$-)	CF	*
385	–C(O)NHNHCH_2CF_3	CH	*
386	–C(O)NHCH_2(tetrahydro-2-furanyl)	N	*
387	–C(O)NHCH_2CF_3	N	*
388	–C(O)NH(cyclopropyl)	N	*
389	–C(O)NHCH_2(tetrahydro-2-furanyl)	CCl	*
390	–C(O)NH(cyclopropyl)	CCl	*
391	–C(O)NHCH_2CF_3	CCl	*
392	–NHC(O)CH_2CF_3	CH	*
393	–C(O)NHNH(cyclopropyl)	CH	*
394	–C(O)NHC$(Me)_2$C≡CH	CH	*
395	–C(O)NH(cyclobutyl)	CH	*

396	–C(O)NHCH$_2$(tetrahydro-2-furanyl)	CBr	*
397	–C(O)NHNHCO$_2$Me	CBr	*
398	–C(O)NHCH$_2$CF$_3$	CBr	*
399	–C(O)NH(cyclopropyl)	CBr	*
400	–C(O)NHNHC(O)(3-pyridinyl)	CH	*
401	–C(O)NHCH$_2$CF$_3$	CF	*
402	–C(O)NHC(-CH$_2$CH$_2$-)CO$_2$Me	CH	*
403	–C(O)NHCH(Et)CH$_2$OMe	CH	*
404	–C(O)NHCH$_2$C≡CH	CH	*
405	–C(O)NHCH$_2$CF$_3$	C(OMe)	*
406	–C(O)NHCH$_2$(tetrahydro-2-furanyl)	C(OMe)	*
407	–C(O)NH(cyclopropyl)	C(OMe)	*
408	–C(O)NHNHCO$_2$Me	C(OMe)	*
409	–C(O)NHCH$_2$(5-pyrimidinyl)	N	*
410	–C(O)NH(cyclopropyl)	CF	*
411	–C(O)NHCH(Me)CF$_3$	CH	*
412	–C(O)NHCH(isopropyl)CF$_3$	CH	*
413	–C(O)N(Et)$_2$	CH	*
414	–C(O)NHCH(cyclopropyl)(4-methoxyphenyl)	CH	*
415	–C(O)NHCH(Me)(cyclopropyl)	CH	*
416	–C(O)NHNHC(S)NH(isopropyl)	CH	*
417	–C(O)NHC(Me)$_2$CF$_3$	CH	349
418	–C(O)NHC(-CH$_2$CH$_2$-)CF$_3$	CH	347
419	–C(O)NHCH$_2$(2-pyridinyl)	CH	330
420	–C(O)NHCH$_2$CH(Cl)CH$_2$CH$_2$CH$_2$Cl	CH	*
421	–C(O)NHCH$_2$(tetrahydro-2-furanyl)	C(SMe)	*
422	2-(SCH$_2$CF$_3$)pyrimidin-4-yl	CH	*
423	6-(2-pyrimidinyl)pyridin-2-yl	CH	*
424	5-(trifluoromethyl)pyrazin-2-yl	CH	*
425	–C(O)NHCH$_2$CH$_2$SCH$_2$CH$_2$CF$_3$	CH	395
426	–C(O)NHCH$_2$CH$_2$SCH$_2$CF$_3$	CH	381
427	–C(O)NHCH$_2$CH$_2$S(O)$_2$CH$_2$CH$_2$CF$_3$	CH	427
720	–C(O)N(CO$_2$Me)CH$_2$CF$_3$	CH	379.0
721	–C(O)N(CO$_2$Me)CH$_2$CH(OMe)$_2$	CH	385.0
722	–C(O)N(CO$_2$Me)CH$_2$(tetrahydro-2-furanyl)	CH	381.1
723	–C(O)N(CO$_2$Me)CH$_2$(2,2-difluorocyclopropyl)	CH	387.5
724	–C(O)N(C(O)Me)CH$_2$CF$_3$	CH	363.1
725	–C(O)NHCH$_2$CH$_2$S(O)$_2$CH$_2$CH$_2$CF$_3$	CH	427.3
726	–C(O)NHCH$_2$CH$_2$S(O)CH$_2$CH$_2$CF$_3$	CH	411.3

727	$-C(O)NHCH_2CH_2S(O)_2CH_2CF_3$	CH	413.3
728	$-C(O)NHNH_2$	CH	254.1
729	$-C(O)NHNHS(O)_2Me$	CH	332
731	$-C(O)NHNHC(O)Me$	CH	*
732	$-C(O)NHCH_2$(tetrahydro-2-thienyl)	CH	*
733	$-C(O)NHC(Me)_2CN$	CH	306.3
734	$-C(O)N(Me)CH_2$(tetrahydro-2-furanyl)	CH	337.3
735	$-C(O)N(Me)CH_2$(5-methyl-2-pyrazinyl)	CH	359.3
736	$-C(O)N(Et)CH_2C{\equiv}CH$	CH	305.3
737	$-C(O)N(Me)CH_2$(2-pyrimidinyl)	CH	345.4
738	$-C(O)N(CH_2C{\equiv}CH)CH_2$(2-pyrimidinyl)	CH	369.4
739	$-C(O)NHCH_2CF_3$	CMe	335
740	$-C(O)NHNHCO_2Me$	CMe	326
741	$-C(O)NHCH_2$(2-pyrimidinyl)	CMe	345
742	$-C(O)NHCH_2CH(OMe)_2$	CMe	341
743	$-C(O)NHCH_2$(tetrahydro-2-furanyl)	CMe	337
744	$-C(O)N(C(O)Me)CH_2$(tetrahydro-2-furanyl)	CH	365.3
745	$-C(O)NHC(O)$(2-pyridinyl)	CH	344.3
746	$-C(O)NHNHC(O)CH_2CF_3$	CH	*
747	$-C(O)N(Me)OMe$	CH	283.5
748	$-C(O)NHNHCO_2$(isopropyl)	CH	*
749	$-C(O)NHNHCO_2Me$	CCN	337
750	$-C(O)NHCH_2$(2-pyrimidinyl)	CCN	356
751	$-C(O)NH$(isopropyl)	CCN	306
758	$-C(O)NHCH_2C(O)NHMe$	CH	323-326
759	$-C(O)NHCH(Me)C(O)NHMe$	CH	234-238
766	$-C(O)NHCH_2C(O)NMe_2$	CH	243-247
767	$-C(O)NHCH(Me)C(O)NHEt$	CH	242-246
768	$-C(O)NHCH_2CO_2Et$	CH	162-166
769	$-C(O)NHCH$(isopropyl)$C(O)NMe_2$	CH	163-168
770	$-C(O)NHCH(Me)CO_2Et$	CH	174-178
771	$-C(O)NHCH(Me)C(O)NMe_2$	CH	188-193
774	$-C(O)NHC(Me)_2CO_2Et$	CH	143-148
775	$-C(O)NHC(Me)_2CO_2Me$	CH	186-190
776	$-C(O)NHC(Me)_2C(O)NMe_2$	CH	246-250

780	$C(O)NHCH_2C(O)NHEt$	CH	216-220
781	$-C(O)NHC(Me)_2C(O)NHMe$	CH	111-115
782	$C(O)NHC(Me)_2C(O)NHEt$	CH	205-209
783	$-C(O)NHCH(Et)CO_2Me$	CH	126-130
784	$-C(O)NHCH(t\text{-}Bu)CO_2Me$	CH	167-171
785	$-C(O)NHCH(isopropyl)CO_2Et$	CH	120-124
786	$-C(O)NHCH(isopropyl)C(O)NHMe$	CH	238-242
788	$-C(O)NHCH(isopropyl)C(O)NHEt$	CH	249-252
800	1-methyl-4-pyrazolyl	CH	*
801	4-(trifluoromethyl)-2-thiazolyl	CH	*
802	4-methyl-2-(3-pyridinyl)-5-thiazolyl	CH	*
803	5-methyl-2-(3-pyridinyl)-4-thiazolyl	CH	*
804	4-methyl-2-(4-pyridinyl)-5-thiazolyl	CH	*
805	2-(1,2,4-triazol-1-yl)-5-thiazolyl	CH	*
806	5-methyl-2-(2-pyrazinyl)-4-thiazolyl	CH	*
807	6-methylthio-4-pyrimidinyl	CH	*
808	4-methyl-2-(2-pyridinyl)-5-thiazolyl	CH	*
809	5-(trifluoromethyl)-2-pyrimidinyl	CH	*
810	5-(2-pyrimidinyl)-2-pyridinyl	CH	*
812	5-chloro-2-thiazolyl	CH	*
814	$5\text{-}(C(O)NHCH_2CF_3)\text{-}2\text{-pyridinyl}$	CH	*
815	2-pyridazinyl	CH	*
816	4-carboxy-5-thiazolyl	CH	*
817	2-(3-pyridinyl)-5-thiazolyl	CH	*
818	5-(trifluoromethyl)-1,3,4-oxadiazol-2-yl	CH	*
819	5-chloro-2-pyridinyl	CH	*
820	5-cyano-2-pyridinyl	CH	*
821	4-methyl-2-thiazolyl	CH	*
822	4-carboxy-2-thiazolyl	CH	*
823	5-formyl-2-thiazolyl	CH	*
824	4-methyl-2-(4-(trifluoromethyl)phenyl)-5-thiazolyl	CH	*
825	5-formyl-2-pyridinyl	CH	*
826	5-fluoro-2-pyridinyl	CH	*
827	6-(2-pyridinyl)-2-pyridinyl	CH	*
828	4-(C(O)NH(cyclopropyl))-5-thiazolyl	CH	*

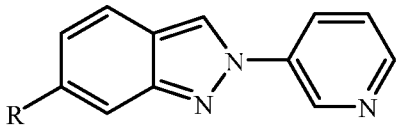
829	6-(C(O)NHCH$_2$CF$_3$)-2-pyridinyl	CH	*
830	5-(C(O)NH(cyclopropyl))-2-thiazolyl	CH	*
831	4-(C(O)NHCH$_2$CF$_3$)-5-thiazolyl	CH	*
832	5-(C(O)NHCF$_3$)-2-thiazolyl	CH	*
835	2-methylsulfonyl-4-pyrimidinyl	CH	*
836	5-(trifluoromethyl)-2-pyridinyl	CF	*
837	5-(trifluoromethyl)-2-pyrazinyl	CF	*
838	3-(trifluoromethyl)-2-pyridinyl	CH	*
839	2-(trifluoromethyl)-4-pyridinyl	CH	*
840	5-(trifluoromethyl)-3-pyridinyl	CH	*
841	4-(trifluoromethyl)-2-pyridinyl	CH	*
842	4-(trifluoromethyl)-2-pyrimidinyl	CF	*
843	6-(trifluoromethyl)-2-pyridinyl	CF	*
844	4-methyl-2-(3-pyridinyl)-5-thiazolyl	CH	*
845	6-cyano-2-pyridinyl	CH	*
848	2-((2,2,2-trifluoroethyl)thio)-4-pyrimidinyl	CH	*
849	6-(2-pyrimidinyl)-2-pyridinyl	CH	*
850	5-(trifluoromethyl)-2-pyrazinyl	CH	*
852	2-(trifluoromethyl)-5-pyrimidinyl	CH	*
853	5-(2-furanyl)-1,3,4-thiadiazol-2-yl	CH	*
854	6-chloro-3-pyridazinyl	CH	*
855	2-(trifluoromethyl)-4-pyridinyl	CF	*
856	5-(trifluoromethyl)-2-pyrimidinyl	CH	*
857	4-(trifluoromethyl)-2-pyrimidinyl	CH	*
858	5-methyl-1,3,4-thiadiazol-2-yl	CH	*
859	3-(trifluoromethyl)-2-pyridinyl	CF	*
863	–C(=NOEt)Me	CH	281.2
864	–C(=NOPr)Me	CH	294.3
865	–C(=NOCH$_2$CH=CH$_2$)Me	CH	293.2

X^4 is N

Cmpd. No.	R	A	Analytical Data
173	–C(O)NHCH$_2$(tetrahydro-2-furanyl)	CH	*

* See Index Table O for ^{1}H NMR data.

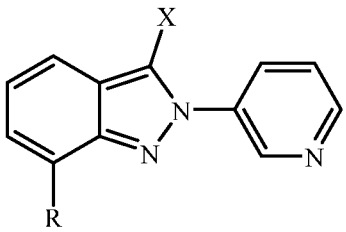
INDEX TABLE C



Cmpd. No.	R	A	Analytical Data
428	$-C(O)NHCH_2CF_3$	CH	*
429	–C(O)NH(cyclopropyl)	CH	*
430	$-C(O)NHCH_2$(2-pyrimidinyl)	CH	*
431	$-C(O)NHNHCO_2Me$	CH	*
432	$-C(O)NHCH_2CH_2SMe$	CH	*
433	$-C(O)NHCH_2CH(OMe)_2$	CH	*
434	$-C(O)NHCH(Me)CF_3$	CH	*
435	$-C(O)NHCH_2CHF_2$	CH	*
436	$-C(O)NHCH(CH_2OMe)_2$	CH	*
437	$-C(O)NHCH_2$(tetrahydro-2-furanyl)	CH	*

* See Index Table O for ^{1}H NMR data.

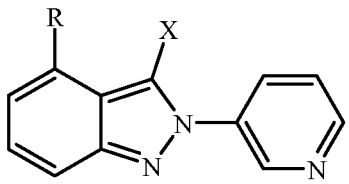
INDEX TABLE D-1



Cmpd. No.	R	X	Analytical Data
135	$-C(O)NHNHCO_2Me$	Cl	*
136	$-C(O)NHCH_2CF_3$	Cl	*
137	$-C(O)NHCH_2$(2-pyrimidinyl)	Cl	*
142	–C(O)NH(cyclopropyl)	H	*
438	$-C(O)NHCH_2$(tetrahydro-2-furanyl)	Cl	*

* See Index Table O for ^{1}H NMR data.

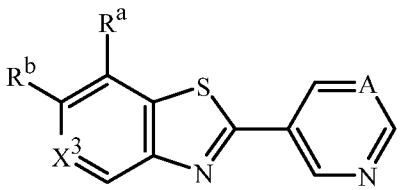
INDEX TABLE D-2



Cmpd. No.	R	X	Analytical Data
668	–C(O)NHCH$_2$CF$_3$	Cl	*
669	–C(O)NHCH$_2$CF$_3$	F	*

* See Index Table O for ^{1}H NMR data.

INDEX TABLE E

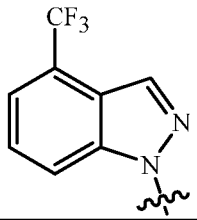


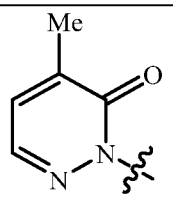
R^b is H

Cmpd. No.	R^a	X^3	A	Analytical Data
77	–C(O)(1-pyrrolidinyl)	CH	CH	*
78	–C(O)NHCH$_2$CF$_3$	CH	CH	*
79	–C(O)N(Me)$_2$	CH	CH	*
80	–C(O)NH(2-pyrimidinyl)	CH	CH	*
81	–C(O)NH(isopropyl)	CH	CH	*
82	–NHC(O)O(t-butyl)	CH	CH	*
83	–NHC(O)(2-pyridinyl)	CH	CH	*
84	–C(O)NHCH$_2$CH$_2$SMe	CH	CH	*
85	–C(O)NHCH$_2$CH$_2$S(t-butyl)	CH	CH	*
160	–C(O)NH(cyclobutyl)	CH	CH	*
161	–C(O)NHCH$_2$(tetrahydro-2-furanyl)	CH	CH	*
162	–C(O)NHNHCO$_2$Me	CH	CH	*
163	–C(O)NH(cyclopropyl)	CH	CH	*

R^a is H

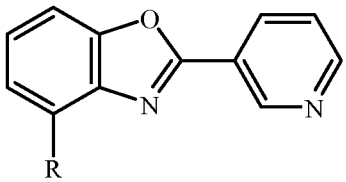
Cmpd.	R^b	X^3	A	Analytical

No.				Data
86	3-(trifluoromethyl)pyrazol-1-yl	CH	CH	*
87	2-fluorophenyl	CH	CH	*
88	–C(O)NH(isopropyl)	CH	CH	*
89	–C(O)NH(1-pyrrolidinyl)	CH	CH	*
90	–C(O)NHCH$_2$CF$_3$	CH	CH	*
91	–C(O)N(Me)(isopropyl)	CH	CH	*
92	– (*R*)-C(O)NHCH(Me)C(O)NH(t-butyl)	CH	CH	*
93	–C(O)NH(cyclopropyl)	CH	CH	*
94	–C(O)NH(cyclopentyl)	CH	CH	*
95	–C(O)NHCH$_2$Si(Me)$_3$	CH	CH	*
96	–C(O)NHCH$_2$CH$_2$SMe	CH	CH	*
97	–C(O)NHC(Me)$_2$CH$_2$SMe	CH	CH	*
98	–C(O)NHCH$_2$CH(-OCH$_2$CH$_2$O-)	CH	CH	*
99	–C(O)NHCH$_2$CH$_2$NHC(O)Me	CH	CH	*
100	–C(O)NHCH(-C(O)NHCH$_2$CH$_2$CH$_2$CH$_2$-)	CH	CH	*
101	–C(O)NHC(Me)$_2$CF$_3$	CH	CH	*
102	–C(O)NHCH$_2$C(O)NHCH$_2$C(O)NHEt	CH	CH	*
103	–C(O)NH(3,3-difluorocyclobutyl)	CH	CH	*
104	–C(O)NHCH(Me)CF$_3$	CH	CH	*
105	pyrazol-1-yl	CH	CH	*
106	–C(O)NHCH$_2$(2-pyridinyl)	CH	CH	*
107	–C(O)(2-(trifluoromethyl)pyrrolidin-1-yl)	CH	CH	*
108	–C(O)(2-(2-pyridinyl)pyrrolidin-1-yl)	CH	CH	*
109	–C(O)NHCH$_2$(6-bromo-2-pyridinyl)	CH	CH	*
110	–C(O)NHCH(Me)(3,5-dichloro-2-pyridinyl)	CH	CH	*
111	– (*R*)-C(O)NHCH(Me)C(O)NH(Et)	CH	CH	*
112	– (*R*)-C(O)NHCH(Me)C(O)NH(isopropyl)	CH	CH	*
113	– (*R*)-C(O)NHCH(Me)C(O)NH(CH$_2$CF$_3$)	CH	CH	*
114	3-methyl-1,2,4-oxadiazol-5-yl	CH	CH	*
115	–NHC(O)O(t-butyl)	CH	CH	*
116	–C(O)NH$_2$	CH	CH	*
117	–NHC(O)N(Et)$_2$	CH	CH	*
118	–C(O)NHCH$_2$(2-pyrimidinyl)	CH	CH	*
119	1,2,4-triazol-1-yl	CH	CH	*
120		CH	CH	*
121	–C(O)NHCH$_2$CH$_2$SMe	CH	CF	*
122	–C(O)NHCH$_2$(tetrahydro-2-furanyl)	CH	CF	*
123	–C(O)NHCH(Me)CH$_2$OMe	CH	CF	*

124	–C(O)NH(Et)	CH	CF	*
125	–C(O)(1-pyrrolidinyl)	CH	CF	*
126	–C(O)NH(isopropyl)	CH	CF	*
127	–C(O)NHCH$_2$CF$_3$	CH	CF	*
128		CH	CH	*

* See Index Table O for ^{1}H NMR data.

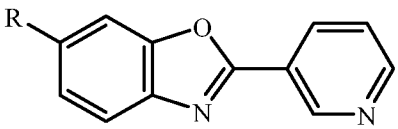
INDEX TABLE F



Cmpd. No.	R	Analytical Data
138	–C(O)NHCH$_2$(2-pyrimidinyl)	*
139	–C(O)NHCH$_2$(tetrahydro-2-furanyl)	*
140	–C(O)NHCH$_2$CF$_3$	*
141	–C(O)NH(cyclopropyl)	*

* See Index Table O for ^{1}H NMR data.

INDEX TABLE G

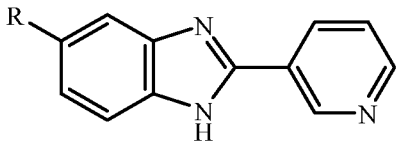


Cmpd. No.	R	Analytical Data
158	–NHC(O)(cyclobutyl)	*
159	–NHC(O)(cyclopropyl)	*
439	–C(O)NHCH$_2$(2-pyrimidinyl)	*
440	–C(O)NH(tetrahydro-2-furanyl)	*
441	–C(O)NH(isopropyl)	*
442	–C(O)N(Pr)CH$_2$(cyclopropyl)	*
443	–C(O)NHCH$_2$CF$_2$CF$_3$	*

444	–C(O)N(Me)(cyclopropyl)	*
445	–C(O)NHCH$_2$CH(OMe)$_2$	*
446	–C(O)NHCH$_2$(cyclopropyl)	*
447	–C(O)NH(cyclopropyl)	*
448	–C(O)NHNHCO$_2$Me	*
449	–C(O)NHCH$_2$CH$_2$CF$_3$	*

* See Index Table O for ^{1}H NMR data.

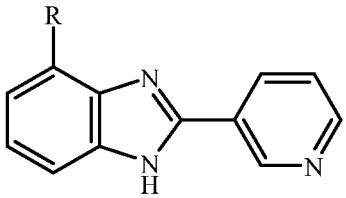
INDEX TABLE H



Cmpd. No.	R	Analytical Data
200	–C(O)(1-pyrrolidinyl)	*
201	–C(O)NH(isopropyl)	*

* See Index Table O for ^{1}H NMR data.

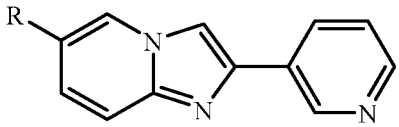
INDEX TABLE I



Cmpd. No.	R	Analytical Data
450	–C(O)NHCH$_2$CH$_2$SMe	*
451	–C(O)NHCH$_2$CH(OMe)$_2$	*
452	–C(O)N(Me)$_2$	*
453	–C(O)NHCH$_2$CF$_3$	*
454	–C(O)NH(t-butyl)	*

* See Index Table O for ^{1}H NMR data.

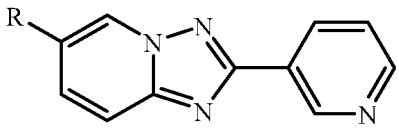
INDEX TABLE J



Cmpd. No.	R	Analytical Data
455	$-C(O)NHCH_2CH(OMe)_2$	327
456	$-C(O)NHCH_2$(tetrahydro-2-furanyl)	323
457	$-C(O)NHCH_2CF_3$	321
458	$-C(O)NHCH_2$(2,2-difluorocyclopropyl)	329

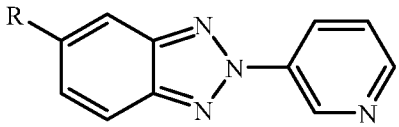
* See Index Table O for ^1H NMR data.

INDEX TABLE K



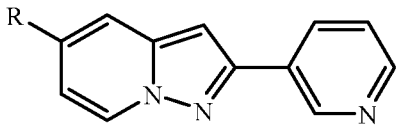
Cmpd. No.	R	Analytical Data
459	$-C(O)NHNHCO_2Me$	313
460	$-C(O)NHCH_2CF_3$	322.5

INDEX TABLE L



Cmpd. No.	R	Analytical Data
461	$-C(O)NHCH_2CF_3$	322.5

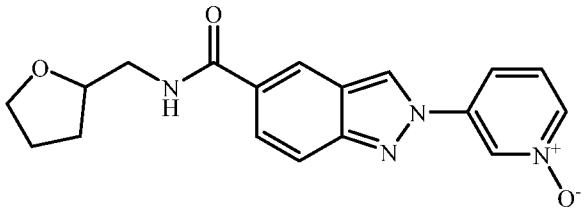
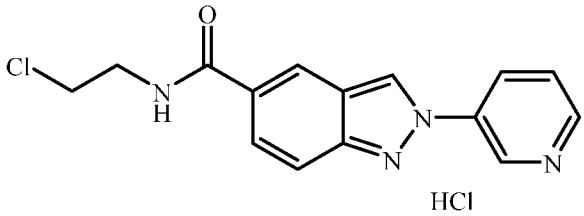
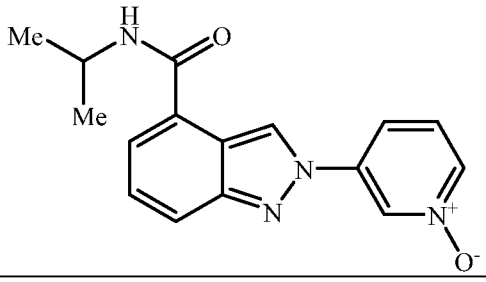
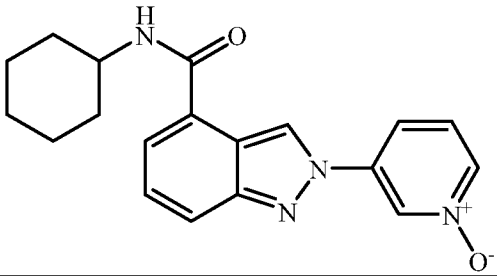
INDEX TABLE M

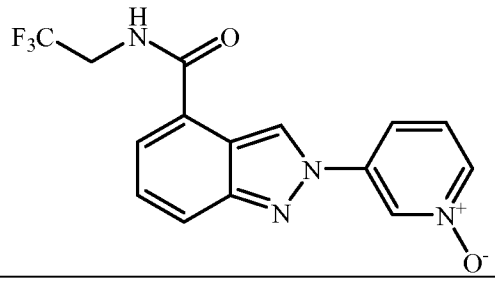
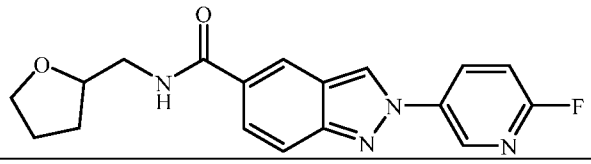


Cmpd. No.	R	Analytical Data
467	–C(O)NHCH$_2$(tetrahydro-2-furanyl)	*

* See Index Table O for ^{1}H NMR data.

INDEX TABLE N

Cmpd. No.	Structure	Analytical Data
462		*
463		*
464		*
465		*

466		*
730		341

* See Index Table O for ^{1}H NMR data.

INDEX TABLE O

Cmpd. No.	^{1}H NMR Data [a]
1	^{1}H NMR ($CDCl_3$) δ: 9.23 (s, 1H), 8.74 (d, J=0.9 Hz, 1H), 8.66 (dd, J=4.7, 1.6 Hz, 1H), 8.28 (ddd, J=8.3, 2.6, 1.5 Hz, 1H), 7.85 (dt, J=8.7, 0.9 Hz, 1H), 7.47-7.50 (m, 1H), 7.35 (dd, J=8.7, 6.8 Hz, 1H), 7.28-7.30 (m, 1H), 3.75 (br s, 2H), 3.59 (br s, 2H), 1.97-2.04 (br s, 2H), 1.92 (br s, 2H)
2	^{1}H NMR ($CDCl_3$) δ: 9.27 (d, J=2.2 Hz, 1H), 9.25 (s, 1H), 9.0 (s, 1H), 8.72 (d, J=4.9 Hz, 2H), 8.69 (dd, J=4.7, 1.4 Hz, 1H), 8.28-8.33 (m, 1H), 8.05 (d, J=24.1 Hz, 1H, 7.69 (d, J=6.8 Hz, 1H), 7.52 (m, 1H), 7.44 (dd, J=8.7, 6.9 Hz, 1H), 7.12 (t, J=4.9 Hz, 1H)
3	^{1}H NMR ($CDCl_3$) δ: 9.22 (s, 1H), 8.69 (d, J=3.8 Hz, 1H), 8.61 (s, 1H), 8.25-8.32 (m, 1H), 7.87 (d, J=8.8 Hz, 1H), 7.50 (dd, J=8.4, 4.7 Hz, 1H), 7.36 (dd, J=8.8, 6.8 Hz, 1H), 7.17 (d, J=6.8, 1H), 3.72-3.82 (m, 4H)
4	^{1}H NMR ($CDCl_3$) δ: 9.28 (d, J=2.5 Hz, 1H), 9.14 (d, J=0.9 Hz, 1H), 8.96-9.00 (m, 1H), 8.69 (dd, J=4.7, 1.4 Hz, 1H), 8.42 (dt, J=8.4, 0.9 Hz, 1H), 8.30-8.33 (m, 1H), 8.01 (dd, J=8.7, 0.7 Hz, 1H), 7.80 (dd, J=1.9, 1.1 Hz, 1H), 7.67 (d, J=6.9 Hz, 1H), 7.49-7.52 (m, 1H), 7.42 (dd, J=8.7, 6.9 Hz, 1H), 7.08-7.12 (m, 1H)
5	^{1}H NMR ($CDCl_3$) δ: 9.27 (d, J=2.5 Hz, 1H), 9.12 (d, J=0.8 Hz, 1H), 8.68 (dd, J=4.7, 1.4 Hz, 1H), 8.28-8.31 (m, 1H), 8.02-8.06 (br s, 1H), 8.00 (d, J=8.7 Hz, 1H), 7.69 (d, J=8.6, Hz, 2H), 7.57 (d, J=6.8 Hz, 1H), 7.48-7.52 (m, 1H), 7.42 (dd, J=8.5, 7.3 Hz, 3H), 7.21 (t, J=24.1 Hz, 1H)
6	^{1}H NMR ($CDCl_3$) δ: 9.26 (d, J=2.5 Hz, 1H), 9.07 (s, 1H), 8.68 (dd, J=4.7, 1.4 Hz, 1H), 8.29-8.34 (m, 1H), 7.95 (d, J=8.7 Hz, 1H), 7.49-7.54 (m, 2H), 7.35-7.41 (m, 1H), 7.10-7.16 (m, 1H), 4.55-4.66 (m, 1H), 1.52 (d, J=6.9 Hz, 3H), 1.39 (s, 9H)

7	^{1}H NMR (acetone-d_6) δ: 9.35 (d, J=2.2 Hz, 1H), 9.32 (d, J=0.9 Hz, 1H), 8.67 (d, J=9.8 Hz, 1H), 8.51-8.57 (m, 1H), 8.48 (d, J=14.3 Hz, 1H), 7.93 (d, J=14.7 Hz, 1H), 7.79 (d, J=7.4 Hz, 1H), 7.77 (d, J=6.5 Hz, 1H), 7.62-7.69 (m, 1H), 7.44 (dd, J=8.7, 6.9 Hz, 1H), 4.49-4.58 (m, 1H), 3.83-3.92 (m, 1H), 1.37 (d, J=7.3 Hz, 3H), 1.06-1.10 (m, 6H)
8	^{1}H NMR ($CDCl_3$) δ: 9.26 (d, J=2.2 Hz, 1H), 9.09 (d, J=0.9 Hz, 1H), 8.67 (dd, J=4.7, 1.4 Hz, 1H), 8.29 (ddd, J=8.3, 2.6, 1.4 Hz, 1H), 7.92 (dt, J=8.5, 0.9 Hz, 1H), 7.48 (m, 1H), 7.31-7.41 (m, 2H), 6.15 (s, 1H), 4.31-4.41 (m, 1H), 1.33 (d, J=6.6 Hz, 6H)
9	^{1}H NMR ($CDCl_3$) δ: 9.27 (d, J=10.1 Hz, 1H), 9.17 (s, 1H), 8.68 (dd, J=4.7, 1.4 Hz, 1H), 8.59-8.64 (m, 1H), 8.30-8.35 (m, 1H), 7.96 (d, J=8.7 Hz, 1H), 7.81 (br. s, 1H), 7.72 (t, J=18.8 Hz, 1H), 7.62 (d, J=6.9 Hz, 1H), 7.48-7.52 (m, 1H), 7.40 (dd, J=8.8, 6.9 Hz, 1H), 7.37 (d, J=7.9 Hz, 1H), 4.85 (d, J=4.9 Hz, 2H)
10	^{1}H NMR ($CDCl_3$) δ: 9.26 (d, J=2.5 Hz, 1H), 9.08 (d, J=0.8 Hz, 1H), 8.68 (dd, J=4.7, 1.4 Hz, 1H), 8.26-8.36 (m, 1H), 7.95 (d, J=8.7 Hz, 1H), 7.50 (dd, J=8.3, 4.8 Hz, 1H), 7.45 (d, J=6.6 Hz, 1H), 7.37 (dd, J=8.7, 6.9 Hz, 1H), 6.51 (br. s., 1H), 4.55 (t, J=5.2 Hz, 1H), 3.69 (t, J=5.5 Hz, 2H), 3.48 (s, 6H)
11	^{1}H NMR ($CDCl_3$) δ: 9.25 (d, J=2.5 Hz, 1H), 9.12 (d, J=0.6 Hz, 1H), 8.66 (dd, J=4.7, 1.3 Hz, 1H), 8.30 (d, J=20.3 Hz, 1H), 7.94 (d, J=8.7 Hz, 1H), 7.76 (d, J=3.2 Hz, 1H), 7.54 (d, J=6.9 Hz, 1H), 7.44-7.51 (m, 2H), 7.34 (d, J=3.3 Hz, 2H), 5.03 (d, J=5.5 Hz, 2H)
12	^{1}H NMR ($CDCl_3$) δ: 9.26 (d, J=2.4 Hz, 1H), 9.09 (d, J=0.8 Hz, 1H), 8.67 (dd, J=4.7, 1.3 Hz, 1H), 8.26-8.35 (m, 1H), 7.94 (d, J=8.7 Hz, 1H), 7.47 (dd, J=42.1, 6.8 Hz, 2H), 7.37 (dd, J=32.6, 8.7 Hz, 1H), 6.82 (br. s, 1H), 4.09-4.19 (m, 1H), 3.78-3.99 (m, 3H), 3.35-3.46 (m, 1H), 2.03-2.15 (m, 1H), 1.96 (t, J=7.3 Hz, 2H), 1.66 (ddd, J=59.9, 12.3, 8.2 Hz, 1H)
13	^{1}H NMR ($CDCl_3$) δ: 9.26 (d, J=2.5 Hz, 1H), 9.10 (d, J=0.9 Hz, 1H), 8.68 (dd, J=4.7, 1.6 Hz, 1H), 8.26-8.33 (m, 1H), 7.95 (d, J=21.0 Hz, 1H), 7.45-7.54 (m, 2H), 7.37 (dd, J=8.7, 6.9 Hz, 1H), 6.83 (br. s, 1H), 3.75 (dd, J=39.1, 33.7 Hz, 2H), 2.83 (t, J=27.4 Hz, 2H), 2.18 (s, 3H)
14	^{1}H NMR ($CDCl_3$) δ: 9.26 (d, J=2.0 Hz, 1H), 9.12 (d, J=0.6 Hz, 1H), 8.67 (dd, J=4.7, 1.4 Hz, 1H), 8.29 (ddd, J=8.3, 2.6, 1.5 Hz, 1H), 7.93 (d, J=18.0 Hz, 1H), 7.50 (ddd, J=8.3, 4.8, 0.6 Hz, 1H), 7.29-7.38 (m, 2H), 6.50 (br. s., 1H), 2.91-3.02 (m, 1H), 0.93 (dd, J=32.8, 27.3 Hz, 2H), 0.69 (d, J=27.7 Hz, 2H)
15	^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.4 Hz, 1H), 8.67 (dd, J=4.8, 1.3 Hz, 1H), 8.57 (d, J=0.8 Hz, 1H), 8.27 (d, J=17.5 Hz, 1H), 7.84 (d, J=8.8 Hz, 1H), 7.49 (ddd, J=8.3, 4.8, 0.6 Hz, 1H), 7.35 (dd, J=27.1, 19.9 Hz, 1H), 7.15 (d, J=21.8 Hz, 1H), 3.49 (s, 5H), 1.47-1.71 (m, 5H)

16	^{1}H NMR ($CDCl_3$) δ: 9.26 (d, J=2.2 Hz, 1H), 9.09 (d, J=0.8 Hz, 1H), 8.68 (dd, J=4.7, 1.4 Hz, 1H), 8.27-8.32 (m, 1H), 7.93 (dt, J=8.0, 1.1 Hz, 1H), 7.49 (ddd, J=8.3, 4.8, 0.6 Hz, 1H), 7.33-7.40 (m, 2H), 6.15 (br s, 1H), 4.05 (dd, J=38.3, 8.0 Hz, 1H), 2.10 (dd, J=12.5, 3.5 Hz, 2H), 1.80 (dd, J=26.8, 13.9 Hz, 2H), 1.66-1.74 (m, 1H), 1.48 (dd, J=47.4, 13.6 Hz, 2H), 1.22-1.38 (m, 3H)
17	^{1}H NMR ($CDCl_3$) δ: 9.26 (d, J=2.4 Hz, 1H), 9.05 (d, J=0.8 Hz, 1H), 8.71 (dd, J=4.7, 1.4 Hz, 1H), 8.27-8.35 (m, 1H), 8.13 (dd, J=2.4, 0.9 Hz, 1H), 7.80 (d, J=8.7 Hz, 1H), 7.52 (ddd, J=8.2, 4.8, 0.7 Hz, 1H), 7.39 (dd, J=8.7, 7.3 Hz, 1H), 7.22-7.28 (m, 1H), 6.80 (d, J=2.5 Hz, 1H)
18	^{1}H NMR ($CDCl_3$) δ: 9.47 (d, J=0.9 Hz, 1H), 9.31 (d, J=2.5 Hz, 1H), 8.90 (d, J=4.9 Hz, 2H), 8.68 (d, J=20.8 Hz, 1H), 8.44 (d, J=19.4 Hz, 1H), 8.35-8.40 (m, 1H), 7.95 (d, J=27.0 Hz, 1H), 7.51 (t, J=16.6 Hz, 2H), 7.23 (t, J=4.8 Hz, 1H)
19	^{1}H NMR ($CDCl_3$) δ: 9.28 (d, J=19.9 Hz, 1H), 9.06 (d, J=0.8 Hz, 1H), 8.65-8.75 (m, 1H), 8.25-8.35 (m, 1H), 8.02 (d, J=27.4 Hz, 1H), 7.45-7.56 (m, 2H), 7.36-7.44 (m, 1H), 6.56 (br s, 1H), 4.16-4.28 (m, 2H)
20	^{1}H NMR ($CDCl_3$) δ: 10.44 (d, J=0.9 Hz, 1H), 9.43 (d, J=2.4 Hz, 1H), 9.02 (d, J=4.7 Hz, 2H), 8.67 (d, J=12.0 Hz, 1H), 8.50-8.53 (m, 1H), 8.48 (dd, J=7.7, 0.8 Hz, 1H), 8.09 (d, J=7.4 Hz, 1H), 8.00 (t, J=21.4 Hz, 1H), 8.01 (d, J=18.0 Hz, 1H), 7.76 (d, J=6.9 Hz, 1H), 7.50-7.55 (m, 1H), 7.44-7.49 (m, 1H), 7.39 (t, J=16.9 Hz, 1H)
21	^{1}H NMR (DMSO-d_6) δ: 9.39 (d, J=0.8 Hz, 1H), 9.36 (d, J=2.2 Hz, 1H), 9.14 (t, J=5.9 Hz, 1H), 8.79 (d, J=4.9 Hz, 2H), 8.67 (dd, J=4.7, 1.4 Hz, 1H), 8.50-8.57 (m, 1H), 7.96 (d, J=8.7 Hz, 1H), 7.80 (d, J=6.5 Hz, 1H), 7.64 (ddd, J=8.4, 4.7, 0.8 Hz, 1H), 7.47 (dd, J=8.8, 6.9 Hz, 1H), 7.41 (t, J=4.9 Hz, 1H), 4.76 (d, J=6.0 Hz, 2H)
22	^{1}H NMR ($CDCl_3$) δ: 9.26-9.33 (m, 1H), 9.23 (s, 1H), 8.62-8.76 (m, 2H), 8.40 (d, J=19.7 Hz, 1H), 8.32 (d, J=18.9 Hz, 1H), 7.90 (t, J=28.4 Hz, 1H), 7.77-7.85 (m, J=32.5 Hz, 2H), 7.65 (d, J=18.1 Hz, 1H), 7.50-7.59 (m, 1H), 7.45 (t, J=27.3 Hz, 1H), 7.37-7.41 (m, 1H)
23	^{1}H NMR ($CDCl_3$) δ: 9.27 (d, J=10.6 Hz, 1H), 9.23 (d, J=0.9 Hz, 1H), 8.66-8.72 (m, 2H), 8.39 (d, J=19.4 Hz, 1H), 8.33 (d, J=7.7 Hz, 1H), 7.89 (dd, J=13.6, 1.4 Hz, 1H), 7.83 (d, J=8.8 Hz, 1H), 7.79 (s, 1H), 7.63 (d, J=6.5 Hz, 1H), 7.51-7.56 (m, 1H), 7.45 (dd, J=15.8, 1.7 Hz, 1H), 7.36-7.41 (m, 1H)
24	^{1}H NMR ($CDCl_3$) δ: 9.41 (d, J=2.4 Hz, 1H), 9.26 (d, J=0.8 Hz, 1H), 8.69 (dd, J=4.7, 1.3 Hz, 1H), 8.51-8.58 (m, 1H), 8.24 (br s, 1H), 7.94 (d, J=8.7 Hz, 1H), 7.74 (d, J=6.9 Hz, 1H), 7.62-7.69 (m, 1H), 7.43 (dd, J=8.7, 6.9 Hz, 1H), 6.01-6.31 (m, J=112.9 Hz, 1H), 3.80-3.96 (m, 2H),

25	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.5 Hz, 1H), 8.68 (dd, J=4.7, 1.4 Hz, 1H), 8.54 (s, 1H), 8.27-8.32 (m, 1H), 7.93 (s, 1H), 7.79 (d, J=21.8 Hz, 1H), 7.48-7.54 (m, 2H), 3.69 (t, J=6.8 Hz, 2H), 3.52 (t, J=6.3 Hz, 2H), 1.95-2.03 (t, J=6.2 Hz, 2H), 1.91 (t, J=6.5 Hz, 2H)
26	^{1}H NMR ($CDCl_3$) δ: 9.22 (d, J=2.2 Hz, 1H), 8.79 (s, 1H), 8.72 (dd, J=9.8, 1.0 Hz, 1H), 8.69 (d, J=4.9 Hz, 2H), 8.63 (s, 1H), 8.46 (s, 1H), 8.29-8.34 (m, 1H), 7.88 (d, J=1.3 Hz, 2H), 7.51-7.56 (m, 1H), 7.08 (t, J=4.8 Hz, 1H)
27	^{1}H NMR ($CDCl_3$) δ: 9.21 (br s, 1H), 8.69 (d, J=4.1 Hz, 1H), 8.51 (s, 1H), 8.30 (d, J=22.1 Hz, 1H), 7.97 (d, J=1.7 Hz, 2H), 7.89 (d, J=9.3 Hz, 1H), 7.78-7.82 (m, 1H), 7.78-7.82 (m, 2H), 7.51 (dd, J=8.2, 4.7 Hz, 1H), 6.50 (t, J=9.1 Hz, 1H)
28	^{1}H NMR ($CDCl_3$) δ: 9.23 (d, J=2.4 Hz, 1H), 8.72 (dd, J=4.7, 1.4 Hz, 1H), 8.65 (s, 1H), 8.44 (t, J=1.3 Hz, 1H), 8.42 (d, J=10.9 Hz, 1H), 8.31-8.34 (m, 2H), 7.88-7.90 (m, 2H), 7.75-7.83 (m, 1H), 7.50-7.58 (m, 1H), 7.10 (ddd, J=7.3, 4.9, 1.0 Hz, 1H)
29	^{1}H NMR ($CDCl_3$) δ: 9.22 (d, J=2.2 Hz, 1H), 8.71 (dd, J=4.7, 1.4 Hz, 1H), 8.62 (s, 1H), 8.39 (s, 1H), 8.29-8.35 (m, 1H), 7.88 (d, J=0.8 Hz, 2H), 7.81 (d, J=15.9 Hz, 1H), 7.68 (d, J=18.1 Hz, 2H), 7.54 (dd, J=18.8, 8.4 Hz, 1H), 7.41 (t, J=8.4 Hz, 3H), 7.18 (t, J=20.3 Hz, 2H)
30	^{1}H NMR (DMSO-d_6) δ: 9.32 (d, J=2.5 Hz, 1H), 9.14 (s, 1H), 9.09 (s, 1H), 8.64 (d, J=7.7 Hz, 1H), 8.44-8.50 (m, 1H), 8.16 (d, J=11.5 Hz, 1H), 8.05 (s, 1H), 7.95 (d, J=10.4 Hz, 1H), 7.82 (t, J=24.7 Hz, 1H), 7.72 (d, J=10.7 Hz, 1H), 7.61-7.68 (m, 2H), 7.51 (d, J=20.2 Hz, 1H), 7.28 (d, J=13.9 Hz, 1H)
31	^{1}H NMR (DMSO-d_6) δ: 9.32 (d, J=2.4 Hz, 1H), 9.29-9.31 (m, 1H), 9.28-9.31 (m, 1H), 9.08 (s, 1H), 8.63 (dd, J=4.7, 1.3 Hz, 1H), 8.45-8.50 (m, 1H), 8.10 (s, 1H), 7.68 (d, J=9.3 Hz, 1H), 7.61-7.66 (m, 2H), 7.34-7.42 (m, 1H), 7.12 (br. s, 2H)
32	^{1}H NMR ($CDCl_3$) δ: 9.26 (d, J=2.5 Hz, 1H), 8.57 (s, 1H), 8.68 (dd, J=4.7, 1.4 Hz, 1H), 8.16 (s, 1H), 7.95 (d, J=8.7 Hz, 1H), 7.49-7.54 (m, 2H), 7.35-7.41 (m, 1H), 7.10-7.16 (m, 1H), 4.55-4.66 (m, 1H), 1.52 (d, J=6.9 Hz, 3H), 1.39 (s, 9H)
33	^{1}H NMR ($CDCl_3$) δ: 9.21 (br s, 1H), 8.70 (d, J=12.0 Hz, 1H), 8.53 (d, J=0.9 Hz, 1H), 8.27-8.33 (m, 1H), 7.85-7.88 (m, 1H), 7.81 (d, J=15.6 Hz, 1H), 7.50-7.55 (m, 1H), 7.40 (dd, J=9.0, 1.6 Hz, 1H), 3.03-3.23 (m, 6H)
34	^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.4 Hz, 1H), 8.71 (dd, J=4.8, 1.5 Hz, 1H), 8.60 (s, 1H), 8.32 (dd, J=1.7, 1.0 Hz, 1H), 8.29-8.32 (m, 1H), 8.02 (s, 1H), 7.85 (d, J=9.1 Hz, 1H), 7.72 (dd, J=9.1, 1.7 Hz, 1H), 7.51-7.55 (m, 1H), 6.47 (br s, 1H), 4.12-4.26 (m, 2H)
35	^{1}H NMR ($CDCl_3$) δ: 9.21 (br s, 1H), 8.70 (d, J=3.6 Hz, 1H), 8.57 (d, J=0.9 Hz, 1H), 8.28-8.33 (m, 1H), 8.26 (s, 1H), 7.81 (dt, J=9.1, 0.9 Hz, 1H), 7.69 (dd, J=9.1, 1.7 Hz, 1H), 7.49-7.56 (m, 1H), 5.98 (br s, 1H), 4.26-4.44 (m, 1H), 1.31 (d, J=6.6 Hz, 6H)

36	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.4 Hz, 1H), 8.69 (dd, J=4.7, 1.4 Hz, 1H), 8.53 (s, 1H), 8.27-8.32 (m, 1H), 7.83 (dd, J=9.6, 3.3 Hz, 1H), 7.79-7.82 (m, 1H), 7.52 (dd, J=19.7, 4.1 Hz, 1H), 7.37 (dd, J=9.0, 1.6 Hz, 1H), 3.45-3.74 (m, 5H), 1.51-1.70 (m, 5H)
37	^{1}H NMR (acetone-d_6) δ: 9.35 (d, J=2.7 Hz, 1H), 9.15 (s, 1H), 8.68 (d, J=17.7 Hz, 1H), 8.47-8.52 (m, 1H), 8.36 (s, 1H), 7.84 (d, J=13.4 Hz, 1H), 7.74 (d, J=11.7 Hz, 1H), 7.61-7.68 (m, 1H), 2.93-3.00 (m, 1H), 0.71-0.80 (m, 2H), 0.61-0.68 (m, 2H)
38	^{1}H NMR (acetone-d_6) δ: 9.35 (d, J=2.5 Hz, 1H), 9.16 (d, J=0.9 Hz, 1H), 8.68 (dd, J=4.6, 1.4 Hz, 1H), 8.47-8.52 (m, 1H), 8.44 (dd, J=1.6, 0.9 Hz, 1H), 7.88 (dd, J=9.1, 1.6 Hz, 1H), 7.77 (d, J=9.0 Hz, 1H), 7.61-7.67 (m, 1H), 5.06 (s, 1H), 3.98-4.01 (m, 1H), (m, 2H), 2.8 (br s, 4H)
39	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.7 Hz, 1H), 8.70 (dd, J=4.7, 1.4 Hz, 1H), 8.58 (d, J=0.9 Hz, 1H), 8.29-8.32 (m, 1H), 8.28 (dd, J=1.7, 1.0 Hz, 1H), 7.82 (dt, J=9.0, 0.9 Hz, 1H), 7.71 (dd, J=9.1, 1.7 Hz, 1H), 7.50-7.54 (m, 1H), 6.40-6.45 (m, 1H), 4.54 (t, J=5.2 Hz, 1H), 3.66 (t, J=5.5 Hz, 2H), 3.47 (s, 6H)
40	^{1}H NMR (acetone-d_6) δ: 9.36 (d, J=2.7 Hz, 1H), 9.19 (d, J=0.9 Hz, 1H), 8.68 (dd, J=4.7, 1.4 Hz, 1H), 8.61 (br s, 1H), 8.50-8.52 (m, 1H), 8.49 (dd, J=2.6, 1.5 Hz, 1H), 7.93 (dd, J=9.1, 1.6 Hz, 1H), 7.80 (dt, J=9.1, 0.9 Hz, 1H), 7.71 (d, J=3.3 Hz, 1H), 7.62-7.66 (m, 1H), 7.51 (d, J=3.2 Hz, 1H), 4.92 (d, J=6.0 Hz, 2H)
41	^{1}H NMR ($CDCl_3$) δ: 9.21 (br s, 1H), 8.70 (d, J=2.8 Hz, 1H), 8.57 (d, J=0.9 Hz, 1H), 8.31 (s, 1H), 8.28-8.30 (m, 2H), 7.82 (d, J=12.6 Hz, 1H), 7.73 (dd, J=9.1, 1.7 Hz, 1H), 7.52 (dd, J=8.2, 4.7 Hz, 1H), 6.61 (br s, 1H), 3.92 (dt, J=8.4, 6.7 Hz, 1H), 3.77-3.89 (m, 2H), 3.33-3.44 (m, 1H), 2.05 (d, J=43.0 Hz, 1H), 1.90-2.01 (m, 2H), 1.72-1.79 (m, 1H), 1.60-1.71 (m, 1H)
42	^{1}H NMR (acetone-d_6) δ: 9.60 (s, 1H), 9.36 (d, J=2.7 Hz, 1H), 9.20 (d, J=0.8 Hz, 1H), 8.69 (d, J=11.5 Hz, 1H), 8.48-8.52 (m, 1H), 8.47 (s, 1H), 8.26 (br s, 1H), 7.87 (d, J=16.6 Hz, 1H), 7.81 (d, J=16.6 Hz, 1H), 7.62-7.67 (m, 1H), 3.70 (s, 3H)
43	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.5 Hz, 1H), 8.69 (dd, J=4.7, 1.3 Hz, 1H), 8.54 (s, 1H), 8.29 (ddd, J=8.3, 2.6, 1.6 Hz, 1H), 7.84-7.87 (m, 1H), 7.81 (d, J=9.0 Hz, 1H), 7.49-7.55 (m, 1H), 7.38 (dd, J=9.0, 1.6 Hz, 1H), 3.66 (br s, 4H), 2.46 (br. s, 4H), 2.35 (s, 3H)
44	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.4 Hz, 1H), 8.69 (dd, J=4.7, 1.4 Hz, 1H), 8.55 (d, J=0.9 Hz, 1H), 8.29 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 7.86 (s, 1H), 7.82 (dt, J=8.9, 0.9 Hz, 1H), 7.47-7.55 (m, 1H), 7.37 (dd, J=9.0, 1.6 Hz, 1H), 3.84 (br s, 4H)
45	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.4 Hz, 1H), 8.71 (dd, J=4.7, 1.3 Hz, 1H), 8.65 (s, 1H), 8.58 (d, J=0.8 Hz, 1H), 8.28-8.33 (m, 1H), 8.25 (s, 1H), 7.83 (d, J=9.0 Hz, 1H), 7.64 (dd, J=9.1, 1.5 Hz, 1H), 7.53 (dd, J=8.0, 4.7 Hz, 1H), 6.02-6.14 (m, 1H), 5.35-5.48 (m, 2H), 4.57 (d, J=6.3 Hz, 2H)

46	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.4 Hz, 1H), 8.70 (dd, J=4.7, 1.4 Hz, 1H), 8.58 (d, J=0.9 Hz, 1H), 8.31 (dd, J=2.6, 1.5 Hz, 2H), 7.82 (d, J=15.8 Hz, 1H), 7.73 (dd, J=9.1, 1.6 Hz, 1H), 7.52 (ddd, J=8.2, 4.8, 0.7 Hz, 1H), 6.71 (br s, 1H), 3.65-3.76 (m, 2H), 2.84 (t, J=18.4 Hz, 2H), 2.62 (q, J=7.4 Hz, 2H), 1.31 (t, J=7.4 Hz, 3H)
47	^{1}H NMR ($CDCl_3$) δ: 9.17 (d, J=2.4 Hz, 1H), 8.79 (br s, 1H), 8.69 (d, J=18.1 Hz, 1H), 8.55 (s, 1H), 8.26-8.31 (m, 1H), 8.24 (s, 1H), 7.81 (d, J=13.2 Hz, 1H), 7.66 (d, J=21.6 Hz, 1H), 7.49-7.53 (m, 1H), 4.28-4.38 (m, 1H), 1.35 (d, J=6.3 Hz, 6H)
48	^{1}H NMR (acetone-d_6) δ: 9.32 (s, 1H), 9.07-9.17 (m, 1H), 8.64-8.70 (m, 1H), 8.55-8.61 (m, 1H), 8.41-8.50 (m, 1H), 8.13 (d, J=8.5 Hz, 3H), 7.88 (d, J=8.2 Hz, 1H), 7.73 (d, J=9.8 Hz, 1H), 7.59-7.67 (m, 3H)
49	^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.5 Hz, 1H), 8.70-8.75 (m, 1H), 8.62 (d, J=0.9 Hz, 1H), 8.27-8.36 (m, 2H), 7.86 (d, J=12.9 Hz, 1H), 7.69 (dd, J=9.1, 1.7 Hz, 1H), 7.52-7.54 (m, 1H), 6.46 (s, 1H), 4.45 (d, J=5.7 Hz, 2H)
50	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.7 Hz, 1H), 8.69 (dd, J=4.7, 1.4 Hz, 1H), 8.55 (d, J=0.9 Hz, 1H), 8.30 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 7.79-7.88 (m, 2H), 7.51 (ddd, J=8.3, 4.7, 0.7 Hz, 1H), 7.35 (dd, J=8.9, 1.5 Hz, 1H), 4.00-4.18 (m, 1H), 2.93-3.10 (m, 2H), 2.30-2.44 (m, 1H), 2.10-2.19 (m, 1H), 1.80-1.92 (m, 1H), 1.71-1.80 (m, 1H), 1.51-1.71 (m, 1H), 0.90-1.04 (m, 1H)
51	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.5 Hz, 1H), 8.70 (dd, J=4.7, 1.2 Hz, 1H), 8.58 (d, J=0.9 Hz, 1H), 8.27-8.34 (m, 2H), 7.83 (dt, J=9.1, 0.9 Hz, 1H), 7.71 (dd, J=9.1, 1.7 Hz, 1H), 7.52 (dd, J=8.2, 4.7 Hz, 1H), 6.46 (br s, 1H), 3.89-4.05 (m, 1H), 3.27-3.38 (m, 1H), 1.95-2.08 (m, 1H), 1.69 (s, 3H), 1.46-1.59 (m, 1H), 1.16-1.31 (m, 2H)
52	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.4 Hz, 1H), 8.70 (dd, J=4.7, 1.3 Hz, 1H), 8.58 (d, J=0.9 Hz, 1H), 8.28-8.34 (m, 1H), 8.26 (s, 1H), 7.83 (d, J=9.1 Hz, 1H), 7.69 (d, J=1.6 Hz, 1H), 7.49-7.57 (m, 1H), 6.48 (br s, 1H), 3.78 (q, J=6.3 Hz, 2H), 2.44-2.59 (m, 2H)
53	^{1}H NMR ($CDCl_3$) δ: 9.19 (br s, 1H), 8.69 (d, J=4.1 Hz, 1H), 8.56 (d, J=0.9 Hz, 1H), 8.25-8.31 (m, 2H), 7.81 (d, J=18.4 Hz, 1H), 7.72 (dd, J=9.1, 1.7 Hz, 1H), 7.51 (dd, J=8.1, 4.7 Hz, 1H), 6.41 (br s, 1H), 3.36 (dd, J=7.1, 5.4 Hz, 2H), 1.05-1.17 (m, 1H), 0.58 (d, J=26.2 Hz, 2H), 0.31 (d, J=22.4 Hz, 2H)
54	^{1}H NMR (acetone-d_6) δ: 9.35 (d, J=2.7 Hz, 1H), 9.19 (d, J=0.9 Hz, 1H), 8.69 (dd, J=4.7, 1.4 Hz, 1H), 8.46-8.52 (m, 2H), 8.13 (br s, 1H), 7.90 (dd, J=9.1, 1.6 Hz, 1H), 7.79 (d, J=9.1 Hz, 1H), 7.61-7.68 (m, 1H), 3.83-3.95 (m, 2H), 1.68 (t, J=18.8 Hz, 3H)
55	^{1}H NMR (acetone-d_6) δ: 9.37 (d, J=4.7 Hz, 1H), 9.20 (d, J=0.9 Hz, 1H), 8.78 (d, J=4.9 Hz, 2H), 8.69 (dd, J=4.6, 1.3 Hz, 1H), 8.48-8.54 (m, 2H), 8.24 (br s, 1H), 7.94 (dd, J=9.1, 1.7 Hz, 1H), 7.81 (d, J=11.3 Hz, 1H), 7.62-7.69 (m, 1H), 7.38 (t, J=4.9 Hz, 2H), 4.84 (d, J=5.5 Hz, 3H)

56	^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.5 Hz, 1H), 8.70 (dd, J=4.7, 1.4 Hz, 1H), 8.60 (d, J=0.8 Hz, 1H), 8.35 (d, J=0.9 Hz, 1H), 8.30 (ddd, J=8.3, 2.6, 1.6 Hz, 1H), 7.84 (d, J=23.0 Hz, 1H), 7.79 (d, J=12.5 Hz, 1H), 7.57 (t, J=17.7 Hz, 1H), 7.49-7.54 (m, 1H), 7.43 (d, J=7.4 Hz, 1H), 7.32-7.39 (m, 2H), 4.78 (d, J=5.4 Hz, 2H)
57	^{1}H NMR ($CDCl_3$) δ: 9.35 (d, J=2.2 Hz, 1H), 9.16 (d, J=0.9 Hz, 1H), 8.68 (dd, J=4.6, 1.3 Hz, 1H), 8.45-8.54 (m, 1H), 8.37-8.43 (m, 1H), 7.93 (br s, 1H), 7.86 (dd, J=9.1, 1.6 Hz, 1H), 7.77 (d, J=18.6 Hz, 1H), 7.59-7.68 (m, 1H), 3.60-3.69 (m, 2H), 2.73-2.79 (m, 2H), 2.14-2.16 (m, 3H)
58	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.5 Hz, 1H), 8.70 (d, J=3.5 Hz, 1H), 8.54 (d, J=0.8 Hz, 1H), 8.30 (d, J=9.5 Hz, 1H), 7.96 (br s, 1H), 7.82 (d, J=9.0 Hz, 1H), 7.52 (dd, J=8.1, 4.5 Hz, 2H), 4.77 (br s, 2H), 3.80 (br s, 2H), 3.38 (br s, 2H), 2.87 (br s, 2H), 2.17-2.31 (m, 2H), 1.21 (br s, 1H)
59	^{1}H NMR (acetone-d_6) δ: 9.35 (d, J=2.7 Hz, 1H), 9.16 (d, J=0.9 Hz, 1H), 8.68 (d, J=3.3 Hz, 1H), 8.46-8.51 (m, 1H), 8.40 (s, 1H), 7.90 (br s, 1H), 7.86 (dd, J=9.1, 1.7 Hz, 1H), 7.76 (dt, J=9.1, 1.0 Hz, 1H), 7.61-7.66 (m, 2H), 7.17 (t, J=1.3 Hz, 1H), 6.93 (t, J=1.0 Hz, 1H), 4.18 (t, J=6.9 Hz, 2H), 3.47 (dd, J=19.2, 5.8 Hz, 2H), 2.14 (t, J=6.9 Hz, 2H)
60	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.2 Hz, 1H), 8.70 (dd, J=4.8, 1.5 Hz, 1H), 8.57 (d, J=0.8 Hz, 1H), 8.27-8.34 (m, 2H), 7.82 (dt, J=9.1, 0.9 Hz, 1H), 7.72 (dd, J=9.1, 1.6 Hz, 1H), 7.52 (ddd, J=8.2, 4.7, 0.6 Hz, 1H), 7.41 (dd, J=1.8, 0.9 Hz, 1H), 6.49 (br s, 1H), 6.36 (ddd, J=14.0, 3.2, 1.3 Hz, 2H), 4.69 (d, J=5.4 Hz, 2H)
61	^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.2 Hz, 1H), 8.67 (dd, J=4.6, 1.0 Hz, 1H), 8.54 (s, 1H), 8.26-8.33 (m, 1H), 7.80 (d, J=9.0 Hz, 1H), 7.75 (s, 1H), 7.50 (dd, J=8.2, 4.7 Hz, 1H), 7.31 (dd, J=8.9, 1.3 Hz, 1H), 4.03-4.18 (m, 1H), 3.98-4.24 (m, 1H), 3.47 (br s, 3H), 2.15 (br s, 1H), 1.77 (br s, 4H), 1.47-1.69 (m, 4H), 1.21-1.36 (m, J=7.1 Hz, 3H), 1.05 (br s, 3H), 0.93 (s, 1H)
62	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.4 Hz, 1H), 8.71 (dd, J=4.7, 1.4 Hz, 1H), 8.59 (d, J=0.9 Hz, 1H), 8.28-8.33 (m, 1H), 8.10-8.15 (m, 1H), 7.84 (dt, J=9.1, 0.9 Hz, 1H), 7.60 (dd, J=9.0, 1.6 Hz, 1H), 7.53 (ddd, J=8.4, 4.7, 0.6 Hz, 1H), 4.59 (t, J=12.1 Hz, 4H)
63	^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.5 Hz, 1H), 8.70 (dd, J=4.7, 1.4 Hz, 1H), 8.59 (d, J=0.8 Hz, 1H), 8.26-8.35 (m, 2H), 7.83 (d, J=9.0 Hz, 1H), 7.75 (dd, J=9.1, 1.7 Hz, 1H), 7.45-7.58 (m, 1H), 4.83 (dd, J=8.7, 4.9 Hz, 1H), 3.80 (s, 3H), 3.48 (q, J=6.9 Hz, 6H), 2.32 (d, J=5.0 Hz, 1H)
64	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.5 Hz, 1H), 8.70 (dd, J=4.7, 1.4 Hz, 1H), 8.56 (d, J=0.9 Hz, 1H), 8.30 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 7.89 (s, 1H), 7.84 (d, J=9.0 Hz, 1H), 7.48-7.57 (m, 1H), 7.39 (d, J=8.7 Hz, 1H), 3.20 (s, 3H), 1.60 (s, 2H), 1.55-1.68 (m, 2H)

65	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.4 Hz, 1H), 8.70 (dd, J=4.7, 1.4 Hz, 1H), 8.58 (d, J=0.9 Hz, 1H), 8.26-8.36 (m, 2H), 7.82 (dt, J=9.1, 0.9 Hz, 1H), 7.71 (dd, J=9.1, 1.7 Hz, 1H), 7.52 (ddd, J=8.3, 4.7, 0.7 Hz, 1H), 7.27 (d, J=16.9 Hz, 3H), 7.09 (dd, J=3.5, 1.1 Hz, 1H), 7.00 (dd, J=5.2, 3.5 Hz, 1H), 6.47 (br s, 1H), 4.80-4.97 (m, 2H)
66	^{1}H NMR ($CDCl_3$) δ: 9.19 (d, J=2.5 Hz, 1H), 8.70 (dd, J=4.7, 1.4 Hz, 1H), 8.61 (d, J=3.3 Hz, 1H), 8.55 (d, J=0.8 Hz, 2H), 8.26-8.31 (m, 1H), 7.92-7.97 (m, 1H), 7.85 (d, J=9.0 Hz, 1H), 7.56-7.64 (m, 1H), 7.49-7.55 (m, 1H), 7.43 (dd, J=9.0, 1.3 Hz, 1H), 7.34 (d, J=4.7 Hz, 1H), 4.84 (s, 2H), 3.68 (s, 1H), 2.80 (br s, 2H), 1.74 (br s, 2H)
67	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.2 Hz, 3H), 8.69 (dd, J=4.7, 1.4 Hz, 1H), 8.53 (d, J=0.9 Hz, 1H), 8.27-8.34 (m, 1H), 7.95 (s, 1H), 7.77 (d, J=9.1 Hz, 1H), 7.52 (s, 2H), 3.14 (s, 3H), 2.83-2.96 (m, 1H), 0.46-0.74 (m, 4H)
68	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.5 Hz, 1H), 8.69 (dd, J=4.7, 1.4 Hz, 1H), 8.57 (d, J=0.8 Hz, 1H), 8.28-8.33 (m, 1H), 8.27 (s, 1H), 7.82 (d, J=9.1 Hz, 1H), 7.71 (dd, J=9.1, 1.6 Hz, 1H), 7.51 (dd, J=8.2, 4.7 Hz, 1H), 6.45 (d, J=7.6 Hz, 1H), 4.36-4.49 (m, 1H), 3.45-3.60 (m, 2H), 3.42 (s, 3H), 1.34 (d, J=6.8 Hz, 3H)
69	^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.4 Hz, 1H), 8.70 (dd, J=4.7, 1.4 Hz, 1H), 8.58 (d, J=0.9 Hz, 1H), 8.28-8.34 (m, 1H), 8.03-8.09 (m, 1H), 7.85 (dt, J=9.0, 0.9 Hz, 1H), 7.49-7.57 (m, 2H), 4.40 (br s, 4H), 2.33-2.45 (m, 2H), 1.65 (br s, 1H), 1.61-1.71 (m, 2H)
70	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.5 Hz, 1H), 8.69 (dd, J=4.7, 1.4 Hz, 1H), 8.58 (s, 1H), 8.25-8.41 (m, 2H), 7.81 (d, J=9.1 Hz, 1H), 7.69-7.78 (m, 1H), 7.51 (ddd, J=8.3, 4.8, 0.6 Hz, 1H), 3.52 (br s, 1H), 3.14 (br s, 1H), 2.79 (br s, 2H), 1.63-1.91 (m, 2H), 1.11 (br s, 8H)
71	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.2 Hz, 1H), 8.70 (dd, J=4.7, 1.4 Hz, 1H), 8.58 (d, J=0.9 Hz, 1H), 8.32 (dd, J=1.6, 0.9 Hz, 1H), 8.28-8.31 (m, J=5.7 Hz, 1H), 7.83 (dt, J=9.1, 0.9 Hz, 1H), 7.73 (dd, J=7.4, 1.6 Hz, 1H), 7.49-7.55 (m, 1H), 7.37-7.44 (m, J=8.0 Hz, 1H), 7.34 (d, J=7.7 Hz, 1H), 7.24 (s, 1H), 7.17 (d, J=8.2 Hz, 1H), 6.55 (br s, 1H)
72	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.4 Hz, 1H), 8.70 (d, J=3.3 Hz, 1H), 8.56 (d, J=0.8 Hz, 1H), 8.28-8.34 (m, 1H), 7.88 (s, 1H), 7.84 (d, J=8.8 Hz, 1H), 7.49-7.56 (m, 1H), 7.38 (d, J=7.4 Hz, 1H), 3.53-3.96 (m, 8H), 1.70-1.79 (m, 1H), 1.03 (dd, J=4.7, 2.9 Hz, 2H), 0.82 (dd, J=7.6, 2.9 Hz, 2H)
73	^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.4 Hz, 1H), 8.71 (d, J=3.5 Hz, 1H), 8.59 (d, J=0.9 Hz, 1H), 8.28-8.34 (m, 2H), 7.83 (d, J=9.1 Hz, 1H), 7.72 (d, J=7.4 Hz, 1H), 7.50-7.56 (m, 1H), 6.56 (br s, 1H), 4.32-4.51 (m, 1H), 4.05-4.19 (m, 1H), 3.68-3.89 (m, 2H), 3.51-3.62 (m, 1H), 1.32-1.72 (m, 9H)
74	^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.4 Hz, 1H), 8.72 (dd, J=4.8, 1.5 Hz, 1H), 8.62 (d, J=0.9 Hz, 1H), 8.28-8.33 (m, 1H), 8.06 (t, J=1.2 Hz, 1H), 7.88 (d, J=9.0 Hz, 1H), 7.55 (s, 1H), 7.52-7.54 (m, 1H), 7.47 (br s, 1H), 3.71 (s, 2H), 1.70-1.87 (m, 1H), 1.41 (s, 6H)

75	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.4 Hz, 1H), 8.70 (dd, J=4.7, 1.4 Hz, 1H), 8.55 (d, J=0.9 Hz, 1H), 8.30 (ddd, J=8.3, 2.6, 1.4 Hz, 1H), 7.83 (d, J=9.8 Hz, 2H), 7.49-7.56 (m, 1H), 7.34 (d, J=10.6 Hz, 1H), 3.53-4.15 (m, 4H), 2.44-3.03 (m, 4H)
76	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.2 Hz, 1H), 8.70 (dd, J=4.8, 1.5 Hz, 1H), 8.58-8.62 (m, 2H), 8.43 (d, J=0.8 Hz, 1H), 8.36 (t, J=1.3 Hz, 1H), 8.27-8.33 (m, 1H), 7.83 (d, J=9.3 Hz, 1H), 7.78 (d, J=7.6 Hz, 1H), 7.53 (dd, J=4.7, 0.8 Hz, 1H), 7.29-7.40 (m, 1H), 4.82 (d, J=5.0 Hz, 2H), 2.59 (s, 3H),
77	^{1}H NMR ($CDCl_3$) δ: 9.35 (d, J=1.6 Hz, 1H), 8.73 (dd, J=4.8, 1.7 Hz, 1H), 8.40 (dt, J=8.2, 1.8 Hz, 1H), 8.16 (dd, J=8.0, 0.9 Hz, 1H), 7.65 (dd, J=7.6, 0.9 Hz, 1H), 7.56 (t, J=7.8 Hz, 1H), 7.45 (ddd, J=8.0, 4.8, 0.8 Hz, 1H), 3.78 (br s, 2H), 3.68 (br s, 2H), 2.01 (br s, 2H), 1.97 (br s, 2H)
78	^{1}H NMR (DMSO-d_6) δ: 9.56 (t, J=6.2 Hz, 1H), 9.32 (dd, J=2.4, 0.8 Hz, 1H), 8.77 (dd, J=4.8, 1.7 Hz, 1H), 8.51 (ddd, 1H), 8.34 (dd, J=8.0, 0.8 Hz, 1H), 8.23 (dd, J=7.6, 0.9 Hz, 1H), 7.75 (t, J=7.8 Hz, 1H), 7.63 (ddd, J=8.0, 4.8, 0.8 Hz, 1H), 4.21 (m, 2H)
79	^{1}H NMR ($CDCl_3$) δ: 9.33 (s, 1H), 8.74 (d, J=3.5 Hz, 1H), 8.39 (dt, J=8.0, 1.9 Hz, 1H), 8.15 (dd, J=8.0, 1.1 Hz, 1H), 7.58 (t, 1H), 7.49 (dd, 1H), 7.45 (dd, 1H), 3.17 (br s, 6H)
80	^{1}H NMR ($CDCl_3$) δ: 9.40 (s, 1H), 8.91 (s, 1H), 8.73-8.76 (m, 3H), 8.43 (dt, J=8.2, 1.8 Hz, 1H), 8.34 (d, J=8.0 Hz, 1H), 7.91 (d, J=7.1 Hz, 1H), 7.69 (t, 1H), 7.48 (m, 1H), 7.14(t, 1H)
81	^{1}H NMR ($CDCl_3$) δ: 9.39 (d, J=1.6 Hz, 1H), 8.73 (dd, J=4.8, 1.7 Hz, 1H), 8.43 (dt, J=8.0, 2.0 Hz, 1H), 8.23 (dd, J=8.0, 0.9 Hz, 1H), 7.64 (dd, J=7.6, 0.9 Hz, 1H), 7.57 (t, J=7.7 Hz, 1H), 7.45 (ddd, J=8.0, 4.8, 0.8 Hz, 1H), 6.27 (d, J=6.8 Hz, 1H), 4.39 (doublet of septets, J=7.6, 6.6 Hz, 1H), 1.34 (d, J=6.6 Hz, 6H)
82	^{1}H NMR ($CDCl_3$) δ: 9.30 (d, J=2.2 Hz, 1H), 8.73 (dd, J=4.9, 1.6 Hz, 1H), 8.40 (ddd, 1H), 7.87 (dd, J=8.1, 0.9 Hz, 1H), 7.71 (d, J=7.7 Hz, 1H), 7.50 (t, 1H), 7.45 (dd, 1H), 6.54 (br s, 1H), 1.57 (s, 9H)
83	^{1}H NMR ($CDCl_3$) δ: 10.24 (br s, 1H), 9.34 (d, J=1.9 Hz, 1H), 8.74 (dd, 1H), 8.71 (ddd, 1H), 8.44 (dt, J=8.3, 1.9 Hz, 1H), 8.37 (dt, J=7.8, 1.0 Hz, 1H), 8.07 (d, J=7.4 Hz, 1H), 7.95-7.99 (m, 2H), 7.59 (t, 1H), 7.56 (ddd, 1H), 7.46 (dd, J=8.0, 4.8 Hz, 1H)
84	^{1}H NMR ($CDCl_3$) δ: 9.39 (d, J=1.7 Hz, 1H), 8.74 (d, J=3.3 Hz, 1H), 8.40-8.47 (dt, 1H), 8.26 (dd, J=8.0, 0.9 Hz, 1H), 7.71 (dd, J=7.6, 0.9 Hz, 1H), 7.58-7.64 (t, 1H), 7.47 (dd, J=7.2, 5.0 Hz, 1H), 6.94 (br t, 1H), 3.75-3.82 (q, 2H), 2.80-2.88 (t, 2H), 2.18 (s, 3H)
85	^{1}H NMR ($CDCl_3$) δ: 9.39 (dd, J=2.2, 0.6 Hz, 1H), 8.74 (dd, J=4.9, 1.6 Hz, 1H), 8.39-8.47 (dt, 1H), 8.21-8.28 (dd, 1H), 7.69 (dd, J=7.6, 0.9 Hz, 1H), 7.60 (t, 1H), 7.46 (ddd, J=7.9, 4.8, 0.8 Hz, 1H), 6.93 (br t, 1H), 3.76 (q, 2H), 2.89 (t, J=6.4 Hz, 2H), 1.34-1.41 (s, 9H)

86	^{1}H NMR ($CDCl_3$) δ: 9.32 (d, J=2.4 Hz, 1H), 8.76 (dd, J=4.8, 1.7 Hz, 1H), 8.39 (dt, 1H), 8.37 (d, 1H), 8.19 (d, 1H), 8.05 (m, 1H), 7.85 (dd, J=8.8, 2.2 Hz, 1H), 7.47 (dd, 1H), 6.79 (d, J=2.4 Hz, 1H)
87	^{1}H NMR ($CDCl_3$) δ: 9.34 (br s, 1H), 8.75 (br s, 1H), 8.41 (dt, J=8.0 Hz, 1H), 8.16 (d, 1H), 8.13 (t, 1H), 7.72 (dt, J=8.5, 1.6 Hz, 1H), 7.53 (td, 1H), 7.45-7.49 (m, 1H), 7.35-7.40 (m, 1H), 7.26 (m, 1H), 7.21(ddd, 1H),
88	^{1}H NMR ($CDCl_3$) δ: 9.33 (br s, 1H), 8.76 (br s, 1H), 8.43 (d, J=1.3 Hz, 1H), 8.37-8.42 (dt, 1H), 8.13 (d, J=8.5 Hz, 1H), 7.86 (dd, J=8.5, 1.9 Hz, 1H), 7.48 (dd, J=7.3, 4.2 Hz, 1H), 6.00 (br d, 1H), 4.35 (m, 1H), 1.32 (d, J=6.6 Hz, 6H)
89	^{1}H NMR ($CDCl_3$) δ: 9.31 (s, 1H), 8.75 (d, J=3.5 Hz, 1H), 8.40 (ddd, 1H), 8.14 (dd, 1H), 8.11 (dd, 1H), 7.69 (dd, J=8.4, 1.6 Hz, 1H), 7.47 (dd, 1H), 3.71 (t, J=7.0 Hz, 2H), 3.51 (t, J=6.6 Hz, 2H), 1.94-2.06 (m, 2H), 1.89-1.94 (m, 2H)
90	^{1}H NMR ($CDCl_3$) δ: 9.32 (br s, 1H), 8.77 (d, J=4.3 Hz, 1H), 8.48 (d, J=1.4 Hz, 1H), 8.40 (dt, J=7.9, 2.0 Hz, 1H), 8.16 (d, J=8.5 Hz, 1H), 7.90 (dd, J=8.5, 1.7 Hz, 1H), 7.48 (dd, J=7.8, 4.7 Hz, 1H), 6.48 (br t, 1H), 4.20 (qd, J=9.0 Hz, 1H)
91	^{1}H NMR ($CDCl_3$) δ: 9.31 (s, 1H), 8.75 (d, J=3.9 Hz, 1H), 8.39 (dt, J=8.0, 1.9 Hz, 1H), 8.11 (d, J=8.4 Hz, 1H), 7.99 (br s, 1H), 7.52 (d, J=7.1 Hz, 1H), 7.46 (dd, J=7.8, 4.7 Hz, 1H), 4.07 + 4.99 (two br s, 1H), 2.99 + 2.86 (two br s, 3H), 1.14-1.32 (m, 6H)
92	^{1}H NMR ($CDCl_3$) δ: 9.33 (br s, 1H), 8.76 (d, J=3.9 Hz, 1H), 8.47 (d, J=1.7 Hz, 1H), 8.40 (dt, J=8.2, 1.8 Hz, 1H), 8.13 (dd, J=8.5, 0.6 Hz, 1H), 7.93 (dd, J=8.6, 1.8 Hz, 1H), 7.47 (dd, J=8.0, 4.8 Hz, 1H), 6.92 (d, J=6.9 Hz, 1H), 4.68-4.77 (m, 1H), 1.54 (d, 3H), 1.54 (s, 9H)
93	^{1}H NMR ($CDCl_3$) δ: 9.32 (s, 1H), 8.76 (d, J=4.3 Hz, 1H), 8.43 (d, 1H), 8.40 (ddd, 1H), 8.12 (d, J=8.5 Hz, 1H), 7.83 (dd, J=8.5, 1.7 Hz, 1H), 7.47 (dd, J=7.7, 4.7 Hz, 1H), 6.32 (br s, 1H), 2.96 (td, J=7.1, 3.2 Hz, 1H), 0.93 (m, 2H), 0.68 (m, 2H)
94	^{1}H NMR ($CDCl_3$) δ: 9.32 (br s, 1H), 8.76 (d, J=4.3 Hz, 1H), 8.43 (d, 1H), 8.40 (ddd, 1H), 8.12 (d, J=8.5 Hz, 1H), 7.85 (dd, J=8.5, 1.7 Hz, 1H), 7.47 (dd, J=7.9, 4.7 Hz, 1H), 6.13 (d, 1H), 4.46 (m, 1H), 2.02-2.18 (m, 2H), 1.74-1.81 (m, 2H), 1.64-1.74 (m, 2H), 1.50-1.62 (m, 2H)
95	^{1}H NMR ($CDCl_3$) δ: 9.32 (br s, 1H), 8.75 (d, J=4.3 Hz, 1H), 8.41 (d, 1H), 8.40 (ddd, 1H), 8.12 (dd, J=8.5, 0.6 Hz, 1H), 7.82 (dd, J=8.5, 1.7 Hz, 1H), 6.06 (t, 1H), 3.03 (d, J=5.8 Hz, 2H), 0.17 (s, 9H)
96	^{1}H NMR ($CDCl_3$) δ: 9.32 (br. s., 1H), 8.76 (dd, J=4.8, 1.7 Hz, 1H), 8.46 (d, J=1.7 Hz, 1H), 8.39-8.42 (ddd, 1H), 8.14 (d, J=8.5 Hz, 1H), 7.90 (dd, J=8.5, 1.7 Hz, 1H), 7.48 (ddd, J=8.0, 4.8, 0.8 Hz, 1H), 6.72 (br t, 1H), 3.74 (q, 2H), 2.82 (t, 2H), 2.18 (s, 3H)

97	^{1}H NMR ($CDCl_3$) δ: 9.5-9.2 (br. s, 1H), 8.9-8.7 (br s, 1H), 8.39-8.43 (m, 2H), 8.12 (d, J=8.5 Hz, 1H), 7.86 (dd, J=8.5, 1.9 Hz, 1H), 7.6-7.5 (br s, 1H), 6.31 (s, 1H), 3.09 (s, 2H), 2.18 (s, 3H), 1.57 (s, 6H)
98	^{1}H NMR (DMSO-d_6) δ: 9.30 (dd, J=2.4, 0.8 Hz, 1H), 8.76-8.82 (m, 2H), 8.70 (d, J=1.3 Hz, 1H), 8.49 (ddd, 1H), 8.17 (d, J=9.0 Hz, 1H), 8.05 (dd, J=8.5, 1.7 Hz, 1H), 7.64 (ddd, J=8.0, 4.7, 0.8 Hz, 1H), 5.02 (t, J=4.6 Hz, 1H), 3.93-3.98 (m, 2H), 3.79-3.86 (m, 2H), 3.47 (dd, J=5.8, 4.6 Hz, 2H)
99	^{1}H NMR (DMSO-d_6) δ: 9.31 (dd, J=2.4, 0.8 Hz, 1H), 8.79 (dd, J=4.8, 1.7 Hz, 1H), 8.70 (t, 1H), 8.67 (s, 1H), 8.50 (ddd, J=8.0, 2.3, 1.7 Hz, 1H), 8.18 (d, 1H), 7.99-8.06 (m, 2H), 7.64 (ddd, J=8.0, 4.8, 0.9 Hz, 1H), 3.35 (q, J=6.4 Hz, 2H), 3.24 (q, J=6.3 Hz, 2H), 1.82 (s, 3H)
100	^{1}H NMR (DMSO-d_6) δ: 9.31 (dd, J=2.3, 0.9 Hz, 1H), 8.79 (dd, J=4.7, 1.6 Hz, 1H), 8.74 (dd, 1H), 8.50 (ddd, 1H), 8.45 (d, 1H), 8.18 (d, 1H), 8.05 (dd, J=8.5, 1.7 Hz, 1H), 7.89 (dd, 1H), 7.65 (ddd, J=8.0, 4.8, 0.8 Hz, 1H), 4.67 (dd, J=10.1, 6.9 Hz, 1H), 3.23-3.30 (m, 1H), 3.07-3.15 (m, 1H), 1.91-1.98 (m, 2H), 1.83-1.68 (m, 2H), 1.55-1.65 (m, 1H), 1.22-1.32 (m, 1H)
101	^{1}H NMR ($CDCl_3$) δ: 9.32 (d, J=1.7 Hz, 1H), 8.76 (dd, J=4.7, 1.6 Hz, 1H), 8.37-8.43 (m, 2H), 8.14 (d, J=8.5 Hz, 1H), 7.83 (dd, J=8.5, 1.7 Hz, 1H), 7.47 (ddd, J=8.0, 4.8, 0.8 Hz, 1H), 6.13 (s, 1H), 1.76 (s, 6H)
102	^{1}H NMR (DMSO-d_6) δ: 9.31 (dd, J=2.4, 0.8 Hz, 1H), 8.88 (br s, 1H), 8.79 (dd, J=4.7, 1.6 Hz, 1H), 8.73 (d, J=1.4 Hz, 1H), 8.50 (dt, J=8.3, 1.8 Hz, 1H), 8.19 (d, J=8.5 Hz, 1H), 8.08 (dd, J=8.5, 1.7 Hz, 1H), 7.94 (br t, 1H), 7.64 (ddd, J=8.0, 4.8, 0.9 Hz, 1H), 3.88 (br s, 2H), 3.12 (m, 2H), 1.04 (t, J=7.2 Hz, 2H)
103	^{1}H NMR ($CDCl_3$) δ: 9.33 (s, 1H), 8.77 (d, J=3.8 Hz, 1H), 8.41 (d, J=7.9 Hz, 1H), 8.31 (s, 1H), 8.14 (d, J=8.5 Hz, 1H), 7.76 (dd, J=8.5, 1.6 Hz, 1H), 7.48 (dd, J=7.6, 4.9 Hz, 1H), 4.61 (t, J=11.8 Hz, 4H)
104	^{1}H NMR ($CDCl_3$) δ: 9.33 (s, 1H), 8.76 (d, J=4.1 Hz, 1H), 8.45 (d, 1H), 8.40 (ddd, 1H), 8.15 (d, J=8.5 Hz, 1H), 7.89 (dd, J=8.5, 1.7 Hz, 1H), 7.48 (dd, J=7.4, 4.9 Hz, 1H), 6.22 (d, J=9.5 Hz, 1H), 5.00 (m, 1H), 1.48 (d, J=6.9 Hz, 3H)
105	^{1}H NMR ($CDCl_3$) δ: 9.31 (s, 1H), 8.74 (d, J=3.3 Hz, 1H), 8.39 (dt, J=7.9, 2.0 Hz, 1H), 8.34 (d, J=1.9 Hz, 1H), 8.16 (d, J=8.8 Hz, 1H), 8.02 (d, J=2.5 Hz, 1H), 7.85 (dd, J=8.8, 2.4 Hz, 1H), 7.78 (d, J=1.4 Hz, 1H), 7.47 (dd, J=7.7, 5.4 Hz, 1H), 6.54 (dd, J=2.4, 1.8 Hz, 1H)
106	^{1}H NMR ($CDCl_3$) δ: 9.33 (dd, J=2.2, 0.8 Hz, 1H), 8.76 (dd, J=4.8, 1.7 Hz, 1H), 8.59-8.63 (ddd, 1H), 8.55 (d, J=1.7 Hz, 1H), 8.39-8.44 (ddd, 1H), 8.16 (d, J=8.5 Hz, 1H), 8.02 (dd, J=8.6, 1.8 Hz, 1H), 7.79 (br t, 1H), 7.73 (td, J=7.7, 1.7 Hz, 1H), 7.48 (ddd, J=8.0, 4.8, 0.9 Hz, 1H), 7.37 (d, J=7.7 Hz, 1H), 4.83 (d, J=4.6 Hz, 2H)

107	^{1}H NMR ($CDCl_3$) δ: 9.33 (s, 1H), 8.76 (d, J=3.8 Hz, 1H), 8.38-8.43 (ddd, 1H), 8.19 (s, 1H), 8.14 (d, J=8.4 Hz, 1H), 7.74 (d, J=8.2 Hz, 1H), 7.48 (dd, J=8.0, 4.8 Hz, 1H), 5.19 (br s, 1H), 3.72 (dt, J=10.8, 7.4 Hz, 1H), 3.61 (br s, 1H), 2.07-2.29 (m, 3H), 1.92 (br s, 1H)
108	^{1}H NMR ($CDCl_3$) δ: 9.31 and 9.35 (two s, 1H), 8.74 (m, 1H), 8.61 and 8.47 (two d, 1H),), 8.39 and 8.35 (two d, 1H), 8.21 and 7.70 (two s, 1H), 8.12 and 7.87 (two d, 1H), 7.77 and 6.98 (two d, 1H), 7.67 and 7.53 (two t, 1H), 7.49-7.43 (m, 1H), 7.41 and 7.31 (two d, 1H), 7.18 and 7.10 (two dd, 1H), 5.40 and 5.01 (two m, 1H), 4.05-3.87 and 3.73-3.67 (m, 2H), 2.51-1.89 (m, 4H)
109	^{1}H NMR ($CDCl_3$) δ: 9.33 (dd, J=2.4, 0.8 Hz, 1H), 8.76 (dd, J=4.8, 1.7 Hz, 1H), 8.51 (d, J=1.7 Hz, 1H), 8.39-8.43 (ddd, 1H), 8.16 (dd, J=8.5, 0.6 Hz, 1H), 7.96 (dd, J=8.5, 1.9 Hz, 1H), 7.55-7.61 (t, 1H), 7.47 (ddd, J=8.0, 4.8, 0.9 Hz, 1H), 7.45 (dd, J=7.8, 0.7 Hz, 1H), 7.35-7.39 (m, 2H), 4.79 (d, J=5.2 Hz, 2H)
110	^{1}H NMR ($CDCl_3$) δ: 9.30-9.36 (m, 1H), 8.76 (dd, J=4.8, 1.7 Hz, 1H), 8.50 (dd, J=9.9, 2.0 Hz, 2H), 8.36-8.44 (ddd, 1H), 8.15 (d, J=8.5 Hz, 1H), 7.97 (dd, J=8.5, 1.9 Hz, 1H), 7.71-7.81 (m, 2H), 7.47 (ddd, J=8.0, 4.8, 0.8 Hz, 1H), 5.75-5.84 (pentet, 1H), 1.52-1.60 (m, 3H)
111	^{1}H NMR (acetone-d_6) δ: 8.88 (dd, J=2.4, 0.8 Hz, 1H), 8.35 (dd, J=4.7, 1.6 Hz, 1H), 8.32 (d, J=1.7 Hz, 1H), 8.19 (d, J=7.6 Hz, 1H), 8.07 (ddd, J=8.0, 2.4, 1.6 Hz, 1H), 7.74 (d, J=8.5 Hz, 1H), 7.66 (dd, J=8.7, 1.7 Hz, 1H), 7.46-7.53 (t, 1H), 7.21 (ddd, J=8.0, 4.8, 0.8 Hz, 1H), 4.04 (pentet, J=7.3 Hz, 1H), 2.63-2.72 (m, 2H), 0.92 (d, J=7.1 Hz, 3H), 0.60 (t, J=7.2 Hz, 3H)
112	^{1}H NMR (DMSO-d_6) δ: 9.31 (dd, J=2.2, 0.8 Hz, 1H), 8.79 (dd, J=4.7, 1.6 Hz, 1H), 8.73-8.76 (m, 1H), 8.59 (d, J=7.6 Hz, 1H), 8.50 (ddd, J=8.0, 2.4, 1.6 Hz, 1H), 8.18 (d, J=9.0 Hz, 1H), 8.09 (dd, J=8.5, 1.7 Hz, 1H), 7.82 (d, J=7.4 Hz, 1H), 7.65 (ddd, J=8.0, 4.8, 0.8 Hz, 1H), 4.47 (pentet, 1H), 3.79-3.90 (m, 1H), 1.34 (d, J=7.1 Hz, 3H), 1.07 (dd, J=12.8, 6.6 Hz, 6H)
113	^{1}H NMR (acetone-d_6) δ: 9.33 (dd, J=2.2, 0.8 Hz, 1H), 8.78 (dd, J=4.8, 1.7 Hz, 1H), 8.70 (dd, J=1.6, 0.8 Hz, 1H), 8.47-8.53 (ddd, 1H), 8.11-8.17 (m, 2H), 8.05 (br d, J=6.8 Hz, 1H), 7.98 (br s, 1H), 7.61 (ddd, J=8.0, 4.8, 0.8 Hz, 1H), 4.75 (quin, J=7.2 Hz, 1H), 3.96-4.09 (m, 2H), 1.51 (d, J=7.1 Hz, 3H)
114	^{1}H NMR ($CDCl_3$) δ: 9.29-9.40 (br s, 1H), 8.75-8.81 (br s, 1H), 8.73-8.75 (dd, 1H), 8.40-8.45 (dt, 1H), 8.28 (dd, 1H), 8.19-8.24 (d, 1H), 7.46-7.53 (dd, 1H), 2.51 (s, 3H)
115	^{1}H NMR (DMSO-d_6) δ: 9.70-9.78 (br s, 1H), 9.19-9.26 (dd, 1H), 8.70-8.75 (dd, 1H), 8.38-8.42 (ddd, 1H), 8.35-8.38 (s, 1H), 7.99 (d, 1H), 7.57-7.63 (dd, 1H), 7.49-7.56 (dd, 1H), 1.51 (s, 9H)
116	^{1}H NMR (DMSO-d_6) δ: 9.81 (d, J=1.7 Hz, 1H), 9.25 (dd, J=4.8, 1.7 Hz, 1H), 9.17 (t, J=1.2 Hz, 1H), 8.97 (ddd, J=8.0, 2.4, 1.7 Hz, 1H), 8.61 (m, 2H), 8.09 (ddd, J=8.0, 4.8, 0.8 Hz, 2H), 7.73 (br s, 1H), 7.22-7.30 (br s, 1H)

117	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.4 Hz, 1H), 8.71 (dd, J=4.7, 1.3 Hz, 1H), 8.65 (s, 1H), 8.58 (d, J=0.8 Hz, 1H), 8.28-8.33 (m, 1H), 8.25 (s, 1H), 7.83 (d, J=9.0 Hz, 1H), 7.64 (dd, J=9.1, 1.5 Hz, 1H), 7.53 (dd, J=8.0, 4.7 Hz, 1H), 6.02-6.14 (m, 1H), 5.35-5.48 (m, 2H), 4.57 (d, J=6.3 Hz, 2H)
118	^{1}H NMR ($CDCl_3$) δ: 9.34 (dd, J=2.2, 0.8 Hz, 1H), 8.79 (d, J=4.9 Hz, 2H), 8.76 (dd, J=4.8, 1.7 Hz, 1H), 8.57 (dd, J=1.7 Hz, 1H), 8.40-8.44 (ddd, 1H), 8.18 (dd, J=8.5 Hz, 1H), 8.04 (dd, J=8.6, 1.8 Hz, 1H), 7.70 (br t, 1H), 7.46-7.50 (ddd, 1H), 7.29 (t, J=4.9 Hz, 1H), 4.97 (d, J=4.6 Hz, 2H).
119	^{1}H NMR ($CDCl_3$) δ: 9.33 (dd, J=2.3, 0.7 Hz, 1H), 8.77 (dd, J=4.8, 1.7 Hz, 1H), 8.66 (s, 1H), 8.38-8.43 (dt, 1H), 8.33 (d, J=2.2 Hz, 1H), 8.22 (d, J=8.8 Hz, 1H), 8.17 (s, 1H), 7.84 (dd, J=8.8, 2.2 Hz, 1H), 7.46-7.51 (ddd, 1H)
120	^{1}H NMR ($CDCl_3$) δ: 9.34 (s, 1H), 8.77 (d, 1H), 8.40-8.45 (m, 1H), 8.35-8.49 (m, 1H), 8.25-8.31 (m, 2H), 7.97-8.03 (d, 1H), 7.91 (dd, J=8.7, 2.1 Hz, 1H), 7.54-7.62 (m, 2H), 7.45-7.51 (dd, 1H)
121	^{1}H NMR ($CDCl_3$) δ: 9.11 (s, 1H), 8.62 (d, J=2.8 Hz, 1H), 8.47 (d, J=1.4 Hz, 1H), 8.17 (ddd, 1H), 8.15 (d, 1H), 7.91 (dd, J=8.5, 1.7 Hz, 1H), 6.66-6.72 (br t, 1H), 3.74 (q, J=6.6 Hz, 2H), 2.79-2.85 (t, 2H), 2.18 (s, 3H)
122	^{1}H NMR ($CDCl_3$) δ: 9.08-9.15 (br s, 1H), 8.57-8.66 (br s, 1H), 8.46 (d, J=1.3 Hz, 1H), 8.17 (ddd, 1H), 8.14 (d, J=8.5 Hz, 1H), 7.91 (dd, J=8.5, 1.7 Hz, 1H), 6.62 (br m, 1H), 4.11 (qd, J=7.3, 3.3 Hz, 1H), 3.90-3.95 (dt, 1H), 3.84-3.90 (ddd, 1H), 3.78-3.84 (dt, 1H), 3.37 (ddd, J=13.7, 7.7, 4.6 Hz, 1H), 2.02-2.13 (m, 1H), 1.91-2.00 (m, 2H), 1.60-1.70 (m, 1H)
123	^{1}H NMR ($CDCl_3$) δ: 9.11 (s, 1H), 8.62 (d, J=2.5 Hz, 1H), 8.45 (d, J=1.3 Hz, 1H), 8.17 (ddd, 1H), 8.14 (d, 1H), 7.90 (dd, J=8.5, 1.7 Hz, 1H), 6.43-6.51 (br d, 1H), 4.37-4.50 (m, 1H), 3.55 (dd, J=3.9 Hz, 1H), 3.46-3.49 (dd, 1H), 3.42 (s, 3H).
124	^{1}H NMR ($CDCl_3$) δ: 9.11 (s, 1H), 8.62 (d, J=2.7 Hz, 1H), 8.45 (d, J=1.3 Hz, 1H), 8.15-8.18 (ddd, 1H), 8.13 (d, J=8.5 Hz, 1H), 7.87 (dd, J=8.5, 1.9 Hz, 1H), 6.13-6.20 (br s, 1H), 3.57 (dq, J=7.3, 5.6 Hz, 2H), 1.31 (t, J=7.3 Hz, 3H)
125	^{1}H NMR ($CDCl_3$) δ: 9.06-9.20 (br s, 1H), 8.55-8.70 (br s, 1H), 8.14-8.19 (m, 2H), 8.10-8.13 (d, 1H), 7.70 (dd, J=8.4, 1.7 Hz, 1H), 3.66-3.74 (t, 2H), 3.50 (t, 2H), 2.05-1.97 (m, 2H), 1.96-1.89 (m, 2H)
126	^{1}H NMR ($CDCl_3$) δ: 9.07-9.15 (br s, 1H), 8.59-8.66 (br s, 1H), 8.44 (d, J=1.4 Hz, 1H), 8.15-8.18 (ddd, 1H), 8.13 (d, J=8.5 Hz, 1H), 7.87 (dd, J=8.5, 1.9 Hz, 1H), 5.96-6.04 (br d, 1H), 4.30-4.40 (m, 1H), 1.32 (d, J=6.6 Hz, 6H).
127	^{1}H NMR ($CDCl_3$) δ: 9.13 (br s, 1H), 8.64 (br s, 1H), 8.49 (d, J=1.7 Hz, 1H), 8.14-8.20 (m, 2H), 7.92 (dd, J=8.5, 1.7 Hz, 1H), 6.43 (br t, J=6.6 Hz, 1H), 4.20 (qd, J=9.0, 6.5 Hz, 2H)

128	^{1}H NMR ($CDCl_3$) δ: 9.32 (br s, 1H), 8.75 (br s, 1H), 8.40 (dt, J=8.2, 1.8 Hz, 1H), 8.27 (d, J=2.2 Hz, 1H), 8.17 (d, J=8.8 Hz, 1H), 7.84 (d, J=3.9 Hz, 1H), 7.79 (dd, J=8.7, 2.1 Hz, 1H), 7.47 (dd, J=7.9, 4.9 Hz, 1H), 7.13-7.18 (dq, 1H), 2.31 (d, J=1.3 Hz, 3H)
129	^{1}H NMR ($CDCl_3$) δ: 9.49 (s, 1H), 9.19 (s, 1H), 9.13 (s, 1H), 8.80 (d, J=4.7 Hz, 2H), 8.73 (s, 1H), 8.60-8.67 (m, 1H), 8.19 (d, J=8.5 Hz, 1H), 7.84 (br s, 1H), 7.29-7.36 (m, J=9.6 Hz, 1H), 5.00 (d, J=4.3 Hz, 2H)
130	^{1}H NMR ($CDCl_3$) δ: 9.44 (s, 1H), 9.12 (d, J=0.8 Hz, 2H), 8.62 (d, J=2.5 Hz, 1H), 8.47 (s, 1H), 8.15 (d, J=8.8 Hz, 1H), 6.15 (br s, 1H), 4.29-4.45 (m, 1H), 1.35 (d, J=6.6 Hz, 6H)
131	^{1}H NMR ($CDCl_3$) δ: 9.03 (s, 1H), 8.60 (d, J=0.6 Hz, 1H), 8.56 (d, J=2.4 Hz, 1H), 8.27 (s, 1H), 8.13 (d, J=9.1 Hz, 1H), 7.79 (d, J=9.0 Hz, 1H), 7.73 (d, J=7.6 Hz, 1H), 6.64 (br s, 1H), 4.06-4.22 (m, 1H), 3.92 (dt, J=8.3, 6.7 Hz, 1H), 3.76-3.88 (m, 2H), 3.37 (ddd, J=13.8, 7.6, 4.6 Hz, 1H), 2.03-2.13 (m, 1H), 1.91-2.00 (m, 2H), 1.81 (br s, 1H), 1.65 (dd, J=12.2, 8.1 Hz, 1H)
132	^{1}H NMR ($CDCl_3$) δ: 9.03 (d, J=1.9 Hz, 1H), 8.61 (d, J=0.9 Hz, 1H), 8.57 (d, J=2.4 Hz, 1H), 8.27-8.32 (m, J=1.6, 0.9 Hz, 1H), 8.11-8.16 (m, 1H), 7.82 (d, J=9.3 Hz, 1H), 7.74 (dd, J=7.3, 1.7 Hz, 1H), 6.50 (br s, 1H), 3.92 (td, J=13.7, 6.3 Hz, 2H), 1.66-1.79 (m, 3H), 1.71 (t, J=18.6 Hz, 4H)
133	^{1}H NMR ($CDCl_3$) δ: 9.03 (s, 1H), 8.60 (d, J=0.8 Hz, 1H), 8.56 (d, J=2.5 Hz, 1H), 8.27 (s, 1H), 8.13 (d, J=9.0 Hz, 1H), 7.80 (d, J=9.1 Hz, 1H), 7.72 (dd, J=9.1, 1.6 Hz, 1H), 6.50 (t, J=5.3 Hz, 1H), 4.54 (t, J=5.2 Hz, 1H), 3.66 (t, J=5.5 Hz, 2H), 3.47 (s, 6H)
134	^{1}H NMR (DMSO-d_6) δ: 9.41 (d, J=0.8 Hz, 1H), 9.37 (d, J=2.4 Hz, 1H), 9.01 (s, 1H), 8.66-8.72 (m, 1H), 8.50-8.57 (m, 1H), 8.44 (s, 1H), 7.85 (d, J=4.4 Hz, 2H), 7.78 (d, J=9.3 Hz, 1H), 7.65 (s, 2H), 7.21 (d, J=4.4 Hz, 1H), 4.49 (d, J=5.5 Hz, 2H)
135	^{1}H NMR (acetone-d_6) δ: 10.24 (br s, 1H), 9.13 (d, J=2.5 Hz, 1H), 8.86 (dd, J=4.7, 1.4 Hz, 1H), 8.51 (br. s, 1H), 8.29-8.39 (m, 2H), 8.00 (dd, J=8.4, 1.0 Hz, 1H), 7.76 (ddd, J=8.2, 4.7, 0.8 Hz, 1H), 7.45 (t, J=7.5 Hz, 1H), 3.69 (br s, 3H)
136	^{1}H NMR (acetone-d_6) δ: 9.25 (br s, 1H), 9.11 (d, J=2.2 Hz, 1H), 8.86 (d, J=5.4 Hz, 1H), 8.29-8.39 (m, 2H), 7.99 (d, J=8.3 Hz, 1H), 7.77 (ddd, J=8.2, 4.8, 0.7 Hz, 1H), 7.46 (t, J=7.8 Hz, 1H), 4.36 (qd, J=9.5, 6.5 Hz, 2H)
137	^{1}H NMR (acetone-d_6) δ: 10.06 (br s, 1H), 9.34 (d, J=2.5 Hz, 1H), 8.76-8.88 (m, 3H), 8.44-8.55 (m, 1H), 8.30 (dd, J=6.9, 1.1 Hz, 1H), 7.94 (dd, J=8.5, 1.1 Hz, 1H), 7.79 (ddd, J=8.2, 4.8, 0.8 Hz, 1H), 7.42-7.45 (m, 1H), 7.41 (s, 1H), 4.93 (d, J=4.7 Hz, 2H)
138	1^{1}H NMR ($CDCl_3$) δ: 10.25 (br s, 1H), 9.66 (s, 1H), 8.80-8.88 (m, 1H), 8.73 (d, J=4.9 Hz, 1H), 8.60 (dt, J=8.1, 1.9 Hz, 1H), 8.29 (dd, J=7.7, 0.9 Hz, 2H), 7.78 (dd, J=8.2, 0.9 Hz, 1H), 7.46-7.59 (m, 1H), 7.23-7.33 (m, 1H), 5.11 (d, J=4.6 Hz, 2H)

139	^{1}H NMR ($CDCl_3$) δ: 9.53 (dd, J=2.2, 0.6 Hz, 1H), 9.35 (br s, 1H), 8.82 (dd, J=4.9, 1.6 Hz, 1H), 8.56 (dt, J=8.0, 1.9 Hz, 1H), 8.25 (dd, J=7.8, 1.0 Hz, 1H), 7.75 (dd, J=8.1, 1.0 Hz, 1H), 7.46-7.58 (m, 2H), 4.22 (dd, J=6.8, 3.8 Hz, 1H), 4.04 (dt, J=8.2, 6.7 Hz, 1H), 3.81-3.92 (m, 2H), 3.61-3.75 (m, 1H), 2.02-2.18 (m, 1H), 1.86-2.01 (m, 3H), 1.67-1.85 (m, 2H)
140	^{1}H NMR ($CDCl_3$) δ: 9.51 (dd, J=2.2, 0.9 Hz, 1H), 9.44 (br s, 1H), 8.85 (dd, J=4.8, 1.7 Hz, 1H), 8.53 (d, J=7.9 Hz, 1H), 8.27 (d, J=7.8 Hz, 1H), 7.82 (d, J=8.0 Hz, 1H), 7.47-7.63 (m, 2H), 4.30 (qd, J=9.2, 6.2 Hz, 2H), 0.07 (s, 1H), 0.01 (s, 1H), -0.01 (s, 1H)
141	^{1}H NMR ($CDCl_3$) δ: 9.49 (s, 1H), 9.07 (br. s, 1H), 8.83 (d, J=5.1 Hz, 1H), 8.51 (d, J=7.9 Hz, 1H), 8.25 (d, J=7.8 Hz, 1H), 8.02 (s, 2H), 7.75 (d, J=8.1 Hz, 1H), 7.46-7.58 (m, 2H), 3.08 (dd, J=7.3, 3.7 Hz, 1H), 0.88-1.03 (m, 2H), 0.70-0.81 (m, 2H),
142	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.2 Hz, 1H), 9.14 (br s, 1H), 8.73 (d, J=5.2 Hz, 1H), 8.57 (s, 1H), 8.35 (d, J=7.1 Hz, 1H), 8.20 (d, J=8.3 Hz, 1H), 7.88 (d, J=8.2 Hz, 1H), 7.56 (ddd, J=8.2, 4.8, 0.7 Hz, 1H), 7.30 (t, J=7.7 Hz, 1H), 3.08 (td, J=7.3, 3.5 Hz, 1H), 0.87-1.01 (m, 2H), 0.65-0.80 (m, 2H), 0.01 (br s, 1H), -0.01 (br s, 1H)
158	^{1}H NMR ($CDCl_3$) δ: 9.46 (s, 1H), 8.76 (d, J=3.9 Hz, 1H), 8.49 (dt, J=8.0, 1.9 Hz, 1H), 8.26-8.40 (m, 1H), 7.68 (d, J=8.5 Hz, 1H), 7.47 (dd, J=7.7, 5.0 Hz, 1H), 7.16 (dd, J=8.5, 2.0 Hz, 1H), 3.71-3.83 (m, 1H), 3.55-3.71 (m, 1H), 3.48 (t, J=6.8 Hz, 1H), 3.38 (s, 1H), 3.13-3.30 (m, 1H), 2.85 (s, 1H), 2.17-2.35 (m, 3H)
159	^{1}H NMR (acetone-d_6) δ: 9.39 (d, J=1.6 Hz, 1H), 8.81 (dd, J=4.9, 1.6 Hz, 1H), 8.55-8.73 (m, 1H), 8.45 (d, J=1.7 Hz, 1H), 7.69-7.85 (m, 2H), 7.48 (dd, J=8.6, 2.0 Hz, 1H), 1.78-1.90 (m, 1H), 0.89-1.07 (m, 3H), 0.83 (dt, J=7.9, 3.3 Hz, 2H)
160	^{1}H NMR (acetone-d_6) δ: 9.37 (d, J=1.7 Hz, 1H), 8.75 (d, J=5.2 Hz, 1H), 8.52 (dt, J=8.0, 1.9 Hz, 1H), 8.33 (br s, 1H), 8.22 (d, J=8.0 Hz, 1H), 8.09 (d, J=7.6 Hz, 1H), 7.66 (t, J=7.9 Hz, 1H), 7.58-7.62 (m, 1H), 4.62-4.73 (m, 1H), 2.74-2.86 (m, 1H), 2.30-2.45 (m, 2H), 2.19 (dq, J=11.9, 9.5 Hz, 2H), 1.73-1.84 (m, 2H)
161	^{1}H NMR (acetone-d_6) δ: 9.36 (s, 1H), 8.75 (d, J=5.0 Hz, 1H), 8.49 (d, J=7.9 Hz, 1H), 8.20-8.22 (m, 1H), 8.20 (s, 1H), 8.11 (d, J=7.6 Hz, 1H), 7.65 (t, J=7.6 Hz, 1H), 7.58 (ddd, J=8.0, 4.8, 0.8 Hz, 1H), 4.11 (dd, J=6.8, 4.9 Hz, 1H), 3.83-3.88 (m, 1H), 3.60-3.72 (m, 2H), 3.51 (ddd, J=13.6, 6.7, 5.8 Hz, 1H), 3.33 (s, 2H), 1.99-2.07 (m, 1H), 1.83-1.96 (m, 2H), 1.66-1.73 (m, 1H)
162	^{1}H NMR (acetone-d_6) δ: 9.37 (d, J=1.7 Hz, 1H), 8.76 (dd, J=4.7, 1.6 Hz, 1H), 8.52 (dt, J=8.0, 1.9 Hz, 1H), 8.25 (d, J=8.0 Hz, 1H), 8.18 (d, J=7.6 Hz, 1H), 7.69 (t, J=7.8 Hz, 1H), 7.60 (dd, J=8.0, 4.8 Hz, 1H), 3.72 (s, 3H)
163	1H NMR (acetone-d_6) δ: 9.37 (s, 1H), 8.76 (d, J=5.1 Hz, 1H), 8.52 (d, J=8.0 Hz, 1H), 8.22 (dd, J=8.0, 0.9 Hz, 2H), 8.01 (d, J=7.7 Hz, 1H), 7.58-7.66 (m, 2H), 3.04 (td, J=7.3, 3.9 Hz, 1H), 0.77-0.87 (m, 2H), 0.65-0.75 (m, 2H)

173	^{1}H NMR ($CDCl_3$) δ: 9.25 (d, J=2.5 Hz, 1H), 9.16 (d, J=6.6 Hz, 1H), 8.73 (dd, J=4.8, 1.3 Hz, 1H), 8.58-8.69 (m, 2H), 8.41 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 7.71 (dd, J=5.7, 3.3 Hz, 1H), 7.40-7.63 (m, 1H), 6.64 (br s, 1H), 4.22 (dd, J=8.6, 6.1 Hz, 1H), 4.12 (qd, J=7.4, 3.2 Hz, 1H), 3.78-3.97 (m, 3H), 3.38 (ddd, J=13.7, 7.8, 4.7 Hz, 1H), 1.88-2.02 (m, 2H)
200	^{1}H NMR ($CDCl_3$) δ: 11.67-12.28 (m, 1H), 9.26-9.29 (m, 1H), 8.63 (dd, J=4.7, 1.4 Hz, 1H), 8.33 (dt, J=8.0, 1.9 Hz, 1H), 7.81 (br s, 1H), 7.30-7.41 (m, 2H), 7.28 (s, 1H), 7.20 (t, J=7.7 Hz, 1H), 3.72 (d, J=6.8 Hz, 3H), 1.91-2.08 (m, 5H)
201	^{1}H NMR ($CDCl_3$) Shift: 9.57 (s, J=8.6 Hz, 1H), 8.64-8.71 (m, 2H), 8.15 (s, 1H), 7.49-7.88 (m, 2H), 7.39 (t, J=6.7 Hz, 1H), 6.17 (br s, 1H), 4.24-4.40 (m, 1H), 1.26-1.32 (m, 7H)
300	^{1}H NMR (acetone-d_6) δ: 9.29-9.37 (m, 1H), 8.79 (d, J=4.9 Hz, 2H), 8.62 (d, J=2.5 Hz, 1H), 8.47 (d, J=9.5 Hz, 1H), 7.93 (d, J=8.6 Hz, 1H), 7.81 (dd, J=6.9, 0.6 Hz, 1H), 7.48 (dd, J=8.7, 6.9 Hz, 1H), 7.31-7.43 (m, 1H), 4.87 (d, J=5.5 Hz, 2H)
301	^{1}H NMR (acetone-d_6) δ: 9.61 (s, 1H), 9.36 (d, J=0.9 Hz, 1H), 9.25 (s, 1H), 8.33-8.54 (m, 1H), 7.97 (dt, J=8.8, 0.8 Hz, 1H), 7.80 (d, J=7.0 Hz, 1H), 7.47 (dd, J=7.7 Hz, 1H), 4.27 (dd, J=9.6, 6.5 Hz, 1H)
302	^{1}H NMR (acetone-d_6) δ: 9.60 (s, 2H), 9.38 (s, 1H), 9.24 (s, 1H), 8.79 (d, J=4.9 Hz, 1H), 8.31 (br s, 1H), 7.95 (d, J=8.7 Hz, 1H), 7.82 (d, J=6.9 Hz, 1H), 7.49 (dd, J=8.6, 7.0 Hz, 1H), 7.39 (t, J=4.8 Hz, 1H), 4.87 (d, J=5.5 Hz, 2H)
303	^{1}H NMR ($CDCl_3$) δ: 9.31 (d, J=2.7 Hz, 1H), 9.13 (d, J=0.9 Hz, 1H), 8.83 (s, 1H), 8.70 (dd, J=4.7, 1.4 Hz, 1H), 8.26-8.46 (m, 1H), 8.09 (dd, J=6.9, 0.8 Hz, 1H), 7.99 (d, J=8.7 Hz, 1H), 7.38-7.59 (m, 2H),
304	^{1}H NMR ($CDCl_3$) δ: 9.33 (s, 1H), 9.29 (d, J=2.2 Hz, 1H), 9.07 (s, 1H), 8.69 (d, J=4.7 Hz, 1H), 8.35 (dd, J=8.4, 1.6 Hz, 1H), 8.05 (s, 2H), 7.94 (d, J=8.5 Hz, 1H), 7.71 (d, J=6.9 Hz, 1H), 7.44-7.61 (m, 2H)
305	^{1}H NMR ($CDCl_3$) δ: 9.27 (d, J=2.4 Hz, 1H), 9.08-9.14 (m, 1H), 8.68 (dd, J=4.7, 1.3 Hz, 1H), 8.61 (s, 1H), 8.44 (s, 1H), 8.21-8.38 (m, 1H), 7.97 (d, J=8.7 Hz, 1H), 7.45-7.59 (m, 2H), 7.40 (dd, J=8.7, 6.9 Hz, 2H), 4.85 (d, J=5.0 Hz, 3H) 2.53-2.67 (s, 3H)
306	^{1}H NMR ($CDCl_3$) δ: 9.08 (br s, 1H), 8.41 (br s, 1H), 7.85 (d, J=7.6 Hz, 3H), 7.58 (br s, 2H), 7.34 (br s, 1H), 6.94 (br s, 2H), 4.64 (br s, 1H), 3.56-3.74 (m, 3H), 2.25 (br s, 2H), 1.80 (br s, 2H), 1.73 (s, 1H), 1.70 (s, 1H), 1.50 (s, 1H), 1.40 (br s, 1H)
307	^{1}H NMR ($CDCl_3$) δ: 9.05-9.15 (m, 2H), 8.56 (d, J=2.5 Hz, 1H), 8.13 (dt, J=9.1, 2.3 Hz, 1H), 7.90-8.06 (m, 1H), 7.49 (d, J=6.5 Hz, 1H), 7.41 (dd, J=8.7, 6.9 Hz, 1H), 6.50 (br s, 1H), 4.21 (qd, J=9.0, 6.5 Hz, 2H)

308	^{1}H NMR ($CDCl_3$) δ: 9.04-9.15 (m, 2H), 8.54 (d, J=2.5 Hz, 1H), 8.13 (dt, J=9.1, 2.3 Hz, 1H), 7.92 (d, J=8.7 Hz, 1H), 7.46 (d, J=6.5 Hz, 1H), 7.38 (dd, J=8.7, 6.9 Hz, 1H), 6.69 (br s, 1H), 4.13 (qd, J=7.2, 3.2 Hz, 1H), 3.76-3.96 (m, 3H), 3.40 (ddd, J=13.8, 7.7, 4.7 Hz, 1H), 2.02-2.18 (m, 1H), 1.90-2.02 (m, 2H), 1.51-1.71 (m, 2H)
309	^{1}H NMR ($CDCl_3$) δ: 9.13 (s, 1H), 9.09 (s, 1H), 8.54 (d, J=2.2 Hz, 1H), 8.13 (dt, J=9.1, 2.3 Hz, 1H), 7.92 (ddd, J=7.2, 2.3, 0.9 Hz, 1H), 7.32-7.43 (m, 2H), 6.08 (d, J=6.5 Hz, 1H), 4.36 (dt, J=7.7, 6.6 Hz, 1H), 1.33 (d, J=6.5 Hz, 5H)
310	^{1}H NMR (acetone-d_6) δ: 9.39-9.55 (m, 2H), 9.35 (d, J=18.6 Hz, 1H), 8.72-8.86 (m, 4H), 8.62 (dt, J=8.3, 1.3 Hz, 1H), 8.49 (br. s, 1H), 7.69 (ddd, J=8.4, 4.7, 0.6 Hz, 1H), 7.39 (t, J=4.9 Hz, 1H), 4.89 (d, J=5.7 Hz, 2H)
311	^{1}H NMR ($CDCl_3$) δ: 9.45 (s, 1H), 9.29 (d, J=2.4 Hz, 1H), 9.13 (s, 1H), 8.75 (dd, J=4.7, 1.4 Hz, 1H), 8.44 (s, 1H), 8.29-8.36 (m, 1H), 7.55 (ddd, J=8.3, 4.8, 0.6 Hz, 1H), 6.54 (br s, 1H), 2.87-3.06 (m, 1H), 0.96 (dd, J=7.0, 1.2 Hz, 2H), 0.73 (td, J=2.5, 1.3 Hz, 2H)
312	^{1}H NMR ($CDCl_3$) δ: 9.46 (s, 1H), 9.28 (d, J=2.4 Hz, 1H), 9.08 (s, 1H), 8.75 (d, J=5.2 Hz, 1H), 8.54 (s, 1H), 8.33 (d, J=8.2 Hz, 1H), 7.54 (ddd, J=8.3, 4.8, 0.6 Hz, 1H), 6.79 (br s, 1H), 4.14 (dd, J=7.2, 3.2 Hz, 1H), 3.79-3.98 (m, 4H), 3.40-3.55 (m, 1H), 2.17 (s, 1H), 2.03-2.13 (m, 1H), 1.90-2.02 (m, 2H)
313	^{1}H NMR ($CDCl_3$) δ: 9.47 (s, 1H), 9.28 (d, J=2.4 Hz, 1H), 9.08 (d, J=0.8 Hz, 1H), 8.75 (dd, J=4.7, 1.4 Hz, 1H), 8.53 (s, 1H), 8.33 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 7.55 (ddd, J=8.4, 4.7, 0.6 Hz, 1H), 6.56 (br s, 1H), 4.56 (t, J=5.1 Hz, 1H), 3.62-3.79 (m, 2H), 3.48 (s, 6H)
314	^{1}H NMR ($CDCl_3$) δ: 9.46 (s, 1H), 9.29 (d, J=2.4 Hz, 1H), 9.09 (s, 1H), 8.75 (dd, J=4.7, 1.4 Hz, 1H), 8.52 (s, 1H), 8.30-8.37 (m, 1H), 7.54 (dd, J=8.4, 4.7 Hz, 1H), 7.26 (s, 1H), 6.45 (br s, 1H), 3.41 (d, J=7.1 Hz, 1H), 3.42 (d, J=7.3 Hz, 1H), 1.09 (s, 3H), 0.56-0.68 (m, 2H), 0.27-0.40 (m, 2H)
315	^{1}H NMR (acetone-d_6) δ: 9.61 (br s, 1H), 9.38 (d, J=6.1 Hz, 1H), 9.22 (s, 1H), 8.70 (dd, J=4.7, 1.4 Hz, 1H), 8.46-8.56 (m, 2H), 8.28 (br. S, 1H), 7.80-7.97 (m, 2H), 7.66 (ddd, J=8.4, 4.7, 0.6 Hz, 1H), 3.71 (s, 3H)
316	^{1}H NMR ($CDCl_3$) δ: 9.10 (br s, 1H), 8.40 (br s, 1H), 7.75 (br s, 2H), 7.58 (br s, 1H), 7.31 (d, J=9.3 Hz, 1H), 6.94 (br s, 1H), 1.77 (br s, 1H), 1.08 (br s, 2H), 0.84 (br s, 2H)
320	^{1}H NMR (acetone-d_6) δ: 9.38 (d, J=2.4 Hz, 1H), 9.18 (d, J=0.9 Hz, 1H), 8.95-9.07 (m, 1H), 8.89 (d, J=5.1 Hz, 2H), 8.68 (dd, J=4.7, 1.4 Hz, 1H), 8.51 (d, J=8.9 Hz, 2H), 7.83 (d, J=9.1 Hz, 1H), 7.65 (ddd, J=8.3, 4.7, 0.7 Hz, 1H), 7.37 (t, J=4.8 Hz, 1H)
321	^{1}H NMR ($CDCl_3$) δ: 9.37 (d, J=2.5 Hz, 1H), 9.18 (d, J=0.9 Hz, 1H), 8.69 (dd, J=4.6, 1.3 Hz, 1H), 8.44-8.57 (m, 2H), 8.02-8.09 (m, 1H), 7.77-7.96 (m, 1H), 7.65 (dd, J=8.4, 4.7 Hz, 1H), 7.32 (d, J=0.8 Hz, 1H)

322	^{1}H NMR ($CDCl_3$) δ: 9.49 (d, J=2.0 Hz, 1H), 9.24 (d, J=2.5 Hz, 1H), 8.87 (dd, J=4.8, 1.5 Hz, 1H), 8.66-8.74 (m, 1H), 8.64 (s, 1H), 8.52 (dt, J=8.0, 1.9 Hz, 1H), 8.23-8.42 (m, 1H), 8.13 (dd, J=9.2, 1.5 Hz, 1H), 7.92 (d, J=9.1 Hz, 1H), 7.40-7.57 (m, 2H)
323	^{1}H NMR (acetone-d_6) δ: 9.35 (d, J=2.7 Hz, 1H), 9.15 (d, J=0.9 Hz, 1H), 8.68 (dd, J=4.7, 1.4 Hz, 1H), 8.49 (ddd, J=8.4, 2.7, 1.4 Hz, 1H), 8.40-8.46 (m, 1H), 7.88 (dd, J=9.1, 1.7 Hz, 2H), 7.76 (dt, J=9.1, 0.9 Hz, 1H), 7.64 (ddd, J=8.3, 4.7, 0.7 Hz, 1H), 3.72 (t, J=5.6 Hz, 2H), 3.55 (q, J=5.7 Hz, 2H)
324	^{1}H NMR (acetone-d_6) δ: 9.10 (s, 1H), 8.45 (s, 2H), 8.09-8.15 (m, 3H), 7.75-7.85 (m, 3H), 7.62 (t, J=7.7 Hz, 3H), 7.49 (t, J=7.5 Hz, 2H)
325	^{1}H NMR ($CDCl_3$) δ: 9.22 (s, 1H), 8.93 (dd, J=7.1 Hz, 1H), 8.69 (d, J=5.1 Hz, 1H), 8.62 (d, J=5.2 Hz, 1H), 8.55 (s, 1H), 8.32 (d, J=8.2 Hz, 1H), 7.89-7.97 (m, 3H), 7.60 (d, J=8.8 Hz, 1H), 7.52 (ddd, J=8.3, 4.8, 0.6 Hz, 1H), 7.40 (ddd, J=7.9, 4.8, 0.9 Hz, 1H)
326	^{1}H NMR (acetone-d_6) δ: 9.37 (d, J=2.4 Hz, 1H), 9.19 (s, 1H), 8.77 (dd, J=1.7, 0.9 Hz, 1H), 8.69 (d, J=5.1 Hz, 1H), 8.63 (d, J=5.0 Hz, 1H), 8.51 (d, J=8.2 Hz, 1H), 8.21 (dd, J=5.0 Hz, 1H), 7.87 (dt, J=9.3, 0.9 Hz, 1H), 7.75 (d, J=5.5 Hz, 1H), 7.65 (ddd, J=8.3, 4.7, 0.7 Hz, 1H), 2.65 (s, 3H)
327	^{1}H NMR (acetone-d_6) δ: 9.37 (d, J=6.3 Hz, 1H), 9.21 (s, 1H), 8.78-8.85 (m, 1H), 8.69 (dd, J=7.5 Hz, 1H), 8.51 (d, J=8.2 Hz, 1H), 8.18 (d, J=9.0 Hz, 1H), 7.82-7.92 (m, 2H), 7.65 (dd, J=8.2, 4.7 Hz, 1H), 4.16-4.28 (m, 2H), 4.12 (s, 2H), 1.22-1.31 (m, 3H)
328	^{1}H NMR (acetone-d_6) δ: 9.36 (d, J=2.5 Hz, 1H), 9.19 (s, 1H), 8.69 (dd, J=4.7, 1.3 Hz, 1H), 8.50 (d, J=8.3 Hz, 1H), 8.46 (s, 1H), 8.11-8.19 (m, 1H), 7.88 (d, J=8.8 Hz, 1H), 7.79 (d, J=9.1 Hz, 1H), 7.64 (t, J=6.8 Hz, 1H), 4.18 (d, J=6.0 Hz, 2H), 3.70-3.74 (m, 3H)
340	^{1}H NMR (acetone-d_6) δ: 9.38 (d, J=2.5 Hz, 1H), 9.25 (s, 1H), 9.00 (s, 1H), 8.65-8.84 (m, 1H), 8.58 (s, 1H), 8.38-8.56 (m, 1H), 8.05 (dd, J=9.1, 1.6 Hz, 1H), 7.94 (d, J=9.1 Hz, 1H), 7.67 (dd, J=8.3, 4.7 Hz, 1H)
341	^{1}H NMR (acetone-d_6) δ: 9.37 (d, J=2.2 Hz, 1H), 9.19 (d, J=0.9 Hz, 1H), 8.76 (dd, J=1.7, 0.9 Hz, 1H), 8.69 (dd, J=4.7, 1.4 Hz, 1H), 8.62 (d, J=5.4 Hz, 1H), 8.51 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 8.19 (dd, J=9.2, 1.7 Hz, 1H), 7.86 (dt, J=9.1, 0.9 Hz, 1H), 7.77 (d, J=5.4 Hz, 1H), 7.64 (ddd, J=8.3, 4.7, 0.7 Hz, 1H), 4.14-4.26 (m, 1H), 4.20 (d, J=7.1 Hz, 2H), 4.10 (s, 2H), 1.20-1.27 (m, 3H)
342	^{1}H NMR (acetone-d_6) δ: 9.36 (d, J=2.7 Hz, 1H), 9.20 (s, 1H), 8.69 (dd, J=4.7, 1.4 Hz, 1H), 8.43-8.59 (m, 2H), 7.86 (d, J=9.0 Hz, 1H), 7.80 (d, J=9.0 Hz, 1H), 7.58-7.72 (m, 1H) 2.01-2.09 (m, 10H)

347	^{1}H NMR (acetone-d_6) δ: 9.38 (br s, 2H), 9.17 (br s, 1H), 8.70 (br s, 1H), 8.54 (d, J=8.0 Hz, 1H), 8.26 (s, 1H), 7.94 (dd, J=9.1, 1.4 Hz, 2H), 7.76-7.90 (m, 2H), 7.61-7.76 (m, 3H), 6.97-7.16 (m, 2H), 6.75-6.97 (m, 3H), 4.32 (qd, J=7.0, 4.5 Hz, 1H), 3.98-4.19 (m, 2H), 3.70-3.91 (m, 2H), 1.82-2.00 (m, 3H), 1.73 (ddt, 3H)
348	^{1}H NMR ($CDCl_3$) δ: 9.22 (d, J=2.4 Hz, 1H), 8.97 (s, 1H), 8.70 (d, J=3.8 Hz, 1H), 8.59 (s, 1H), 8.48 (s, 1H), 8.23-8.41 (m, 1H), 7.96-8.12 (m, 2H), 7.85-7.96 (m, 2H), 7.52 (dd, J=8.2, 4.7 Hz, 1H), 7.26 (s, 1H)
349	^{1}H NMR (DMSO-d_6) δ: 9.34 (d, J=2.4 Hz, 1H), 9.13 (d, J=6.9 Hz, 1H), 8.64 (d, J=5.3 Hz, 1H), 8.46-8.55 (m, 1H), 8.17 (d, J=6.6 Hz, 1H), 7.72 (dd, J=8.7, 1.0 Hz, 1H), 7.60-7.67 (m, 2H), 1.60 (s, 3H)
355	^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.2 Hz, 1H), 8.70 (dd, J=4.7, 1.4 Hz, 1H), 8.59 (d, J=0.9 Hz, 1H), 8.34 (s, 1H), 8.30 (d, J=8.1 Hz, 1H), 7.80-7.91 (m, 1H), 7.76 (dd, J=8.8 Hz, 1H), 7.52 (ddd, J=8.2, 4.8, 0.7 Hz, 1H), 7.11 (br. s, 1H), 4.43-4.50 (m, 2H), 4.23-4.35 (m, 2H), 3.41 (t, J=8.4 Hz, 2H)
356	^{1}H NMR (acetone-d_6) δ: 9.47 (br s, 1H), 9.35 (d, J=2.7 Hz, 1H), 8.97 (s, 1H), 8.65 (d, J=5.0 Hz, 1H), 8.41-8.54 (m, 2H), 7.78 (s, 1H), 7.72 (d, J=9.1 Hz, 1H), 7.59-7.67 (m, 2H), 7.24 (d, J=3.5 Hz, 1H), 6.67 (dd, J=2.1 Hz, 1H)
357	^{1}H NMR (acetone-d_6) δ: 9.43 (br s, 1H), 9.32 (d, J=2.5 Hz, 1H), 8.93 (d, J=0.8 Hz, 1H), 8.64 (dd, J=4.7, 1.3 Hz, 1H), 8.45 (ddd, J=8.4, 2.7, 1.4 Hz, 1H), 8.34 (d, J=1.3 Hz, 1H), 7.67 (d, J=9.0 Hz, 1H), 7.59-7.63 (m, 1H), 7.49 (d, J=7.4 Hz, 2H), 7.29-7.39 (m, 3H), 7.06-7.28 (m, 1H), 3.88 (s, 2H)
358	^{1}H NMR (acetone-d_6) δ: 9.44 (br s, 1H), 9.32 (d, J=2.7 Hz, 1H), 8.89 (d, J=0.8 Hz, 1H), 8.63 (dd, J=4.6, 1.4 Hz, 1H), 8.44 (d, J=8.2 Hz, 1H), 8.37 (s, 1H), 7.66 (d, J=9.1 Hz, 1H), 7.58-7.62 (m, 1H), 7.38 (dd, J=9.3, 1.9 Hz, 1H), 1.79 (tt, J=7.9, 4.6 Hz, 1H), 0.86-0.99 (m, 2H), 0.73-0.86 (m, 2H)
359	^{1}H NMR ($CDCl_3$) δ: 9.14-9.21 (m, 1H), 9.15 (d, J=2.4 Hz, 1H), 8.64 (dd, J=4.7, 1.6 Hz, 1H), 8.30-8.45 (m, 1H), 8.18-8.28 (m, 1H), 7.66 (d, J=9.1 Hz, 1H), 7.32-7.50 (m, 6H), 7.17-7.23 (m, 1H), 6.90-7.02 (m, 1H), 3.78 (s, 2H)
360	^{1}H NMR (acetone-d_6) δ: 9.33 (d, J=2.5 Hz, 1H), 9.11 (br s, 1H), 8.91 (d, J=0.9 Hz, 1H), 8.63 (dd, J=4.7, 1.4 Hz, 1H), 8.41-8.53 (m, 1H), 7.59-7.77 (m, 2H), 7.37 (dd, J=8.6 Hz, 1H), 2.44 (dd, J=14.1, 6.9 Hz, 1H), 1.75 (dt, J=13.4, 7.8 Hz, 1H), 1.47 (ddd, J=13.4, 7.4, 6.0 Hz, 1H), 1.18 (d, J=6.8 Hz, 2H), 0.94 (t, J=7.4 Hz, 2H)
361	^{1}H NMR ($CDCl_3$) δ: 9.13 (d, J=2.2 Hz, 1H), 8.71-8.91 (m, 2H), 8.61 (s, 1H), 8.55 (d, J=2.0 Hz, 1H), 8.41 (s, 1H), 7.85 (s, 2H), 4.96 (d, J=4.6 Hz, 2H)
362	^{1}H NMR ($CDCl_3$) δ: 9.13 (d, J=2.2 Hz, 1H), 8.71-8.91 (m, 2H), 8.61 (s, 1H), 8.55 (d, J=2.0 Hz, 1H), 8.41 (s, 1H), 7.85 (s, 2H), 4.96 (d, J=4.6 Hz, 2H)

363	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.2 Hz, 1H), 8.69 (d, J=3.8 Hz, 1H), 8.55 (s, 1H), 8.30 (d, J=8.3 Hz, 1H), 7.78-7.94 (m, 2H), 7.52 (dd, J=8.1, 4.8 Hz, 1H), 7.37 (d, J=8.4 Hz, 1H), 3.95-4.49 (m, 2H), 3.41-3.93 (m, 1H), 1.67-1.97 (m, 6H), 1.11 (br s, 3H)
364	^{1}H NMR ($CDCl_3$) δ: 8.74-8.82 (m, 2H), 8.62 (s, 1H), 8.35-8.48 (m, 1H), 7.83-7.94 (m, 2H), 7.59-7.67 (m, 1H), 7.25-7.29 (m, 3H), 4.96 (d, J=4.4 Hz, 2H), 4.00 (s, 2H)
365	^{1}H NMR (acetone-d_6) δ: 9.24-9.27 (m, 2H), 8.63 (s, 1H), 8.45 (s, 1H), 8.38 (d, J=10.0 Hz, 1H), 8.07-8.18 (m, 1H), 7.89 (dd, J=5.0 Hz, 1H), 7.79 (d, J=9.0 Hz, 1H), 5.02 (d, J=8.5 Hz, 1H), 1.48 (d, J=7.1 Hz, 3H)
366	^{1}H NMR (acetone-d_6) δ: 9.26 (br s, 1H), 9.21 (s, 1H), 8.62 (br s, 1H), 8.34-8.44 (m, 2H), 7.88 (d, J=9.1 Hz, 1H), 7.66-7.81 (m, 2H), 3.56-3.77 (m, 1H), 2.82 (d, J=16.7 Hz, 1H), 1.33 (d, J=6.5 Hz, 3H), 1.05 (d, J=6.1 Hz, 1H), 0.51 (br s, 1H), 0.37-0.48 (m, 2H), 0.28 (br s, 1H)
367	^{1}H NMR (acetone-d_6) δ: 9.25 (s, 1H), 9.20 (s, 1H), 8.62 (s, 1H), 8.39 (s, J=7.1, 7.1 Hz, 2H), 7.85 (d, J=8.8 Hz, 1H), 7.75 (d, J=8.8 Hz, 1H), 7.49-7.60 (m, 1H), 4.38-4.51 (m, 1H), 3.48-3.62 (m, 4H), 3.34 (s, 6H),
368	^{1}H NMR (acetone-d_6) δ: 9.26 (s, 2H), 8.63 (s, 1H), 8.47 (s, 1H), 8.38 (d, J=9.4 Hz, 1H), 8.01 (d, J=9.6 Hz, 1H), 7.89 (d, J=8.8 Hz, 1H), 7.79 (d, J=8.9 Hz, 1H), 4.82 (ddd, J=9.8, 8.9, 6.5 Hz, 1H), 2.25-2.36 (m, 1H), 1.12 (d, J=6.6 Hz, 6H),
369	^{1}H NMR (acetone-d_6) δ: 9.28 (s, 1H), 9.25 (d, J=9.5 Hz, 1H), 8.63 (d, J=2.8 Hz, 1H), 8.45 (s, 1H), 8.39 (d, J=9.5 Hz, 1H), 8.11-8.19 (m, 1H), 7.89 (d, J=8.9 Hz, 1H), 7.79 (d, J=9.0 Hz, 1H), 4.15-4.20 (m, 4H), 2.79-2.84 (m, 1H), 1.26 (t, J=7.1 Hz, 3H)
370	^{1}H NMR (acetone-d_6) δ: 9.26 (s, 1H), 9.21 (s, 1H), 8.62 (s, 1H), 8.32-8.43 (m, 2H), 7.87 (d, J=8.9 Hz, 1H), 7.75 (d, J=9.0 Hz, 1H), 7.49-7.59 (m, 1H), 4.29-4.44 (m, 1H), 3.52 (dd, J=9.3, 5.7 Hz, 1H), 3.40 (dd, J=9.5, 5.8 Hz, 1H), 3.34 (s, 3H), 1.26 (d, J=6.8 Hz, 3H)
371	^{1}H NMR (acetone-d_6) δ: 9.35 (s, 1H), 9.17 (s, 1H), 8.68 (d, J=5.0 Hz, 1H), 8.49 (d, J=8.2 Hz, 1H), 8.40 (s, 1H), 7.99 (br s, 1H), 7.86 (d, J=9.0 Hz, 1H), 7.77 (d, J=9.0 Hz, 1H), 7.64 (ddd, J=8.3, 4.7, 0.7 Hz, 1H), 3.54-3.62 (m, 2H), 2.78-2.86 (m, 3H), 1.31-1.38 (m, 9H),
372	^{1}H NMR (acetone-d_6) δ: 9.35 (dd, J=2.9, 0.7 Hz, 1H), 9.14 (d, J=1.0 Hz, 1H), 8.68 (dd, J=4.7, 1.5 Hz, 1H), 8.49 (ddd, J=8.3, 2.9, 1.6 Hz, 1H), 8.37-8.40 (m, 1H), 7.86 (dd, J=9.1, 1.8 Hz, 1H), 7.75 (dt, J=9.1, 1.3 Hz, 1H), 7.64 (ddd, J=8.4, 4.7, 0.9 Hz, 1H), 7.48 (d, J=7.0 Hz, 1H), 4.05-4.15 (m, 1H), 1.55-1.70 (m, 2H), 1.24 (d, J=6.6 Hz, 3H), 0.97 (t, J=7.4 Hz, 3H)
373	^{1}H NMR (acetone-d_6) δ: 9.78 (br s, 1H), 9.37 (d, J=2.4 Hz, 1H), 9.22 (s, 1H), 8.69 (dd, J=4.7, 1.2 Hz, 1H), 8.43-8.61 (m, 2H), 7.86-7.99 (m, 2H), 7.74-7.85 (m, 2H), 7.65 (dd, J=8.3, 4.7 Hz, 1H), 7.21 (t, J=4.2 Hz, 1H)

374	^{1}H NMR (acetone-d_6) δ: 9.04 (s, 1H), 8.87 (s, 1H), 8.73 (s, 1H), 8.35 (d, J=4.9 Hz, 2H), 8.29 (d, J=2.5 Hz, 1H), 8.08-8.20 (m, 1H), 8.04 (s, 1H), 7.40-7.50 (m, 1H), 7.37 (d, J=9.3 Hz, 1H), 6.97 (t, J=4.8 Hz, 1H), 4.26 (d, J=5.8 Hz, 2H)
375	^{1}H NMR (acetone-d_6) δ: 9.28 (s, 2H), 8.64 (d, J=2.5 Hz, 1H), 8.47 (s, 1H), 8.40 (d, J=9.8 Hz, 2H), 7.86 (d, J=1.4 Hz, 1H), 7.78-7.84 (m, 1H), 3.70 (s, 3H)
376	^{1}H NMR (acetone-d_6) δ: 9.37 (d, J=2.5 Hz, 2H), 9.20 (s, 2H), 8.85 (br. s, 1H), 8.69 (dd, J=4.7, 1.3 Hz, 1H), 8.40-8.58 (m, 3H), 7.87 (d, J=8.8 Hz, 1H), 7.79 (d, J=9.1 Hz, 1H), 7.65 (dd, J=8.2, 4.9 Hz, 1H), 1.29 (s, 10H)
377	^{1}H NMR (acetone-d_6) δ: 9.68 (br. s, 1H), 9.37 (d, J=2.2 Hz, 1H), 9.23 (s, 1H), 8.69 (dd, J=4.7, 1.3 Hz, 1H), 8.44-8.61 (m, 2H), 7.86-8.07 (m, 1H), 7.74-7.86 (m, 2H), 7.65 (dd, J=8.4, 4.3 Hz, 1H), 7.23 (d, J=3.3 Hz, 1H), 6.66 (dd, J=3.3, 1.6 Hz, 1H)
378	^{1}H NMR (acetone-d_6) δ: 9.74 (br. s, 1H), 9.38 (d, J=2.5 Hz, 1H), 9.23 (s, 1H), 8.70 (dd, J=4.7, 1.3 Hz, 1H), 8.45-8.61 (m, 2H), 8.02 (d, J=7.3 Hz, 2H), 7.92 (d, J=9.1 Hz, 1H), 7.83 (d, J=9.1 Hz, 1H), 7.57-7.73 (m, 2H), 7.53 (t, J=7.2 Hz, 2H)
379	^{1}H NMR (acetone-d_6) δ: 9.36 (d, J=2.4 Hz, 1H), 9.17 (s, 1H), 8.96-9.03 (m, 1H), 8.68 (dd, J=4.6, 1.4 Hz, 1H), 8.45-8.59 (m, 1H), 8.36-8.43 (m, 1H), 7.85 (dd, J=9.1, 1.6 Hz, 1H), 7.78 (d, J=9.3 Hz, 1H), 7.65 (dd, J=8.3, 4.5 Hz, 1H)
380	^{1}H NMR (acetone-d_6) δ: 9.55 (s, J=8.1 Hz, 2H), 9.34 (d, J=0.9 Hz, 1H), 9.26 (s, 1H), 8.60-8.66 (m, 1H), 7.94 (dd, J=9.1, 1.6 Hz, 1H), 7.74-7.88 (m, 1H), 3.93 (s, 3H)
381	^{1}H NMR (acetone-d_6) δ: 9.36 (d, J=2.2 Hz, 1H), 9.19 (d, J=0.9 Hz, 1H), 8.69 (dd, J=4.7, 1.3 Hz, 1H), 8.38-8.57 (m, 2H), 8.02 (d, J=8.4 Hz, 1H), 7.87 (dd, J=9.1, 1.6 Hz, 1H), 7.79 (dt, J=9.1, 0.9 Hz, 1H), 7.65 (ddd, J=8.3, 4.7, 0.7 Hz, 1H), 5.00 (ddd, J=12.9, 8.2, 7.0 Hz, 1H), 3.56 (ddd, J=12.0, 11.2, 5.4 Hz, 1H), 3.39 (ddd, J=11.2, 7.0, 1.0 Hz, 1H), 2.73 (dddd, J=12.3, 6.9, 5.4, 1.4 Hz, 1H), 2.29-2.48 (m, 1H)
382	^{1}H NMR ($CDCl_3$) δ: 8.97-9.11 (m, 1H), 8.52-8.63 (m, 2H), 8.13 (dt, J=9.0, 2.4 Hz, 1H), 8.00-8.09 (m, 1H), 7.78 (dt, J=9.1, 0.9 Hz, 1H), 7.63 (dd, J=9.1, 1.6 Hz, 1H), 7.26 (s, 2H), 4.38 (br s, 2H), 4.28 (br s, 2H), 2.39 (t, J=7.7 Hz, 2H)
383	^{1}H NMR (DMSO-d_6) δ: 9.49 (s, 1H), 9.31 (s, 2H), 8.73 (d, J=2.4 Hz, 1H), 8.46-8.62 (m, 2H), 7.91 (d, J=9.1 Hz, 1H), 7.82 (d, J=9.1 Hz, 1H), 7.42-7.59 (m, 2H), 7.10-7.18 (m, 2H), 4.74 (d, J=3.6 Hz, 2H)
384	^{1}H NMR (acetone-d_6) δ: 9.24-9.29 (m, 1H), 9.22 (d, J=1.0 Hz, 1H), 8.62 (d, J=2.4 Hz, 1H), 8.38 (d, J=9.8 Hz, 2H), 7.93-8.05 (m, 1H), 7.85-7.93 (m, 1H), 7.76 (d, J=9.1 Hz, 1H), 3.39-3.59 (m, 4H), 3.22-3.34 (m, 1H), 3.07-3.15 (m, 1H), 2.51-2.66 (m, 1H), 1.66-1.82 (m, 1H), 1.43 (s, 8H)

385	^{1}H NMR (acetone-d_6) δ: 9.60 (br s, 1H), 9.36 (d, J=2.4 Hz, 1H), 9.21 (d, J=15.9 Hz, 1H), 8.69 (dd, J=4.8 Hz, 1H), 8.49-8.52 (m, 1H), 8.46 (s, 1H), 7.86 (dd, J=9.1, 1.6 Hz, 1H), 7.80 (dt, J=8.9 Hz, 1H), 7.65 (ddd, J=8.4, 4.7, 0.8 Hz, 1H), 5.49 (d, J=4.4 Hz, 1H), 3.59-3.75 (m, 2H),
386	^{1}H NMR ($CDCl_3$) δ: 9.36-9.38 (m, 2H), 9.28 (s, 1H), 8.60 (s, 1H), 8.29 (s, 1H), 7.82 (d, J=8.8 Hz, 1H), 7.75 (d, J=9.2 Hz, 1H), 6.65 (br s, 1H), 4.12 (dd, J=7.3, 3.1 Hz, 1H), 3.78-3.95 (m, 3H), 3.37 (ddd, J=13.7, 7.7, 4.7 Hz, 1H), 2.02-2.21 (m, 2H), 1.88-2.02 (m, 2H), 1.65 (dd, J=12.2, 8.1 Hz, 1H)
387	^{1}H NMR ($CDCl_3$) δ: 9.35-9.39 (m, 2H), 9.27-9.33 (m, 1H), 8.63 (s, 1H), 8.23-8.43 (m, 1H), 7.87 (dt, J=9.1, 0.9 Hz, 1H), 7.74 (dd, J=9.1, 1.6 Hz, 1H), 6.40 (br s, 1H), 4.19 (qd, J=9.0, 6.5 Hz, 2H)
388	^{1}H NMR ($CDCl_3$) δ: 9.37 (s, 2H), 9.29 (s, 1H), 8.60 (s, 1H), 8.26 (s, 1H), 7.82 (d, J=9.1 Hz, 1H), 7.68 (dd, J=9.1, 1.6 Hz, 1H), 6.30 (br s, 1H), 2.96 (dd, J=7.0, 3.9 Hz, 1H), 0.80-1.01 (m, 3H), 0.62-0.79 (m, 2H)
389	^{1}H NMR ($CDCl_3$) δ: 9.08 (s, 1H), 8.64 (s, 1H), 8.58 (s, 1H), 8.38 (s, 1H), 8.27 (s, 1H), 7.80 (dt, J=10.2 Hz, 1H), 7.73 (dd, J=8.9 Hz, 1H), 6.61 (br s, 1H), 4.03-4.19 (m, 2H), 3.78-3.95 (m, 3H), 3.37 (ddd, J=13.8, 7.6, 4.7 Hz, 1H), 2.02-2.13 (m, 2H), 1.83-2.02 (m, 3H),
390	^{1}H NMR ($CDCl_3$) δ: 9.32 (d, J=2.2 Hz, 1H), 9.21 (d, J=0.9 Hz, 1H), 8.67 (d, J=2.2 Hz, 1H), 8.59 (t, J=2.2 Hz, 1H), 8.33-8.41 (m, 1H), 7.85 (dd, J=9.1, 1.6 Hz, 1H), 7.60-7.79 (m, 2H), 2.72-2.85 (m, 10H), 2.13-2.20 (m, 1H), 0.70-0.81 (m, 2H), 0.49-0.69 (m, 2H)
391	^{1}H NMR ($CDCl_3$) δ: 9.08 (d, J=2.0 Hz, 1H), 8.59-8.75 (m, 2H), 8.48-8.59 (m, 1H), 8.38 (t, J=2.2 Hz, 1H), 7.97 (dd, J=9.2, 1.5 Hz, 1H), 7.79 (d, J=9.1 Hz, 1H), 3.97 (s, 2H)
392	^{1}H NMR ($CDCl_3$) δ: 9.19 (d, J=2.2 Hz, 1H), 8.55-8.74 (m, 1H), 8.43 (d, J=0.8 Hz, 1H), 8.17-8.32 (m, 1H), 7.77 (d, J=9.3 Hz, 1H), 7.50 (dd, J=8.2, 4.7 Hz, 1H), 7.40 (br s, 1H), 7.13 (d, J=9.0 Hz, 1H), 3.30 (q, J=10.5 Hz, 2H)
393	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.5 Hz, 1H), 8.62-8.79 (m, 1H), 8.47-8.62 (m, 1H), 8.30 (ddd, J=8.3, 2.6, 1.6 Hz, 1H), 7.90 (br s, 1H), 7.81 (d, J=8.8 Hz, 1H), 7.52 (dd, J=8.3, 4.8 Hz, 1H), 7.43 (br s, 1H), 0.98-1.17 (m, 1H), 0.42-0.63 (m, 2H), 0.19 (br s, 2H)
394	^{1}H NMR ($CDCl_3$) δ: 9.21 (br s, 1H), 8.70 (d, J=3.9 Hz, 1H), 8.58 (s, 1H), 8.24-8.36 (m, 2H), 7.81 (d, J=9.0 Hz, 1H), 7.69 (d, J=9.1 Hz, 1H), 7.53 (dd, J=8.0, 4.7 Hz, 1H), 6.28 (br s, 1H), 2.42 (s, 1H), 1.81 (s, 6H)
395	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.4 Hz, 1H), 8.67-8.85 (m, 2H), 8.57 (s, 1H), 8.22-8.44 (m, 2H), 7.76-7.93 (m, J=9.1 Hz, 1H), 7.61-7.75 (m, J=9.0 Hz, 1H), 7.52 (dd, J=8.1, 4.7 Hz, 2H), 6.27 (d, J=6.6 Hz, 2H), 4.60-4.72 (m, 1H), 2.43-2.55 (m, 2H), 1.91-2.08 (m, 2H), 1.68-1.90 (m, 2H)

396	^{1}H NMR ($CDCl_3$) δ: 9.12 (d, J=2.2 Hz, 1H), 8.74 (d, J=2.0 Hz, 1H), 8.46-8.64 (m, 2H), 8.27 (s, 1H), 7.80 (d, J=8.9 Hz, 1H), 7.73 (d, J=8.9 Hz, 1H), 6.56 (br s, 1H), 4.11 (dd, J=7.2, 3.1 Hz, 1H), 3.77-3.98 (m, 3H), 3.37 (ddd, J=13.8, 7.6, 4.6 Hz, 1H), 2.01-2.21 (m, 1H), 1.89-2.01 (m, 2H), 1.60-1.78 (m, 1H)
397	^{1}H NMR (acetone-d_6) δ: 9.37 (d, J=2.2 Hz, 1H), 9.32 (s, 1H), 8.75-8.83 (m, 2H), 8.56-8.65 (m, 1H), 7.93 (dd, J=9.1, 1.6 Hz, 1H), 7.81 (d, J=9.0 Hz, 1H), 3.92 (s, 3H)
398	^{1}H NMR ($CDCl_3$) δ: 9.12 (d, J=1.9 Hz, 1H), 8.76 (d, J=1.6 Hz, 1H), 8.61 (d, J=0.9 Hz, 1H), 8.53 (t, J=2.2 Hz, 1H), 8.31 (dd, J=1.6, 0.9 Hz, 1H), 7.80-7.93 (m, 1H), 7.72 (dd, J=9.1, 1.7 Hz, 1H), 4.19 (dd, J=9.1, 6.4 Hz, 2H)
399	^{1}H NMR ($CDCl_3$) δ: 9.11 (d, J=2.4 Hz, 1H), 8.74 (d, J=2.0 Hz, 1H), 8.46-8.61 (m, 2H), 8.12-8.31 (m, 1H), 7.79 (d, J=9.1 Hz, 1H), 7.66 (dd, J=9.1, 1.7 Hz, 1H), 6.26 (br. S, 1H), 2.95 (d, J=3.2 Hz, 1H), 0.91 (d, J=5.7 Hz, 2H), 0.61-0.77 (m, 2H)
400	^{1}H NMR (acetone-d_6) δ: 9.92-10.04 (m, 1H), 9.81-9.92 (m, 1H), 9.37 (d, J=2.5 Hz, 1H), 9.20-9.26 (m, 1H), 9.03-9.20 (m, 1H), 8.78 (dd, J=4.8, 1.5 Hz, 1H), 8.69 (dd, J=4.7, 1.3 Hz, 1H), 8.45-8.62 (m, 2H), 8.32 (d, J=7.9 Hz, 1H), 7.87-7.99 (m, 1H), 7.83 (d, J=8.8 Hz, 1H), 7.61-7.74 (m, 1H), 7.55 (s, 1H)
401	^{1}H NMR (acetone-d_6) δ: 9.25 (s, 1H), 9.23-9.28 (m, 1H), 9.21-9.32 (m, 1H), 8.63 (d, J=2.2 Hz, 1H), 8.48 (dd, J=1.6, 0.9 Hz, 1H), 8.31-8.44 (m, 1H), 7.90 (dd, J=9.1, 1.7 Hz, 1H), 7.80 (dt, J=9.1, 0.9 Hz, 1H), 4.23 (q, J=9.5 Hz, 1H), 4.22 (q, J=9.5 Hz, 2H)
402	^{1}H NMR (acetone-d_6) δ: 9.37 (br s, 1H), 9.18 (s, 1H), 8.61-8.83 (m, 1H), 8.51 (d, J=7.7 Hz, 1H), 8.42 (s, 1H), 8.35 (br s, 1H), 7.87 (dd, J=9.1, 1.6 Hz, 1H), 7.77 (d, J=8.9 Hz, 1H), 7.66 (t, J=7.1 Hz, 1H), 3.65 (s, 3H) 1.45-1.59 (m, 2H), 1.19-1.35 (m, 2H)
403	^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.5 Hz, 1H), 8.70 (dd, J=4.7, 1.4 Hz, 1H), 8.58 (d, J=0.9 Hz, 1H), 8.29-8.32 (m, 1H), 8.28 (s, 1H), 7.83 (d, J=8.9 Hz, 1H), 7.72 (d, J=8.9 Hz, 1H), 7.52 (ddd, J=8.4, 4.7, 0.6 Hz, 1H), 6.36-6.45 (m, 1H), 4.18-4.31 (m, 1H), 3.55 (dd, J=9.9, 3.5 Hz, 2H), 3.41 (s, 3H), 1.65-1.81 (m, 2H), 1.02 (t, J=7.5 Hz, 3H)
404	^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.5 Hz, 1H), 8.70 (dd, J=4.7, 1.3 Hz, 1H), 8.51-8.64 (m, 1H), 8.28-8.36 (m, 2H), 7.84 (d, J=9.1 Hz, 1H), 7.71 (dd, J=9.1, 1.7 Hz, 1H), 7.52 (dd, J=8.3, 4.8 Hz, 1H), 6.31 (br s, 1H), 4.31 (dd, J=5.1, 2.6 Hz, 2H)
405	^{1}H NMR ($CDCl_3$) δ: 8.74 (d, J=2.0 Hz, 1H), 8.60 (d, J=0.9 Hz, 1H), 8.40 (d, J=2.7 Hz, 1H), 8.31 (dd, J=1.6, 0.9 Hz, 1H), 7.81-7.92 (m, 2H), 7.72 (dd, J=9.1, 1.6 Hz, 1H), 4.19 (dd, J=9.1, 6.4 Hz, 2H), 4.00 (s, 3H)

406	^{1}H NMR ($CDCl_3$) δ: 8.74 (s, 1H), 8.57 (d, J=0.8 Hz, 1H), 8.38 (d, J=2.8 Hz, 1H), 8.27 (s, 1H), 7.87 (s, 1H), 7.80 (d, J=8.7 Hz, 1H), 7.73 (d, J=9.0 Hz, 1H), 6.66 (br s, 1H), 4.05-4.19 (m, 1H), 3.91-4.00 (m, 4H), 3.78-3.87 (m, 2H), 3.38 (ddd, J=13.8, 7.6, 4.8 Hz, 1H), 2.01-2.12 (m, 2H), 1.89-2.01 (m, 2H), 1.65 (dd, J=12.2, 8.3 Hz, 1H)
407	^{1}H NMR ($CDCl_3$) δ: 8.74 (d, J=2.0 Hz, 1H), 8.57 (d, J=0.8 Hz, 1H), 8.39 (d, J=2.7 Hz, 1H), 8.24 (d, J=0.9 Hz, 1H), 7.87 (t, J=2.4 Hz, 1H), 7.80 (d, J=9.1 Hz, 1H), 7.66 (dd, J=9.1, 1.7 Hz, 1H), 6.28 (br s, 1H), 3.99 (s, 3H), 2.95 (dd, J=6.9, 3.8 Hz, 1H), 0.91 (d, J=5.7 Hz, 2H), 0.56-0.75 (m, 2H)
408	^{1}H NMR ($CDCl_3$) δ: 8.75 (d, J=2.0 Hz, 1H), 8.60 (s, 1H), 8.40 (d, J=2.7 Hz, 1H), 8.34 (s, 1H), 7.79-7.98 (m, 2H), 7.72 (dd, J=9.1, 1.7 Hz, 1H), 4.00 (s, 3H), 3.83 (s, 3H)
409	^{1}H NMR ($CDCl_3$) δ: 9.38 (s, 2H), 9.30 (s, 1H), 8.78 (d, J=4.9 Hz, 2H), 8.64 (s, 1H), 8.43 (s, 2H), 7.87 (d, J=1.1 Hz, 2H), 7.64 (br. S, 1H), 4.97 (d, J=4.4 Hz, 2H)
410	^{1}H NMR (acetone-d_6) δ: 9.26 (s, 1H), 9.21 (s, 1H), 8.62 (d, J=8.3 Hz, 1H), 8.34-8.42 (m, 2H), 7.85 (dd, J=9.1, 1.6 Hz, 2H), 7.74 (dt, J=9.1, 0.9 Hz, 2H), 2.89-3.06 (m, 1H), 0.70-0.81 (m, 2H), 0.58-0.69 (m, 2H)
411	^{1}H NMR ($CDCl_3$) δ: 9.20 (br s, 1H), 8.71 (d, J=4.3 Hz, 1H), 8.58 (s, 1H), 8.25-8.35 (m, 2H), 7.84 (d, J=9.0 Hz, 1H), 7.71 (dd, J=9.1, 1.7 Hz, 1H), 7.53 (dd, J=8.2, 4.7 Hz, 1H), 7.27 (s, 1H), 6.25 (d, J=9.5 Hz, 1H), 4.92-5.08 (m, 1H), 1.47 (d, J=7.1 Hz, 3H)
412	^{1}H NMR ($CDCl_3$) δ: 9.21 (br s, 1H), 8.72 (d, J=3.8 Hz, 1H), 8.62 (d, J=0.9 Hz, 1H), 8.26-8.36 (m, 2H), 7.87 (dt, J=9.1, 0.9 Hz, 1H), 7.72 (dd, J=9.1, 1.7 Hz, 1H), 7.53 (dd, J=8.2, 4.7 Hz, 1H), 6.22 (s, 1H), 4.84 (ddd, J=10.2, 8.5, 4.7 Hz, 1H) 1.10 (dd, J=9.3, 7.1 Hz, 6H)
413	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.4 Hz, 1H), 8.68 (d, J=5.1 Hz, 1H), 8.53 (s, 1H), 8.30 (d, J=8.2 Hz, 1H), 7.78-7.82 (m, 2H), 7.51 (ddd, J=8.3, 4.8, 0.6 Hz, 1H), 7.35 (d, J=8.7 Hz, 1H), 7.28 (s, 1H), 3.48 (q, J=7.1 Hz, 5H), 1.21-1.36 (m, 5H)
414	^{1}H NMR ($CDCl_3$) δ: 9.19 (s, 1H), 9.20 (d, J=5.2 Hz, 1H), 8.69 (dt, J=4.7, 1.7 Hz, 1H), 8.56 (dd, J=6.9, 0.8 Hz, 1H), 8.24-8.34 (m, 2H), 7.77-7.89 (m, 1H), 7.62-7.77 (m, 1H), 7.46-7.58 (m, 1H), 7.41-7.43 (m, 1H), 7.40 (d, J=7.8 Hz, 1H), 7.33 (d, J=7.7 Hz, 1H), 6.87-6.96 (m, 2H), 6.52 (d, J=7.7 Hz, 1H), 5.17 (d, J=7.7 Hz, 1H), 3.80 (s, 3H), 3.48 (q, J=7.1 Hz, 1H), 1.24-1.47 (m, 2H), 0.67 (d, J=8.7 Hz, 2H)
415	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.5 Hz, 1H), 8.70 (dd, J=4.7, 1.4 Hz, 1H), 8.57 (d, J=0.8 Hz, 1H), 8.25-8.33 (m, 2H), 7.82 (d, J=9.0 Hz, 1H), 7.71 (dd, J=9.1, 1.6 Hz, 1H), 7.52 (dd, J=8.2, 4.7 Hz, 1H), 6.16 (d, J=7.6 Hz, 1H), 3.60-3.72 (m, 1H), 1.35 (d, J=6.6 Hz, 3H), 0.87-1.05 (m, 1H), 0.42-0.62 (m, 3H), 0.34 (dt, J=9.8, 4.7 Hz, 1H)

416	^{1}H NMR (acetone-d_6) δ: 9.37 (d, J=2.2 Hz, 1H), 9.18-9.31 (m, 1H), 8.69 (dd, J=4.7, 1.4 Hz, 1H), 8.36-8.56 (m, 3H), 7.88 (d, J=9.0 Hz, 1H), 7.80 (d, J=9.1 Hz, 1H), 7.65 (ddd, J=8.4, 4.7, 0.6 Hz, 2H), 4.63 (d, J=6.6 Hz, 1H), 1.19 (d, J=6.6 Hz, 6H)
420	^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.4 Hz, 1H), 8.70 (d, J=5.1 Hz, 1H), 8.59 (s, 1H), 8.25-8.35 (m, 2H), 7.84 (d, J=8.9 Hz, 1H), 7.72 (d, J=8.9 Hz, 1H), 7.52 (ddd, J=8.3, 4.8, 0.6 Hz, 1H), 6.64 (br s, 1H), 4.15-4.27 (m, 1H), 4.05 (ddd, J=14.2, 6.8, 3.5 Hz, 1H), 3.52-3.66 (m, 3H), 2.02-2.17 (m, 2H), 1.87-2.02 (m, 2H)
421	^{1}H NMR ($CDCl_3$) δ: 8.88 (d, J=2.2 Hz, 1H), 8.50-8.59 (m, 2H), 8.23-8.33 (m, 1H), 8.17 (t, J=2.2 Hz, 1H), 7.81 (dt, J=9.1, 0.9 Hz, 1H), 7.73 (dd, J=9.1, 1.7 Hz, 1H) 6.59 (br s, 1H), 4.03-4.19 (m, 1H), 3.77-3.95 (m, 3H), 3.38 (ddd, J=13.7, 7.6, 4.7 Hz, 1H), 2.62 (s, 3H), 2.01-2.17 (m, 1H), 1.89-2.01 (m, 2H), 1.56-1.74 (m, 3H)
422	^{1}H NMR ($CDCl_3$) δ: 9.22 (s, 1H), 8.71 (d, J=5.2 Hz, 1H), 8.55-8.64 (m, 3H), 8.32 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 8.03 (d, J=9.0 Hz, 1H), 7.90 (dt, J=9.1, 0.9 Hz, 1H), 7.45-7.57 (m, 2H), 4.09 (q, J=9.9 Hz, 2H)
423	^{1}H NMR ($CDCl_3$) δ: 9.23 (d, J=2.4 Hz, 1H), 8.98 (d, J=5.2 Hz, 2H), 8.62-8.75 (m, 1H), 8.56 (d, J=8.0 Hz, 2H), 8.44 (d, J=6.9 Hz, 1H), 8.26-8.38 (m, 1H), 8.16 (dd, J=9.1, 1.6 Hz, 1H), 7.84-8.01 (m, 3H), 7.51 (dd, J=8.2, 4.7 Hz, 1H), 7.35 (t, J=4.8 Hz, 1H)
424	^{1}H NMR ($CDCl_3$) δ: 9.19-9.27 (m, 8H), 8.90-9.09 (m, 5H), 8.72 (dd, J=4.7, 1.4 Hz, 5H), 8.64 (d, J=6.4 Hz, 4H), 8.49-8.58 (m, 4H), 8.33 (ddd, J=8.2, 2.6, 1.4 Hz, 6H), 8.10 (dd, J=9.2, 1.7 Hz, 5H), 7.96 (dt, J=9.1, 0.9 Hz, 5H), 7.54 (ddd, J=8.2, 4.8, 0.7 Hz, 5H)
428	^{1}H NMR (acetone-d_6) δ: 9.36 (d, J=2.7 Hz, 1H), 9.10 (d, J=0.9 Hz, 1H), 8.70 (dd, J=4.7, 1.3 Hz, 1H), 8.42-8.56 (m, 2H), 8.38 (d, J=1.3 Hz, 1H), 7.90 (dd, J=8.8, 0.9 Hz, 1H), 7.63-7.71 (m, 2H), 5.63 (s, 1H), 4.25 (qd, J=9.6, 6.5 Hz, 2H)
429	^{1}H NMR (acetone-d_6) δ: 9.34 (d, J=2.5 Hz, 1H), 9.03 (s, 1H), 8.68 (d, J=5.3 Hz, 1H), 8.48 (ddd, J=8.4, 2.7, 1.4 Hz, 1H), 8.24 (d, J=1.1 Hz, 1H), 7.83 (dd, J=8.8, 0.9 Hz, 2H), 7.58-7.65 (m, 2H), 2.99 (d, J=3.9 Hz, 1H), 0.72-0.93 (m, 3H), 0.53-0.72 (m, 2H)
430	^{1}H NMR ($CDCl_3$) δ: 9.22 (s, 1H), 8.77 (d, J=5.1 Hz, 2H), 8.70 (d, J=4.6 Hz, 1H), 8.52 (s, 1H), 8.38 (s, 1H), 8.31 (d, J=8.2 Hz, 1H), 7.82 (dd, J=17.3 Hz, 1H), 7.73-7.76 (m, 1H), 7.70 (d, J=8.7 Hz, 1H), 7.52 (ddd, J=8.3, 4.8, 0.8 Hz, 1H), 7.22-7.32 (m, 1H), 4.97 (d, J=4.4 Hz, 2H)
431	^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.2 Hz, 1H), 8.71 (dd, J=7.1 Hz, 1H), 8.52 (d, J=0.9 Hz, 1H), 8.12-8.34 (m, 2H), 7.82 (d, J=8.7 Hz, 2H), 7.49-7.61 (m, 2H), 3.83 (s, 3H)
432	^{1}H NMR (acetone-d_6) δ: 9.35 (s, 1H), 9.05 (s, 1H), 8.68 (d, J=4.9 Hz, 1H), 8.49 (d, J=8.3 Hz, 1H), 8.30 (s, 1H), 8.02 (br s, 1H), 7.85 (d, J=8.7 Hz, 1H), 7.59-7.69 (m, 2H), 3.62-3.69 (m, 2H), 2.74-2.83 (m, 3H), 2.16 (s, 3H)

433	^{1}H NMR (acetone-d_6) δ: 9.36 (s, 1H), 9.06 (s, 1H), 8.68 (d, J=5.1 Hz, 1H), 8.49 (d, J=8.2 Hz, 1H), 8.31 (s, 1H), 7.85 (dd, J=8.7, 0.9 Hz, 2H), 7.62-7.67 (m, 2H), 4.61 (t, J=5.5 Hz, 1H), 3.55 (t, J=5.8 Hz, 2H), 3.38-3.40 (m, 6H)
434	^{1}H NMR (acetone-d_6) δ: 9.36 (s, 1H), 9.08 (s, 1H), 8.69 (d, J=5.0 Hz, 1H), 8.49 (d, J=8.2 Hz, 1H), 8.36 (s, 1H), 8.18 (d, J=8.8 Hz, 1H), 7.88 (d, J=8.8 Hz, 1H), 7.63-7.68 (m, 2H), 4.96-5.14 (m, 1H), 1.51 (d, J=7.1 Hz, 3H)
435	^{1}H NMR (acetone-d_6) δ: 9.36 (d, J=7.1 Hz, 1H), 9.08 (s, 1H), 8.69 (d, J=5.2 Hz, 1H), 8.50 (ddd, J=8.4, 2.7, 1.4 Hz, 1H), 8.31-8.41 (m, 1H), 8.25 (br s, 1H), 7.88 (d, J=8.7 Hz, 1H), 7.63-7.69 (m, 2H), 6.14 (t, J=4.3 Hz, 1H), 3.84 (tdd, 2H)
436	^{1}H NMR (acetone-d_6) δ: 9.36 (d, J=7.1 Hz, 1H), 9.08 (s, 1H), 8.69 (d, J=5.2 Hz, 1H), 8.50 (ddd, J=8.4, 2.7, 1.4 Hz, 1H), 8.31-8.41 (m, 1H), 8.25 (br s, 1H), 7.88 (d, J=8.7 Hz, 1H), 7.63-7.69 (m, 2H), 6.14 (t, J=4.3 Hz, 1H), 3.84 (tdd, 2H)
437	^{1}H NMR (acetone-d_6) δ: 9.35 (s, 1H), 9.05 (s, 1H), 8.68 (d, J=5.0 Hz, 1H), 8.50 (s, 1H), 8.48 (d, J=8.2 Hz, 1H), 8.31 (s, 1H), 7.85 (dd, J=8.8, 0.9 Hz, 2H), 7.56-7.74 (m, 2H), 4.08 (dd, J=6.6, 5.2 Hz, 1H), 3.86 (ddd, J=8.1, 7.2, 6.1 Hz, 1H), 3.69 (td, J=7.7, 6.5 Hz, 1H), 3.40-3.58 (m, 2H), 2.00-2.08 (m, 5H), 1.83-1.94 (m, 2H), 1.70 (dd, J=12.1, 8.7 Hz, 1H)
438	^{1}H NMR ($CDCl_3$) δ: 9.04-9.20 (m, 2H), 8.79 (dd, J=4.7, 1.4 Hz, 1H), 8.36 (dd, J=7.1, 1.1 Hz, 1H), 8.16 (ddd, J=8.2, 2.6, 1.5 Hz, 1H), 7.79 (dd, J=8.4, 1.1 Hz, 1H), 7.57 (ddd, J=8.2, 4.8, 0.8 Hz, 1H), 7.33 (dd, J=8.4, 7.0 Hz, 1H), 4.15 (dd, J=6.4, 3.9 Hz, 1H), 3.72-3.91 (m, 3H), 3.62 (dt, J=13.9, 6.0 Hz, 1H), 1.95-2.11 (m, 1H), 1.84-1.95 (m, 2H), 1.69 (dd, J=12.2, 8.7 Hz, 2H)
439	^{1}H NMR ($CDCl_3$) δ: 9.51 (s, 1H), 8.74-8.84 (m, 3H), 8.55 (dt, J=7.9, 2.0 Hz, 1H), 8.25 (s, 1H), 7.96 (d, J=8.5 Hz, 1H), 7.87 (d, J=8.4 Hz, 1H), 7.72 (br s, 1H), 7.51 (ddd, J=6.4 Hz, 1H), 7.26-7.31 (m, 2H), 4.97 (d, J=4.4 Hz, 2H)
440	^{1}H NMR ($CDCl_3$) δ: 9.50 (dd, J=2.1, 0.9 Hz, 1H), 8.80 (dd, J=4.8, 1.7 Hz, 1H), 8.53 (dt, J=8.0, 2.0 Hz, 1H), 8.12-8.17 (m, 1H), 7.77-7.87 (m, 2H), 7.50 (ddd, J=8.0, 4.8, 0.9 Hz, 1H), 6.64 (br s, 1H), 4.11 (dd, J=7.3, 3.2 Hz, 1H), 3.77-3.95 (m, 4H), 3.38 (ddd, J=13.8, 7.6, 4.7 Hz, 1H), 2.02-2.12 (m, 2H), 1.87-2.01 (m, 3H), 1.56-1.76 (m, 4H)
441	^{1}H NMR ($CDCl_3$) δ: 9.49 (d, J=1.6 Hz, 1H), 8.80 (dd, J=4.9, 1.6 Hz, 1H), 8.53 (d, J=7.9 Hz, 1H), 8.10 (s, 1H), 7.74-7.84 (m, 2H), 7.50 (ddd, J=6.6 Hz, 1H), 6.06 (d, J=7.3 Hz, 1H), 4.34 (dt, J=7.7, 6.6 Hz, 1H), 1.28-1.33 (m, 6H)
442	^{1}H NMR ($CDCl_3$) δ: 8.74 (d, J=2.0 Hz, 1H), 8.47 (dd, J=4.7, 1.2 Hz, 1H), 7.96-8.18 (m, 3H), 7.78-7.94 (m, 4H), 7.67 (d, J=8.2 Hz, 2H), 7.54-7.63 (m, 2H), 7.42-7.53 (m, 3H), 7.35 (ddd, J=8.2, 4.8, 0.7 Hz, 1H), 3.91-4.00 (m, 9H), 1.72 (br s, 8H)

443	^{1}H NMR ($CDCl_3$) δ: 9.50 (d, J=1.6 Hz, 1H), 8.82 (dd, J=4.7, 1.6 Hz, 1H), 8.54 (d, J=8.0 Hz, 1H), 8.14 (dd, J=1.6, 0.6 Hz, 1H), 7.77-7.90 (m, 2H), 7.51 (t, J=6.5 Hz, 1H), 6.47 (br s, 1H), 4.18-4.31 (m, 2H)
444	^{1}H NMR ($CDCl_3$) δ: 9.20 (d, J=2.2 Hz, 1H), 9.14 (br s, 1H), 8.73 (d, J=5.2 Hz, 1H), 8.57 (s, 1H), 8.35 (d, J=7.1 Hz, 1H), 8.20 (d, J=8.3 Hz, 1H), 7.88 (d, J=8.2 Hz, 1H), 7.56 (ddd, J=8.2, 4.8, 0.7 Hz, 1H), 7.29 (t, J=7.5 Hz, 1H), 3.08 (dt, J=7.3, 3.6 Hz, 1H), 0.87-1.01 (m, 2H), 0.65-0.80 (m, 5H),
445	^{1}H NMR ($CDCl_3$) δ: 9.51 (s, 1H), 8.81 (d, J=3.5 Hz, 1H), 8.54 (d, J=7.9 Hz, 1H), 8.13 (s, 1H), 7.77-7.87 (m, 2H), 7.51 (t, J=6.6 Hz, 1H), 6.42 (br s, 1H), 4.54 (t, J=5.1 Hz, 1H), 3.67 (t, J=5.4 Hz, 2H), 3.47 (s, 6H)
446	^{1}H NMR ($CDCl_3$) δ: 9.50 (s, 1H), 8.81 (d, J=3.9 Hz, 1H), 8.53 (d, J=7.9 Hz, 1H), 8.14 (s, 1H), 7.78-7.86 (m, 2H), 7.50 (dd, J=7.7, 4.7 Hz, 1H), 7.26 (s, 1H), 6.32 (br s, 1H), 3.38 (dd, J=7.3, 5.4 Hz, 2H), 1.04-1.18 (m, 1H), 0.54-0.65 (m, 2H), 0.27-0.37 (m, 2H)
447	^{1}H NMR ($CDCl_3$) δ: 9.49 (d, J=1.6 Hz, 1H), 8.80 (dd, J=4.7, 1.6 Hz, 1H), 8.53 (dt, J=8.0, 1.9 Hz, 1H), 8.10 (d, J=1.6 Hz, 1H), 7.77-7.85 (m, 1H), 7.73 (dd, J=8.4, 1.6 Hz, 1H), 7.50 (ddd, J=8.0, 4.9, 0.8 Hz, 1H), 6.35 (br s, 1H), 2.96 (dd, J=7.0, 3.9 Hz, 1H), 0.84-1.00 (m, 2H), 0.62-0.74 (m, 2H)
448	^{1}H NMR ($CDCl_3$) δ: 9.50 (d, J=1.4 Hz, 1H), 8.81 (dd, J=4.8, 1.7 Hz, 1H), 8.53 (dt, J=8.0, 1.9 Hz, 1H), 8.14 (s, 1H), 7.81-7.99 (m, 2H), 7.39-7.56 (m, 1H), 7.26 (s, 3H), 3.83 (s, 2H)
449	^{1}H NMR (acetone-d_6) δ: 9.39-9.47 (m, 1H), 8.83 (dd, J=4.8, 1.7 Hz, 1H), 8.59 (d, J=7.8 Hz, 1H), 8.25 (d, J=1.6 Hz, 1H), 8.16 (br s, 1H), 8.00 (d, J=8.2 Hz, 1H), 7.86 (d, J=8.1 Hz, 1H), 7.65 (t, J=6.7 Hz, 1H), 3.72 (td, J=7.0, 5.8 Hz, 2H), 2.64 (tdd, 2H)
450	^{1}H NMR ($CDCl_3$) δ: 10.09-10.35 (m, 1H), 9.53 (dd, J=8.8 Hz, 1H), 8.74 (dd, J=4.8, 1.7 Hz, 1H), 8.67 (dd, J=11.3 Hz, 1H), 8.06 (dd, J=7.6, 1.1 Hz, 1H), 7.75 (dd, J=8.0, 1.1 Hz, 1H), 7.60 (ddd, J=8.0, 4.8, 0.8 Hz, 1H), 7.40 (t, J=7.7 Hz, 1H), 3.81 (td, J=6.7, 5.8 Hz, 2H), 2.86 (t, J=6.7 Hz, 2H), 2.22 (s, 2H)
451	^{1}H NMR ($CDCl_3$) δ: 12.46 (br s, 1H), 10.36 (br s, 1H), 9.44 (br s, 1H), 8.71 (d, J=3.9 Hz, 1H), 8.53 (br s, 1H), 8.03 (br s, 1H), 7.44-7.58 (m, 2H), 7.21 (br s, 1H), 4.66 (br s, 1H), 3.82 (br s, 2H), 3.50 (s, 5H)
452	^{1}H NMR ($CDCl_3$) δ: 9.12-9.24 (m, 1H), 8.58 (d, J=3.6 Hz, 1H), 8.23 (d, J=8.0 Hz, 1H), 7.66 (br s, 1H), 7.21-7.34 (m, 2H), 7.17 (d, J=7.4 Hz, 1H), 7.06-7.14 (m, 1H), 3.17 (br s, 6H),
453	^{1}H NMR ($CDCl_3$) δ: 10.32-10.42 (m, 1H), 9.81-9.95 (m, 1H), 9.24-9.34 (m, 1H), 8.68-8.82 (m, 1H), 8.41 (d, J=8.6 Hz, 1H), 8.15-8.29 (m, 1H), 7.65-7.76 (m, 1H), 7.49-7.59 (m, 1H), 7.47 (s, 1H), 4.30 (s, 2H)

454	^{1}H NMR ($CDCl_3$) δ: 13.25 (br s, 1H), 10.39 (s, 1H), 9.54 (s, 1H), 8.70 (d, J=3.8 Hz, 1H), 8.63 (d, J=7.9 Hz, 1H), 8.04 (d, J=7.4 Hz, 1H), 7.39-7.51 (m, 2H), 7.16 (t, J=7.8 Hz, 1H), 1.63 (s, 9H)
462	^{1}H NMR (DMSO-d_6) δ: 9.41 (d, J=0.9 Hz, 1H), 9.10 (t, J=1.7 Hz, 1H), 8.62 (t, J=5.8 Hz, 1H), 8.35-8.40 (m, 1H), 8.31 (ddd, J=6.5, 1.6, 0.8 Hz, 1H), 8.11 (ddd, J=8.5, 1.9, 0.8 Hz, 1H), 7.82 (dd, J=9.1, 1.6 Hz, 1H), 7.76 (dt, J=9.1, 0.9 Hz, 1H), 7.64 (dd, J=8.5, 6.5 Hz, 1H), 4.01 (t, J=6.3 Hz, 1H), 3.80 (ddd, J=8.1, 7.1, 6.1 Hz, 1H), 3.58-3.70 (m, 1H), 3.28-3.39 (m, 3H), 1.78-1.97 (m, 3H), 1.57-1.67 (m, 1H)
463	^{1}H NMR (DMSO-d_6) δ: 9.49 (s, 1H), 9.46 (s, 1H), 8.88 (t, J=5.5 Hz, 1H), 8.76 (d, J=5.2 Hz, 1H), 8.70-8.74 (m, 1H), 8.43 (s, 1H), 7.78-7.86 (m, 3H), 3.72-3.83 (m, 2H), 3.62 (q, J=6.2 Hz, 2H)
464	^{1}H NMR ($CDCl_3$) δ: 9.08 (s, 1H), 9.00 (t, J=1.7 Hz, 1H), 8.12-8.28 (m, 1H), 7.85-8.06 (m, 1H), 7.80 (dd, J=8.4, 1.1 Hz, 1H), 7.41 (dd, J=8.4, 6.5 Hz, 1H), 7.31-7.36 (m, 1H), 6.48 (br s, 1H), 2.96 (dd, J=7.1, 3.9 Hz, 1H), 0.84-0.99 (m, 2H), 0.61-0.76 (m, 2H)
465	^{1}H NMR ($CDCl_3$) δ: 8.99-9.09 (m, 3H), 8.21 (d, J=6.6 Hz, 2H), 7.84-7.96 (m, 2H), 7.80 (dt, J=8.4, 0.9 Hz, 2H), 7.30-7.47 (m, 5H), 6.17 (d, J=7.7 Hz, 2H), 3.98-4.19 (m, 2H), 2.09 (dd, J=12.5, 3.2 Hz, 4H), 1.80 (dt, J=13.8, 3.7 Hz, 4H), 1.69 (dt, J=13.0, 3.7 Hz, 2H), 1.41-1.55 (m, 4H), 1.23-1.36 (m, 5H)
466	^{1}H NMR ($CDCl_3$) δ: 8.91-9.08 (m, 2H), 8.23 (d, J=6.8 Hz, 1H), 7.95 (d, J=8.7 Hz, 2H), 7.81 (dd, J=8.4, 1.1 Hz, 2H), 7.34-7.56 (m, 4H), 6.61 (br s, 1H), 4.16-4.36 (m, 2H)
467	^{1}H NMR ($CDCl_3$) δ: 9.19 (d, 1H), 8.63 (dd, 1H), 8.51 (d, 1H), 8.26 (dt, 1H), 8.03 (s, 1H), 7.39 (dd, 1H), 7.16 (dd, 1H), 7.00 (s, 1H), 6.60 (br s, 1H), 4.10 (qd, 1H), 3.93 (dt, 1H), 3.89-3.76 (m, 2H), 3.38-3.29 (m, 1H), 2.11-2.02 (m, 1H), 2.00-1.83 (m, 3H)
600	^{1}H NMR (acetone-d_6) δ: 9.36 (d, J=2.7 Hz, 1H), 9.19 (s, 1H), 8.69 (dd, J=4.7, 1.5 Hz, 1H), 8.50 (ddd, J=8.3, 2.6, 1.4 Hz, 1H), 8.44-8.47 (m, 1H), 8.12-8.20 (m, 1H), 7.88 (dd, J=9.1, 1.6 Hz, 1H), 7.79 (d, J=9.1 Hz, 1H), 7.64 (dd, J=8.3, 4.7 Hz, 1H), 4.18 (d, J=5.9 Hz, 2H), 3.72 (s, 3H), 3.10 (s, 1H)
601	^{1}H NMR ($CDCl_3$) δ: 9.26 (d, J=2.6 Hz, 1H), 9.06 (d, J=0.9 Hz, 1H), 8.68 (dd, J=4.7, 1.5 Hz, 1H), 8.30 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 7.97 (d, J=8.4 Hz, 1H), 7.50 (dd, J=8.3, 4.8 Hz, 1H), 7.34-7.44 (m, 1H), 6.53 (s, 1H), 3.81 (q, J=6.3 Hz, 2H), 2.50-2.60 (m, 2H)
602	^{1}H NMR (acetone-d_6) δ: 9.45 (d, J=2.8 Hz, 1H), 9.34 (s, 1H), 8.68-8.74 (m, 1H), 8.57-8.62 (m, 2H), 7.98 (d, J=8.9 Hz, 1H), 7.76 (d, J=7.0 Hz, 1H), 7.64-7.70 (m, 1H), 7.42-7.49 (m, 1H), 4.51 (d, J=5.5 Hz, 1H)
603	^{1}H NMR (DMSO-d_6) δ: 10.42 (s, 1H), 9.30-9.39 (m, 1H), 8.67 (dd, J=4.7, 1.4 Hz, 1H), 8.52-8.60 (m, 1H), 7.95 (br d, J=8.7 Hz, 1H), 7.72 (br d, J=7.0 Hz, 1H), 7.65 (dd, J=8.3, 4.7 Hz, 1H), 7.44 (br t, J=7.9 Hz, 1H), 3.65 (s, 3H)

604	^{1}H NMR ($CDCl_3$) δ: 9.27 (s, 1H), 9.08 (d, J=1.0 Hz, 1H), 8.67 (br d, J=4.8 Hz, 1H), 8.25-8.34 (m, 1H), 7.94 (dt, J=8.6, 0.9 Hz, 1H), 7.49 (dd, J=8.3, 4.7 Hz, 1H), 7.40-7.44 (m, 1H), 7.34-7.40 (m, 1H), 6.28 (br d, J=7.8 Hz, 1H), 3.63-3.71 (m, 1H), 1.63 (br s, 1H), 1.37 (d, J=6.6 Hz, 3H), 0.97 (qt, J=8.2, 4.9 Hz, 1H), 0.57-0.65 (m, 1H), 0.49-0.57 (m, 1H), 0.46 (dq, J=9.7, 5.0 Hz, 1H), 0.31-0.39 (m, 1H)
662	^{1}H NMR ($CDCl_3$) δ: 9.15 (d, J=0.9 Hz, 1H), 8.85 (d, J=2.1 Hz, 1H), 8.37 (d, J=2.6 Hz, 1H), 7.99 (dt, J=8.3, 1.1 Hz, 1H), 7.82 (t, J=2.4 Hz, 1H), 7.33-7.41 (m, 2H), 1.87-1.93 (m, 6H)
663	^{1}H NMR ($CDCl_3$) δ: 9.11 (d, J=0.9 Hz, 1H), 8.81 (d, J=2.1 Hz, 1H), 8.36 (d, J=2.7 Hz, 1H), 7.90-7.96 (m, 1H), 7.83 (t, J=2.4 Hz, 1H), 7.32-7.36 (m, 2H), 6.42 (s, 1H), 2.96 (td, J=7.1, 3.3 Hz, 1H), 0.90-0.99 (m, 1H), 0.64-0.74 (m, 2H)
668	^{1}H NMR ($CDCl_3$) δ: 8.99 (s, 1H), 8.79 (br d, J=4.9 Hz, 1H), 8.02-8.06 (m, 1H), 7.84-7.89 (m, 1H), 7.55 (dd, J=8.2, 4.8 Hz, 1H), 7.37-7.41 (m, 2H), 6.31 (s, 1H), 4.21 (qd, J=9.0, 6.5 Hz, 2H)
669	^{1}H NMR (acetone-d_6) δ: 9.22 (d, J=2.6 Hz, 1H), 8.56 (dd, J=4.7, 1.4 Hz, 1H), 8.38 (ddd, J=8.4, 2.7, 1.4 Hz, 1H), 8.19 (dd, J=7.5, 0.8 Hz, 1H), 7.97 (s, 1H), 7.83 (t, J=7.9 Hz, 1H), 7.73 (dd, J=8.2, 1.0 Hz, 1H), 7.59 (ddd, J=8.4, 4.7, 0.8 Hz, 1H), 4.25-4.37 (m, 2H)
504	^{1}H NMR (acetone-d_6) δ: 9.29-9.35 (m, 2H), 8.62 (d, J=2.4 Hz, 1H), 8.46 (d, J=9.8 Hz, 1H), 7.89 (d, J=8.8 Hz, 2H), 7.68 (d, J=6.6 Hz, 1H), 7.42 (dd, J=7.5 Hz, 1H), 4.62 (t, J=5.5 Hz, 1H), 3.57 (t, J=5.8 Hz, 2H), 3.39 (s, 6H)
731	^{1}H NMR ($CDCl_3$) δ: 9.20 (dd, J=2.6, 0.7 Hz, 1H), 8.68 (dd, J=4.8, 1.5 Hz, 1H), 8.51-8.53 (m, 1H), 8.30 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 7.76-7.83 (m, 2H), 7.51 (ddd, J=8.4, 4.8, 0.7 Hz, 1H), 7.32-7.38 (m, 1H), 1.18-1.24 (m, 3H)
732	^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.7 Hz, 1H), 8.70 (dd, J=4.7, 1.4 Hz, 1H), 8.59 (d, J=1.0 Hz, 1H), 8.30 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 8.27-8.29 (m, 1H), 7.83 (dt, J=9.1, 1.0 Hz, 1H), 7.71 (dd, J=9.1, 1.6 Hz, 1H), 7.52 (ddd, J=8.3, 4.8, 0.6 Hz, 1H), 6.58 (s, 1H), 3.79-3.86 (m, 1H), 3.70-3.78 (m, 1H), 3.47 (ddd, J=13.3, 7.3, 5.8 Hz, 1H), 2.86-3.01 (m, 2H), 2.06-2.18 (m, 2H), 1.97-2.06 (m, 1H), 1.81 (br d, J=7.5 Hz, 1H)
746	^{1}H NMR (DMSO-d_6) δ: 9.82 (s, 1H), 9.39 (s, 1H), 9.35 (d, J=2.8 Hz, 1H), 8.66-8.71 (m, 1H), 8.51 (ddd, J=8.4, 2.7, 1.4 Hz, 2H), 8.34 (s, 1H), 7.77-7.79 (m, 1H), 7.64-7.69 (m, 1H), 4.50 (s, 1H)
748	^{1}H NMR ($CDCl_3$) δ: 9.16-9.25 (m, 1H), 8.69-8.76 (m, 1H), 8.59 (s, 1H), 8.33 (s, 1H), 8.30 (br d, J=8.6 Hz, 1H), 7.90-8.01 (m, 1H), 7.84 (d, J=9.3 Hz, 1H), 7.72 (dd, J=9.2, 1.7 Hz, 1H), 7.47-7.57 (m, 1H), 6.76-6.88 (m, 1H), 4.97-5.12 (m, 1H), 1.28-1.37 (m, 6H)
800	^{1}H NMR ($CDCl_3$) δ: 9.19 (d, J=2.7 Hz, 1H), 8.66 (dd, J=4.7, 1.4 Hz, 1H), 8.42 (d, J=0.8 Hz, 1H), 8.29 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 7.74-7.86 (m, 3H), 7.65 (d, J=0.6 Hz, 1H), 7.43-7.55 (m, 2H), 3.97 (s, 3H)

801	^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.7 Hz, 1H), 8.70 (dd, J=4.8, 1.5 Hz, 1H), 8.57 (d, J=0.8 Hz, 1H), 8.44 (dd, J=1.6, 0.9 Hz, 1H), 8.28-8.34 (m, 1H), 7.96 (dd, J=9.1, 1.7 Hz, 1H), 7.87 (dt, J=9.1, 0.9 Hz, 1H), 7.74 (d, J=1.0 Hz, 1H), 7.52 (dd, J=8.3, 4.7 Hz, 1H)
802	^{1}H NMR ($CDCl_3$) δ: 9.18 (s, 1H), 9.04 (s, 1H), 8.66 (br d, J=4.7 Hz, 1H), 8.56 (d, J=2.6 Hz, 1H), 8.55 (s, 1H), 8.54 (s, 1H), 8.26 (dt, J=8.0, 1.9 Hz, 1H), 8.14 (dt, J=9.1, 2.3 Hz, 1H), 7.82-7.88 (m, 2H), 7.49 (dd, J=9.0, 1.7 Hz, 1H), 7.38-7.43 (m, J=8.0, 4.8 Hz, 1H), 2.63 (s, 3H)
803	^{1}H NMR ($CDCl_3$) δ: 9.38 (s, 1H), 9.19 (s, 1H), 9.11 (s, 1H), 8.64-8.70 (m, 1H), 8.47-8.55 (m, 1H), 8.32-8.39 (m, 1H), 8.16 (s, 1H), 7.81-7.94 (m, 1H), 7.65 (dd, J=8.4, 4.8 Hz, 1H), 7.53 (ddd, J=7.9, 4.8, 0.7 Hz, 1H), 2.75 (s, 3H)
804	^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.6 Hz, 1H), 8.69 (dd, J=4.7, 1.4 Hz, 1H), 8.61-8.64 (m, 1H), 8.53 (s, 1H), 8.31 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 8.20 (dt, J=8.0, 1.1 Hz, 1H), 7.84-7.89 (m, 2H), 7.80 (td, J=7.7, 1.7 Hz, 1H), 7.48-7.55 (m, 2H), 7.29-7.34 (m, J=7.5, 4.8, 1.2 Hz, 1H), 2.63 (s, 3H)
805	^{1}H NMR ($CDCl_3$) δ: 9.20-9.24 (m, 1H), 9.01 (s, 1H), 8.68-8.72 (m, 1H), 8.55 (s, 1H), 8.28-8.34 (m, 1H), 8.12 (s, 1H), 7.92 (s, 1H), 7.87 (d, J=1.0 Hz, 1H), 7.81 (s, 1H), 7.59 (d, J=1.0 Hz, 1H), 7.50-7.56 (m, 1H)
806	^{1}H NMR ($CDCl_3$) δ: 9.50 (d, J=1.4 Hz, 1H), 9.22 (d, J=2.6 Hz, 1H), 8.68 (dd, J=4.7, 1.3 Hz, 1H), 8.59 (d, J=2.5 Hz, 1H), 8.54-8.57 (m, 2H), 8.33 (ddd, J=8.3, 2.6, 1.6 Hz, 1H), 8.02-8.04 (m, 1H), 7.88-7.92 (m, 1H), 7.81 (dd, J=9.1, 1.6 Hz, 1H), 7.52 (ddd, J=8.3, 4.8, 0.6 Hz, 1H), 2.72 (s, 3H)
807	^{1}H NMR ($CDCl_3$) δ: 9.22 (d, J=2.7 Hz, 1H), 8.71 (d, J=1.1 Hz, 1H), 8.68 (dd, J=4.7, 1.4 Hz, 1H), 8.55 (d, J=1.0 Hz, 1H), 8.50 (dd, J=1.6, 0.9 Hz, 1H), 8.31 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 7.95 (dd, J=9.1, 1.7 Hz, 1H), 7.85-7.89 (m, 1H), 7.51 (ddd, J=8.3, 4.7, 0.7 Hz, 1H), 6.85 (s, 1H), 3.22 (s, 3H)
808	^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.6 Hz, 1H), 8.69 (dd, J=4.7, 1.4 Hz, 1H), 8.62 (d, J=1.0 Hz, 1H), 8.53 (s, 1H), 8.31 (ddd, J=8.2, 2.6, 1.4 Hz, 1H), 8.20 (d, J=7.9 Hz, 1H), 7.85-7.90 (m, 2H), 7.81 (td, J=7.7, 1.7 Hz, 1H), 7.48-7.55 (m, 2H), 7.32 (ddd, J=7.5, 4.8, 1.2 Hz, 1H), 2.63 (s, 3H)
809	^{1}H NMR ($CDCl_3$) δ: 9.03-9.08 (m, 3H), 9.03 (s, 1H), 8.64 (d, J=0.9 Hz, 1H), 8.56 (d, J=2.6 Hz, 1H), 8.51 (dd, J=9.1, 1.6 Hz, 1H), 8.15 (dt, J=9.0, 2.3 Hz, 1H), 7.88 (d, J=9.3 Hz, 1H)
810	^{1}H NMR ($CDCl_3$) δ: 9.75 (dd, J=2.2, 0.8 Hz, 1H), 9.23 (d, J=2.7 Hz, 1H), 8.86 (d, J=4.9 Hz, 2H), 8.79 (dd, J=8.3, 2.3 Hz, 1H), 8.69 (dd, J=4.7, 1.4 Hz, 1H), 8.58 (d, J=0.9 Hz, 1H), 8.52 (dd, J=1.6, 0.9 Hz, 1H), 8.33 (ddd, J=8.2, 2.6, 1.4 Hz, 1H), 8.14 (dd, J=9.1, 1.7 Hz, 1H), 7.89-7.95 (m, 2H), 7.52 (ddd, J=8.3, 4.7, 0.7 Hz, 1H), 7.24-7.29 (m, 1H)

812	^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.7 Hz, 1H), 8.70 (dd, J=4.7, 1.4 Hz, 1H), 8.55 (s, 1H), 8.39 (dd, J=1.6, 0.9 Hz, 1H), 8.30 (ddd, J=8.3, 2.6, 1.6 Hz, 1H), 7.88-7.94 (m, 1H), 7.83-7.88 (m, 1H), 7.52 (ddd, J=8.3, 4.7, 0.7 Hz, 1H), 7.09 (s, 1H)
814	^{1}H NMR ($CDCl_3$) δ: 9.23 (d, J=2.8 Hz, 1H), 9.08-9.12 (m, 1H), 8.69 (s, 1H), 8.53 (s, 1H), 8.29-8.37 (m, 1H), 8.20-8.26 (m, 1H), 8.05-8.11 (m, 1H), 7.86-7.99 (m, 2H), 7.72 (br d, J=1.9 Hz, 1H), 7.49-7.55 (m, 1H), 6.38-6.43 (m, 1H), 4.14-4.24 (m, 2H)
815	^{1}H NMR ($CDCl_3$) δ: 9.23 (d, J=2.7 Hz, 1H), 9.18 (dd, J=4.9, 1.6 Hz, 1H), 8.70 (dd, J=4.7, 1.4 Hz, 1H), 8.61 (d, J=0.9 Hz, 1H), 8.52 (dd, J=1.6, 0.9 Hz, 1H), 8.33 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 8.12 (dd, J=9.1, 1.7 Hz, 1H), 7.92-7.97 (m, 2H), 7.57 (dd, J=8.7, 4.9 Hz, 1H), 7.53 (ddd, J=8.3, 4.7, 0.7 Hz, 1H)
816	^{1}H NMR (acetone-d_6) δ: 9.36 (d, J=2.7 Hz, 1H), 9.09 (d, J=0.9 Hz, 1H), 9.02 (s, 1H), 8.68 (dd, J=4.7, 1.4 Hz, 1H), 8.49 (ddd, J=8.2, 2.8, 1.4 Hz, 1H), 8.08 (d, J=1.4 Hz, 1H), 7.96 (s, 1H), 7.78 (d, J=9.0 Hz, 1H), 7.64 (dd, J=8.3, 4.7 Hz, 1H), 7.55 (dd, J=9.0, 1.7 Hz, 1H)
817	^{1}H NMR ($CDCl_3$) δ: 9.19-9.25 (m, 2H), 8.69 (ddd, J=10.9, 4.8, 1.6 Hz, 4H), 8.50-8.55 (m, 2H), 8.24-8.34 (m, 4H), 8.12 (s, 2H), 7.94-7.99 (m, 1H), 7.87 (d, J=9.2 Hz, 1H), 7.64 (dd, J=9.1, 1.7 Hz, 2H), 7.52 (dd, J=8.2, 4.7 Hz, 1H), 7.42 (ddd, J=7.9, 4.8, 0.7 Hz, 2H)
818	^{1}H NMR ($CDCl_3$) δ: 9.23 (d, J=2.7 Hz, 1H), 8.73 (dd, J=4.7, 1.4 Hz, 1H), 8.64 (d, J=0.8 Hz, 1H), 8.48-8.51 (m, 1H), 8.32 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 7.91-8.00 (m, 2H), 7.54 (ddd, J=8.3, 4.8, 0.6 Hz, 1H)
819	^{1}H NMR ($CDCl_3$) δ: 9.22 (d, J=2.7 Hz, 1H), 8.68 (dd, J=4.7, 1.4 Hz, 1H), 8.64-8.67 (m, 1H), 8.55 (d, J=0.9 Hz, 1H), 8.37 (dd, J=1.6, 0.9 Hz, 1H), 8.32 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 8.00 (dd, J=9.2, 1.7 Hz, 1H), 7.88 (dt, J=9.1, 1.0 Hz, 1H), 7.74-7.77 (m, 2H), 7.51 (ddd, J=8.3, 4.7, 0.7 Hz, 1H)
820	^{1}H NMR ($CDCl_3$) δ: 9.22 (d, J=2.6 Hz, 1H), 8.97 (dd, J=2.2, 0.8 Hz, 1H), 8.70 (dd, J=4.7, 1.4 Hz, 1H), 8.60 (d, J=0.8 Hz, 1H), 8.52 (dd, J=1.6, 0.8 Hz, 1H), 8.32 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 7.99-8.08 (m, 2H), 7.89-7.94 (m, 2H), 7.53 (ddd, J=8.2, 4.8, 0.7 Hz, 1H)
821	^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.7 Hz, 1H), 8.68 (dd, J=4.7, 1.4 Hz, 1H), 8.52 (d, J=1.0 Hz, 1H), 8.35 (dd, J=1.6, 0.9 Hz, 1H), 8.28-8.31 (m, 1H), 7.95 (dd, J=9.1, 1.7 Hz, 1H), 7.83 (dt, J=9.1, 0.9 Hz, 1H), 7.51 (ddd, J=8.3, 4.7, 0.7 Hz, 1H), 6.89 (q, J=1.0 Hz, 1H), 2.54 (d, J=1.1 Hz, 3H)
822	^{1}H NMR (DMSO-d_6) δ: 9.36 (d, J=2.7 Hz, 1H), 9.33 (s, 1H), 8.68 (dd, J=4.7, 1.4 Hz, 1H), 8.52 (ddd, J=8.4, 2.7, 1.4 Hz, 1H), 8.36 (s, 1H), 7.95 (dd, J=9.1, 1.7 Hz, 1H), 7.85 (d, J=9.1 Hz, 1H), 7.75 (s, 1H), 7.67 (dd, J=8.3, 4.7 Hz, 1H)
823	^{1}H NMR ($CDCl_3$) δ: 10.07 (s, 1H), 9.22 (d, J=2.7 Hz, 1H), 8.71 (dd, J=4.7, 1.5 Hz, 1H), 8.62 (d, J=0.9 Hz, 1H), 8.53 (dd, J=1.8, 0.9 Hz, 1H), 8.45 (s, 1H), 8.28-8.33 (m, 1H), 8.00 (dd, J=9.1, 1.7 Hz, 1H), 7.89 (d, J=9.1 Hz, 1H), 7.53 (ddd, J=8.2, 4.7, 0.8 Hz, 1H)

824	^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.7 Hz, 1H), 8.70 (dd, J=4.7, 1.6 Hz, 1H), 8.53 (d, J=0.9 Hz, 1H), 8.31 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 8.08 (d, J=8.1 Hz, 2H), 7.83-7.90 (m, 2H), 7.71 (d, J=8.2 Hz, 2H), 7.52 (ddd, J=8.2, 4.8, 0.7 Hz, 1H), 7.48 (dd, J=9.0, 1.7 Hz, 1H), 2.63 (s, 3H)
825	^{1}H NMR ($CDCl_3$) δ: 10.15 (s, 1H), 9.23 (d, J=2.7 Hz, 1H), 9.15 (dd, J=2.1, 0.7 Hz, 1H), 8.68-8.72 (m, 1H), 8.60 (d, J=0.8 Hz, 1H), 8.54 (dd, J=1.6, 1.0 Hz, 1H), 8.30-8.35 (m, 1H), 8.25 (dd, J=8.2, 2.2 Hz, 1H), 8.11 (dd, J=9.2, 1.7 Hz, 1H), 7.97 (d, J=8.3 Hz, 1H), 7.89-7.93 (m, 1H), 7.50-7.55 (m, 1H)
826	^{1}H NMR ($CDCl_3$) δ: 9.22 (d, J=2.7 Hz, 1H), 8.68 (dd, J=4.7, 1.4 Hz, 1H), 8.57 (d, J=3.0 Hz, 1H), 8.54 (d, J=1.1 Hz, 1H), 8.29-8.34 (m, 2H), 7.99 (dd, J=9.1, 1.7 Hz, 1H), 7.88 (dt, J=9.1, 0.9 Hz, 1H), 7.77-7.81 (m, 1H), 7.47-7.53 (m, 2H)
827	^{1}H NMR ($CDCl_3$) δ: 9.23 (d, J=2.6 Hz, 1H), 8.70-8.74 (m, 1H), 8.65-8.69 (m, 2H), 8.57 (d, J=0.8 Hz, 1H), 8.51 (dd, J=1.6, 1.0 Hz, 1H), 8.39 (dd, J=7.7, 0.8 Hz, 1H), 8.30-8.36 (m, 1H), 8.24 (dd, J=9.1, 1.6 Hz, 1H), 7.82-7.96 (m, 4H), 7.51 (ddd, J=8.2, 4.8, 0.7 Hz, 1H), 7.34 (ddd, J=7.5, 4.8, 1.2 Hz, 1H)
828	^{1}H NMR ($CDCl_3$) δ: 9.18 (d, J=2.6 Hz, 1H), 8.68 (dd, J=4.7, 1.4 Hz, 1H), 8.65 (s, 1H), 8.50 (d, J=0.9 Hz, 1H), 8.29 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 8.07-8.10 (m, 1H), 7.80 (dt, J=9.1, 1.0 Hz, 1H), 7.55-7.63 (m, 2H), 7.50 (ddd, J=8.2, 4.8, 0.7 Hz, 1H), 2.87 (tq, J=7.2, 3.7 Hz, 1H), 0.80-0.86 (m, 2H), 0.60-0.66 (m, 2H)
829	^{1}H NMR (acetone-d_6) δ: 9.37 (d, J=2.7 Hz, 1H), 9.21 (s, 1H), 9.13 (d, J=1.0 Hz, 1H), 8.68 (dd, J=4.7, 1.4 Hz, 1H), 8.64 (dd, J=1.7, 1.1 Hz, 1H), 8.51 (ddd, J=8.2, 2.7, 1.4 Hz, 1H), 8.24-8.30 (m, 2H), 8.13 (dd, J=4.6, 0.8 Hz, 2H), 7.84 (dt, J=9.1, 1.0 Hz, 1H), 7.64 (ddd, J=8.4, 4.7, 0.6 Hz, 1H), 4.27 (qd, J=9.5, 6.8 Hz, 2H)
830	^{1}H NMR ($CDCl_3$) δ: 9.21 (d, J=2.6 Hz, 1H), 8.71 (dd, J=4.7, 1.5 Hz, 1H), 8.57 (d, J=1.0 Hz, 1H), 8.35 (dd, J=1.6, 0.9 Hz, 1H), 8.27-8.33 (m, 1H), 8.11 (s, 1H), 7.98 (dd, J=9.1, 1.6 Hz, 1H), 7.85-7.90 (m, 1H), 7.49-7.56 (m, 1H), 2.92-3.01 (m, 1H), 0.89-0.94 (m, 1H), 0.69-0.75 (m, 1H)
831	^{1}H NMR ($CDCl_3$) δ: 9.18 (d, J=2.7 Hz, 1H), 8.71 (s, 1H), 8.68 (dd, J=4.7, 1.4 Hz, 1H), 8.52 (d, J=1.0 Hz, 1H), 8.26-8.32 (m, 1H), 8.04 (dd, J=1.5, 0.9 Hz, 1H), 7.85-7.91 (m, 1H), 7.82 (dt, J=9.0, 1.0 Hz, 1H), 7.54 (dd, J=9.1, 1.7 Hz, 1H), 7.51 (ddd, J=8.4, 4.7, 0.6 Hz, 1H), 4.06 (qd, J=9.1, 6.7 Hz, 2H)
832	^{1}H NMR ($CDCl_3$) δ: 9.22 (d, J=2.6 Hz, 1H), 8.71 (dd, J=4.8, 1.5 Hz, 1H), 8.59 (d, J=0.8 Hz, 1H), 8.38 (dd, J=1.6, 0.9 Hz, 1H), 8.31 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 8.17 (s, 1H), 7.99 (dd, J=9.1, 1.7 Hz, 1H), 7.89 (dt, J=9.1, 1.0 Hz, 1H), 7.75 (br t, J=6.8 Hz, 1H), 7.53 (dd, J=8.3, 4.7 Hz, 1H)

833	^{1}H NMR ($CDCl_3$) δ: 9.22 (d, J=2.7 Hz, 1H), 8.97 (s, 1H), 8.70 (br d, J=4.8 Hz, 1H), 8.59 (s, 1H), 8.48 (s, 1H), 8.29-8.35 (m, 1H), 8.06 (dd, J=9.2, 1.7 Hz, 1H), 8.01 (dd, J=8.4, 2.4 Hz, 1H), 7.88-7.96 (m, 1H), 7.52 (dd, J=8.3, 4.8 Hz, 1H)
834	^{1}H NMR ($CDCl_3$) δ: 9.33 (s, 1H), 9.29 (d, J=2.7 Hz, 1H), 9.07 (s, 1H), 8.69 (br d, J=4.9 Hz, 1H), 8.35 (dd, J=8.4, 1.9 Hz, 1H), 8.05 (s, 2H), 7.94 (d, J=8.7 Hz, 1H), 7.71 (d, J=7.0 Hz, 1H), 7.44-7.57 (m, 2H)
835	^{1}H NMR ($CDCl_3$) δ: 9.24 (s, 1H), 8.93 (br d, J=5.6 Hz, 1H), 8.79 (s, 1H), 8.73 (br d, J=5.3 Hz, 1H), 8.66 (s, 1H), 8.33 (br d, J=8.9 Hz, 1H), 8.08 (br d, J=9.3 Hz, 1H), 7.91-7.99 (m, 2H), 7.50-7.58 (m, 1H), 3.47 (s, 3H)
836	^{1}H NMR ($CDCl_3$) δ: 9.05 (d, J=2.1 Hz, 1H), 8.97 (dd, J=1.5, 0.8 Hz, 1H), 8.60 (d, J=1.0 Hz, 1H), 8.56 (d, J=2.5 Hz, 1H), 8.45-8.48 (m, 1H), 8.15 (dt, J=9.0, 2.3 Hz, 1H), 8.07 (dd, J=9.2, 1.7 Hz, 1H), 8.01 (dd, J=8.4, 2.4 Hz, 1H), 7.87-7.93 (m, 2H)
837	^{1}H NMR (acetone-d_6) δ: 9.48 (s, 1H), 9.31 (s, 1H), 9.15 (s, 1H), 8.82 (s, 1H), 8.66 (d, J=2.6 Hz, 1H), 8.43 (dt, J=9.6, 2.4 Hz, 1H), 8.29 (dd, J=9.1, 1.6 Hz, 1H), 7.95 (d, J=9.1 Hz, 1H)
838	^{1}H NMR ($CDCl_3$) δ: 9.22 (d, J=2.6 Hz, 1H), 8.88 (dd, J=4.8, 1.7 Hz, 1H), 8.68 (dd, J=4.7, 1.4 Hz, 1H), 8.55 (d, J=0.7 Hz, 1H), 8.30-8.36 (m, 1H), 8.12 (dd, J=8.0, 1.7 Hz, 1H), 7.85-7.90 (m, 2H), 7.50-7.55 (m, 2H), 7.46 (ddd, J=8.0, 4.8, 0.7 Hz, 1H)
839	^{1}H NMR ($CDCl_3$) δ: 9.23 (d, J=2.6 Hz, 1H), 8.80 (d, J=5.1 Hz, 1H), 8.71 (dd, J=4.7, 1.4 Hz, 1H), 8.60 (d, J=1.0 Hz, 1H), 8.29-8.37 (m, 1H), 8.05-8.09 (m, 1H), 7.92-8.00 (m, 2H), 7.76 (dd, J=5.1, 1.8 Hz, 1H), 7.65 (dd, J=9.0, 1.7 Hz, 1H), 7.54 (ddd, J=8.3, 4.8, 0.6 Hz, 1H)
840	^{1}H NMR ($CDCl_3$) δ: 9.23 (d, J=2.5 Hz, 1H), 9.11 (d, J=1.9 Hz, 1H), 8.89 (s, 1H), 8.71 (dd, J=4.7, 1.3 Hz, 1H), 8.59 (s, 1H), 8.25-8.41 (m, 1H), 8.11-8.25 (m, 1H), 7.91-8.01 (m, 2H), 7.47-7.62 (m, 2H), 2.15-2.26 (m, 1H), 2.11 (s, 1H), 1.18-1.30 (m, 1H), 0.00 (s, 1H)
841	^{1}H NMR ($CDCl_3$) δ: 9.23 (d, J=2.5 Hz, 1H), 9.11 (d, J=1.9 Hz, 1H), 8.89 (s, 1H), 8.71 (dd, J=4.7, 1.3 Hz, 1H), 8.59 (s, 1H), 8.25-8.41 (m, 1H), 8.11-8.25 (m, 1H), 7.91-8.01 (m, 2H), 7.47-7.62 (m, 2H), 2.15-2.26 (m, 1H), 2.11 (s, 1H), 1.18-1.30 (m, 1H), 0.00 (s, 1H)
842	^{1}H NMR (acetone-d_6) δ: 9.05-9.09 (m, 2H), 9.02-9.04 (m, 1H), 8.64 (d, J=0.8 Hz, 1H), 8.57 (d, J=2.5 Hz, 1H), 8.53 (dd, J=9.2, 1.7 Hz, 1H), 8.16 (dt, J=9.0, 2.3 Hz, 1H), 7.89 (dt, J=9.3, 1.0 Hz, 1H), 7.52 (d, J=5.0 Hz, 1H)
843	^{1}H NMR ($CDCl_3$) δ: 9.05 (d, J=2.1 Hz, 1H), 8.59 (d, J=1.0 Hz, 1H), 8.55 (d, J=2.5 Hz, 1H), 8.49 (dd, J=1.7, 0.9 Hz, 1H), 8.14 (dt, J=9.1, 2.3 Hz, 1H), 8.10 (dd, J=9.2, 1.7 Hz, 1H), 7.92-8.01 (m, 1H), 7.88 (dt, J=9.1, 0.9 Hz, 1H), 7.63 (dd, J=7.3, 1.3 Hz, 1H)
844	^{1}H NMR ($CDCl_3$) δ: 9.22 (d, J=2.7 Hz, 1H), 9.18 (d, J=2.3 Hz, 1H), 8.68-8.72 (m, 1H), 8.66 (dd, J=4.9, 1.6 Hz, 1H), 8.54 (d, J=0.8 Hz, 1H), 8.32 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 8.28 (dt, J=7.9, 2.0 Hz, 1H), 7.82-7.90 (m, 2H), 7.53 (ddd, J=8.4, 4.7, 0.6 Hz, 1H), 7.48 (dd, J=9.0, 1.6 Hz, 1H), 7.42 (dd, J=8.0, 4.8 Hz, 1H), 2.63 (s, 3H)`

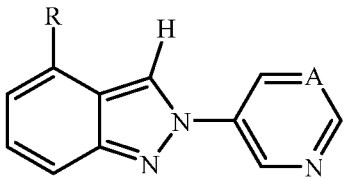
845	^{1}H NMR ($CDCl_3$) δ: 9.22 (d, J=2.6 Hz, 1H), 8.70 (dd, J=4.7, 1.4 Hz, 1H), 8.59 (d, J=1.0 Hz, 1H), 8.48 (dd, J=1.6, 0.9 Hz, 1H), 8.30-8.35 (m, 1H), 7.99-8.07 (m, 2H), 7.87-7.94 (m, 2H), 7.63 (dd, J=7.6, 1.0 Hz, 1H), 7.52 (ddd, J=8.2, 4.8, 0.7 Hz, 1H)
847	^{1}H NMR ($CDCl_3$) δ: 9.34 (d, J=0.9 Hz, 1H), 9.26 (d, J=2.7 Hz, 1H), 8.70 (dd, J=4.7, 1.4 Hz, 1H), 8.61 (d, J=5.2 Hz, 1H), 8.33 (ddd, J=8.3, 2.6, 1.4 Hz, 1H), 7.96 (dt, J=8.7, 0.8 Hz, 1H), 7.75-7.79 (m, 1H), 7.50-7.55 (m, 2H), 7.46 (dd, J=8.7, 7.1 Hz, 1H), 2.71 (s, 3H)
848	^{1}H NMR ($CDCl_3$) δ: 9.22 (d, J=2.7 Hz, 1H), 8.71 (dd, J=4.7, 1.4 Hz, 1H), 8.63 (d, J=0.8 Hz, 1H), 8.60 (d, J=5.4 Hz, 1H), 8.58 (dd, J=1.7, 0.9 Hz, 1H), 8.32 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 8.03 (dd, J=9.2, 1.7 Hz, 1H), 7.90 (dt, J=9.1, 1.0 Hz, 1H), 7.53 (ddd, J=8.2, 4.8, 0.7 Hz, 1H), 7.50 (d, J=5.2 Hz, 1H), 4.06-4.15 (m, 2H)
849	^{1}H NMR ($CDCl_3$) δ: 9.23 (d, J=2.7 Hz, 1H), 8.98 (d, J=4.9 Hz, 1H), 8.66-8.70 (m, 1H), 8.56 (d, J=8.1 Hz, 1H), 8.44 (d, J=7.6 Hz, 1H), 8.33 (d, J=1.0 Hz, 1H), 8.16 (dd, J=9.2, 1.8 Hz, 1H), 7.86-8.00 (m, 2H), 7.51 (dd, J=8.4, 4.7 Hz, 1H), 7.35 (t, J=4.8 Hz, 1H)
850	^{1}H NMR ($CDCl_3$) δ: 9.23 (d, J=2.7 Hz, 1H), 9.20 (d, J=1.5 Hz, 1H), 9.00 (d, J=1.5 Hz, 1H), 8.72 (dd, J=4.7, 1.4 Hz, 1H), 8.64 (d, J=1.0 Hz, 1H), 8.53-8.56 (m, 1H), 8.33 (ddd, J=8.2, 2.7, 1.4 Hz, 1H), 8.10 (dd, J=9.2, 1.7 Hz, 1H), 7.96 (dt, J=9.1, 0.9 Hz, 1H), 7.54 (ddd, J=8.2, 4.8, 0.7 Hz, 1H)
852	^{1}H NMR ($CDCl_3$) δ: 9.23 (d, J=2.7 Hz, 1H), 9.03-9.05 (m, 3H), 8.71 (dd, J=4.7, 1.6 Hz, 1H), 8.63 (d, J=1.0 Hz, 1H), 8.50 (dd, J=9.3, 1.6 Hz, 1H), 8.33 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 7.90 (dt, J=9.3, 1.0 Hz, 1H), 7.53 (ddd, J=8.3, 4.7, 0.7 Hz, 1H)
853	^{1}H NMR ($CDCl_3$) δ: 9.22 (d, J=2.7 Hz, 1H), 8.71 (br d, J=4.9 Hz, 1H), 8.60 (d, J=0.8 Hz, 1H), 8.41 (s, 1H), 8.32 (dd, J=8.4, 1.8 Hz, 1H), 8.04 (dd, J=9.1, 1.7 Hz, 1H), 7.90 (d, J=9.3 Hz, 1H), 7.63 (d, J=1.7 Hz, 1H), 7.53 (dd, J=8.3, 4.8 Hz, 1H), 7.25 (d, J=3.8 Hz, 1H), 6.62 (dd, J=3.5, 1.8 Hz, 1H)
854	^{1}H NMR ($CDCl_3$) δ: 9.23 (s, 1H), 8.71 (br d, J=5.3 Hz, 1H), 8.62 (s, 1H), 8.49 (s, 1H), 8.33 (br d, J=8.5 Hz, 1H), 8.07 (br d, J=9.3 Hz, 1H), 7.88-7.97 (m, 1H), 7.60 (d, J=9.0 Hz, 1H), 7.54 (br dd, J=8.2, 4.9 Hz, 1H)
855	^{1}H NMR ($CDCl_3$) δ: 9.06 (s, 1H), 8.80 (d, J=5.1 Hz, 1H), 8.61 (d, J=0.9 Hz, 1H), 8.58 (d, J=2.6 Hz, 1H), 8.12-8.18 (m, 1H), 8.05-8.08 (m, 1H), 7.96 (d, J=1.7 Hz, 1H), 7.93 (d, J=9.1 Hz, 1H), 7.76 (dd, J=5.1, 1.7 Hz, 1H), 7.63-7.69 (m, 1H)
856	^{1}H NMR ($CDCl_3$) δ: 9.23 (d, J=2.7 Hz, 1H), 9.17 (s, 2H), 8.72 (dd, J=4.7, 1.4 Hz, 1H), 8.63 (d, J=1.0 Hz, 1H), 8.33 (ddd, J=8.2, 2.7, 1.5 Hz, 1H), 8.03 (dd, J=1.8, 1.0 Hz, 1H), 8.00 (dt, J=9.0, 1.0 Hz, 1H), 7.59 (dd, J=9.0, 1.7 Hz, 1H), 7.55 (ddd, J=8.3, 4.8, 0.6 Hz, 1H)

857	^{1}H NMR ($CDCl_3$) δ: 9.23 (d, J=2.7 Hz, 1H), 9.06 (d, J=4.9 Hz, 1H), 9.03-9.05 (m, 1H), 8.70 (dd, J=4.7, 1.6 Hz, 1H), 8.63 (d, J=1.0 Hz, 1H), 8.52 (dd, J=9.1, 1.6 Hz, 1H), 8.33 (ddd, J=8.3, 2.7, 1.5 Hz, 1H), 7.90 (dt, J=9.3, 1.0 Hz, 1H), 7.53 (ddd, J=8.3, 4.8, 0.6 Hz, 1H), 7.51 (d, J=4.9 Hz, 1H)
858	^{1}H NMR ($CDCl_3$) δ: 9.21 (s, 1H), 8.70 (br d, J=4.7 Hz, 1H), 8.57 (s, 1H), 8.29-8.36 (m, 1H), 7.97 (dd, J=9.1, 1.6 Hz, 1H), 7.87 (d, J=9.1 Hz, 1H), 7.52 (dd, J=8.3, 4.6 Hz, 1H), 2.84 (s, 3H)
859	^{1}H NMR ($CDCl_3$) δ: 9.02-9.07 (m, 1H), 8.88 (br d, J=4.8 Hz, 1H), 8.57 (s, 1H), 8.55 (br d, J=2.6 Hz, 1H), 8.14 (br dd, J=13.0, 8.6 Hz, 1H), 7.82-7.89 (m, 1H), 7.53 (br d, J=9.0 Hz, 1H), 7.47 (br dd, J=8.2, 4.9 Hz, 1H)

[a] ^{1}H NMR data are in ppm downfield from tetramethylsilane. Couplings are designated by (s)-singlet, (d)-doublet, (t)-triplet, (m)-multiplet, (dd)-doublet of doublets, (dt)-doublet of triplets, (br)-broad.

Examples of intermediates useful in the preparation of compounds of this invention are shown in Tables I-1 through I-16. The following abbreviations are used in the Tables which follow: Me means methyl, Et means ethyl, Ph means phenyl, C(O) means carbonyl and CHO means formyl.

TABLE I-1



A is CH

R	R
-COOH	-C(O)OMe
-C(O)OEt	cyano
-C(O)Cl	-C(O)OPh
-C(O)O(4-nitrophenyl)	-C(O)Me
-CHO	Cl
Br	I
$-OS(O)_2CF_3$	NH_2
nitro	

A is CF

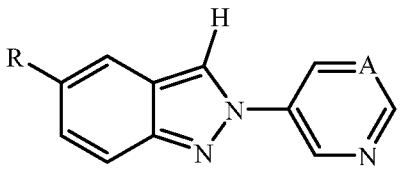
R	R

-COOH	-C(O)OMe
-C(O)OEt	cyano
-C(O)Cl	-C(O)OPh
-C(O)O(4-nitrophenyl)	-C(O)Me
-CHO	Cl
Br	I
$-OS(O)_2CF_3$	NH_2
nitro	

A is N

R	**R**
-COOH	-C(O)OMe
-C(O)OEt	cyano
-C(O)Cl	-C(O)OPh
-C(O)O(4-nitrophenyl)	-C(O)Me
-CHO	Cl
Br	I
$-OS(O)_2CF_3$	NH_2
nitro	

TABLE I-2



A is CH

R	**R**
-COOH	-C(O)OMe
-C(O)OEt	cyano
-C(O)Cl	-C(O)OPh
-C(O)O(4-nitrophenyl)	-C(O)Me
-CHO	Cl
Br	I
$-OS(O)_2CF_3$	NH_2
nitro	

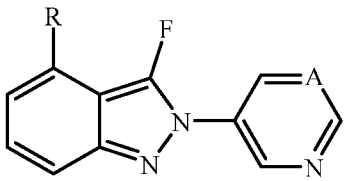
A is CF

R	R
-COOH	-C(O)OMe
-C(O)OEt	cyano
-C(O)Cl	-C(O)OPh
-C(O)O(4-nitrophenyl)	-C(O)Me
-CHO	Cl
Br	I
$-OS(O)_2CF_3$	NH_2
nitro	

A is N

R	R
-COOH	-C(O)OMe
-C(O)OEt	cyano
-C(O)Cl	-C(O)OPh
-C(O)O(4-nitrophenyl)	-C(O)Me
-CHO	Cl
Br	I
$-OS(O)_2CF_3$	NH_2
nitro	

TABLE I-3



A is CH

R	R
-COOH	-C(O)OMe
-C(O)OEt	cyano
-C(O)Cl	-C(O)OPh
-C(O)O(4-nitrophenyl)	-C(O)Me

-CHO	Cl
Br	I
$-OS(O)_2CF_3$	NH_2
nitro	

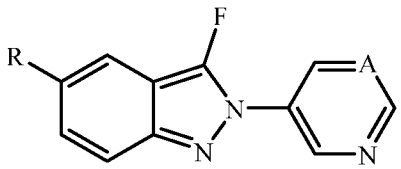
A is CF

R	**R**
-COOH	-C(O)OMe
-C(O)OEt	cyano
-C(O)Cl	-C(O)OPh
-C(O)O(4-nitrophenyl)	-C(O)Me
-CHO	Cl
Br	I
$-OS(O)_2CF_3$	NH_2
nitro	

A is N

R	**R**
-COOH	-C(O)OMe
-C(O)OEt	cyano
-C(O)Cl	-C(O)OPh
-C(O)O(4-nitrophenyl)	-C(O)Me
-CHO	Cl
Br	I
$-OS(O)_2CF_3$	NH_2
nitro	

TABLE I-4



A is CH

R	**R**

-COOH	-C(O)OMe
-C(O)OEt	cyano
-C(O)Cl	-C(O)OPh
-C(O)O(4-nitrophenyl)	-C(O)Me
-CHO	Cl
Br	I
$-OS(O)_2CF_3$	NH_2
nitro	

A is CF

R	**R**
-COOH	-C(O)OMe
-C(O)OEt	cyano
-C(O)Cl	-C(O)OPh
-C(O)O(4-nitrophenyl)	-C(O)Me
-CHO	Cl
Br	I
$-OS(O)_2CF_3$	NH_2
nitro	

A is N

R	**R**
-COOH	-C(O)OMe
-C(O)OEt	cyano
-C(O)Cl	-C(O)OPh
-C(O)O(4-nitrophenyl)	-C(O)Me
-CHO	Cl
Br	I
$-OS(O)_2CF_3$	NH_2
nitro	

TABLE I-5

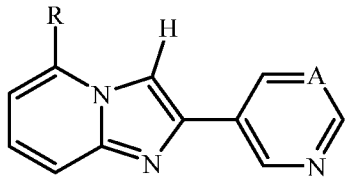


Table I-5 is identical to Table I-1, except that the structure shown under the heading "Table 1-1" is replaced by the structure shown above.

TABLE I-6

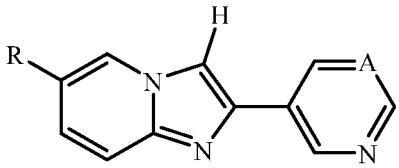


Table I-6 is identical to Table I-1, except that the structure shown under the heading "Table I-1" is replaced by the structure shown above.

TABLE I-7

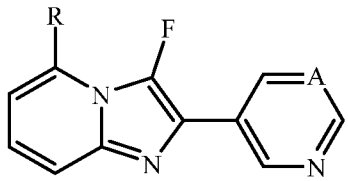


Table I-7 is identical to Table I-1, except that the structure shown under the heading "Table I-1" is replaced by the structure shown above.

TABLE I-8

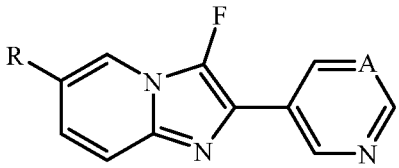


Table I-8 is identical to Table I-1, except that the structure shown under the heading "Table I-1" is replaced by the structure shown above.

TABLE I-9

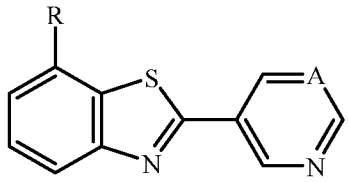


Table I-9 is identical to Table I-1, except that the structure shown under the heading "Table I-1" is replaced by the structure shown above.

TABLE I-10

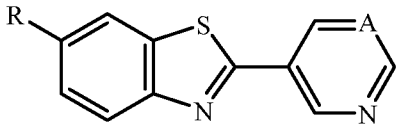


Table I-10 is identical to Table I-1, except that the structure shown under the heading "Table I-1" is replaced by the structure shown above.

TABLE I-11

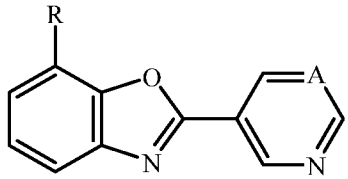


Table I-11 is identical to Table I-1, except that the structure shown under the heading "Table I-1" is replaced by the structure shown above.

TABLE I-12

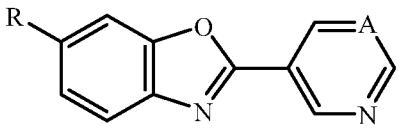


Table I-12 is identical to Table I-1, except that the structure shown under the heading "Table I-1" is replaced by the structure shown above.

TABLE I-13

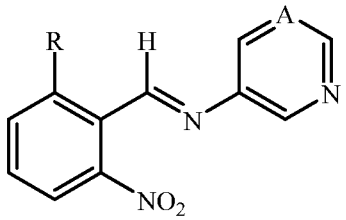


Table I-13 is identical to Table I-1, except that the structure shown under the heading "Table I-1" is replaced by the structure shown above.

TABLE I-14

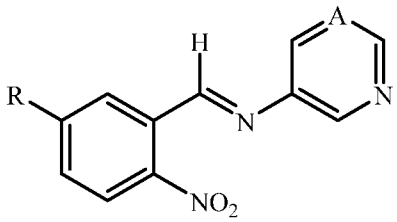


Table I-14 is identical to Table I-1, except that the structure shown under the heading "Table I-1" is replaced by the structure shown above.

TABLE I-15

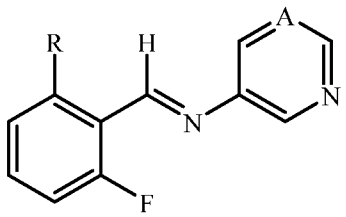


Table I-15 is identical to Table I-1, except that the structure shown under the heading "Table I-1" is replaced by the structure shown above.

TABLE I-16

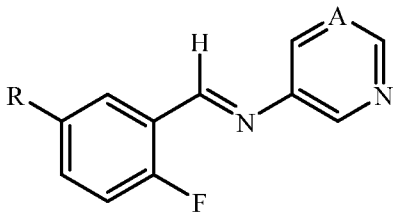


Table I-16 is identical to Table I-1, except that the structure shown under the heading "Table I-1" is replaced by the structure shown above.

By the procedures described herein together with methods known in the art, the following compounds of Tables 1 to 24d can be prepared. The following abbreviations may be used in the Tables which follow: *t* means tertiary, *s* means secondary, *i* means iso, *c* means cyclo, Me means methyl, Et means ethyl, Pr means propyl, Bu means butyl, Ph means phenyl, OMe means methoxy, OEt means ethoxy, SMe means methylthio, SEt means ethylthio, -CN means cyano, Ph means phenyl, Py means pyridinyl, $-NO_2$ means nitro, S(O)Me means methylsulfinyl, and $S(O)_2Me$ means methylsulfonyl.

A "-" at the beginning of a fragment definition denotes the attachment point of said fragment to the remainder of the molecule; for example, "$-CH_2CH_2OMe$" denotes the fragment 2-methoxyethyl. Cyclic fragments are represented by the use of two "-" within parentheses; for example, the fragment 1-pyrrolidinyl is represented by "N($-CH_2CH_2CH_2CH_2-$)", wherein a nitrogen atom is bonded to both terminal carbon atoms of the four-carbon chain, as illustrated below.

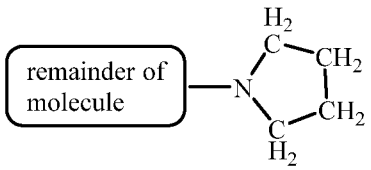
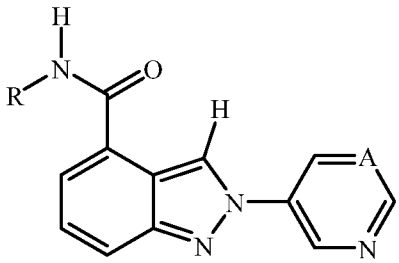


TABLE 1a



A is CH

R	**R**	**R**
Me	Et	Pr
i-Pr	$-CH_2$(c-Pr)	-CH(Me)(c-Pr)
Bu	s-Bu	i-Bu

t-Bu	$-CH_2Ph$	$-CH_2CH{=}CH_2$
$-CH_2C{\equiv}CH$	$-C(Me)_2C{\equiv}CH$	$-CH_2CH_2F$
$-CH_2CHF_2$	$-CH_2CF_3$	$-CH(Me)CF_3$
$-CH_2CH_2CF_3$	$-CH_2CF_2CF_3$	$-CH_2CF_2CH_3$
$-CH_2CH_2CF_2CF_3$	$-CH(i\text{-}Pr)CF_3$	$-CH_2CH_2OMe$
$-CH_2OEt$	$-CH_2CH_2O(i\text{-}Pr)$	$-CH_2CH_2OEt$
$-CH_2CH_2CH_2OMe$	$-CH_2CH(Me)OMe$	$-CH(Et)CH_2OMe$
$-CH(Me)CH_2OMe$	$-CH_2CH_2S(O)Me$	$-CH_2CH_2SMe$
$-CH_2CH_2SEt$	$-CH_2CH_2SO_2Me$	$-CH_2CH_2SO_2Et$
$-CH_2CH_2S(O)Et$	$-CH_2CH_2S(O)(t\text{-}Bu)$	$-CH_2CH_2S(t\text{-}Bu)$
$-CH(Me)CH_2SMe$	$-CH_2CH_2SO_2(t\text{-}Bu)$	$-CH(Me)CH_2SO_2Me$
$-CH(Me)CH_2S(O)Me$	$-CH_2CH_2S(O)CH_2CF_3$	$-CH_2CH_2SCH_2CF_3$
$-CH_2CH_2SO_2CH_2CF_3$	$-CH_2CH_2SO_2CH_2CH_2CF_3$	$-CH_2CH_2SCH_2CH_2CF_3$
$-CH_2CH_2S(O)CH_2CH_2CF_3$	$-CH_2CN$	$-CH_2CH_2CN$
$-C(Me)_2CN$	$-CH_2CH_2N(i\text{-}Pr)_2$	$-CH_2CH_2N(Me)_2$
$-CH2CH(OMe)_2$	c-Pr	c-Bu
1-methylcyclopropyl	3-methoxycyclobutyl	-CH(Ph)(c-Pr)
-CH(Me)(c-Pr)	3-thietanyl	3,3-difluorocyclobutyl
3-oxetanyl	$-CH_2$(oxiranyl)	3-thietanyl-1,1-dioxide
3-thietanyl-1-oxide	$-CH_2(CH(-OC(Me)_2OCH_2-))$	$-CH_2$(tetrahydro-2-furanyl)
$-CH_2$(2-furanyl)	tetrahydro-2-furanyl	$-CH_2$(2-thienyl)
$-CH_2(CH(-OCH_2CH_2O-)$	$-CH_2CO_2Me$	$-CH_2$(2,2-difluorocyclopropyl)
$-C(-CH_2CH_2-)CO_2Me$	$-CH(Me)CO_2Et$	$-CH(i\text{-}Pr)CO_2Me$
$-CH_2C(O)NHMe$	$-CH_2C(O)NMe_2$	-CH(Me)C(O)NHMe
-CH(Me)C(O)NH(t-Bu)	$-OCH_2$(c-Pr)	$-CH(Me)C(O)NMe_2$
$-OCH_2CH{=}CH_2$	-NHC(O)(i-Pr)	-NHC(O)Me
$-NHCO_2Me$	-NHC(O)(3-pyridinyl)	-NHC(O)(t-Bu)
-NHC(O)Ph	-NH(c-hexyl)	-NHC(O)NH(i-Pr)
-NH(c-Pr)	-NHC(O)(2-thienyl)	$-NH(CH_2CF_3)$
$-NHC(O)CF_3$	$-NHCO_2Et$	-NHC(O)(2-furanyl)
-C(O)C(O)Me	$-NHCO_2CH_2CF_3$	$-C(O)CO_2Me$
-C(O)(2-pyridinyl)	$-NHC(O)NMe_2$	-NHC(O)NHMe
$-NHC(O)NHCH_2CF_3$	$-NHC(O)CH_2CH_2CF_3$	-NHC(O)Et
$-NHC(O)CH_2CF_3$	$-NHSO_2CF_3$	$-NHSO_2CH_2CF_3$
$-NHSO_2CH_2CH_2CF_3$	-NH(2-pyridinyl)	-NH(2-pyridinyl)

-NH(2-pyridinyl)	-NH(2-pyrimidinyl)	-NH(2-pyridinyl)
-NH(2-pyrimidinyl)	-NH(6-CF_3-2-pyridinyl)	-NH(4-CF_3-2-pyridinyl)
-NH(3-CF_3-2-pyridinyl)	-NH(5-CF_3-2-pyrimidinyl)	-NH(5-CF_3-2-pyridinyl)
-NH(4-CF_3-2-pyrimidinyl)	-NH(6-methyl-2-pyridinyl)	-NH(4-methyl-2-pyridinyl)
-NH(3-methyl-2-pyridinyl)	-NH(5-methyl-2-pyrimidinyl)	-NH(5-methyl-2-pyridinyl)
-NH(4-methyl-2-pyrimidinyl)	-NH(6-methoxy-2-pyridinyl)	-NH(4-methoxy-2-pyridinyl)
-NH(3-methoxy-2-pyridinyl)	-NH(5-methoxy-2-pyrimidinyl)	-NH(5-methoxy-2-pyridinyl)
-NH(4-methoxy-2-pyrimidinyl)	-CH_2(6-CF_3-2-pyridinyl)	-CH_2(4-CF_3-2-pyridinyl)
-CH_2(3-CF_3-2-pyridinyl)	-CH_2(5-CF_3-2-pyrimidinyl)	-CH_2(5-CF_3-2-pyridinyl)
-CH_2(4-CF_3-2-pyrimidinyl)	-CH_2(6-methyl-2-pyridinyl)	-CH_2(4-methyl-2-pyridinyl)
-CH_2(3-methyl-2-pyridinyl)	-CH_2(5-methyl-2-pyrimidinyl)	-CH_2(5-methyl-2-pyridinyl)
-CH_2(4-methyl-2-pyrimidinyl)	-CH_2(6-methoxy-2-pyridinyl)	-CH_2(4-methoxy-2-pyridinyl)
-CH_2(3-methoxy-2-pyridinyl)	-CH_2(5-methoxy-2-pyrimidinyl)	-CH_2(5-methoxy-2-pyridinyl)
-CH_2(4-methoxy-2-pyrimidinyl)	-CH_2(5-pyrimidinyl)	-CH_2(6-bromo-2-pyridinyl)
-CH_2(2-pyrimidinyl)	-CH_2(3-(OCF_3)phenyl)	-CH_2(2-thiazolyl)
-CH_2(5-methyl-2-pyrazinyl)	-CH_2(4-pyridinyl)	-CH_2(2-pyridinyl)
Ph	3-pyridinyl	-CH_2(3-pyridinyl)
2-pyridinyl	2-pyrazinyl	-CH_2CH_2(2-pyridinyl)
4-pyridinyl	4-CF_3-2-pyridinyl	-$CH_2CH_2CH_2$(2-pyridinyl)
3-CF_3-2-pyridinyl	4-CF_3-2-pyrimidinyl	6-CF_3-2-pyridinyl
5-CF_3-2-pyridinyl	5-CF_3-2-pyrazinyl	5-CF_3-2-pyrimidinyl
-CH_2CH_2N(-C(O)CH_2CH_2C(O)-)	-$CH_2CH_2CH_2$(1-imidazolyl)	-CH(-C(O)OCH_2CH_2-)

A is CF

R	**R**	**R**
Me	Et	Pr
i-Pr	-CH_2(c-Pr)	-CH(Me)(c-Pr)
Bu	s-Bu	i-Bu
t-Bu	-CH_2Ph	-CH_2CH=CH_2
-CH_2C≡CH	-C(Me)$_2$C≡CH	-CH_2CH_2F
-CH_2CHF_2	-CH_2CF_3	-CH(Me)CF_3
-$CH_2CH_2CF_3$	-$CH_2CF_2CF_3$	-$CH_2CF_2CH_3$
-$CH_2CH_2CF_2CF_3$	-CH(i-Pr)CF_3	-CH_2CH_2OMe
-CH_2OEt	-CH_2CH_2O(i-Pr)	-CH_2CH_2OEt
-$CH_2CH_2CH_2$OMe	-CH_2CH(Me)OMe	-CH(Et)CH_2OMe

-CH(Me)CH_2OMe	-CH_2CH_2S(O)Me	-CH_2CH_2SMe
-CH_2CH_2SEt	-$CH_2CH_2SO_2$Me	-$CH_2CH_2SO_2$Et
-CH_2CH_2S(O)Et	-CH_2CH_2S(O)(t-Bu)	-CH_2CH_2S(t-Bu)
-CH(Me)CH_2SMe	-$CH_2CH_2SO_2$(t-Bu)	-CH(Me)CH_2SO_2Me
-CH(Me)CH_2S(O)Me	-CH_2CH_2S(O)CH_2CF_3	-$CH_2CH_2SCH_2CF_3$
-$CH_2CH_2SO_2CH_2CF_3$	-$CH_2CH_2SO_2CH_2CH_2CF_3$	-$CH_2CH_2SCH_2CH_2CF_3$
-CH_2CH_2S(O)$CH_2CH_2CF_3$	-CH_2CN	-CH_2CH_2CN
-C(Me)$_2$CN	-CH_2CH_2N(i-Pr)$_2$	-CH_2CH_2N(Me)$_2$
-CH2CH(OMe)$_2$	c-Pr	c-Bu
1-methylcyclopropyl	3-methoxycyclobutyl	-CH(Ph)(c-Pr)
-CH(Me)(c-Pr)	3-thietanyl	3,3-difluorocyclobutyl
3-oxetanyl	-CH_2(oxiranyl)	3-thietanyl-1,1-dioxide
3-thietanyl-1-oxide	-CH_2(CH(-OC(Me)$_2$OCH_2-))	-CH_2(tetrahydro-2-furanyl)
-CH_2(2-furanyl)	tetrahydro-2-furanyl	-CH_2(2-thienyl)
-CH_2(CH(-OCH_2CH_2O-)	-CH_2CO_2Me	-CH_2(2,2-difluorocyclopropyl)
-C(-CH_2CH_2-)CO_2Me	-CH(Me)CO_2Et	-CH(i-Pr)CO_2Me
-CH_2C(O)NHMe	-CH_2C(O)NMe$_2$	-CH(Me)C(O)NHMe
-CH(Me)C(O)NH(t-Bu)	-OCH_2(c-Pr)	-CH(Me)C(O)NMe$_2$
-OCH_2CH=CH_2	-NHC(O)(i-Pr)	-NHC(O)Me
-NHCO_2Me	-NHC(O)(3-pyridinyl)	-NHC(O)(t-Bu)
-NHC(O)Ph	-NH(c-hexyl)	-NHC(O)NH(i-Pr)
-NH(c-Pr)	-NHC(O)(2-thienyl)	-NH(CH_2CF_3)
-NHC(O)CF_3	-NHCO_2Et	-NHC(O)(2-furanyl)
-C(O)C(O)Me	-NH$CO_2CH_2CF_3$	-C(O)CO_2Me
-C(O)(2-pyridinyl)	-NHC(O)NMe$_2$	-NHC(O)NHMe
-NHC(O)NHCH_2CF_3	-NHC(O)$CH_2CH_2CF_3$	-NHC(O)Et
-NHC(O)CH_2CF_3	-NHSO_2CF_3	-NH$SO_2CH_2CF_3$
-NH$SO_2CH_2CH_2CF_3$	-NH(2-pyridinyl)	-NH(2-pyridinyl)
-NH(2-pyridinyl)	-NH(2-pyrimidinyl)	-NH(2-pyridinyl)
-NH(2-pyrimidinyl)	-NH(6-CF_3-2-pyridinyl)	-NH(4-CF_3-2-pyridinyl)
-NH(3-CF_3-2-pyridinyl)	-NH(5-CF_3-2-pyrimidinyl)	-NH(5-CF_3-2-pyridinyl)
-NH(4-CF_3-2-pyrimidinyl)	-NH(6-methyl-2-pyridinyl)	-NH(4-methyl-2-pyridinyl)
-NH(3-methyl-2-pyridinyl)	-NH(5-methyl-2-pyrimidinyl)	-NH(5-methyl-2-pyridinyl)
-NH(4-methyl-2-pyrimidinyl)	-NH(6-methoxy-2-pyridinyl)	-NH(4-methoxy-2-pyridinyl)
-NH(3-methoxy-2-pyridinyl)	-NH(5-methoxy-2-pyrimidinyl)	-NH(5-methoxy-2-pyridinyl)

-NH(4-methoxy-2-pyrimidinyl)	-CH_2(6-CF_3-2-pyridinyl)	-CH_2(4-CF_3-2-pyridinyl)
-CH_2(3-CF_3-2-pyridinyl)	-CH_2(5-CF_3-2-pyrimidinyl)	-CH_2(5-CF_3-2-pyridinyl)
-CH_2(4-CF_3-2-pyrimidinyl)	-CH_2(6-methyl-2-pyridinyl)	-CH_2(4-methyl-2-pyridinyl)
-CH_2(3-methyl-2-pyridinyl)	-CH_2(5-methyl-2-pyrimidinyl)	-CH_2(5-methyl-2-pyridinyl)
-CH_2(4-methyl-2-pyrimidinyl)	-CH_2(6-methoxy-2-pyridinyl)	-CH_2(4-methoxy-2-pyridinyl)
-CH_2(3-methoxy-2-pyridinyl)	-CH_2(5-methoxy-2-pyrimidinyl)	-CH_2(5-methoxy-2-pyridinyl)
-CH_2(4-methoxy-2-pyrimidinyl)	-CH_2(5-pyrimidinyl)	-CH_2(6-bromo-2-pyridinyl)
-CH_2(2-pyrimidinyl)	-CH_2(3-(OCF_3)phenyl)	-CH_2(2-thiazolyl)
-CH_2(5-methyl-2-pyrazinyl)	-CH_2(4-pyridinyl)	-CH_2(2-pyridinyl)
Ph	3-pyridinyl	-CH_2(3-pyridinyl)
2-pyridinyl	2-pyrazinyl	-CH_2CH_2(2-pyridinyl)
4-pyridinyl	4-CF_3-2-pyridinyl	-$CH_2CH_2CH_2$(2-pyridinyl)
3-CF_3-2-pyridinyl	4-CF_3-2-pyrimidinyl	6-CF_3-2-pyridinyl
5-CF_3-2-pyridinyl	5-CF_3-2-pyrazinyl	5-CF_3-2-pyrimidinyl
-CH_2CH_2N(-C(O)CH_2CH_2C(O)-)	-$CH_2CH_2CH_2$(1-imidazolyl)	-CH(-C(O)OCH_2CH_2-)

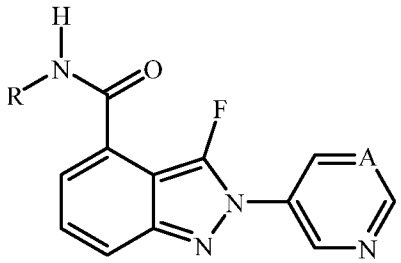
A is N

R	**R**	**R**
Me	Et	Pr
i-Pr	-CH_2(c-Pr)	-CH(Me)(c-Pr)
Bu	s-Bu	i-Bu
t-Bu	-CH_2Ph	-$CH_2CH{=}CH_2$
-CH_2C≡CH	-C(Me)$_2$C≡CH	-CH_2CH_2F
-CH_2CHF_2	-CH_2CF_3	-CH(Me)CF_3
-$CH_2CH_2CF_3$	-$CH_2CF_2CF_3$	-$CH_2CF_2CH_3$
-$CH_2CH_2CF_2CF_3$	-CH(i-Pr)CF_3	-CH_2CH_2OMe
-CH_2OEt	-CH_2CH_2O(i-Pr)	-CH_2CH_2OEt
-$CH_2CH_2CH_2$OMe	-CH_2CH(Me)OMe	-CH(Et)CH_2OMe
-CH(Me)CH_2OMe	-CH_2CH_2S(O)Me	-CH_2CH_2SMe
-CH_2CH_2SEt	-$CH_2CH_2SO_2$Me	-$CH_2CH_2SO_2$Et
-CH_2CH_2S(O)Et	-CH_2CH_2S(O)(t-Bu)	-CH_2CH_2S(t-Bu)
-CH(Me)CH_2SMe	-$CH_2CH_2SO_2$(t-Bu)	-CH(Me)CH_2SO_2Me
-CH(Me)CH_2S(O)Me	-CH_2CH_2S(O)CH_2CF_3	-$CH_2CH_2SCH_2CF_3$
-$CH_2CH_2SO_2CH_2CF_3$	-$CH_2CH_2SO_2CH_2CH_2CF_3$	-$CH_2CH_2SCH_2CH_2CF_3$
-CH_2CH_2S(O)$CH_2CH_2CF_3$	-CH_2CN	-CH_2CH_2CN

-C(Me)$_2$CN	-CH$_2$CH$_2$N(i-Pr)$_2$	-CH$_2$CH$_2$N(Me)$_2$
-CH2CH(OMe)$_2$	c-Pr	c-Bu
1-methylcyclopropyl	3-methoxycyclobutyl	-CH(Ph)(c-Pr)
-CH(Me)(c-Pr)	3-thietanyl	3,3-difluorocyclobutyl
3-oxetanyl	-CH$_2$(oxiranyl)	3-thietanyl-1,1-dioxide
3-thietanyl-1-oxide	-CH$_2$(CH(-OC(Me)$_2$OCH$_2$-))	-CH$_2$(tetrahydro-2-furanyl)
-CH$_2$(2-furanyl)	tetrahydro-2-furanyl	-CH$_2$(2-thienyl)
-CH$_2$(CH(-OCH$_2$CH$_2$O-)	-CH$_2$CO$_2$Me	-CH$_2$(2,2-difluorocyclopropyl)
-C(-CH$_2$CH$_2$-)CO$_2$Me	-CH(Me)CO$_2$Et	-CH(i-Pr)CO$_2$Me
-CH$_2$C(O)NHMe	-CH$_2$C(O)NMe$_2$	-CH(Me)C(O)NHMe
-CH(Me)C(O)NH(t-Bu)	-OCH$_2$(c-Pr)	-CH(Me)C(O)NMe$_2$
-OCH$_2$CH=CH$_2$	-NHC(O)(i-Pr)	-NHC(O)Me
-NHCO$_2$Me	-NHC(O)(3-pyridinyl)	-NHC(O)(t-Bu)
-NHC(O)Ph	-NH(c-hexyl)	-NHC(O)NH(i-Pr)
-NH(c-Pr)	-NHC(O)(2-thienyl)	-NH(CH$_2$CF$_3$)
-NHC(O)CF$_3$	-NHCO$_2$Et	-NHC(O)(2-furanyl)
-C(O)C(O)Me	-NHCO$_2$CH$_2$CF$_3$	-C(O)CO$_2$Me
-C(O)(2-pyridinyl)	-NHC(O)NMe$_2$	-NHC(O)NHMe
-NHC(O)NHCH$_2$CF$_3$	-NHC(O)CH$_2$CH$_2$CF$_3$	-NHC(O)Et
-NHC(O)CH$_2$CF$_3$	-NHSO$_2$CF$_3$	-NHSO$_2$CH$_2$CF$_3$
-NHSO$_2$CH$_2$CH$_2$CF$_3$	-NH(2-pyridinyl)	-NH(2-pyridinyl)
-NH(2-pyridinyl)	-NH(2-pyrimidinyl)	-NH(2-pyridinyl)
-NH(2-pyrimidinyl)	-NH(6-CF$_3$-2-pyridinyl)	-NH(4-CF$_3$-2-pyridinyl)
-NH(3-CF$_3$-2-pyridinyl)	-NH(5-CF$_3$-2-pyrimidinyl)	-NH(5-CF$_3$-2-pyridinyl)
-NH(4-CF$_3$-2-pyrimidinyl)	-NH(6-methyl-2-pyridinyl)	-NH(4-methyl-2-pyridinyl)
-NH(3-methyl-2-pyridinyl)	-NH(5-methyl-2-pyrimidinyl)	-NH(5-methyl-2-pyridinyl)
-NH(4-methyl-2-pyrimidinyl)	-NH(6-methoxy-2-pyridinyl)	-NH(4-methoxy-2-pyridinyl)
-NH(3-methoxy-2-pyridinyl)	-NH(5-methoxy-2-pyrimidinyl)	-NH(5-methoxy-2-pyridinyl)
-NH(4-methoxy-2-pyrimidinyl)	-CH$_2$(6-CF$_3$-2-pyridinyl)	-CH$_2$(4-CF$_3$-2-pyridinyl)
-CH$_2$(3-CF$_3$-2-pyridinyl)	-CH$_2$(5-CF$_3$-2-pyrimidinyl)	-CH$_2$(5-CF$_3$-2-pyridinyl)
-CH$_2$(4-CF$_3$-2-pyrimidinyl)	-CH$_2$(6-methyl-2-pyridinyl)	-CH$_2$(4-methyl-2-pyridinyl)
-CH$_2$(3-methyl-2-pyridinyl)	-CH$_2$(5-methyl-2-pyrimidinyl)	-CH$_2$(5-methyl-2-pyridinyl)
-CH$_2$(4-methyl-2-pyrimidinyl)	-CH$_2$(6-methoxy-2-pyridinyl)	-CH$_2$(4-methoxy-2-pyridinyl)
-CH$_2$(3-methoxy-2-pyridinyl)	-CH$_2$(5-methoxy-2-pyrimidinyl)	-CH$_2$(5-methoxy-2-pyridinyl)
-CH$_2$(4-methoxy-2-pyrimidinyl)	-CH$_2$(5-pyrimidinyl)	-CH$_2$(6-bromo-2-pyridinyl)

-CH_2(2-pyrimidinyl)	-CH_2(3-(OCF_3)phenyl)	-CH_2(2-thiazolyl)
-CH_2(5-methyl-2-pyrazinyl)	-CH_2(4-pyridinyl)	-CH_2(2-pyridinyl)
Ph	3-pyridinyl	-CH_2(3-pyridinyl)
2-pyridinyl	2-pyrazinyl	-CH_2CH_2(2-pyridinyl)
4-pyridinyl	4-CF_3-2-pyridinyl	-$CH_2CH_2CH_2$(2-pyridinyl)
3-CF_3-2-pyridinyl	4-CF_3-2-pyrimidinyl	6-CF_3-2-pyridinyl
5-CF_3-2-pyridinyl	5-CF_3-2-pyrazinyl	5-CF_3-2-pyrimidinyl
-CH_2CH_2N(-C(O)CH_2CH_2C(O)-)	-$CH_2CH_2CH_2$(1-imidazolyl)	-CH(-C(O)OCH_2CH_2-)

TABLE 1b



A is CH

R	**R**	**R**
Me	Et	Pr
i-Pr	-CH_2(c-Pr)	-CH(Me)(c-Pr)
Bu	s-Bu	i-Bu
t-Bu	-CH_2Ph	-$CH_2CH{=}CH_2$
-$CH_2C{\equiv}CH$	-C(Me)$_2C{\equiv}CH$	-CH_2CH_2F
-CH_2CHF_2	-CH_2CF_3	-CH(Me)CF_3
-$CH_2CH_2CF_3$	-$CH_2CF_2CF_3$	-$CH_2CF_2CH_3$
-$CH_2CH_2CF_2CF_3$	-CH(i-Pr)CF_3	-CH_2CH_2OMe
-CH_2OEt	-CH_2CH_2O(i-Pr)	-CH_2CH_2OEt
-$CH_2CH_2CH_2OMe$	-CH_2CH(Me)OMe	-CH(Et)CH_2OMe
-CH(Me)CH_2OMe	-CH_2CH_2S(O)Me	-CH_2CH_2SMe
-CH_2CH_2SEt	-$CH_2CH_2SO_2Me$	-$CH_2CH_2SO_2Et$
-CH_2CH_2S(O)Et	-CH_2CH_2S(O)(t-Bu)	-CH_2CH_2S(t-Bu)
-CH(Me)CH_2SMe	-$CH_2CH_2SO_2$(t-Bu)	-CH(Me)CH_2SO_2Me
-CH(Me)CH_2S(O)Me	-CH_2CH_2S(O)CH_2CF_3	-$CH_2CH_2SCH_2CF_3$
-$CH_2CH_2SO_2CH_2CF_3$	-$CH_2CH_2SO_2CH_2CH_2CF_3$	-$CH_2CH_2SCH_2CH_2CF_3$

$-CH_2CH_2S(O)CH_2CH_2CF_3$	$-CH_2CN$	$-CH_2CH_2CN$
$-C(Me)_2CN$	$-CH_2CH_2N(i\text{-}Pr)_2$	$-CH_2CH_2N(Me)_2$
$-CH2CH(OMe)_2$	c-Pr	c-Bu
1-methylcyclopropyl	3-methoxycyclobutyl	-CH(Ph)(c-Pr)
-CH(Me)(c-Pr)	3-thietanyl	3,3-difluorocyclobutyl
3-oxetanyl	$-CH_2$(oxiranyl)	3-thietanyl-1,1-dioxide
3-thietanyl-1-oxide	$-CH_2(CH(-OC(Me)_2OCH_2-))$	$-CH_2$(tetrahydro-2-furanyl)
$-CH_2$(2-furanyl)	tetrahydro-2-furanyl	$-CH_2$(2-thienyl)
$-CH_2(CH(-OCH_2CH_2O-)$	$-CH_2CO_2Me$	$-CH_2$(2,2-difluorocyclopropyl)
$-C(-CH_2CH_2-)CO_2Me$	$-CH(Me)CO_2Et$	$-CH(i\text{-}Pr)CO_2Me$
$-CH_2C(O)NHMe$	$-CH_2C(O)NMe_2$	-CH(Me)C(O)NHMe
-CH(Me)C(O)NH(t-Bu)	$-OCH_2$(c-Pr)	$-CH(Me)C(O)NMe_2$
$-OCH_2CH{=}CH_2$	-NHC(O)(i-Pr)	-NHC(O)Me
$-NHCO_2Me$	-NHC(O)(3-pyridinyl)	-NHC(O)(t-Bu)
-NHC(O)Ph	-NH(c-hexyl)	-NHC(O)NH(i-Pr)
-NH(c-Pr)	-NHC(O)(2-thienyl)	$-NH(CH_2CF_3)$
$-NHC(O)CF_3$	$-NHCO_2Et$	-NHC(O)(2-furanyl)
-C(O)C(O)Me	$-NHCO_2CH_2CF_3$	$-C(O)CO_2Me$
-C(O)(2-pyridinyl)	$-NHC(O)NMe_2$	-NHC(O)NHMe
$-NHC(O)NHCH_2CF_3$	$-NHC(O)CH_2CH_2CF_3$	-NHC(O)Et
$-NHC(O)CH_2CF_3$	$-NHSO_2CF_3$	$-NHSO_2CH_2CF_3$
$-NHSO_2CH_2CH_2CF_3$	-NH(2-pyridinyl)	-NH(2-pyridinyl)
-NH(2-pyridinyl)	-NH(2-pyrimidinyl)	-NH(2-pyridinyl)
-NH(2-pyrimidinyl)	$-NH(6\text{-}CF_3\text{-}2\text{-pyridinyl})$	$-NH(4\text{-}CF_3\text{-}2\text{-pyridinyl})$
$-NH(3\text{-}CF_3\text{-}2\text{-pyridinyl})$	$-NH(5\text{-}CF_3\text{-}2\text{-pyrimidinyl})$	$-NH(5\text{-}CF_3\text{-}2\text{-pyridinyl})$
$-NH(4\text{-}CF_3\text{-}2\text{-pyrimidinyl})$	-NH(6-methyl-2-pyridinyl)	-NH(4-methyl-2-pyridinyl)
-NH(3-methyl-2-pyridinyl)	-NH(5-methyl-2-pyrimidinyl)	-NH(5-methyl-2-pyridinyl)
-NH(4-methyl-2-pyrimidinyl)	-NH(6-methoxy-2-pyridinyl)	-NH(4-methoxy-2-pyridinyl)
-NH(3-methoxy-2-pyridinyl)	-NH(5-methoxy-2-pyrimidinyl)	-NH(5-methoxy-2-pyridinyl)
-NH(4-methoxy-2-pyrimidinyl)	$-CH_2(6\text{-}CF_3\text{-}2\text{-pyridinyl})$	$-CH_2(4\text{-}CF_3\text{-}2\text{-pyridinyl})$
$-CH_2(3\text{-}CF_3\text{-}2\text{-pyridinyl})$	$-CH_2(5\text{-}CF_3\text{-}2\text{-pyrimidinyl})$	$-CH_2(5\text{-}CF_3\text{-}2\text{-pyridinyl})$
$-CH_2(4\text{-}CF_3\text{-}2\text{-pyrimidinyl})$	$-CH_2$(6-methyl-2-pyridinyl)	$-CH_2$(4-methyl-2-pyridinyl)
$-CH_2$(3-methyl-2-pyridinyl)	$-CH_2$(5-methyl-2-pyrimidinyl)	$-CH_2$(5-methyl-2-pyridinyl)
$-CH_2$(4-methyl-2-pyrimidinyl)	$-CH_2$(6-methoxy-2-pyridinyl)	$-CH_2$(4-methoxy-2-pyridinyl)
$-CH_2$(3-methoxy-2-pyridinyl)	$-CH_2$(5-methoxy-2-pyrimidinyl)	$-CH_2$(5-methoxy-2-pyridinyl)

-CH_2(4-methoxy-2-pyrimidinyl)	-CH_2(5-pyrimidinyl)	-CH_2(6-bromo-2-pyridinyl)
-CH_2(2-pyrimidinyl)	-CH_2(3-(OCF_3)phenyl)	-CH_2(2-thiazolyl)
-CH_2(5-methyl-2-pyrazinyl)	-CH_2(4-pyridinyl)	-CH_2(2-pyridinyl)
Ph	3-pyridinyl	-CH_2(3-pyridinyl)
2-pyridinyl	2-pyrazinyl	-CH_2CH_2(2-pyridinyl)
4-pyridinyl	4-CF_3-2-pyridinyl	-$CH_2CH_2CH_2$(2-pyridinyl)
3-CF_3-2-pyridinyl	4-CF_3-2-pyrimidinyl	6-CF_3-2-pyridinyl
5-CF_3-2-pyridinyl	5-CF_3-2-pyrazinyl	5-CF_3-2-pyrimidinyl
-CH_2CH_2N(-C(O)CH_2CH_2C(O)-)	-$CH_2CH_2CH_2$(1-imidazolyl)	-CH(-C(O)OCH_2CH_2-)

A is CF

R	**R**	**R**
Me	Et	Pr
i-Pr	-CH_2(c-Pr)	-CH(Me)(c-Pr)
Bu	s-Bu	i-Bu
t-Bu	-CH_2Ph	-$CH_2CH{=}CH_2$
-CH_2C≡CH	-C(Me)$_2$C≡CH	-CH_2CH_2F
-CH_2CHF_2	-CH_2CF_3	-CH(Me)CF_3
-$CH_2CH_2CF_3$	-$CH_2CF_2CF_3$	-$CH_2CF_2CH_3$
-$CH_2CH_2CF_2CF_3$	-CH(i-Pr)CF_3	-CH_2CH_2OMe
-CH_2OEt	-CH_2CH_2O(i-Pr)	-CH_2CH_2OEt
-$CH_2CH_2CH_2$OMe	-CH_2CH(Me)OMe	-CH(Et)CH_2OMe
-CH(Me)CH_2OMe	-CH_2CH_2S(O)Me	-CH_2CH_2SMe
-CH_2CH_2SEt	-$CH_2CH_2SO_2$Me	-$CH_2CH_2SO_2$Et
-CH_2CH_2S(O)Et	-CH_2CH_2S(O)(t-Bu)	-CH_2CH_2S(t-Bu)
-CH(Me)CH_2SMe	-$CH_2CH_2SO_2$(t-Bu)	-CH(Me)CH_2SO_2Me
-CH(Me)CH_2S(O)Me	-CH_2CH_2S(O)CH_2CF_3	-$CH_2CH_2SCH_2CF_3$
-$CH_2CH_2SO_2CH_2CF_3$	-$CH_2CH_2SO_2CH_2CH_2CF_3$	-$CH_2CH_2SCH_2CH_2CF_3$
-CH_2CH_2S(O)$CH_2CH_2CF_3$	-CH_2CN	-CH_2CH_2CN
-C(Me)$_2$CN	-CH_2CH_2N(i-Pr)$_2$	-CH_2CH_2N(Me)$_2$
-CH2CH(OMe)$_2$	c-Pr	c-Bu
1-methylcyclopropyl	3-methoxycyclobutyl	-CH(Ph)(c-Pr)
-CH(Me)(c-Pr)	3-thietanyl	3,3-difluorocyclobutyl
3-oxetanyl	-CH_2(oxiranyl)	3-thietanyl-1,1-dioxide
3-thietanyl-1-oxide	-CH_2(CH(-OC(Me)$_2OCH_2$-))	-CH_2(tetrahydro-2-furanyl)

-CH_2(2-furanyl)	tetrahydro-2-furanyl	-CH_2(2-thienyl)
-CH_2(CH(-OCH_2CH_2O-)	-CH_2CO_2Me	-CH_2(2,2-difluorocyclopropyl)
-C(-CH_2CH_2-)CO_2Me	-CH(Me)CO_2Et	-CH(i-Pr)CO_2Me
-CH_2C(O)NHMe	-CH_2C(O)NMe_2	-CH(Me)C(O)NHMe
-CH(Me)C(O)NH(t-Bu)	-OCH_2(c-Pr)	-CH(Me)C(O)NMe_2
-$OCH_2CH{=}CH_2$	-NHC(O)(i-Pr)	-NHC(O)Me
-$NHCO_2Me$	-NHC(O)(3-pyridinyl)	-NHC(O)(t-Bu)
-NHC(O)Ph	-NH(c-hexyl)	-NHC(O)NH(i-Pr)
-NH(c-Pr)	-NHC(O)(2-thienyl)	-NH(CH_2CF_3)
-NHC(O)CF_3	-$NHCO_2Et$	-NHC(O)(2-furanyl)
-C(O)C(O)Me	-$NHCO_2CH_2CF_3$	-C(O)CO_2Me
-C(O)(2-pyridinyl)	-NHC(O)NMe_2	-NHC(O)NHMe
-NHC(O)$NHCH_2CF_3$	-NHC(O)$CH_2CH_2CF_3$	-NHC(O)Et
-NHC(O)CH_2CF_3	-$NHSO_2CF_3$	-$NHSO_2CH_2CF_3$
-$NHSO_2CH_2CH_2CF_3$	-NH(2-pyridinyl)	-NH(2-pyridinyl)
-NH(2-pyridinyl)	-NH(2-pyrimidinyl)	-NH(2-pyridinyl)
-NH(2-pyrimidinyl)	-NH(6-CF_3-2-pyridinyl)	-NH(4-CF_3-2-pyridinyl)
-NH(3-CF_3-2-pyridinyl)	-NH(5-CF_3-2-pyrimidinyl)	-NH(5-CF_3-2-pyridinyl)
-NH(4-CF_3-2-pyrimidinyl)	-NH(6-methyl-2-pyridinyl)	-NH(4-methyl-2-pyridinyl)
-NH(3-methyl-2-pyridinyl)	-NH(5-methyl-2-pyrimidinyl)	-NH(5-methyl-2-pyridinyl)
-NH(4-methyl-2-pyrimidinyl)	-NH(6-methoxy-2-pyridinyl)	-NH(4-methoxy-2-pyridinyl)
-NH(3-methoxy-2-pyridinyl)	-NH(5-methoxy-2-pyrimidinyl)	-NH(5-methoxy-2-pyridinyl)
-NH(4-methoxy-2-pyrimidinyl)	-CH_2(6-CF_3-2-pyridinyl)	-CH_2(4-CF_3-2-pyridinyl)
-CH_2(3-CF_3-2-pyridinyl)	-CH_2(5-CF_3-2-pyrimidinyl)	-CH_2(5-CF_3-2-pyridinyl)
-CH_2(4-CF_3-2-pyrimidinyl)	-CH_2(6-methyl-2-pyridinyl)	-CH_2(4-methyl-2-pyridinyl)
-CH_2(3-methyl-2-pyridinyl)	-CH_2(5-methyl-2-pyrimidinyl)	-CH_2(5-methyl-2-pyridinyl)
-CH_2(4-methyl-2-pyrimidinyl)	-CH_2(6-methoxy-2-pyridinyl)	-CH_2(4-methoxy-2-pyridinyl)
-CH_2(3-methoxy-2-pyridinyl)	-CH_2(5-methoxy-2-pyrimidinyl)	-CH_2(5-methoxy-2-pyridinyl)
-CH_2(4-methoxy-2-pyrimidinyl)	-CH_2(5-pyrimidinyl)	-CH_2(6-bromo-2-pyridinyl)
-CH_2(2-pyrimidinyl)	-CH_2(3-(OCF_3)phenyl)	-CH_2(2-thiazolyl)
-CH_2(5-methyl-2-pyrazinyl)	-CH_2(4-pyridinyl)	-CH_2(2-pyridinyl)
Ph	3-pyridinyl	-CH_2(3-pyridinyl)
2-pyridinyl	2-pyrazinyl	-CH_2CH_2(2-pyridinyl)
4-pyridinyl	4-CF_3-2-pyridinyl	-$CH_2CH_2CH_2$(2-pyridinyl)
3-CF_3-2-pyridinyl	4-CF_3-2-pyrimidinyl	6-CF_3-2-pyridinyl

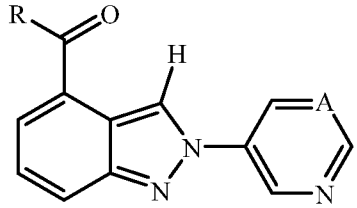
5-CF_3-2-pyridinyl	5-CF_3-2-pyrazinyl	5-CF_3-2-pyrimidinyl
-CH_2CH_2N(-C(O)CH_2CH_2C(O)-)	-$CH_2CH_2CH_2$(1-imidazolyl)	-CH(-C(O)OCH_2CH_2-)

A is N

R	**R**	**R**
Me	Et	Pr
i-Pr	-CH_2(c-Pr)	-CH(Me)(c-Pr)
Bu	s-Bu	i-Bu
t-Bu	-CH_2Ph	-$CH_2CH{=}CH_2$
-$CH_2C{\equiv}CH$	-C(Me)$_2C{\equiv}CH$	-CH_2CH_2F
-CH_2CHF_2	-CH_2CF_3	-CH(Me)CF_3
-$CH_2CH_2CF_3$	-$CH_2CF_2CF_3$	-$CH_2CF_2CH_3$
-$CH_2CH_2CF_2CF_3$	-CH(i-Pr)CF_3	-CH_2CH_2OMe
-CH_2OEt	-CH_2CH_2O(i-Pr)	-CH_2CH_2OEt
-$CH_2CH_2CH_2OMe$	-CH_2CH(Me)OMe	-CH(Et)CH_2OMe
-CH(Me)CH_2OMe	-CH_2CH_2S(O)Me	-CH_2CH_2SMe
-CH_2CH_2SEt	-$CH_2CH_2SO_2Me$	-$CH_2CH_2SO_2Et$
-CH_2CH_2S(O)Et	-CH_2CH_2S(O)(t-Bu)	-CH_2CH_2S(t-Bu)
-CH(Me)CH_2SMe	-$CH_2CH_2SO_2$(t-Bu)	-CH(Me)CH_2SO_2Me
-CH(Me)CH_2S(O)Me	-CH_2CH_2S(O)CH_2CF_3	-$CH_2CH_2SCH_2CF_3$
-$CH_2CH_2SO_2CH_2CF_3$	-$CH_2CH_2SO_2CH_2CH_2CF_3$	-$CH_2CH_2SCH_2CH_2CF_3$
-CH_2CH_2S(O)$CH_2CH_2CF_3$	-CH_2CN	-CH_2CH_2CN
-C(Me)$_2$CN	-CH_2CH_2N(i-Pr)$_2$	-CH_2CH_2N(Me)$_2$
-CH2CH(OMe)$_2$	c-Pr	c-Bu
1-methylcyclopropyl	3-methoxycyclobutyl	-CH(Ph)(c-Pr)
-CH(Me)(c-Pr)	3-thietanyl	3,3-difluorocyclobutyl
3-oxetanyl	-CH_2(oxiranyl)	3-thietanyl-1,1-dioxide
3-thietanyl-1-oxide	-CH_2(CH(-OC(Me)$_2OCH_2$-))	-CH_2(tetrahydro-2-furanyl)
-CH_2(2-furanyl)	tetrahydro-2-furanyl	-CH_2(2-thienyl)
-CH_2(CH(-OCH_2CH_2O-)	-CH_2CO_2Me	-CH_2(2,2-difluorocyclopropyl)
-C(-CH_2CH_2-)CO_2Me	-CH(Me)CO_2Et	-CH(i-Pr)CO_2Me
-CH_2C(O)NHMe	-CH_2C(O)NMe$_2$	-CH(Me)C(O)NHMe
-CH(Me)C(O)NH(t-Bu)	-OCH_2(c-Pr)	-CH(Me)C(O)NMe$_2$
-$OCH_2CH{=}CH_2$	-NHC(O)(i-Pr)	-NHC(O)Me
-$NHCO_2Me$	-NHC(O)(3-pyridinyl)	-NHC(O)(t-Bu)

-NHC(O)Ph	-NH(c-hexyl)	-NHC(O)NH(i-Pr)
-NH(c-Pr)	-NHC(O)(2-thienyl)	-NH(CH_2CF_3)
-NHC(O)CF_3	-NHCO_2Et	-NHC(O)(2-furanyl)
-C(O)C(O)Me	-NH$CO_2CH_2CF_3$	-C(O)CO_2Me
-C(O)(2-pyridinyl)	-NHC(O)NMe_2	-NHC(O)NHMe
-NHC(O)NHCH_2CF_3	-NHC(O)$CH_2CH_2CF_3$	-NHC(O)Et
-NHC(O)CH_2CF_3	-NHSO_2CF_3	-NH$SO_2CH_2CF_3$
-NH$SO_2CH_2CH_2CF_3$	-NH(2-pyridinyl)	-NH(2-pyridinyl)
-NH(2-pyridinyl)	-NH(2-pyrimidinyl)	-NH(2-pyridinyl)
-NH(2-pyrimidinyl)	-NH(6-CF_3-2-pyridinyl)	-NH(4-CF_3-2-pyridinyl)
-NH(3-CF_3-2-pyridinyl)	-NH(5-CF_3-2-pyrimidinyl)	-NH(5-CF_3-2-pyridinyl)
-NH(4-CF_3-2-pyrimidinyl)	-NH(6-methyl-2-pyridinyl)	-NH(4-methyl-2-pyridinyl)
-NH(3-methyl-2-pyridinyl)	-NH(5-methyl-2-pyrimidinyl)	-NH(5-methyl-2-pyridinyl)
-NH(4-methyl-2-pyrimidinyl)	-NH(6-methoxy-2-pyridinyl)	-NH(4-methoxy-2-pyridinyl)
-NH(3-methoxy-2-pyridinyl)	-NH(5-methoxy-2-pyrimidinyl)	-NH(5-methoxy-2-pyridinyl)
-NH(4-methoxy-2-pyrimidinyl)	-CH_2(6-CF_3-2-pyridinyl)	-CH_2(4-CF_3-2-pyridinyl)
-CH_2(3-CF_3-2-pyridinyl)	-CH_2(5-CF_3-2-pyrimidinyl)	-CH_2(5-CF_3-2-pyridinyl)
-CH_2(4-CF_3-2-pyrimidinyl)	-CH_2(6-methyl-2-pyridinyl)	-CH_2(4-methyl-2-pyridinyl)
-CH_2(3-methyl-2-pyridinyl)	-CH_2(5-methyl-2-pyrimidinyl)	-CH_2(5-methyl-2-pyridinyl)
-CH_2(4-methyl-2-pyrimidinyl)	-CH_2(6-methoxy-2-pyridinyl)	-CH_2(4-methoxy-2-pyridinyl)
-CH_2(3-methoxy-2-pyridinyl)	-CH_2(5-methoxy-2-pyrimidinyl)	-CH_2(5-methoxy-2-pyridinyl)
-CH_2(4-methoxy-2-pyrimidinyl)	-CH_2(5-pyrimidinyl)	-CH_2(6-bromo-2-pyridinyl)
-CH_2(2-pyrimidinyl)	-CH_2(3-(OCF_3)phenyl)	-CH_2(2-thiazolyl)
-CH_2(5-methyl-2-pyrazinyl)	-CH_2(4-pyridinyl)	-CH_2(2-pyridinyl)
Ph	3-pyridinyl	-CH_2(3-pyridinyl)
2-pyridinyl	2-pyrazinyl	-CH_2CH_2(2-pyridinyl)
4-pyridinyl	4-CF_3-2-pyridinyl	-$CH_2CH_2CH_2$(2-pyridinyl)
3-CF_3-2-pyridinyl	4-CF_3-2-pyrimidinyl	6-CF_3-2-pyridinyl
5-CF_3-2-pyridinyl	5-CF_3-2-pyrazinyl	5-CF_3-2-pyrimidinyl
-CH_2CH_2N(-C(O)CH_2CH_2C(O)-)	-$CH_2CH_2CH_2$(1-imidazolyl)	-CH(-C(O)OCH_2CH_2-)

TABLE 1c



A is CH

R	R
N(-$CH_2CH_2CH_2$-)	N(-$CH_2CH(OMe)CH_2$-)
N(-$CH_2CH_2CF_2CH_2CH_2$-)	N(-$CH_2CH_2CH_2CF_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2SCH_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2OCH_2CH_2$-)
N(-$CH_2CH_2N(C(O)(c\text{-}Pr))CH_2CH_2$-)	N(-$CH_2CH_2N(Me)CH_2CH_2$-)
N(-$CH_2C(Me)_2N{=}CH$-)	N(-$CH_2CH_2CH_2CH(CF_3)CH_2$-)
$N(CH_2C{\equiv}CH)_2$	$N(Et)_2$
$N(Pr)CH_2(c\text{-}Pr)$	N(Et)(c-hexyl)
N(-CHC(O)SCH_2CH_2-)	

A is CF

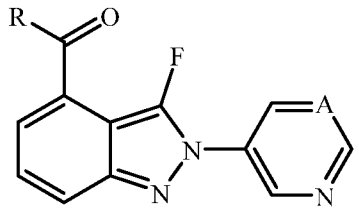
R	R
N(-$CH_2CH_2CH_2$-)	N(-$CH_2CH(OMe)CH_2$-)
N(-$CH_2CH_2CF_2CH_2CH_2$-)	N(-$CH_2CH_2CH_2CF_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2SCH_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2OCH_2CH_2$-)
N(-$CH_2CH_2N(C(O)(c\text{-}Pr))CH_2CH_2$-)	N(-$CH_2CH_2N(Me)CH_2CH_2$-)
N(-$CH_2C(Me)_2N{=}CH$-)	N(-$CH_2CH_2CH_2CH(CF_3)CH_2$-)
$N(CH_2C{\equiv}CH)_2$	$N(Et)_2$
$N(Pr)CH_2(c\text{-}Pr)$	N(Et)(c-hexyl)
N(-CHC(O)SCH_2CH_2-)	

A is N

R	R
N(-$CH_2CH_2CH_2$-)	N(-$CH_2CH(OMe)CH_2$-)
N(-$CH_2CH_2CF_2CH_2CH_2$-)	N(-$CH_2CH_2CH_2CF_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2SCH_2CH_2$-)

N(-$CH_2CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2OCH_2CH_2$-)
N(-$CH_2CH_2N(C(O)(c\text{-}Pr))CH_2CH_2$-)	N(-$CH_2CH_2N(Me)CH_2CH_2$-)
N(-$CH_2C(Me)_2N{=}CH$-)	N(-$CH_2CH_2CH_2CH(CF_3)CH_2$-)
$N(CH_2C{\equiv}CH)_2$	$N(Et)_2$
$N(Pr)CH_2(c\text{-}Pr)$	N(Et)(c-hexyl)
N(-CHC(O)SCH_2CH_2-)	

TABLE 1d



A is CH

R	**R**
N(-$CH_2CH_2CH_2$-)	N(-$CH_2CH(OMe)CH_2$-)
N(-$CH_2CH_2CF_2CH_2CH_2$-)	N(-$CH_2CH_2CH_2CF_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2SCH_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2OCH_2CH_2$-)
N(-$CH_2CH_2N(C(O)(c\text{-}Pr))CH_2CH_2$-)	N(-$CH_2CH_2N(Me)CH_2CH_2$-)
N(-$CH_2C(Me)_2N{=}CH$-)	N(-$CH_2CH_2CH_2CH(CF_3)CH_2$-)
$N(CH_2C{\equiv}CH)_2$	$N(Et)_2$
$N(Pr)CH_2(c\text{-}Pr)$	N(Et)(c-hexyl)
N(-CHC(O)SCH_2CH_2-)	

A is CF

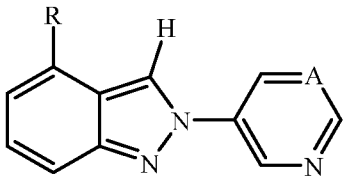
R	**R**
N(-$CH_2CH_2CH_2$-)	N(-$CH_2CH(OMe)CH_2$-)
N(-$CH_2CH_2CF_2CH_2CH_2$-)	N(-$CH_2CH_2CH_2CF_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2SCH_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2OCH_2CH_2$-)
N(-$CH_2CH_2N(C(O)(c\text{-}Pr))CH_2CH_2$-)	N(-$CH_2CH_2N(Me)CH_2CH_2$-)
N(-$CH_2C(Me)_2N{=}CH$-)	N(-$CH_2CH_2CH_2CH(CF_3)CH_2$-)
$N(CH_2C{\equiv}CH)_2$	$N(Et)_2$

N(Pr)CH_2(c-Pr)	N(Et)(c-hexyl)
N(-CHC(O)SCH_2CH_2-)	

A is N

R	**R**
N(-$CH_2CH_2CH_2$-)	N(-CH_2CH(OMe)CH_2-)
N(-$CH_2CH_2CF_2CH_2CH_2$-)	N(-$CH_2CH_2CH_2CF_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2SCH_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2OCH_2CH_2$-)
N(-CH_2CH_2N(C(O)(c-Pr))CH_2CH_2-)	N(-CH_2CH_2N(Me)CH_2CH_2-)
N(-CH_2C(Me)$_2$N=CH-)	N(-$CH_2CH_2CH_2$CH(CF_3)CH_2-)
N(CH_2C≡CH)$_2$	N(Et)$_2$
N(Pr)CH_2(c-Pr)	N(Et)(c-hexyl)
N(-CHC(O)SCH_2CH_2-)	

TABLE 1e



A is CH

R	**R**
3-methyl-2-pyridinyl	3-methoxy-2-pyridinyl
3-(trifluoromethyl)-2-pyridinyl	3-(CH(=NOMe))-2-pyridinyl
4-methyl-2-pyridinyl	4-methoxy-2-pyridinyl
4-(trifluoromethyl)-2-pyridinyl	4-(CH(=NOMe))-2-pyridinyl
5-methyl-2-pyridinyl	5-methoxy-2-pyridinyl
5-(trifluoromethyl)-2-pyridinyl	5-(CH(=NOMe))-2-pyridinyl
6-methyl-2-pyridinyl	6-methoxy-2-pyridinyl
6-(trifluoromethyl)-2-pyridinyl	6-(CH(=NOMe))-2-pyridinyl
2-methyl-3-pyridinyl	2-methoxy-3-pyridinyl
2-(trifluoromethyl)-3-pyridinyl	2-(CH(=NOMe))-3-pyridinyl
4-methyl-3-pyridinyl	4-methoxy-3-pyridinyl

4-(trifluoromethyl)-3-pyridinyl	4-(CH(=NOMe))-3-pyridinyl
5-methyl-3-pyridinyl	5-methoxy-3-pyridinyl
5-(trifluoromethyl)-3-pyridinyl	5-(CH(=NOMe))-3-pyridinyl
6-methyl-3-pyridinyl	6-methoxy-3-pyridinyl
6-(trifluoromethyl)-3-pyridinyl	6-(CH(=NOMe))-3-pyridinyl
2-methyl-4-pyridinyl	2-methoxy-4-pyridinyl
2-(trifluoromethyl)-4-pyridinyl	2-(CH(=NOMe))-4-pyridinyl
3-methyl-4-pyridinyl	3-methoxy-4-pyridinyl
3-(trifluoromethyl)-4-pyridinyl	3-(CH(=NOMe))-4-pyridinyl
3-methyl-2-pyrazinyl	3-methoxy-2-pyrazinyl
3-(trifluoromethyl)-2-pyrazinyl	3-(CH(=NOMe))-2-pyrazinyl
5-methyl-2-pyrazinyl	5-methoxy-2-pyrazinyl
5-(trifluoromethyl)-2-pyrazinyl	5-(CH(=NOMe))-2-pyrazinyl
6-methyl-2-pyrazinyl	6-methoxy-2-pyrazinyl
6-(trifluoromethyl)-2-pyrazinyl	6-(CH(=NOMe))-2-pyrazinyl
4-methyl-2-pyrimidinyl	4-methoxy-2-pyrimidinyl
4-(trifluoromethyl)-2-pyrimidinyl	4-(CH(=NOMe))-2-pyrimidinyl
5-methyl-2-pyrimidinyl	5-methoxy-2-pyrimidinyl
5-(trifluoromethyl)-2-pyrimidinyl	5-(CH(=NOMe))-2-pyrimidinyl
2-methyl-4-pyrimidinyl	2-methoxy-4-pyrimidinyl
2-(trifluoromethyl)-4-pyrimidinyl	2-(CH(=NOMe))-4-pyrimidinyl
5-methyl-4-pyrimidinyl	5-methoxy-4-pyrimidinyl
5-(trifluoromethyl)-4-pyrimidinyl	5-(CH(=NOMe))-4-pyrimidinyl
6-methyl-4-pyrimidinyl	6-methoxy-4-pyrimidinyl
6-(trifluoromethyl)-4-pyrimidinyl	6-(CH(=NOMe))-4-pyrimidinyl
3-methyl-1-pyrazolyl	3-methoxy-1-pyrazolyl
3-(trifluoromethyl)-1-pyrazolyl	3-(CH(=NOMe))-1-pyrazolyl
4-methyl-1-pyrazolyl	4-methoxy-1-pyrazolyl
4-(trifluoromethyl)-1-pyrazolyl	4-(CH(=NOMe))-1-pyrazolyl
5-methyl-1-pyrazolyl	5-methoxy-1-pyrazolyl
5-(trifluoromethyl)-1-pyrazolyl	5-(CH(=NOMe))-1-pyrazolyl
4-methyl-1,2,3-triazin-2-yl	4-methoxy-1,2,3-triazin-2-yl
4-(trifluoromethyl)-1,2,3-triazin-2-yl	4-(CH(=NOMe))-1,2,3-triazin-2-yl
6-(2-pyrimidinyl)-2-pyridinyl	2-(2-pyridinyl)-4-thiazolyl
2-(2-thiazolyl)-4-thiazolyl	2-(2-pyrimidinyl)ethynyl

1,3,4-oxadiazol-2-yl	tetrahydro-3-furanyl
tetrahydro-2-furanyl	4,5-dihydro-3-isoxazolyl
3-isoxazolyl	phenyl
2-(trifluoromethyl)phenyl	3-(trifluoromethyl)phenyl
4-(trifluoromethyl)phenyl	

A is CF

R	**R**
3-methyl-2-pyridinyl	3-methoxy-2-pyridinyl
3-(trifluoromethyl)-2-pyridinyl	3-(CH(=NOMe))-2-pyridinyl
4-methyl-2-pyridinyl	4-methoxy-2-pyridinyl
4-(trifluoromethyl)-2-pyridinyl	4-(CH(=NOMe))-2-pyridinyl
5-methyl-2-pyridinyl	5-methoxy-2-pyridinyl
5-(trifluoromethyl)-2-pyridinyl	5-(CH(=NOMe))-2-pyridinyl
6-methyl-2-pyridinyl	6-methoxy-2-pyridinyl
6-(trifluoromethyl)-2-pyridinyl	6-(CH(=NOMe))-2-pyridinyl
2-methyl-3-pyridinyl	2-methoxy-3-pyridinyl
2-(trifluoromethyl)-3-pyridinyl	2-(CH(=NOMe))-3-pyridinyl
4-methyl-3-pyridinyl	4-methoxy-3-pyridinyl
4-(trifluoromethyl)-3-pyridinyl	4-(CH(=NOMe))-3-pyridinyl
5-methyl-3-pyridinyl	5-methoxy-3-pyridinyl
5-(trifluoromethyl)-3-pyridinyl	5-(CH(=NOMe))-3-pyridinyl
6-methyl-3-pyridinyl	6-methoxy-3-pyridinyl
6-(trifluoromethyl)-3-pyridinyl	6-(CH(=NOMe))-3-pyridinyl
2-methyl-4-pyridinyl	2-methoxy-4-pyridinyl
2-(trifluoromethyl)-4-pyridinyl	2-(CH(=NOMe))-4-pyridinyl
3-methyl-4-pyridinyl	3-methoxy-4-pyridinyl
3-(trifluoromethyl)-4-pyridinyl	3-(CH(=NOMe))-4-pyridinyl
3-methyl-2-pyrazinyl	3-methoxy-2-pyrazinyl
3-(trifluoromethyl)-2-pyrazinyl	3-(CH(=NOMe))-2-pyrazinyl
5-methyl-2-pyrazinyl	5-methoxy-2-pyrazinyl
5-(trifluoromethyl)-2-pyrazinyl	5-(CH(=NOMe))-2-pyrazinyl
6-methyl-2-pyrazinyl	6-methoxy-2-pyrazinyl
6-(trifluoromethyl)-2-pyrazinyl	6-(CH(=NOMe))-2-pyrazinyl
4-methyl-2-pyrimidinyl	4-methoxy-2-pyrimidinyl

4-(trifluoromethyl)-2-pyrimidinyl	4-(CH(=NOMe))-2-pyrimidinyl
5-methyl-2-pyrimidinyl	5-methoxy-2-pyrimidinyl
5-(trifluoromethyl)-2-pyrimidinyl	5-(CH(=NOMe))-2-pyrimidinyl
2-methyl-4-pyrimidinyl	2-methoxy-4-pyrimidinyl
2-(trifluoromethyl)-4-pyrimidinyl	2-(CH(=NOMe))-4-pyrimidinyl
5-methyl-4-pyrimidinyl	5-methoxy-4-pyrimidinyl
5-(trifluoromethyl)-4-pyrimidinyl	5-(CH(=NOMe))-4-pyrimidinyl
6-methyl-4-pyrimidinyl	6-methoxy-4-pyrimidinyl
6-(trifluoromethyl)-4-pyrimidinyl	6-(CH(=NOMe))-4-pyrimidinyl
3-methyl-1-pyrazolyl	3-methoxy-1-pyrazolyl
3-(trifluoromethyl)-1-pyrazolyl	3-(CH(=NOMe))-1-pyrazolyl
4-methyl-1-pyrazolyl	4-methoxy-1-pyrazolyl
4-(trifluoromethyl)-1-pyrazolyl	4-(CH(=NOMe))-1-pyrazolyl
5-methyl-1-pyrazolyl	5-methoxy-1-pyrazolyl
5-(trifluoromethyl)-1-pyrazolyl	5-(CH(=NOMe))-1-pyrazolyl
4-methyl-1,2,3-triazin-2-yl	4-methoxy-1,2,3-triazin-2-yl
4-(trifluoromethyl)-1,2,3-triazin-2-yl	4-(CH(=NOMe))-1,2,3-triazin-2-yl
6-(2-pyrimidinyl)-2-pyridinyl	2-(2-pyridinyl)-4-thiazolyl
2-(2-thiazolyl)-4-thiazolyl	2-(2-pyrimidinyl)ethynyl
1,3,4-oxadiazol-2-yl	tetrahydro-3-furanyl
tetrahydro-2-furanyl	4,5-dihydro-3-isoxazolyl
3-isoxazolyl	phenyl
2-(trifluoromethyl)phenyl	3-(trifluoromethyl)phenyl
4-(trifluoromethyl)phenyl	

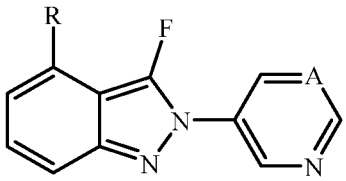
A is N

R	**R**
3-methyl-2-pyridinyl	3-methoxy-2-pyridinyl
3-(trifluoromethyl)-2-pyridinyl	3-(CH(=NOMe))-2-pyridinyl
4-methyl-2-pyridinyl	4-methoxy-2-pyridinyl
4-(trifluoromethyl)-2-pyridinyl	4-(CH(=NOMe))-2-pyridinyl
5-methyl-2-pyridinyl	5-methoxy-2-pyridinyl
5-(trifluoromethyl)-2-pyridinyl	5-(CH(=NOMe))-2-pyridinyl
6-methyl-2-pyridinyl	6-methoxy-2-pyridinyl
6-(trifluoromethyl)-2-pyridinyl	6-(CH(=NOMe))-2-pyridinyl

2-methyl-3-pyridinyl	2-methoxy-3-pyridinyl
2-(trifluoromethyl)-3-pyridinyl	2-(CH(=NOMe))-3-pyridinyl
4-methyl-3-pyridinyl	4-methoxy-3-pyridinyl
4-(trifluoromethyl)-3-pyridinyl	4-(CH(=NOMe))-3-pyridinyl
5-methyl-3-pyridinyl	5-methoxy-3-pyridinyl
5-(trifluoromethyl)-3-pyridinyl	5-(CH(=NOMe))-3-pyridinyl
6-methyl-3-pyridinyl	6-methoxy-3-pyridinyl
6-(trifluoromethyl)-3-pyridinyl	6-(CH(=NOMe))-3-pyridinyl
2-methyl-4-pyridinyl	2-methoxy-4-pyridinyl
2-(trifluoromethyl)-4-pyridinyl	2-(CH(=NOMe))-4-pyridinyl
3-methyl-4-pyridinyl	3-methoxy-4-pyridinyl
3-(trifluoromethyl)-4-pyridinyl	3-(CH(=NOMe))-4-pyridinyl
3-methyl-2-pyrazinyl	3-methoxy-2-pyrazinyl
3-(trifluoromethyl)-2-pyrazinyl	3-(CH(=NOMe))-2-pyrazinyl
5-methyl-2-pyrazinyl	5-methoxy-2-pyrazinyl
5-(trifluoromethyl)-2-pyrazinyl	5-(CH(=NOMe))-2-pyrazinyl
6-methyl-2-pyrazinyl	6-methoxy-2-pyrazinyl
6-(trifluoromethyl)-2-pyrazinyl	6-(CH(=NOMe))-2-pyrazinyl
4-methyl-2-pyrimidinyl	4-methoxy-2-pyrimidinyl
4-(trifluoromethyl)-2-pyrimidinyl	4-(CH(=NOMe))-2-pyrimidinyl
5-methyl-2-pyrimidinyl	5-methoxy-2-pyrimidinyl
5-(trifluoromethyl)-2-pyrimidinyl	5-(CH(=NOMe))-2-pyrimidinyl
2-methyl-4-pyrimidinyl	2-methoxy-4-pyrimidinyl
2-(trifluoromethyl)-4-pyrimidinyl	2-(CH(=NOMe))-4-pyrimidinyl
5-methyl-4-pyrimidinyl	5-methoxy-4-pyrimidinyl
5-(trifluoromethyl)-4-pyrimidinyl	5-(CH(=NOMe))-4-pyrimidinyl
6-methyl-4-pyrimidinyl	6-methoxy-4-pyrimidinyl
6-(trifluoromethyl)-4-pyrimidinyl	6-(CH(=NOMe))-4-pyrimidinyl
3-methyl-1-pyrazolyl	3-methoxy-1-pyrazolyl
3-(trifluoromethyl)-1-pyrazolyl	3-(CH(=NOMe))-1-pyrazolyl
4-methyl-1-pyrazolyl	4-methoxy-1-pyrazolyl
4-(trifluoromethyl)-1-pyrazolyl	4-(CH(=NOMe))-1-pyrazolyl
5-methyl-1-pyrazolyl	5-methoxy-1-pyrazolyl
5-(trifluoromethyl)-1-pyrazolyl	5-(CH(=NOMe))-1-pyrazolyl
4-methyl-1,2,3-triazin-2-yl	4-methoxy-1,2,3-triazin-2-yl

4-(trifluoromethyl)-1,2,3-triazin-2-yl	4-(CH(=NOMe))-1,2,3-triazin-2-yl
6-(2-pyrimidinyl)-2-pyridinyl	2-(2-pyridinyl)-4-thiazolyl
2-(2-thiazolyl)-4-thiazolyl	2-(2-pyrimidinyl)ethynyl
1,3,4-oxadiazol-2-yl	tetrahydro-3-furanyl
tetrahydro-2-furanyl	4,5-dihydro-3-isoxazolyl
3-isoxazolyl	phenyl
2-(trifluoromethyl)phenyl	3-(trifluoromethyl)phenyl
4-(trifluoromethyl)phenyl	

TABLE 1f



A is CH

R	**R**
3-methyl-2-pyridinyl	3-methoxy-2-pyridinyl
3-(trifluoromethyl)-2-pyridinyl	3-(CH(=NOMe))-2-pyridinyl
4-methyl-2-pyridinyl	4-methoxy-2-pyridinyl
4-(trifluoromethyl)-2-pyridinyl	4-(CH(=NOMe))-2-pyridinyl
5-methyl-2-pyridinyl	5-methoxy-2-pyridinyl
5-(trifluoromethyl)-2-pyridinyl	5-(CH(=NOMe))-2-pyridinyl
6-methyl-2-pyridinyl	6-methoxy-2-pyridinyl
6-(trifluoromethyl)-2-pyridinyl	6-(CH(=NOMe))-2-pyridinyl
2-methyl-3-pyridinyl	2-methoxy-3-pyridinyl
2-(trifluoromethyl)-3-pyridinyl	2-(CH(=NOMe))-3-pyridinyl
4-methyl-3-pyridinyl	4-methoxy-3-pyridinyl
4-(trifluoromethyl)-3-pyridinyl	4-(CH(=NOMe))-3-pyridinyl
5-methyl-3-pyridinyl	5-methoxy-3-pyridinyl
5-(trifluoromethyl)-3-pyridinyl	5-(CH(=NOMe))-3-pyridinyl
6-methyl-3-pyridinyl	6-methoxy-3-pyridinyl
6-(trifluoromethyl)-3-pyridinyl	6-(CH(=NOMe))-3-pyridinyl
2-methyl-4-pyridinyl	2-methoxy-4-pyridinyl
2-(trifluoromethyl)-4-pyridinyl	2-(CH(=NOMe))-4-pyridinyl

3-methyl-4-pyridinyl	3-methoxy-4-pyridinyl
3-(trifluoromethyl)-4-pyridinyl	3-(CH(=NOMe))-4-pyridinyl
3-methyl-2-pyrazinyl	3-methoxy-2-pyrazinyl
3-(trifluoromethyl)-2-pyrazinyl	3-(CH(=NOMe))-2-pyrazinyl
5-methyl-2-pyrazinyl	5-methoxy-2-pyrazinyl
5-(trifluoromethyl)-2-pyrazinyl	5-(CH(=NOMe))-2-pyrazinyl
6-methyl-2-pyrazinyl	6-methoxy-2-pyrazinyl
6-(trifluoromethyl)-2-pyrazinyl	6-(CH(=NOMe))-2-pyrazinyl
4-methyl-2-pyrimidinyl	4-methoxy-2-pyrimidinyl
4-(trifluoromethyl)-2-pyrimidinyl	4-(CH(=NOMe))-2-pyrimidinyl
5-methyl-2-pyrimidinyl	5-methoxy-2-pyrimidinyl
5-(trifluoromethyl)-2-pyrimidinyl	5-(CH(=NOMe))-2-pyrimidinyl
2-methyl-4-pyrimidinyl	2-methoxy-4-pyrimidinyl
2-(trifluoromethyl)-4-pyrimidinyl	2-(CH(=NOMe))-4-pyrimidinyl
5-methyl-4-pyrimidinyl	5-methoxy-4-pyrimidinyl
5-(trifluoromethyl)-4-pyrimidinyl	5-(CH(=NOMe))-4-pyrimidinyl
6-methyl-4-pyrimidinyl	6-methoxy-4-pyrimidinyl
6-(trifluoromethyl)-4-pyrimidinyl	6-(CH(=NOMe))-4-pyrimidinyl
3-methyl-1-pyrazolyl	3-methoxy-1-pyrazolyl
3-(trifluoromethyl)-1-pyrazolyl	3-(CH(=NOMe))-1-pyrazolyl
4-methyl-1-pyrazolyl	4-methoxy-1-pyrazolyl
4-(trifluoromethyl)-1-pyrazolyl	4-(CH(=NOMe))-1-pyrazolyl
5-methyl-1-pyrazolyl	5-methoxy-1-pyrazolyl
5-(trifluoromethyl)-1-pyrazolyl	5-(CH(=NOMe))-1-pyrazolyl
4-methyl-1,2,3-triazin-2-yl	4-methoxy-1,2,3-triazin-2-yl
4-(trifluoromethyl)-1,2,3-triazin-2-yl	4-(CH(=NOMe))-1,2,3-triazin-2-yl
6-(2-pyrimidinyl)-2-pyridinyl	2-(2-pyridinyl)-4-thiazolyl
2-(2-thiazolyl)-4-thiazolyl	2-(2-pyrimidinyl)ethynyl
1,3,4-oxadiazol-2-yl	tetrahydro-3-furanyl
tetrahydro-2-furanyl	4,5-dihydro-3-isoxazolyl
3-isoxazolyl	phenyl
2-(trifluoromethyl)phenyl	3-(trifluoromethyl)phenyl
4-(trifluoromethyl)phenyl	

A is CF

R	R
3-methyl-2-pyridinyl	3-methoxy-2-pyridinyl
3-(trifluoromethyl)-2-pyridinyl	3-(CH(=NOMe))-2-pyridinyl
4-methyl-2-pyridinyl	4-methoxy-2-pyridinyl
4-(trifluoromethyl)-2-pyridinyl	4-(CH(=NOMe))-2-pyridinyl
5-methyl-2-pyridinyl	5-methoxy-2-pyridinyl
5-(trifluoromethyl)-2-pyridinyl	5-(CH(=NOMe))-2-pyridinyl
6-methyl-2-pyridinyl	6-methoxy-2-pyridinyl
6-(trifluoromethyl)-2-pyridinyl	6-(CH(=NOMe))-2-pyridinyl
2-methyl-3-pyridinyl	2-methoxy-3-pyridinyl
2-(trifluoromethyl)-3-pyridinyl	2-(CH(=NOMe))-3-pyridinyl
4-methyl-3-pyridinyl	4-methoxy-3-pyridinyl
4-(trifluoromethyl)-3-pyridinyl	4-(CH(=NOMe))-3-pyridinyl
5-methyl-3-pyridinyl	5-methoxy-3-pyridinyl
5-(trifluoromethyl)-3-pyridinyl	5-(CH(=NOMe))-3-pyridinyl
6-methyl-3-pyridinyl	6-methoxy-3-pyridinyl
6-(trifluoromethyl)-3-pyridinyl	6-(CH(=NOMe))-3-pyridinyl
2-methyl-4-pyridinyl	2-methoxy-4-pyridinyl
2-(trifluoromethyl)-4-pyridinyl	2-(CH(=NOMe))-4-pyridinyl
3-methyl-4-pyridinyl	3-methoxy-4-pyridinyl
3-(trifluoromethyl)-4-pyridinyl	3-(CH(=NOMe))-4-pyridinyl
3-methyl-2-pyrazinyl	3-methoxy-2-pyrazinyl
3-(trifluoromethyl)-2-pyrazinyl	3-(CH(=NOMe))-2-pyrazinyl
5-methyl-2-pyrazinyl	5-methoxy-2-pyrazinyl
5-(trifluoromethyl)-2-pyrazinyl	5-(CH(=NOMe))-2-pyrazinyl
6-methyl-2-pyrazinyl	6-methoxy-2-pyrazinyl
6-(trifluoromethyl)-2-pyrazinyl	6-(CH(=NOMe))-2-pyrazinyl
4-methyl-2-pyrimidinyl	4-methoxy-2-pyrimidinyl
4-(trifluoromethyl)-2-pyrimidinyl	4-(CH(=NOMe))-2-pyrimidinyl
5-methyl-2-pyrimidinyl	5-methoxy-2-pyrimidinyl
5-(trifluoromethyl)-2-pyrimidinyl	5-(CH(=NOMe))-2-pyrimidinyl
2-methyl-4-pyrimidinyl	2-methoxy-4-pyrimidinyl
2-(trifluoromethyl)-4-pyrimidinyl	2-(CH(=NOMe))-4-pyrimidinyl
5-methyl-4-pyrimidinyl	5-methoxy-4-pyrimidinyl
5-(trifluoromethyl)-4-pyrimidinyl	5-(CH(=NOMe))-4-pyrimidinyl

6-methyl-4-pyrimidinyl	6-methoxy-4-pyrimidinyl
6-(trifluoromethyl)-4-pyrimidinyl	6-(CH(=NOMe))-4-pyrimidinyl
3-methyl-1-pyrazolyl	3-methoxy-1-pyrazolyl
3-(trifluoromethyl)-1-pyrazolyl	3-(CH(=NOMe))-1-pyrazolyl
4-methyl-1-pyrazolyl	4-methoxy-1-pyrazolyl
4-(trifluoromethyl)-1-pyrazolyl	4-(CH(=NOMe))-1-pyrazolyl
5-methyl-1-pyrazolyl	5-methoxy-1-pyrazolyl
5-(trifluoromethyl)-1-pyrazolyl	5-(CH(=NOMe))-1-pyrazolyl
4-methyl-1,2,3-triazin-2-yl	4-methoxy-1,2,3-triazin-2-yl
4-(trifluoromethyl)-1,2,3-triazin-2-yl	4-(CH(=NOMe))-1,2,3-triazin-2-yl
6-(2-pyrimidinyl)-2-pyridinyl	2-(2-pyridinyl)-4-thiazolyl
2-(2-thiazolyl)-4-thiazolyl	2-(2-pyrimidinyl)ethynyl
1,3,4-oxadiazol-2-yl	tetrahydro-3-furanyl
tetrahydro-2-furanyl	4,5-dihydro-3-isoxazolyl
3-isoxazolyl	phenyl
2-(trifluoromethyl)phenyl	3-(trifluoromethyl)phenyl
4-(trifluoromethyl)phenyl	

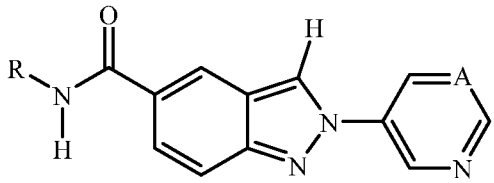
A is N

R	**R**
3-methyl-2-pyridinyl	3-methoxy-2-pyridinyl
3-(trifluoromethyl)-2-pyridinyl	3-(CH(=NOMe))-2-pyridinyl
4-methyl-2-pyridinyl	4-methoxy-2-pyridinyl
4-(trifluoromethyl)-2-pyridinyl	4-(CH(=NOMe))-2-pyridinyl
5-methyl-2-pyridinyl	5-methoxy-2-pyridinyl
5-(trifluoromethyl)-2-pyridinyl	5-(CH(=NOMe))-2-pyridinyl
6-methyl-2-pyridinyl	6-methoxy-2-pyridinyl
6-(trifluoromethyl)-2-pyridinyl	6-(CH(=NOMe))-2-pyridinyl
2-methyl-3-pyridinyl	2-methoxy-3-pyridinyl
2-(trifluoromethyl)-3-pyridinyl	2-(CH(=NOMe))-3-pyridinyl
4-methyl-3-pyridinyl	4-methoxy-3-pyridinyl
4-(trifluoromethyl)-3-pyridinyl	4-(CH(=NOMe))-3-pyridinyl
5-methyl-3-pyridinyl	5-methoxy-3-pyridinyl
5-(trifluoromethyl)-3-pyridinyl	5-(CH(=NOMe))-3-pyridinyl
6-methyl-3-pyridinyl	6-methoxy-3-pyridinyl

6-(trifluoromethyl)-3-pyridinyl	6-(CH(=NOMe))-3-pyridinyl
2-methyl-4-pyridinyl	2-methoxy-4-pyridinyl
2-(trifluoromethyl)-4-pyridinyl	2-(CH(=NOMe))-4-pyridinyl
3-methyl-4-pyridinyl	3-methoxy-4-pyridinyl
3-(trifluoromethyl)-4-pyridinyl	3-(CH(=NOMe))-4-pyridinyl
3-methyl-2-pyrazinyl	3-methoxy-2-pyrazinyl
3-(trifluoromethyl)-2-pyrazinyl	3-(CH(=NOMe))-2-pyrazinyl
5-methyl-2-pyrazinyl	5-methoxy-2-pyrazinyl
5-(trifluoromethyl)-2-pyrazinyl	5-(CH(=NOMe))-2-pyrazinyl
6-methyl-2-pyrazinyl	6-methoxy-2-pyrazinyl
6-(trifluoromethyl)-2-pyrazinyl	6-(CH(=NOMe))-2-pyrazinyl
4-methyl-2-pyrimidinyl	4-methoxy-2-pyrimidinyl
4-(trifluoromethyl)-2-pyrimidinyl	4-(CH(=NOMe))-2-pyrimidinyl
5-methyl-2-pyrimidinyl	5-methoxy-2-pyrimidinyl
5-(trifluoromethyl)-2-pyrimidinyl	5-(CH(=NOMe))-2-pyrimidinyl
2-methyl-4-pyrimidinyl	2-methoxy-4-pyrimidinyl
2-(trifluoromethyl)-4-pyrimidinyl	2-(CH(=NOMe))-4-pyrimidinyl
5-methyl-4-pyrimidinyl	5-methoxy-4-pyrimidinyl
5-(trifluoromethyl)-4-pyrimidinyl	5-(CH(=NOMe))-4-pyrimidinyl
6-methyl-4-pyrimidinyl	6-methoxy-4-pyrimidinyl
6-(trifluoromethyl)-4-pyrimidinyl	6-(CH(=NOMe))-4-pyrimidinyl
3-methyl-1-pyrazolyl	3-methoxy-1-pyrazolyl
3-(trifluoromethyl)-1-pyrazolyl	3-(CH(=NOMe))-1-pyrazolyl
4-methyl-1-pyrazolyl	4-methoxy-1-pyrazolyl
4-(trifluoromethyl)-1-pyrazolyl	4-(CH(=NOMe))-1-pyrazolyl
5-methyl-1-pyrazolyl	5-methoxy-1-pyrazolyl
5-(trifluoromethyl)-1-pyrazolyl	5-(CH(=NOMe))-1-pyrazolyl
4-methyl-1,2,3-triazin-2-yl	4-methoxy-1,2,3-triazin-2-yl
4-(trifluoromethyl)-1,2,3-triazin-2-yl	4-(CH(=NOMe))-1,2,3-triazin-2-yl
6-(2-pyrimidinyl)-2-pyridinyl	2-(2-pyridinyl)-4-thiazolyl
2-(2-thiazolyl)-4-thiazolyl	2-(2-pyrimidinyl)ethynyl
1,3,4-oxadiazol-2-yl	tetrahydro-3-furanyl
tetrahydro-2-furanyl	4,5-dihydro-3-isoxazolyl
3-isoxazolyl	phenyl
2-(trifluoromethyl)phenyl	3-(trifluoromethyl)phenyl

4-(trifluoromethyl)phenyl	

TABLE 2a



A is CH

R	R	R
Me	Et	Pr
i-Pr	$-CH_2$(c-Pr)	-CH(Me)(c-Pr)
Bu	s-Bu	i-Bu
t-Bu	$-CH_2Ph$	$-CH_2CH{=}CH_2$
$-CH_2C{\equiv}CH$	$-C(Me)_2C{\equiv}CH$	$-CH_2CH_2F$
$-CH_2CHF_2$	$-CH_2CF_3$	$-CH(Me)CF_3$
$-CH_2CH_2CF_3$	$-CH_2CF_2CF_3$	$-CH_2CF_2CH_3$
$-CH_2CH_2CF_2CF_3$	$-CH(i\text{-}Pr)CF_3$	$-CH_2CH_2OMe$
$-CH_2OEt$	$-CH_2CH_2O(i\text{-}Pr)$	$-CH_2CH_2OEt$
$-CH_2CH_2CH_2OMe$	$-CH_2CH(Me)OMe$	$-CH(Et)CH_2OMe$
$-CH(Me)CH_2OMe$	$-CH_2CH_2S(O)Me$	$-CH_2CH_2SMe$
$-CH_2CH_2SEt$	$-CH_2CH_2SO_2Me$	$-CH_2CH_2SO_2Et$
$-CH_2CH_2S(O)Et$	$-CH_2CH_2S(O)(t\text{-}Bu)$	$-CH_2CH_2S(t\text{-}Bu)$
$-CH(Me)CH_2SMe$	$-CH_2CH_2SO_2(t\text{-}Bu)$	$-CH(Me)CH_2SO_2Me$
$-CH(Me)CH_2S(O)Me$	$-CH_2CH_2S(O)CH_2CF_3$	$-CH_2CH_2SCH_2CF_3$
$-CH_2CH_2SO_2CH_2CF_3$	$-CH_2CH_2SO_2CH_2CH_2CF_3$	$-CH_2CH_2SCH_2CH_2CF_3$
$-CH_2CH_2S(O)CH_2CH_2CF_3$	$-CH_2CN$	$-CH_2CH_2CN$
$-C(Me)_2CN$	$-CH_2CH_2N(i\text{-}Pr)_2$	$-CH_2CH_2N(Me)_2$
$-CH2CH(OMe)_2$	c-Pr	c-Bu
1-methylcyclopropyl	3-methoxycyclobutyl	-CH(Ph)(c-Pr)
-CH(Me)(c-Pr)	3-thietanyl	3,3-difluorocyclobutyl
3-oxetanyl	$-CH_2$(oxiranyl)	3-thietanyl-1,1-dioxide
3-thietanyl-1-oxide	$-CH_2(CH(-OC(Me)_2OCH_2-))$	$-CH_2$(tetrahydro-2-furanyl)
$-CH_2$(2-furanyl)	tetrahydro-2-furanyl	$-CH_2$(2-thienyl)

$-CH_2(CH(-OCH_2CH_2O-)$	$-CH_2CO_2Me$	$-CH_2$(2,2-difluorocyclopropyl)
$-C(-CH_2CH_2-)CO_2Me$	$-CH(Me)CO_2Et$	$-CH(i\text{-}Pr)CO_2Me$
$-CH_2C(O)NHMe$	$-CH_2C(O)NMe_2$	-CH(Me)C(O)NHMe
-CH(Me)C(O)NH(t-Bu)	$-OCH_2$(c-Pr)	$-CH(Me)C(O)NMe_2$
$-OCH_2CH{=}CH_2$	-NHC(O)(i-Pr)	-NHC(O)Me
$-NHCO_2Me$	-NHC(O)(3-pyridinyl)	-NHC(O)(t-Bu)
-NHC(O)Ph	-NH(c-hexyl)	-NHC(O)NH(i-Pr)
-NH(c-Pr)	-NHC(O)(2-thienyl)	$-NH(CH_2CF_3)$
$-NHC(O)CF_3$	$-NHCO_2Et$	-NHC(O)(2-furanyl)
-C(O)C(O)Me	$-NHCO_2CH_2CF_3$	$-C(O)CO_2Me$
-C(O)(2-pyridinyl)	$-NHC(O)NMe_2$	-NHC(O)NHMe
$-NHC(O)NHCH_2CF_3$	$-NHC(O)CH_2CH_2CF_3$	-NHC(O)Et
$-NHC(O)CH_2CF_3$	$-NHSO_2CF_3$	$-NHSO_2CH_2CF_3$
$-NHSO_2CH_2CH_2CF_3$	-NH(2-pyridinyl)	-NH(2-pyridinyl)
-NH(2-pyridinyl)	-NH(2-pyrimidinyl)	-NH(2-pyridinyl)
-NH(2-pyrimidinyl)	$-NH(6\text{-}CF_3\text{-}2\text{-pyridinyl})$	$-NH(4\text{-}CF_3\text{-}2\text{-pyridinyl})$
$-NH(3\text{-}CF_3\text{-}2\text{-pyridinyl})$	$-NH(5\text{-}CF_3\text{-}2\text{-pyrimidinyl})$	$-NH(5\text{-}CF_3\text{-}2\text{-pyridinyl})$
$-NH(4\text{-}CF_3\text{-}2\text{-pyrimidinyl})$	-NH(6-methyl-2-pyridinyl)	-NH(4-methyl-2-pyridinyl)
-NH(3-methyl-2-pyridinyl)	-NH(5-methyl-2-pyrimidinyl)	-NH(5-methyl-2-pyridinyl)
-NH(4-methyl-2-pyrimidinyl)	-NH(6-methoxy-2-pyridinyl)	-NH(4-methoxy-2-pyridinyl)
-NH(3-methoxy-2-pyridinyl)	-NH(5-methoxy-2-pyrimidinyl)	-NH(5-methoxy-2-pyridinyl)
-NH(4-methoxy-2-pyrimidinyl)	$-CH_2(6\text{-}CF_3\text{-}2\text{-pyridinyl})$	$-CH_2(4\text{-}CF_3\text{-}2\text{-pyridinyl})$
$-CH_2(3\text{-}CF_3\text{-}2\text{-pyridinyl})$	$-CH_2(5\text{-}CF_3\text{-}2\text{-pyrimidinyl})$	$-CH_2(5\text{-}CF_3\text{-}2\text{-pyridinyl})$
$-CH_2(4\text{-}CF_3\text{-}2\text{-pyrimidinyl})$	$-CH_2$(6-methyl-2-pyridinyl)	$-CH_2$(4-methyl-2-pyridinyl)
$-CH_2$(3-methyl-2-pyridinyl)	$-CH_2$(5-methyl-2-pyrimidinyl)	$-CH_2$(5-methyl-2-pyridinyl)
$-CH_2$(4-methyl-2-pyrimidinyl)	$-CH_2$(6-methoxy-2-pyridinyl)	$-CH_2$(4-methoxy-2-pyridinyl)
$-CH_2$(3-methoxy-2-pyridinyl)	$-CH_2$(5-methoxy-2-pyrimidinyl)	$-CH_2$(5-methoxy-2-pyridinyl)
$-CH_2$(4-methoxy-2-pyrimidinyl)	$-CH_2$(5-pyrimidinyl)	$-CH_2$(6-bromo-2-pyridinyl)
$-CH_2$(2-pyrimidinyl)	$-CH_2(3\text{-}(OCF_3)\text{phenyl})$	$-CH_2$(2-thiazolyl)
$-CH_2$(5-methyl-2-pyrazinyl)	$-CH_2$(4-pyridinyl)	$-CH_2$(2-pyridinyl)
Ph	3-pyridinyl	$-CH_2$(3-pyridinyl)
2-pyridinyl	2-pyrazinyl	$-CH_2CH_2$(2-pyridinyl)
4-pyridinyl	$4\text{-}CF_3\text{-}2\text{-pyridinyl}$	$-CH_2CH_2CH_2$(2-pyridinyl)
$3\text{-}CF_3\text{-}2\text{-pyridinyl}$	$4\text{-}CF_3\text{-}2\text{-pyrimidinyl}$	$6\text{-}CF_3\text{-}2\text{-pyridinyl}$
$5\text{-}CF_3\text{-}2\text{-pyridinyl}$	$5\text{-}CF_3\text{-}2\text{-pyrazinyl}$	$5\text{-}CF_3\text{-}2\text{-pyrimidinyl}$

-CH_2CH_2N(-C(O)CH_2CH_2C(O)-)	-$CH_2CH_2CH_2$(1-imidazolyl)	-CH(-C(O)OCH_2CH_2-)

A is CF

R	**R**	**R**
Me	Et	Pr
i-Pr	-CH_2(c-Pr)	-CH(Me)(c-Pr)
Bu	s-Bu	i-Bu
t-Bu	-CH_2Ph	-$CH_2CH{=}CH_2$
-$CH_2C{\equiv}CH$	-C(Me)$_2$C≡CH	-CH_2CH_2F
-CH_2CHF_2	-CH_2CF_3	-CH(Me)CF_3
-$CH_2CH_2CF_3$	-$CH_2CF_2CF_3$	-$CH_2CF_2CH_3$
-$CH_2CH_2CF_2CF_3$	-CH(i-Pr)CF_3	-CH_2CH_2OMe
-CH_2OEt	-CH_2CH_2O(i-Pr)	-CH_2CH_2OEt
-$CH_2CH_2CH_2OMe$	-CH_2CH(Me)OMe	-CH(Et)CH_2OMe
-CH(Me)CH_2OMe	-CH_2CH_2S(O)Me	-CH_2CH_2SMe
-CH_2CH_2SEt	-$CH_2CH_2SO_2Me$	-$CH_2CH_2SO_2Et$
-CH_2CH_2S(O)Et	-CH_2CH_2S(O)(t-Bu)	-CH_2CH_2S(t-Bu)
-CH(Me)CH_2SMe	-$CH_2CH_2SO_2$(t-Bu)	-CH(Me)CH_2SO_2Me
-CH(Me)CH_2S(O)Me	-CH_2CH_2S(O)CH_2CF_3	-$CH_2CH_2SCH_2CF_3$
-$CH_2CH_2SO_2CH_2CF_3$	-$CH_2CH_2SO_2CH_2CH_2CF_3$	-$CH_2CH_2SCH_2CH_2CF_3$
-CH_2CH_2S(O)$CH_2CH_2CF_3$	-CH_2CN	-CH_2CH_2CN
-C(Me)$_2$CN	-CH_2CH_2N(i-Pr)$_2$	-$CH_2CH_2N(Me)_2$
-CH2CH(OMe)$_2$	c-Pr	c-Bu
1-methylcyclopropyl	3-methoxycyclobutyl	-CH(Ph)(c-Pr)
-CH(Me)(c-Pr)	3-thietanyl	3,3-difluorocyclobutyl
3-oxetanyl	-CH_2(oxiranyl)	3-thietanyl-1,1-dioxide
3-thietanyl-1-oxide	-CH_2(CH(-OC(Me)$_2OCH_2$-))	-CH_2(tetrahydro-2-furanyl)
-CH_2(2-furanyl)	tetrahydro-2-furanyl	-CH_2(2-thienyl)
-CH_2(CH(-OCH_2CH_2O-)	-CH_2CO_2Me	-CH_2(2,2-difluorocyclopropyl)
-C(-CH_2CH_2-)CO_2Me	-CH(Me)CO_2Et	-CH(i-Pr)CO_2Me
-CH_2C(O)NHMe	-CH_2C(O)NMe_2	-CH(Me)C(O)NHMe
-CH(Me)C(O)NH(t-Bu)	-OCH_2(c-Pr)	-CH(Me)C(O)NMe_2
-$OCH_2CH{=}CH_2$	-NHC(O)(i-Pr)	-NHC(O)Me
-$NHCO_2Me$	-NHC(O)(3-pyridinyl)	-NHC(O)(t-Bu)

-NHC(O)Ph	-NH(c-hexyl)	-NHC(O)NH(i-Pr)
-NH(c-Pr)	-NHC(O)(2-thienyl)	-NH(CH_2CF_3)
-NHC(O)CF_3	-NHCO_2Et	-NHC(O)(2-furanyl)
-C(O)C(O)Me	-NH$CO_2CH_2CF_3$	-C(O)CO_2Me
-C(O)(2-pyridinyl)	-NHC(O)NMe_2	-NHC(O)NHMe
-NHC(O)NHCH_2CF_3	-NHC(O)$CH_2CH_2CF_3$	-NHC(O)Et
-NHC(O)CH_2CF_3	-NHSO_2CF_3	-NH$SO_2CH_2CF_3$
-NH$SO_2CH_2CH_2CF_3$	-NH(2-pyridinyl)	-NH(2-pyridinyl)
-NH(2-pyridinyl)	-NH(2-pyrimidinyl)	-NH(2-pyridinyl)
-NH(2-pyrimidinyl)	-NH(6-CF_3-2-pyridinyl)	-NH(4-CF_3-2-pyridinyl)
-NH(3-CF_3-2-pyridinyl)	-NH(5-CF_3-2-pyrimidinyl)	-NH(5-CF_3-2-pyridinyl)
-NH(4-CF_3-2-pyrimidinyl)	-NH(6-methyl-2-pyridinyl)	-NH(4-methyl-2-pyridinyl)
-NH(3-methyl-2-pyridinyl)	-NH(5-methyl-2-pyrimidinyl)	-NH(5-methyl-2-pyridinyl)
-NH(4-methyl-2-pyrimidinyl)	-NH(6-methoxy-2-pyridinyl)	-NH(4-methoxy-2-pyridinyl)
-NH(3-methoxy-2-pyridinyl)	-NH(5-methoxy-2-pyrimidinyl)	-NH(5-methoxy-2-pyridinyl)
-NH(4-methoxy-2-pyrimidinyl)	-CH_2(6-CF_3-2-pyridinyl)	-CH_2(4-CF_3-2-pyridinyl)
-CH_2(3-CF_3-2-pyridinyl)	-CH_2(5-CF_3-2-pyrimidinyl)	-CH_2(5-CF_3-2-pyridinyl)
-CH_2(4-CF_3-2-pyrimidinyl)	-CH_2(6-methyl-2-pyridinyl)	-CH_2(4-methyl-2-pyridinyl)
-CH_2(3-methyl-2-pyridinyl)	-CH_2(5-methyl-2-pyrimidinyl)	-CH_2(5-methyl-2-pyridinyl)
-CH_2(4-methyl-2-pyrimidinyl)	-CH_2(6-methoxy-2-pyridinyl)	-CH_2(4-methoxy-2-pyridinyl)
-CH_2(3-methoxy-2-pyridinyl)	-CH_2(5-methoxy-2-pyrimidinyl)	-CH_2(5-methoxy-2-pyridinyl)
-CH_2(4-methoxy-2-pyrimidinyl)	-CH_2(5-pyrimidinyl)	-CH_2(6-bromo-2-pyridinyl)
-CH_2(2-pyrimidinyl)	-CH_2(3-(OCF_3)phenyl)	-CH_2(2-thiazolyl)
-CH_2(5-methyl-2-pyrazinyl)	-CH_2(4-pyridinyl)	-CH_2(2-pyridinyl)
Ph	3-pyridinyl	-CH_2(3-pyridinyl)
2-pyridinyl	2-pyrazinyl	-CH_2CH_2(2-pyridinyl)
4-pyridinyl	4-CF_3-2-pyridinyl	-$CH_2CH_2CH_2$(2-pyridinyl)
3-CF_3-2-pyridinyl	4-CF_3-2-pyrimidinyl	6-CF_3-2-pyridinyl
5-CF_3-2-pyridinyl	5-CF_3-2-pyrazinyl	5-CF_3-2-pyrimidinyl
-CH_2CH_2N(-C(O)CH_2CH_2C(O)-)	-$CH_2CH_2CH_2$(1-imidazolyl)	-CH(-C(O)OCH_2CH_2-)

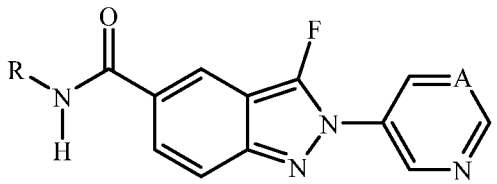
A is N

R	**R**	**R**
Me	Et	Pr
i-Pr	-CH_2(c-Pr)	-CH(Me)(c-Pr)

Bu	s-Bu	i-Bu
t-Bu	$-CH_2Ph$	$-CH_2CH{=}CH_2$
$-CH_2C{\equiv}CH$	$-C(Me)_2C{\equiv}CH$	$-CH_2CH_2F$
$-CH_2CHF_2$	$-CH_2CF_3$	$-CH(Me)CF_3$
$-CH_2CH_2CF_3$	$-CH_2CF_2CF_3$	$-CH_2CF_2CH_3$
$-CH_2CH_2CF_2CF_3$	$-CH(i\text{-}Pr)CF_3$	$-CH_2CH_2OMe$
$-CH_2OEt$	$-CH_2CH_2O(i\text{-}Pr)$	$-CH_2CH_2OEt$
$-CH_2CH_2CH_2OMe$	$-CH_2CH(Me)OMe$	$-CH(Et)CH_2OMe$
$-CH(Me)CH_2OMe$	$-CH_2CH_2S(O)Me$	$-CH_2CH_2SMe$
$-CH_2CH_2SEt$	$-CH_2CH_2SO_2Me$	$-CH_2CH_2SO_2Et$
$-CH_2CH_2S(O)Et$	$-CH_2CH_2S(O)(t\text{-}Bu)$	$-CH_2CH_2S(t\text{-}Bu)$
$-CH(Me)CH_2SMe$	$-CH_2CH_2SO_2(t\text{-}Bu)$	$-CH(Me)CH_2SO_2Me$
$-CH(Me)CH_2S(O)Me$	$-CH_2CH_2S(O)CH_2CF_3$	$-CH_2CH_2SCH_2CF_3$
$-CH_2CH_2SO_2CH_2CF_3$	$-CH_2CH_2SO_2CH_2CH_2CF_3$	$-CH_2CH_2SCH_2CH_2CF_3$
$-CH_2CH_2S(O)CH_2CH_2CF_3$	$-CH_2CN$	$-CH_2CH_2CN$
$-C(Me)_2CN$	$-CH_2CH_2N(i\text{-}Pr)_2$	$-CH_2CH_2N(Me)_2$
$-CH2CH(OMe)_2$	c-Pr	c-Bu
1-methylcyclopropyl	3-methoxycyclobutyl	-CH(Ph)(c-Pr)
-CH(Me)(c-Pr)	3-thietanyl	3,3-difluorocyclobutyl
3-oxetanyl	$-CH_2$(oxiranyl)	3-thietanyl-1,1-dioxide
3-thietanyl-1-oxide	$-CH_2(CH(-OC(Me)_2OCH_2-))$	$-CH_2$(tetrahydro-2-furanyl)
$-CH_2$(2-furanyl)	tetrahydro-2-furanyl	$-CH_2$(2-thienyl)
$-CH_2(CH(-OCH_2CH_2O-)$	$-CH_2CO_2Me$	$-CH_2$(2,2-difluorocyclopropyl)
$-C(-CH_2CH_2-)CO_2Me$	$-CH(Me)CO_2Et$	$-CH(i\text{-}Pr)CO_2Me$
$-CH_2C(O)NHMe$	$-CH_2C(O)NMe_2$	$-CH(Me)C(O)NHMe$
$-CH(Me)C(O)NH(t\text{-}Bu)$	$-OCH_2$(c-Pr)	$-CH(Me)C(O)NMe_2$
$-OCH_2CH{=}CH_2$	$-NHC(O)(i\text{-}Pr)$	-NHC(O)Me
$-NHCO_2Me$	-NHC(O)(3-pyridinyl)	-NHC(O)(t-Bu)
-NHC(O)Ph	-NH(c-hexyl)	-NHC(O)NH(i-Pr)
-NH(c-Pr)	-NHC(O)(2-thienyl)	$-NH(CH_2CF_3)$
$-NHC(O)CF_3$	$-NHCO_2Et$	-NHC(O)(2-furanyl)
-C(O)C(O)Me	$-NHCO_2CH_2CF_3$	$-C(O)CO_2Me$
-C(O)(2-pyridinyl)	$-NHC(O)NMe_2$	-NHC(O)NHMe
$-NHC(O)NHCH_2CF_3$	$-NHC(O)CH_2CH_2CF_3$	-NHC(O)Et
$-NHC(O)CH_2CF_3$	$-NHSO_2CF_3$	$-NHSO_2CH_2CF_3$

-NHSO$_2$CH$_2$CH$_2$CF$_3$	-NH(2-pyridinyl)	-NH(2-pyridinyl)
-NH(2-pyridinyl)	-NH(2-pyrimidinyl)	-NH(2-pyridinyl)
-NH(2-pyrimidinyl)	-NH(6-CF$_3$-2-pyridinyl)	-NH(4-CF$_3$-2-pyridinyl)
-NH(3-CF$_3$-2-pyridinyl)	-NH(5-CF$_3$-2-pyrimidinyl)	-NH(5-CF$_3$-2-pyridinyl)
-NH(4-CF$_3$-2-pyrimidinyl)	-NH(6-methyl-2-pyridinyl)	-NH(4-methyl-2-pyridinyl)
-NH(3-methyl-2-pyridinyl)	-NH(5-methyl-2-pyrimidinyl)	-NH(5-methyl-2-pyridinyl)
-NH(4-methyl-2-pyrimidinyl)	-NH(6-methoxy-2-pyridinyl)	-NH(4-methoxy-2-pyridinyl)
-NH(3-methoxy-2-pyridinyl)	-NH(5-methoxy-2-pyrimidinyl)	-NH(5-methoxy-2-pyridinyl)
-NH(4-methoxy-2-pyrimidinyl)	-CH$_2$(6-CF$_3$-2-pyridinyl)	-CH$_2$(4-CF$_3$-2-pyridinyl)
-CH$_2$(3-CF$_3$-2-pyridinyl)	-CH$_2$(5-CF$_3$-2-pyrimidinyl)	-CH$_2$(5-CF$_3$-2-pyridinyl)
-CH$_2$(4-CF$_3$-2-pyrimidinyl)	-CH$_2$(6-methyl-2-pyridinyl)	-CH$_2$(4-methyl-2-pyridinyl)
-CH$_2$(3-methyl-2-pyridinyl)	-CH$_2$(5-methyl-2-pyrimidinyl)	-CH$_2$(5-methyl-2-pyridinyl)
-CH$_2$(4-methyl-2-pyrimidinyl)	-CH$_2$(6-methoxy-2-pyridinyl)	-CH$_2$(4-methoxy-2-pyridinyl)
-CH$_2$(3-methoxy-2-pyridinyl)	-CH$_2$(5-methoxy-2-pyrimidinyl)	-CH$_2$(5-methoxy-2-pyridinyl)
-CH$_2$(4-methoxy-2-pyrimidinyl)	-CH$_2$(5-pyrimidinyl)	-CH$_2$(6-bromo-2-pyridinyl)
-CH$_2$(2-pyrimidinyl)	-CH$_2$(3-(OCF$_3$)phenyl)	-CH$_2$(2-thiazolyl)
-CH$_2$(5-methyl-2-pyrazinyl)	-CH$_2$(4-pyridinyl)	-CH$_2$(2-pyridinyl)
Ph	3-pyridinyl	-CH$_2$(3-pyridinyl)
2-pyridinyl	2-pyrazinyl	-CH$_2$CH$_2$(2-pyridinyl)
4-pyridinyl	4-CF$_3$-2-pyridinyl	-CH$_2$CH$_2$CH$_2$(2-pyridinyl)
3-CF$_3$-2-pyridinyl	4-CF$_3$-2-pyrimidinyl	6-CF$_3$-2-pyridinyl
5-CF$_3$-2-pyridinyl	5-CF$_3$-2-pyrazinyl	5-CF$_3$-2-pyrimidinyl
-CH$_2$CH$_2$N(-C(O)CH$_2$CH$_2$C(O)-)	-CH$_2$CH$_2$CH$_2$(1-imidazolyl)	-CH(-C(O)OCH$_2$CH$_2$-)

TABLE 2b



A is CH

R	**R**	**R**
Me	Et	Pr
i-Pr	-CH$_2$(c-Pr)	-CH(Me)(c-Pr)

Bu	s-Bu	i-Bu
t-Bu	$-CH_2Ph$	$-CH_2CH{=}CH_2$
$-CH_2C{\equiv}CH$	$-C(Me)_2C{\equiv}CH$	$-CH_2CH_2F$
$-CH_2CHF_2$	$-CH_2CF_3$	$-CH(Me)CF_3$
$-CH_2CH_2CF_3$	$-CH_2CF_2CF_3$	$-CH_2CF_2CH_3$
$-CH_2CH_2CF_2CF_3$	$-CH(i\text{-}Pr)CF_3$	$-CH_2CH_2OMe$
$-CH_2OEt$	$-CH_2CH_2O(i\text{-}Pr)$	$-CH_2CH_2OEt$
$-CH_2CH_2CH_2OMe$	$-CH_2CH(Me)OMe$	$-CH(Et)CH_2OMe$
$-CH(Me)CH_2OMe$	$-CH_2CH_2S(O)Me$	$-CH_2CH_2SMe$
$-CH_2CH_2SEt$	$-CH_2CH_2SO_2Me$	$-CH_2CH_2SO_2Et$
$-CH_2CH_2S(O)Et$	$-CH_2CH_2S(O)(t\text{-}Bu)$	$-CH_2CH_2S(t\text{-}Bu)$
$-CH(Me)CH_2SMe$	$-CH_2CH_2SO_2(t\text{-}Bu)$	$-CH(Me)CH_2SO_2Me$
$-CH(Me)CH_2S(O)Me$	$-CH_2CH_2S(O)CH_2CF_3$	$-CH_2CH_2SCH_2CF_3$
$-CH_2CH_2SO_2CH_2CF_3$	$-CH_2CH_2SO_2CH_2CH_2CF_3$	$-CH_2CH_2SCH_2CH_2CF_3$
$-CH_2CH_2S(O)CH_2CH_2CF_3$	$-CH_2CN$	$-CH_2CH_2CN$
$-C(Me)_2CN$	$-CH_2CH_2N(i\text{-}Pr)_2$	$-CH_2CH_2N(Me)_2$
$-CH2CH(OMe)_2$	c-Pr	c-Bu
1-methylcyclopropyl	3-methoxycyclobutyl	-CH(Ph)(c-Pr)
-CH(Me)(c-Pr)	3-thietanyl	3,3-difluorocyclobutyl
3-oxetanyl	$-CH_2$(oxiranyl)	3-thietanyl-1,1-dioxide
3-thietanyl-1-oxide	$-CH_2(CH(-OC(Me)_2OCH_2-))$	$-CH_2$(tetrahydro-2-furanyl)
$-CH_2$(2-furanyl)	tetrahydro-2-furanyl	$-CH_2$(2-thienyl)
$-CH_2(CH(-OCH_2CH_2O-)$	$-CH_2CO_2Me$	$-CH_2$(2,2-difluorocyclopropyl)
$-C(-CH_2CH_2-)CO_2Me$	$-CH(Me)CO_2Et$	$-CH(i\text{-}Pr)CO_2Me$
$-CH_2C(O)NHMe$	$-CH_2C(O)NMe_2$	$-CH(Me)C(O)NHMe$
$-CH(Me)C(O)NH(t\text{-}Bu)$	$-OCH_2$(c-Pr)	$-CH(Me)C(O)NMe_2$
$-OCH_2CH{=}CH_2$	$-NHC(O)(i\text{-}Pr)$	-NHC(O)Me
$-NHCO_2Me$	-NHC(O)(3-pyridinyl)	-NHC(O)(t-Bu)
-NHC(O)Ph	-NH(c-hexyl)	-NHC(O)NH(i-Pr)
-NH(c-Pr)	-NHC(O)(2-thienyl)	$-NH(CH_2CF_3)$
$-NHC(O)CF_3$	$-NHCO_2Et$	-NHC(O)(2-furanyl)
-C(O)C(O)Me	$-NHCO_2CH_2CF_3$	$-C(O)CO_2Me$
-C(O)(2-pyridinyl)	$-NHC(O)NMe_2$	-NHC(O)NHMe
$-NHC(O)NHCH_2CF_3$	$-NHC(O)CH_2CH_2CF_3$	-NHC(O)Et
$-NHC(O)CH_2CF_3$	$-NHSO_2CF_3$	$-NHSO_2CH_2CF_3$

$-NHSO_2CH_2CH_2CF_3$	-NH(2-pyridinyl)	-NH(2-pyridinyl)
-NH(2-pyridinyl)	-NH(2-pyrimidinyl)	-NH(2-pyridinyl)
-NH(2-pyrimidinyl)	-NH(6-CF_3-2-pyridinyl)	-NH(4-CF_3-2-pyridinyl)
-NH(3-CF_3-2-pyridinyl)	-NH(5-CF_3-2-pyrimidinyl)	-NH(5-CF_3-2-pyridinyl)
-NH(4-CF_3-2-pyrimidinyl)	-NH(6-methyl-2-pyridinyl)	-NH(4-methyl-2-pyridinyl)
-NH(3-methyl-2-pyridinyl)	-NH(5-methyl-2-pyrimidinyl)	-NH(5-methyl-2-pyridinyl)
-NH(4-methyl-2-pyrimidinyl)	-NH(6-methoxy-2-pyridinyl)	-NH(4-methoxy-2-pyridinyl)
-NH(3-methoxy-2-pyridinyl)	-NH(5-methoxy-2-pyrimidinyl)	-NH(5-methoxy-2-pyridinyl)
-NH(4-methoxy-2-pyrimidinyl)	$-CH_2$(6-CF_3-2-pyridinyl)	$-CH_2$(4-CF_3-2-pyridinyl)
$-CH_2$(3-CF_3-2-pyridinyl)	$-CH_2$(5-CF_3-2-pyrimidinyl)	$-CH_2$(5-CF_3-2-pyridinyl)
$-CH_2$(4-CF_3-2-pyrimidinyl)	$-CH_2$(6-methyl-2-pyridinyl)	$-CH_2$(4-methyl-2-pyridinyl)
$-CH_2$(3-methyl-2-pyridinyl)	$-CH_2$(5-methyl-2-pyrimidinyl)	$-CH_2$(5-methyl-2-pyridinyl)
$-CH_2$(4-methyl-2-pyrimidinyl)	$-CH_2$(6-methoxy-2-pyridinyl)	$-CH_2$(4-methoxy-2-pyridinyl)
$-CH_2$(3-methoxy-2-pyridinyl)	$-CH_2$(5-methoxy-2-pyrimidinyl)	$-CH_2$(5-methoxy-2-pyridinyl)
$-CH_2$(4-methoxy-2-pyrimidinyl)	$-CH_2$(5-pyrimidinyl)	$-CH_2$(6-bromo-2-pyridinyl)
$-CH_2$(2-pyrimidinyl)	$-CH_2$(3-(OCF_3)phenyl)	$-CH_2$(2-thiazolyl)
$-CH_2$(5-methyl-2-pyrazinyl)	$-CH_2$(4-pyridinyl)	$-CH_2$(2-pyridinyl)
Ph	3-pyridinyl	$-CH_2$(3-pyridinyl)
2-pyridinyl	2-pyrazinyl	$-CH_2CH_2$(2-pyridinyl)
4-pyridinyl	4-CF_3-2-pyridinyl	$-CH_2CH_2CH_2$(2-pyridinyl)
3-CF_3-2-pyridinyl	4-CF_3-2-pyrimidinyl	6-CF_3-2-pyridinyl
5-CF_3-2-pyridinyl	5-CF_3-2-pyrazinyl	5-CF_3-2-pyrimidinyl
$-CH_2CH_2N(-C(O)CH_2CH_2C(O)-)$	$-CH_2CH_2CH_2$(1-imidazolyl)	$-CH(-C(O)OCH_2CH_2-)$

A is CF

R	**R**	**R**
Me	Et	Pr
i-Pr	$-CH_2$(c-Pr)	-CH(Me)(c-Pr)
Bu	s-Bu	i-Bu
t-Bu	$-CH_2Ph$	$-CH_2CH{=}CH_2$
$-CH_2C{\equiv}CH$	$-C(Me)_2C{\equiv}CH$	$-CH_2CH_2F$
$-CH_2CHF_2$	$-CH_2CF_3$	$-CH(Me)CF_3$
$-CH_2CH_2CF_3$	$-CH_2CF_2CF_3$	$-CH_2CF_2CH_3$
$-CH_2CH_2CF_2CF_3$	$-CH(i\text{-}Pr)CF_3$	$-CH_2CH_2OMe$
$-CH_2OEt$	$-CH_2CH_2O(i\text{-}Pr)$	$-CH_2CH_2OEt$

$-CH_2CH_2CH_2OMe$	$-CH_2CH(Me)OMe$	$-CH(Et)CH_2OMe$
$-CH(Me)CH_2OMe$	$-CH_2CH_2S(O)Me$	$-CH_2CH_2SMe$
$-CH_2CH_2SEt$	$-CH_2CH_2SO_2Me$	$-CH_2CH_2SO_2Et$
$-CH_2CH_2S(O)Et$	$-CH_2CH_2S(O)(t\text{-}Bu)$	$-CH_2CH_2S(t\text{-}Bu)$
$-CH(Me)CH_2SMe$	$-CH_2CH_2SO_2(t\text{-}Bu)$	$-CH(Me)CH_2SO_2Me$
$-CH(Me)CH_2S(O)Me$	$-CH_2CH_2S(O)CH_2CF_3$	$-CH_2CH_2SCH_2CF_3$
$-CH_2CH_2SO_2CH_2CF_3$	$-CH_2CH_2SO_2CH_2CH_2CF_3$	$-CH_2CH_2SCH_2CH_2CF_3$
$-CH_2CH_2S(O)CH_2CH_2CF_3$	$-CH_2CN$	$-CH_2CH_2CN$
$-C(Me)_2CN$	$-CH_2CH_2N(i\text{-}Pr)_2$	$-CH_2CH_2N(Me)_2$
$-CH2CH(OMe)_2$	c-Pr	c-Bu
1-methylcyclopropyl	3-methoxycyclobutyl	-CH(Ph)(c-Pr)
-CH(Me)(c-Pr)	3-thietanyl	3,3-difluorocyclobutyl
3-oxetanyl	$-CH_2$(oxiranyl)	3-thietanyl-1,1-dioxide
3-thietanyl-1-oxide	$-CH_2(CH(-OC(Me)_2OCH_2-))$	$-CH_2$(tetrahydro-2-furanyl)
$-CH_2$(2-furanyl)	tetrahydro-2-furanyl	$-CH_2$(2-thienyl)
$-CH_2(CH(-OCH_2CH_2O-)$	$-CH_2CO_2Me$	$-CH_2$(2,2-difluorocyclopropyl)
$-C(-CH_2CH_2-)CO_2Me$	$-CH(Me)CO_2Et$	$-CH(i\text{-}Pr)CO_2Me$
$-CH_2C(O)NHMe$	$-CH_2C(O)NMe_2$	-CH(Me)C(O)NHMe
-CH(Me)C(O)NH(t-Bu)	$-OCH_2$(c-Pr)	$-CH(Me)C(O)NMe_2$
$-OCH_2CH{=}CH_2$	-NHC(O)(i-Pr)	-NHC(O)Me
$-NHCO_2Me$	-NHC(O)(3-pyridinyl)	-NHC(O)(t-Bu)
-NHC(O)Ph	-NH(c-hexyl)	-NHC(O)NH(i-Pr)
-NH(c-Pr)	-NHC(O)(2-thienyl)	$-NH(CH_2CF_3)$
$-NHC(O)CF_3$	$-NHCO_2Et$	-NHC(O)(2-furanyl)
-C(O)C(O)Me	$-NHCO_2CH_2CF_3$	$-C(O)CO_2Me$
-C(O)(2-pyridinyl)	$-NHC(O)NMe_2$	-NHC(O)NHMe
$-NHC(O)NHCH_2CF_3$	$-NHC(O)CH_2CH_2CF_3$	-NHC(O)Et
$-NHC(O)CH_2CF_3$	$-NHSO_2CF_3$	$-NHSO_2CH_2CF_3$
$-NHSO_2CH_2CH_2CF_3$	-NH(2-pyridinyl)	-NH(2-pyridinyl)
-NH(2-pyridinyl)	-NH(2-pyrimidinyl)	-NH(2-pyridinyl)
-NH(2-pyrimidinyl)	$-NH(6\text{-}CF_3\text{-}2\text{-pyridinyl})$	$-NH(4\text{-}CF_3\text{-}2\text{-pyridinyl})$
$-NH(3\text{-}CF_3\text{-}2\text{-pyridinyl})$	$-NH(5\text{-}CF_3\text{-}2\text{-pyrimidinyl})$	$-NH(5\text{-}CF_3\text{-}2\text{-pyridinyl})$
$-NH(4\text{-}CF_3\text{-}2\text{-pyrimidinyl})$	-NH(6-methyl-2-pyridinyl)	-NH(4-methyl-2-pyridinyl)
-NH(3-methyl-2-pyridinyl)	-NH(5-methyl-2-pyrimidinyl)	-NH(5-methyl-2-pyridinyl)
-NH(4-methyl-2-pyrimidinyl)	-NH(6-methoxy-2-pyridinyl)	-NH(4-methoxy-2-pyridinyl)

-NH(3-methoxy-2-pyridinyl)	-NH(5-methoxy-2-pyrimidinyl)	-NH(5-methoxy-2-pyridinyl)
-NH(4-methoxy-2-pyrimidinyl)	-CH_2(6-CF_3-2-pyridinyl)	-CH_2(4-CF_3-2-pyridinyl)
-CH_2(3-CF_3-2-pyridinyl)	-CH_2(5-CF_3-2-pyrimidinyl)	-CH_2(5-CF_3-2-pyridinyl)
-CH_2(4-CF_3-2-pyrimidinyl)	-CH_2(6-methyl-2-pyridinyl)	-CH_2(4-methyl-2-pyridinyl)
-CH_2(3-methyl-2-pyridinyl)	-CH_2(5-methyl-2-pyrimidinyl)	-CH_2(5-methyl-2-pyridinyl)
-CH_2(4-methyl-2-pyrimidinyl)	-CH_2(6-methoxy-2-pyridinyl)	-CH_2(4-methoxy-2-pyridinyl)
-CH_2(3-methoxy-2-pyridinyl)	-CH_2(5-methoxy-2-pyrimidinyl)	-CH_2(5-methoxy-2-pyridinyl)
-CH_2(4-methoxy-2-pyrimidinyl)	-CH_2(5-pyrimidinyl)	-CH_2(6-bromo-2-pyridinyl)
-CH_2(2-pyrimidinyl)	-CH_2(3-(OCF_3)phenyl)	-CH_2(2-thiazolyl)
-CH_2(5-methyl-2-pyrazinyl)	-CH_2(4-pyridinyl)	-CH_2(2-pyridinyl)
Ph	3-pyridinyl	-CH_2(3-pyridinyl)
2-pyridinyl	2-pyrazinyl	-CH_2CH_2(2-pyridinyl)
4-pyridinyl	4-CF_3-2-pyridinyl	-$CH_2CH_2CH_2$(2-pyridinyl)
3-CF_3-2-pyridinyl	4-CF_3-2-pyrimidinyl	6-CF_3-2-pyridinyl
5-CF_3-2-pyridinyl	5-CF_3-2-pyrazinyl	5-CF_3-2-pyrimidinyl
-CH_2CH_2N(-C(O)CH_2CH_2C(O)-)	-$CH_2CH_2CH_2$(1-imidazolyl)	-CH(-C(O)OCH_2CH_2-)

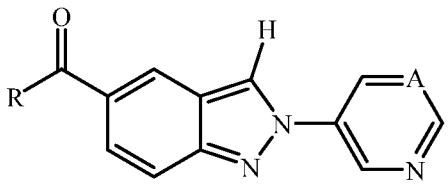
A is N

R	**R**	**R**
Me	Et	Pr
i-Pr	-CH_2(c-Pr)	-CH(Me)(c-Pr)
Bu	s-Bu	i-Bu
t-Bu	-CH_2Ph	-CH_2CH=CH_2
-CH_2C≡CH	-C(Me)$_2$C≡CH	-CH_2CH_2F
-CH_2CHF_2	-CH_2CF_3	-CH(Me)CF_3
-$CH_2CH_2CF_3$	-$CH_2CF_2CF_3$	-$CH_2CF_2CH_3$
-$CH_2CH_2CF_2CF_3$	-CH(i-Pr)CF_3	-CH_2CH_2OMe
-CH_2OEt	-CH_2CH_2O(i-Pr)	-CH_2CH_2OEt
-$CH_2CH_2CH_2$OMe	-CH_2CH(Me)OMe	-CH(Et)CH_2OMe
-CH(Me)CH_2OMe	-CH_2CH_2S(O)Me	-CH_2CH_2SMe
-CH_2CH_2SEt	-$CH_2CH_2SO_2$Me	-$CH_2CH_2SO_2$Et
-CH_2CH_2S(O)Et	-CH_2CH_2S(O)(t-Bu)	-CH_2CH_2S(t-Bu)
-CH(Me)CH_2SMe	-$CH_2CH_2SO_2$(t-Bu)	-CH(Me)CH_2SO_2Me
-CH(Me)CH_2S(O)Me	-CH_2CH_2S(O)CH_2CF_3	-$CH_2CH_2SCH_2CF_3$
-$CH_2CH_2SO_2CH_2CF_3$	-$CH_2CH_2SO_2CH_2CH_2CF_3$	-$CH_2CH_2SCH_2CH_2CF_3$

$-CH_2CH_2S(O)CH_2CH_2CF_3$	$-CH_2CN$	$-CH_2CH_2CN$
$-C(Me)_2CN$	$-CH_2CH_2N(i\text{-}Pr)_2$	$-CH_2CH_2N(Me)_2$
$-CH2CH(OMe)_2$	c-Pr	c-Bu
1-methylcyclopropyl	3-methoxycyclobutyl	-CH(Ph)(c-Pr)
-CH(Me)(c-Pr)	3-thietanyl	3,3-difluorocyclobutyl
3-oxetanyl	$-CH_2$(oxiranyl)	3-thietanyl-1,1-dioxide
3-thietanyl-1-oxide	$-CH_2(CH(-OC(Me)_2OCH_2-))$	$-CH_2$(tetrahydro-2-furanyl)
$-CH_2$(2-furanyl)	tetrahydro-2-furanyl	$-CH_2$(2-thienyl)
$-CH_2(CH(-OCH_2CH_2O-)$	$-CH_2CO_2Me$	$-CH_2$(2,2-difluorocyclopropyl)
$-C(-CH_2CH_2-)CO_2Me$	$-CH(Me)CO_2Et$	$-CH(i\text{-}Pr)CO_2Me$
$-CH_2C(O)NHMe$	$-CH_2C(O)NMe_2$	-CH(Me)C(O)NHMe
-CH(Me)C(O)NH(t-Bu)	$-OCH_2$(c-Pr)	$-CH(Me)C(O)NMe_2$
$-OCH_2CH{=}CH_2$	-NHC(O)(i-Pr)	-NHC(O)Me
$-NHCO_2Me$	-NHC(O)(3-pyridinyl)	-NHC(O)(t-Bu)
-NHC(O)Ph	-NH(c-hexyl)	-NHC(O)NH(i-Pr)
-NH(c-Pr)	-NHC(O)(2-thienyl)	$-NH(CH_2CF_3)$
$-NHC(O)CF_3$	$-NHCO_2Et$	-NHC(O)(2-furanyl)
-C(O)C(O)Me	$-NHCO_2CH_2CF_3$	$-C(O)CO_2Me$
-C(O)(2-pyridinyl)	$-NHC(O)NMe_2$	-NHC(O)NHMe
$-NHC(O)NHCH_2CF_3$	$-NHC(O)CH_2CH_2CF_3$	-NHC(O)Et
$-NHC(O)CH_2CF_3$	$-NHSO_2CF_3$	$-NHSO_2CH_2CF_3$
$-NHSO_2CH_2CH_2CF_3$	-NH(2-pyridinyl)	-NH(2-pyridinyl)
-NH(2-pyridinyl)	-NH(2-pyrimidinyl)	-NH(2-pyridinyl)
-NH(2-pyrimidinyl)	$-NH(6\text{-}CF_3\text{-}2\text{-pyridinyl})$	$-NH(4\text{-}CF_3\text{-}2\text{-pyridinyl})$
$-NH(3\text{-}CF_3\text{-}2\text{-pyridinyl})$	$-NH(5\text{-}CF_3\text{-}2\text{-pyrimidinyl})$	$-NH(5\text{-}CF_3\text{-}2\text{-pyridinyl})$
$-NH(4\text{-}CF_3\text{-}2\text{-pyrimidinyl})$	-NH(6-methyl-2-pyridinyl)	-NH(4-methyl-2-pyridinyl)
-NH(3-methyl-2-pyridinyl)	-NH(5-methyl-2-pyrimidinyl)	-NH(5-methyl-2-pyridinyl)
-NH(4-methyl-2-pyrimidinyl)	-NH(6-methoxy-2-pyridinyl)	-NH(4-methoxy-2-pyridinyl)
-NH(3-methoxy-2-pyridinyl)	-NH(5-methoxy-2-pyrimidinyl)	-NH(5-methoxy-2-pyridinyl)
-NH(4-methoxy-2-pyrimidinyl)	$-CH_2(6\text{-}CF_3\text{-}2\text{-pyridinyl})$	$-CH_2(4\text{-}CF_3\text{-}2\text{-pyridinyl})$
$-CH_2(3\text{-}CF_3\text{-}2\text{-pyridinyl})$	$-CH_2(5\text{-}CF_3\text{-}2\text{-pyrimidinyl})$	$-CH_2(5\text{-}CF_3\text{-}2\text{-pyridinyl})$
$-CH_2(4\text{-}CF_3\text{-}2\text{-pyrimidinyl})$	$-CH_2$(6-methyl-2-pyridinyl)	$-CH_2$(4-methyl-2-pyridinyl)
$-CH_2$(3-methyl-2-pyridinyl)	$-CH_2$(5-methyl-2-pyrimidinyl)	$-CH_2$(5-methyl-2-pyridinyl)
$-CH_2$(4-methyl-2-pyrimidinyl)	$-CH_2$(6-methoxy-2-pyridinyl)	$-CH_2$(4-methoxy-2-pyridinyl)
$-CH_2$(3-methoxy-2-pyridinyl)	$-CH_2$(5-methoxy-2-pyrimidinyl)	$-CH_2$(5-methoxy-2-pyridinyl)

-CH_2(4-methoxy-2-pyrimidinyl)	-CH_2(5-pyrimidinyl)	-CH_2(6-bromo-2-pyridinyl)
-CH_2(2-pyrimidinyl)	-CH_2(3-(OCF_3)phenyl)	-CH_2(2-thiazolyl)
-CH_2(5-methyl-2-pyrazinyl)	-CH_2(4-pyridinyl)	-CH_2(2-pyridinyl)
Ph	3-pyridinyl	-CH_2(3-pyridinyl)
2-pyridinyl	2-pyrazinyl	-CH_2CH_2(2-pyridinyl)
4-pyridinyl	4-CF_3-2-pyridinyl	-$CH_2CH_2CH_2$(2-pyridinyl)
3-CF_3-2-pyridinyl	4-CF_3-2-pyrimidinyl	6-CF_3-2-pyridinyl
5-CF_3-2-pyridinyl	5-CF_3-2-pyrazinyl	5-CF_3-2-pyrimidinyl
-CH_2CH_2N(-C(O)CH_2CH_2C(O)-)	-$CH_2CH_2CH_2$(1-imidazolyl)	-CH(-C(O)OCH_2CH_2-)

TABLE 2c



A is CH

R	R
N(-$CH_2CH_2CH_2$-)	N(-CH_2CH(OMe)CH_2-)
N(-$CH_2CH_2CF_2CH_2CH_2$-)	N(-$CH_2CH_2CH_2CF_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2SCH_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2OCH_2CH_2$-)
N(-CH_2CH_2N(C(O)(c-Pr))CH_2CH_2-)	N(-CH_2CH_2N(Me)CH_2CH_2-)
N(-CH_2C(Me)$_2$N=CH-)	N(-$CH_2CH_2CH_2$CH(CF_3)CH_2-)
N(CH_2C≡CH)$_2$	N(Et)$_2$
N(Pr)CH_2(c-Pr)	N(Et)(c-hexyl)
N(-CHC(O)SCH_2CH_2-)	

A is CF

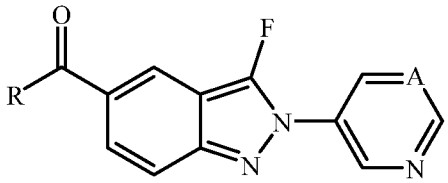
R	R
N(-$CH_2CH_2CH_2$-)	N(-CH_2CH(OMe)CH_2-)
N(-$CH_2CH_2CF_2CH_2CH_2$-)	N(-$CH_2CH_2CH_2CF_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2SCH_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2OCH_2CH_2$-)
N(-CH_2CH_2N(C(O)(c-Pr))CH_2CH_2-)	N(-CH_2CH_2N(Me)CH_2CH_2-)

N(-$CH_2C(Me)_2N$=CH-)	N(-$CH_2CH_2CH_2CH(CF_3)CH_2$-)
N(CH_2C≡CH)$_2$	N(Et)$_2$
N(Pr)CH_2(c-Pr)	N(Et)(c-hexyl)
N(-CHC(O)SCH_2CH_2-)	

A is N

R	**R**
N(-$CH_2CH_2CH_2$-)	N(-$CH_2CH(OMe)CH_2$-)
N(-$CH_2CH_2CF_2CH_2CH_2$-)	N(-$CH_2CH_2CH_2CF_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2SCH_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2OCH_2CH_2$-)
N(-$CH_2CH_2N(C(O)(c\text{-}Pr))CH_2CH_2$-)	N(-$CH_2CH_2N(Me)CH_2CH_2$-)
N(-$CH_2C(Me)_2N$=CH-)	N(-$CH_2CH_2CH_2CH(CF_3)CH_2$-)
N(CH_2C≡CH)$_2$	N(Et)$_2$
N(Pr)CH_2(c-Pr)	N(Et)(c-hexyl)
N(-CHC(O)SCH_2CH_2-)	

TABLE 2d



A is CH

R	**R**
N(-$CH_2CH_2CH_2$-)	N(-$CH_2CH(OMe)CH_2$-)
N(-$CH_2CH_2CF_2CH_2CH_2$-)	N(-$CH_2CH_2CH_2CF_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2SCH_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2OCH_2CH_2$-)
N(-$CH_2CH_2N(C(O)(c\text{-}Pr))CH_2CH_2$-)	N(-$CH_2CH_2N(Me)CH_2CH_2$-)
N(-$CH_2C(Me)_2N$=CH-)	N(-$CH_2CH_2CH_2CH(CF_3)CH_2$-)
N(CH_2C≡CH)$_2$	N(Et)$_2$
N(Pr)CH_2(c-Pr)	N(Et)(c-hexyl)
N(-CHC(O)SCH_2CH_2-)	

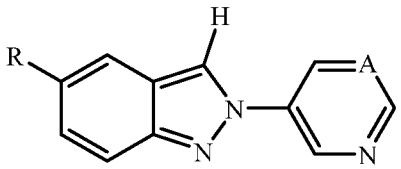
A is CF

R	**R**
N(-$CH_2CH_2CH_2$-)	N(-$CH_2CH(OMe)CH_2$-)
N(-$CH_2CH_2CF_2CH_2CH_2$-)	N(-$CH_2CH_2CH_2CF_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2SCH_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2OCH_2CH_2$-)
N(-$CH_2CH_2N(C(O)(c\text{-}Pr))CH_2CH_2$-)	N(-$CH_2CH_2N(Me)CH_2CH_2$-)
N(-$CH_2C(Me)_2N{=}CH$-)	N(-$CH_2CH_2CH_2CH(CF_3)CH_2$-)
$N(CH_2C{\equiv}CH)_2$	$N(Et)_2$
N(Pr)CH_2(c-Pr)	N(Et)(c-hexyl)
N(-CHC(O)SCH_2CH_2-)	

A is N

R	**R**
N(-$CH_2CH_2CH_2$-)	N(-$CH_2CH(OMe)CH_2$-)
N(-$CH_2CH_2CF_2CH_2CH_2$-)	N(-$CH_2CH_2CH_2CF_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2SCH_2CH_2$-)
N(-$CH_2CH_2CH_2CH_2CH_2$-)	N(-$CH_2CH_2OCH_2CH_2$-)
N(-$CH_2CH_2N(C(O)(c\text{-}Pr))CH_2CH_2$-)	N(-$CH_2CH_2N(Me)CH_2CH_2$-)
N(-$CH_2C(Me)_2N{=}CH$-)	N(-$CH_2CH_2CH_2CH(CF_3)CH_2$-)
$N(CH_2C{\equiv}CH)_2$	$N(Et)_2$
N(Pr)CH_2(c-Pr)	N(Et)(c-hexyl)
N(-CHC(O)SCH_2CH_2-)	

TABLE 2e



A is CH

R	**R**
3-methyl-2-pyridinyl	3-methoxy-2-pyridinyl
3-(trifluoromethyl)-2-pyridinyl	3-(CH(=NOMe))-2-pyridinyl
4-methyl-2-pyridinyl	4-methoxy-2-pyridinyl

4-(trifluoromethyl)-2-pyridinyl	4-(CH(=NOMe))-2-pyridinyl
5-methyl-2-pyridinyl	5-methoxy-2-pyridinyl
5-(trifluoromethyl)-2-pyridinyl	5-(CH(=NOMe))-2-pyridinyl
6-methyl-2-pyridinyl	6-methoxy-2-pyridinyl
6-(trifluoromethyl)-2-pyridinyl	6-(CH(=NOMe))-2-pyridinyl
2-methyl-3-pyridinyl	2-methoxy-3-pyridinyl
2-(trifluoromethyl)-3-pyridinyl	2-(CH(=NOMe))-3-pyridinyl
4-methyl-3-pyridinyl	4-methoxy-3-pyridinyl
4-(trifluoromethyl)-3-pyridinyl	4-(CH(=NOMe))-3-pyridinyl
5-methyl-3-pyridinyl	5-methoxy-3-pyridinyl
5-(trifluoromethyl)-3-pyridinyl	5-(CH(=NOMe))-3-pyridinyl
6-methyl-3-pyridinyl	6-methoxy-3-pyridinyl
6-(trifluoromethyl)-3-pyridinyl	6-(CH(=NOMe))-3-pyridinyl
2-methyl-4-pyridinyl	2-methoxy-4-pyridinyl
2-(trifluoromethyl)-4-pyridinyl	2-(CH(=NOMe))-4-pyridinyl
3-methyl-4-pyridinyl	3-methoxy-4-pyridinyl
3-(trifluoromethyl)-4-pyridinyl	3-(CH(=NOMe))-4-pyridinyl
3-methyl-2-pyrazinyl	3-methoxy-2-pyrazinyl
3-(trifluoromethyl)-2-pyrazinyl	3-(CH(=NOMe))-2-pyrazinyl
5-methyl-2-pyrazinyl	5-methoxy-2-pyrazinyl
5-(trifluoromethyl)-2-pyrazinyl	5-(CH(=NOMe))-2-pyrazinyl
6-methyl-2-pyrazinyl	6-methoxy-2-pyrazinyl
6-(trifluoromethyl)-2-pyrazinyl	6-(CH(=NOMe))-2-pyrazinyl
4-methyl-2-pyrimidinyl	4-methoxy-2-pyrimidinyl
4-(trifluoromethyl)-2-pyrimidinyl	4-(CH(=NOMe))-2-pyrimidinyl
5-methyl-2-pyrimidinyl	5-methoxy-2-pyrimidinyl
5-(trifluoromethyl)-2-pyrimidinyl	5-(CH(=NOMe))-2-pyrimidinyl
2-methyl-4-pyrimidinyl	2-methoxy-4-pyrimidinyl
2-(trifluoromethyl)-4-pyrimidinyl	2-(CH(=NOMe))-4-pyrimidinyl
5-methyl-4-pyrimidinyl	5-methoxy-4-pyrimidinyl
5-(trifluoromethyl)-4-pyrimidinyl	5-(CH(=NOMe))-4-pyrimidinyl
6-methyl-4-pyrimidinyl	6-methoxy-4-pyrimidinyl
6-(trifluoromethyl)-4-pyrimidinyl	6-(CH(=NOMe))-4-pyrimidinyl
3-methyl-1-pyrazolyl	3-methoxy-1-pyrazolyl
3-(trifluoromethyl)-1-pyrazolyl	3-(CH(=NOMe))-1-pyrazolyl

4-methyl-1-pyrazolyl	4-methoxy-1-pyrazolyl
4-(trifluoromethyl)-1-pyrazolyl	4-(CH(=NOMe))-1-pyrazolyl
5-methyl-1-pyrazolyl	5-methoxy-1-pyrazolyl
5-(trifluoromethyl)-1-pyrazolyl	5-(CH(=NOMe))-1-pyrazolyl
4-methyl-1,2,3-triazin-2-yl	4-methoxy-1,2,3-triazin-2-yl
4-(trifluoromethyl)-1,2,3-triazin-2-yl	4-(CH(=NOMe))-1,2,3-triazin-2-yl
6-(2-pyrimidinyl)-2-pyridinyl	2-(2-pyridinyl)-4-thiazolyl
2-(2-thiazolyl)-4-thiazolyl	2-(2-pyrimidinyl)ethynyl
1,3,4-oxadiazol-2-yl	tetrahydro-3-furanyl
tetrahydro-2-furanyl	4,5-dihydro-3-isoxazolyl
3-isoxazolyl	

A is CF

R	**R**
3-methyl-2-pyridinyl	3-methoxy-2-pyridinyl
3-(trifluoromethyl)-2-pyridinyl	3-(CH(=NOMe))-2-pyridinyl
4-methyl-2-pyridinyl	4-methoxy-2-pyridinyl
4-(trifluoromethyl)-2-pyridinyl	4-(CH(=NOMe))-2-pyridinyl
5-methyl-2-pyridinyl	5-methoxy-2-pyridinyl
5-(trifluoromethyl)-2-pyridinyl	5-(CH(=NOMe))-2-pyridinyl
6-methyl-2-pyridinyl	6-methoxy-2-pyridinyl
6-(trifluoromethyl)-2-pyridinyl	6-(CH(=NOMe))-2-pyridinyl
2-methyl-3-pyridinyl	2-methoxy-3-pyridinyl
2-(trifluoromethyl)-3-pyridinyl	2-(CH(=NOMe))-3-pyridinyl
4-methyl-3-pyridinyl	4-methoxy-3-pyridinyl
4-(trifluoromethyl)-3-pyridinyl	4-(CH(=NOMe))-3-pyridinyl
5-methyl-3-pyridinyl	5-methoxy-3-pyridinyl
5-(trifluoromethyl)-3-pyridinyl	5-(CH(=NOMe))-3-pyridinyl
6-methyl-3-pyridinyl	6-methoxy-3-pyridinyl
6-(trifluoromethyl)-3-pyridinyl	6-(CH(=NOMe))-3-pyridinyl
2-methyl-4-pyridinyl	2-methoxy-4-pyridinyl
2-(trifluoromethyl)-4-pyridinyl	2-(CH(=NOMe))-4-pyridinyl
3-methyl-4-pyridinyl	3-methoxy-4-pyridinyl
3-(trifluoromethyl)-4-pyridinyl	3-(CH(=NOMe))-4-pyridinyl
3-methyl-2-pyrazinyl	3-methoxy-2-pyrazinyl

3-(trifluoromethyl)-2-pyrazinyl	3-(CH(=NOMe))-2-pyrazinyl
5-methyl-2-pyrazinyl	5-methoxy-2-pyrazinyl
5-(trifluoromethyl)-2-pyrazinyl	5-(CH(=NOMe))-2-pyrazinyl
6-methyl-2-pyrazinyl	6-methoxy-2-pyrazinyl
6-(trifluoromethyl)-2-pyrazinyl	6-(CH(=NOMe))-2-pyrazinyl
4-methyl-2-pyrimidinyl	4-methoxy-2-pyrimidinyl
4-(trifluoromethyl)-2-pyrimidinyl	4-(CH(=NOMe))-2-pyrimidinyl
5-methyl-2-pyrimidinyl	5-methoxy-2-pyrimidinyl
5-(trifluoromethyl)-2-pyrimidinyl	5-(CH(=NOMe))-2-pyrimidinyl
2-methyl-4-pyrimidinyl	2-methoxy-4-pyrimidinyl
2-(trifluoromethyl)-4-pyrimidinyl	2-(CH(=NOMe))-4-pyrimidinyl
5-methyl-4-pyrimidinyl	5-methoxy-4-pyrimidinyl
5-(trifluoromethyl)-4-pyrimidinyl	5-(CH(=NOMe))-4-pyrimidinyl
6-methyl-4-pyrimidinyl	6-methoxy-4-pyrimidinyl
6-(trifluoromethyl)-4-pyrimidinyl	6-(CH(=NOMe))-4-pyrimidinyl
3-methyl-1-pyrazolyl	3-methoxy-1-pyrazolyl
3-(trifluoromethyl)-1-pyrazolyl	3-(CH(=NOMe))-1-pyrazolyl
4-methyl-1-pyrazolyl	4-methoxy-1-pyrazolyl
4-(trifluoromethyl)-1-pyrazolyl	4-(CH(=NOMe))-1-pyrazolyl
5-methyl-1-pyrazolyl	5-methoxy-1-pyrazolyl
5-(trifluoromethyl)-1-pyrazolyl	5-(CH(=NOMe))-1-pyrazolyl
4-methyl-1,2,3-triazin-2-yl	4-methoxy-1,2,3-triazin-2-yl
4-(trifluoromethyl)-1,2,3-triazin-2-yl	4-(CH(=NOMe))-1,2,3-triazin-2-yl
6-(2-pyrimidinyl)-2-pyridinyl	2-(2-pyridinyl)-4-thiazolyl
2-(2-thiazolyl)-4-thiazolyl	2-(2-pyrimidinyl)ethynyl
1,3,4-oxadiazol-2-yl	tetrahydro-3-furanyl
tetrahydro-2-furanyl	4,5-dihydro-3-isoxazolyl
3-isoxazolyl	

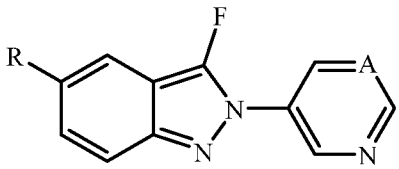
A is N

R	**R**
3-methyl-2-pyridinyl	3-methoxy-2-pyridinyl
3-(trifluoromethyl)-2-pyridinyl	3-(CH(=NOMe))-2-pyridinyl
4-methyl-2-pyridinyl	4-methoxy-2-pyridinyl
4-(trifluoromethyl)-2-pyridinyl	4-(CH(=NOMe))-2-pyridinyl

5-methyl-2-pyridinyl	5-methoxy-2-pyridinyl
5-(trifluoromethyl)-2-pyridinyl	5-(CH(=NOMe))-2-pyridinyl
6-methyl-2-pyridinyl	6-methoxy-2-pyridinyl
6-(trifluoromethyl)-2-pyridinyl	6-(CH(=NOMe))-2-pyridinyl
2-methyl-3-pyridinyl	2-methoxy-3-pyridinyl
2-(trifluoromethyl)-3-pyridinyl	2-(CH(=NOMe))-3-pyridinyl
4-methyl-3-pyridinyl	4-methoxy-3-pyridinyl
4-(trifluoromethyl)-3-pyridinyl	4-(CH(=NOMe))-3-pyridinyl
5-methyl-3-pyridinyl	5-methoxy-3-pyridinyl
5-(trifluoromethyl)-3-pyridinyl	5-(CH(=NOMe))-3-pyridinyl
6-methyl-3-pyridinyl	6-methoxy-3-pyridinyl
6-(trifluoromethyl)-3-pyridinyl	6-(CH(=NOMe))-3-pyridinyl
2-methyl-4-pyridinyl	2-methoxy-4-pyridinyl
2-(trifluoromethyl)-4-pyridinyl	2-(CH(=NOMe))-4-pyridinyl
3-methyl-4-pyridinyl	3-methoxy-4-pyridinyl
3-(trifluoromethyl)-4-pyridinyl	3-(CH(=NOMe))-4-pyridinyl
3-methyl-2-pyrazinyl	3-methoxy-2-pyrazinyl
3-(trifluoromethyl)-2-pyrazinyl	3-(CH(=NOMe))-2-pyrazinyl
5-methyl-2-pyrazinyl	5-methoxy-2-pyrazinyl
5-(trifluoromethyl)-2-pyrazinyl	5-(CH(=NOMe))-2-pyrazinyl
6-methyl-2-pyrazinyl	6-methoxy-2-pyrazinyl
6-(trifluoromethyl)-2-pyrazinyl	6-(CH(=NOMe))-2-pyrazinyl
4-methyl-2-pyrimidinyl	4-methoxy-2-pyrimidinyl
4-(trifluoromethyl)-2-pyrimidinyl	4-(CH(=NOMe))-2-pyrimidinyl
5-methyl-2-pyrimidinyl	5-methoxy-2-pyrimidinyl
5-(trifluoromethyl)-2-pyrimidinyl	5-(CH(=NOMe))-2-pyrimidinyl
2-methyl-4-pyrimidinyl	2-methoxy-4-pyrimidinyl
2-(trifluoromethyl)-4-pyrimidinyl	2-(CH(=NOMe))-4-pyrimidinyl
5-methyl-4-pyrimidinyl	5-methoxy-4-pyrimidinyl
5-(trifluoromethyl)-4-pyrimidinyl	5-(CH(=NOMe))-4-pyrimidinyl
6-methyl-4-pyrimidinyl	6-methoxy-4-pyrimidinyl
6-(trifluoromethyl)-4-pyrimidinyl	6-(CH(=NOMe))-4-pyrimidinyl
3-methyl-1-pyrazolyl	3-methoxy-1-pyrazolyl
3-(trifluoromethyl)-1-pyrazolyl	3-(CH(=NOMe))-1-pyrazolyl
4-methyl-1-pyrazolyl	4-methoxy-1-pyrazolyl

4-(trifluoromethyl)-1-pyrazolyl	4-(CH(=NOMe))-1-pyrazolyl
5-methyl-1-pyrazolyl	5-methoxy-1-pyrazolyl
5-(trifluoromethyl)-1-pyrazolyl	5-(CH(=NOMe))-1-pyrazolyl
4-methyl-1,2,3-triazin-2-yl	4-methoxy-1,2,3-triazin-2-yl
4-(trifluoromethyl)-1,2,3-triazin-2-yl	4-(CH(=NOMe))-1,2,3-triazin-2-yl
6-(2-pyrimidinyl)-2-pyridinyl	2-(2-pyridinyl)-4-thiazolyl
2-(2-thiazolyl)-4-thiazolyl	2-(2-pyrimidinyl)ethynyl
1,3,4-oxadiazol-2-yl	tetrahydro-3-furanyl
tetrahydro-2-furanyl	4,5-dihydro-3-isoxazolyl
3-isoxazolyl	

TABLE 2f



A is CH

R	**R**
3-methyl-2-pyridinyl	3-methoxy-2-pyridinyl
3-(trifluoromethyl)-2-pyridinyl	3-(CH(=NOMe))-2-pyridinyl
4-methyl-2-pyridinyl	4-methoxy-2-pyridinyl
4-(trifluoromethyl)-2-pyridinyl	4-(CH(=NOMe))-2-pyridinyl
5-methyl-2-pyridinyl	5-methoxy-2-pyridinyl
5-(trifluoromethyl)-2-pyridinyl	5-(CH(=NOMe))-2-pyridinyl
6-methyl-2-pyridinyl	6-methoxy-2-pyridinyl
6-(trifluoromethyl)-2-pyridinyl	6-(CH(=NOMe))-2-pyridinyl
2-methyl-3-pyridinyl	2-methoxy-3-pyridinyl
2-(trifluoromethyl)-3-pyridinyl	2-(CH(=NOMe))-3-pyridinyl
4-methyl-3-pyridinyl	4-methoxy-3-pyridinyl
4-(trifluoromethyl)-3-pyridinyl	4-(CH(=NOMe))-3-pyridinyl
5-methyl-3-pyridinyl	5-methoxy-3-pyridinyl
5-(trifluoromethyl)-3-pyridinyl	5-(CH(=NOMe))-3-pyridinyl
6-methyl-3-pyridinyl	6-methoxy-3-pyridinyl
6-(trifluoromethyl)-3-pyridinyl	6-(CH(=NOMe))-3-pyridinyl
2-methyl-4-pyridinyl	2-methoxy-4-pyridinyl

2-(trifluoromethyl)-4-pyridinyl	2-(CH(=NOMe))-4-pyridinyl
3-methyl-4-pyridinyl	3-methoxy-4-pyridinyl
3-(trifluoromethyl)-4-pyridinyl	3-(CH(=NOMe))-4-pyridinyl
3-methyl-2-pyrazinyl	3-methoxy-2-pyrazinyl
3-(trifluoromethyl)-2-pyrazinyl	3-(CH(=NOMe))-2-pyrazinyl
5-methyl-2-pyrazinyl	5-methoxy-2-pyrazinyl
5-(trifluoromethyl)-2-pyrazinyl	5-(CH(=NOMe))-2-pyrazinyl
6-methyl-2-pyrazinyl	6-methoxy-2-pyrazinyl
6-(trifluoromethyl)-2-pyrazinyl	6-(CH(=NOMe))-2-pyrazinyl
4-methyl-2-pyrimidinyl	4-methoxy-2-pyrimidinyl
4-(trifluoromethyl)-2-pyrimidinyl	4-(CH(=NOMe))-2-pyrimidinyl
5-methyl-2-pyrimidinyl	5-methoxy-2-pyrimidinyl
5-(trifluoromethyl)-2-pyrimidinyl	5-(CH(=NOMe))-2-pyrimidinyl
2-methyl-4-pyrimidinyl	2-methoxy-4-pyrimidinyl
2-(trifluoromethyl)-4-pyrimidinyl	2-(CH(=NOMe))-4-pyrimidinyl
5-methyl-4-pyrimidinyl	5-methoxy-4-pyrimidinyl
5-(trifluoromethyl)-4-pyrimidinyl	5-(CH(=NOMe))-4-pyrimidinyl
6-methyl-4-pyrimidinyl	6-methoxy-4-pyrimidinyl
6-(trifluoromethyl)-4-pyrimidinyl	6-(CH(=NOMe))-4-pyrimidinyl
3-methyl-1-pyrazolyl	3-methoxy-1-pyrazolyl
3-(trifluoromethyl)-1-pyrazolyl	3-(CH(=NOMe))-1-pyrazolyl
4-methyl-1-pyrazolyl	4-methoxy-1-pyrazolyl
4-(trifluoromethyl)-1-pyrazolyl	4-(CH(=NOMe))-1-pyrazolyl
5-methyl-1-pyrazolyl	5-methoxy-1-pyrazolyl
5-(trifluoromethyl)-1-pyrazolyl	5-(CH(=NOMe))-1-pyrazolyl
4-methyl-1,2,3-triazin-2-yl	4-methoxy-1,2,3-triazin-2-yl
4-(trifluoromethyl)-1,2,3-triazin-2-yl	4-(CH(=NOMe))-1,2,3-triazin-2-yl
6-(2-pyrimidinyl)-2-pyridinyl	2-(2-pyridinyl)-4-thiazolyl
2-(2-thiazolyl)-4-thiazolyl	2-(2-pyrimidinyl)ethynyl
1,3,4-oxadiazol-2-yl	tetrahydro-3-furanyl
tetrahydro-2-furanyl	4,5-dihydro-3-isoxazolyl
3-isoxazolyl	

A is CF

R	**R**

3-methyl-2-pyridinyl	3-methoxy-2-pyridinyl
3-(trifluoromethyl)-2-pyridinyl	3-(CH(=NOMe))-2-pyridinyl
4-methyl-2-pyridinyl	4-methoxy-2-pyridinyl
4-(trifluoromethyl)-2-pyridinyl	4-(CH(=NOMe))-2-pyridinyl
5-methyl-2-pyridinyl	5-methoxy-2-pyridinyl
5-(trifluoromethyl)-2-pyridinyl	5-(CH(=NOMe))-2-pyridinyl
6-methyl-2-pyridinyl	6-methoxy-2-pyridinyl
6-(trifluoromethyl)-2-pyridinyl	6-(CH(=NOMe))-2-pyridinyl
2-methyl-3-pyridinyl	2-methoxy-3-pyridinyl
2-(trifluoromethyl)-3-pyridinyl	2-(CH(=NOMe))-3-pyridinyl
4-methyl-3-pyridinyl	4-methoxy-3-pyridinyl
4-(trifluoromethyl)-3-pyridinyl	4-(CH(=NOMe))-3-pyridinyl
5-methyl-3-pyridinyl	5-methoxy-3-pyridinyl
5-(trifluoromethyl)-3-pyridinyl	5-(CH(=NOMe))-3-pyridinyl
6-methyl-3-pyridinyl	6-methoxy-3-pyridinyl
6-(trifluoromethyl)-3-pyridinyl	6-(CH(=NOMe))-3-pyridinyl
2-methyl-4-pyridinyl	2-methoxy-4-pyridinyl
2-(trifluoromethyl)-4-pyridinyl	2-(CH(=NOMe))-4-pyridinyl
3-methyl-4-pyridinyl	3-methoxy-4-pyridinyl
3-(trifluoromethyl)-4-pyridinyl	3-(CH(=NOMe))-4-pyridinyl
3-methyl-2-pyrazinyl	3-methoxy-2-pyrazinyl
3-(trifluoromethyl)-2-pyrazinyl	3-(CH(=NOMe))-2-pyrazinyl
5-methyl-2-pyrazinyl	5-methoxy-2-pyrazinyl
5-(trifluoromethyl)-2-pyrazinyl	5-(CH(=NOMe))-2-pyrazinyl
6-methyl-2-pyrazinyl	6-methoxy-2-pyrazinyl
6-(trifluoromethyl)-2-pyrazinyl	6-(CH(=NOMe))-2-pyrazinyl
4-methyl-2-pyrimidinyl	4-methoxy-2-pyrimidinyl
4-(trifluoromethyl)-2-pyrimidinyl	4-(CH(=NOMe))-2-pyrimidinyl
5-methyl-2-pyrimidinyl	5-methoxy-2-pyrimidinyl
5-(trifluoromethyl)-2-pyrimidinyl	5-(CH(=NOMe))-2-pyrimidinyl
2-methyl-4-pyrimidinyl	2-methoxy-4-pyrimidinyl
2-(trifluoromethyl)-4-pyrimidinyl	2-(CH(=NOMe))-4-pyrimidinyl
5-methyl-4-pyrimidinyl	5-methoxy-4-pyrimidinyl
5-(trifluoromethyl)-4-pyrimidinyl	5-(CH(=NOMe))-4-pyrimidinyl
6-methyl-4-pyrimidinyl	6-methoxy-4-pyrimidinyl

6-(trifluoromethyl)-4-pyrimidinyl	6-(CH(=NOMe))-4-pyrimidinyl
3-methyl-1-pyrazolyl	3-methoxy-1-pyrazolyl
3-(trifluoromethyl)-1-pyrazolyl	3-(CH(=NOMe))-1-pyrazolyl
4-methyl-1-pyrazolyl	4-methoxy-1-pyrazolyl
4-(trifluoromethyl)-1-pyrazolyl	4-(CH(=NOMe))-1-pyrazolyl
5-methyl-1-pyrazolyl	5-methoxy-1-pyrazolyl
5-(trifluoromethyl)-1-pyrazolyl	5-(CH(=NOMe))-1-pyrazolyl
4-methyl-1,2,3-triazin-2-yl	4-methoxy-1,2,3-triazin-2-yl
4-(trifluoromethyl)-1,2,3-triazin-2-yl	4-(CH(=NOMe))-1,2,3-triazin-2-yl
6-(2-pyrimidinyl)-2-pyridinyl	2-(2-pyridinyl)-4-thiazolyl
2-(2-thiazolyl)-4-thiazolyl	2-(2-pyrimidinyl)ethynyl
1,3,4-oxadiazol-2-yl	tetrahydro-3-furanyl
tetrahydro-2-furanyl	4,5-dihydro-3-isoxazolyl
3-isoxazolyl	

A is N

R	**R**
3-methyl-2-pyridinyl	3-methoxy-2-pyridinyl
3-(trifluoromethyl)-2-pyridinyl	3-(CH(=NOMe))-2-pyridinyl
4-methyl-2-pyridinyl	4-methoxy-2-pyridinyl
4-(trifluoromethyl)-2-pyridinyl	4-(CH(=NOMe))-2-pyridinyl
5-methyl-2-pyridinyl	5-methoxy-2-pyridinyl
5-(trifluoromethyl)-2-pyridinyl	5-(CH(=NOMe))-2-pyridinyl
6-methyl-2-pyridinyl	6-methoxy-2-pyridinyl
6-(trifluoromethyl)-2-pyridinyl	6-(CH(=NOMe))-2-pyridinyl
2-methyl-3-pyridinyl	2-methoxy-3-pyridinyl
2-(trifluoromethyl)-3-pyridinyl	2-(CH(=NOMe))-3-pyridinyl
4-methyl-3-pyridinyl	4-methoxy-3-pyridinyl
4-(trifluoromethyl)-3-pyridinyl	4-(CH(=NOMe))-3-pyridinyl
5-methyl-3-pyridinyl	5-methoxy-3-pyridinyl
5-(trifluoromethyl)-3-pyridinyl	5-(CH(=NOMe))-3-pyridinyl
6-methyl-3-pyridinyl	6-methoxy-3-pyridinyl
6-(trifluoromethyl)-3-pyridinyl	6-(CH(=NOMe))-3-pyridinyl
2-methyl-4-pyridinyl	2-methoxy-4-pyridinyl
2-(trifluoromethyl)-4-pyridinyl	2-(CH(=NOMe))-4-pyridinyl

3-methyl-4-pyridinyl	3-methoxy-4-pyridinyl
3-(trifluoromethyl)-4-pyridinyl	3-(CH(=NOMe))-4-pyridinyl
3-methyl-2-pyrazinyl	3-methoxy-2-pyrazinyl
3-(trifluoromethyl)-2-pyrazinyl	3-(CH(=NOMe))-2-pyrazinyl
5-methyl-2-pyrazinyl	5-methoxy-2-pyrazinyl
5-(trifluoromethyl)-2-pyrazinyl	5-(CH(=NOMe))-2-pyrazinyl
6-methyl-2-pyrazinyl	6-methoxy-2-pyrazinyl
6-(trifluoromethyl)-2-pyrazinyl	6-(CH(=NOMe))-2-pyrazinyl
4-methyl-2-pyrimidinyl	4-methoxy-2-pyrimidinyl
4-(trifluoromethyl)-2-pyrimidinyl	4-(CH(=NOMe))-2-pyrimidinyl
5-methyl-2-pyrimidinyl	5-methoxy-2-pyrimidinyl
5-(trifluoromethyl)-2-pyrimidinyl	5-(CH(=NOMe))-2-pyrimidinyl
2-methyl-4-pyrimidinyl	2-methoxy-4-pyrimidinyl
2-(trifluoromethyl)-4-pyrimidinyl	2-(CH(=NOMe))-4-pyrimidinyl
5-methyl-4-pyrimidinyl	5-methoxy-4-pyrimidinyl
5-(trifluoromethyl)-4-pyrimidinyl	5-(CH(=NOMe))-4-pyrimidinyl
6-methyl-4-pyrimidinyl	6-methoxy-4-pyrimidinyl
6-(trifluoromethyl)-4-pyrimidinyl	6-(CH(=NOMe))-4-pyrimidinyl
3-methyl-1-pyrazolyl	3-methoxy-1-pyrazolyl
3-(trifluoromethyl)-1-pyrazolyl	3-(CH(=NOMe))-1-pyrazolyl
4-methyl-1-pyrazolyl	4-methoxy-1-pyrazolyl
4-(trifluoromethyl)-1-pyrazolyl	4-(CH(=NOMe))-1-pyrazolyl
5-methyl-1-pyrazolyl	5-methoxy-1-pyrazolyl
5-(trifluoromethyl)-1-pyrazolyl	5-(CH(=NOMe))-1-pyrazolyl
4-methyl-1,2,3-triazin-2-yl	4-methoxy-1,2,3-triazin-2-yl
4-(trifluoromethyl)-1,2,3-triazin-2-yl	4-(CH(=NOMe))-1,2,3-triazin-2-yl
6-(2-pyrimidinyl)-2-pyridinyl	2-(2-pyridinyl)-4-thiazolyl
2-(2-thiazolyl)-4-thiazolyl	2-(2-pyrimidinyl)ethynyl
1,3,4-oxadiazol-2-yl	tetrahydro-3-furanyl
tetrahydro-2-furanyl	4,5-dihydro-3-isoxazolyl
3-isoxazolyl	

TABLE 3a

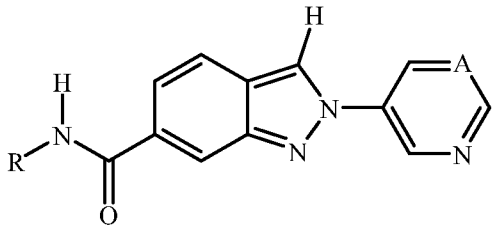


Table 3a is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 3c

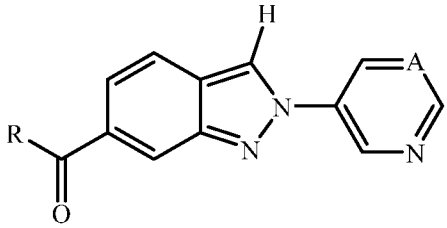


Table 3c is identical to Table 1c, except that the structure shown under the heading "Table 1c" is replaced by the structure shown above.

TABLE 3e

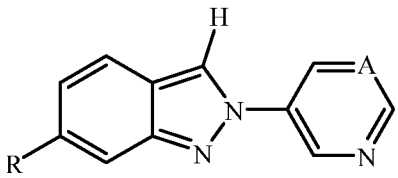


Table 3e is identical to Table 1e, except that the structure shown under the heading "Table 1e" is replaced by the structure shown above.

TABLE 4a

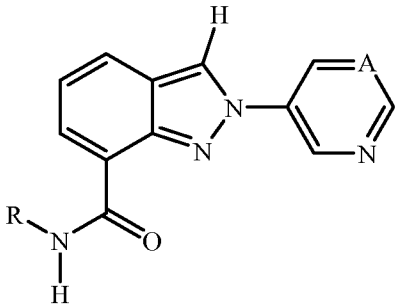


Table 4a is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 4c

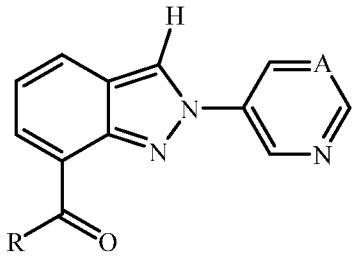


Table 4c is identical to Table 1c, except that the structure shown under the heading "Table 1c" is replaced by the structure shown above.

TABLE 4e

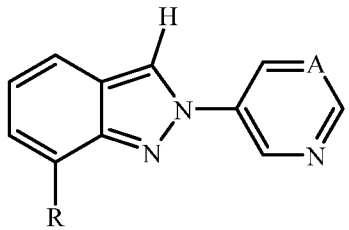


Table 4e is identical to Table 1e, except that the structure shown under the heading "Table 1e" is replaced by the structure shown above.

TABLE 5a

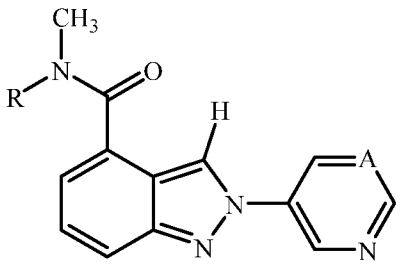


Table 5a is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 5b

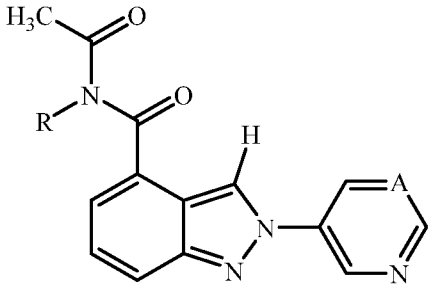


Table 5b is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 5c

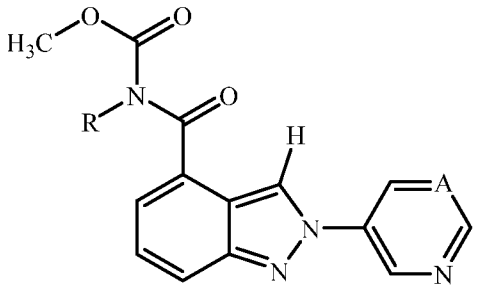


Table 5c is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 5d

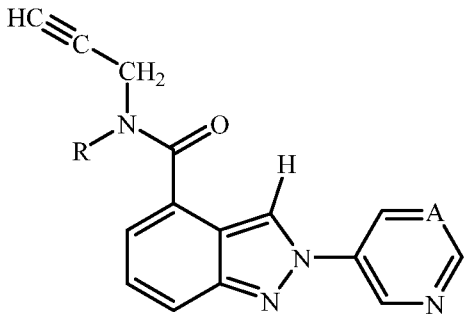


Table 5d is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 5e

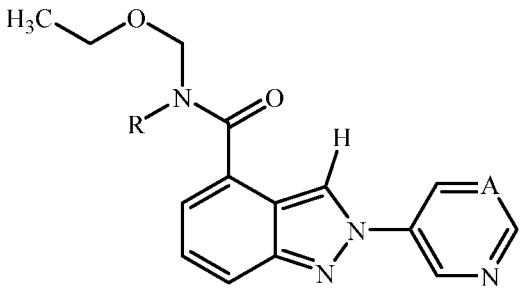


Table 5e is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 5f

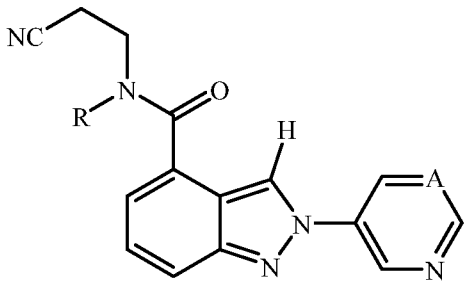


Table 5f is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 6a

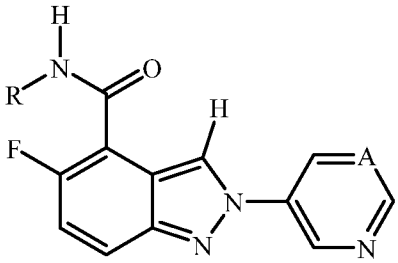


Table 6a is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 6c

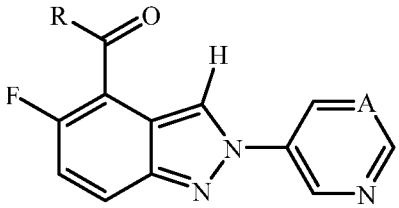


Table 6c is identical to Table 1c, except that the structure shown under the heading "Table 1c" is replaced by the structure shown above.

TABLE 6e

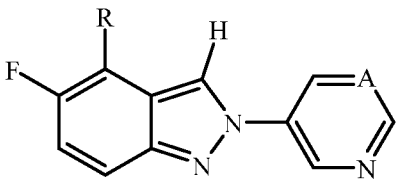


Table 6e is identical to Table 1e, except that the structure shown under the heading "Table 1e" is replaced by the structure shown above.

TABLE 7a

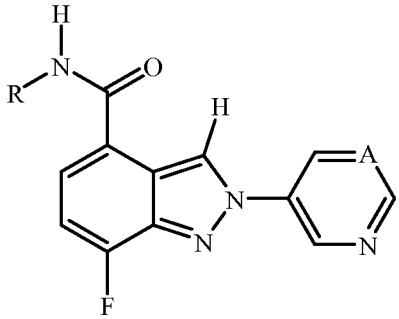


Table 7a is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 7c

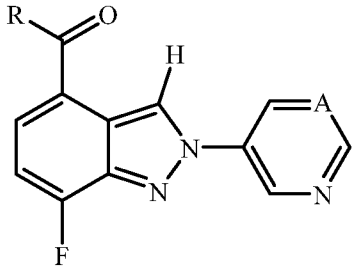


Table 7c is identical to Table 1c, except that the structure shown under the heading "Table 1c" is replaced by the structure shown above.

TABLE 7e

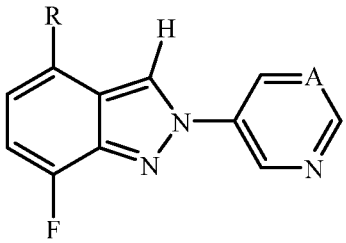


Table 7e is identical to Table 1e, except that the structure shown under the heading "Table 1e" is replaced by the structure shown above.

TABLE 8a

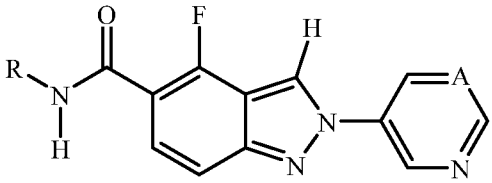


Table 8a is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 8c

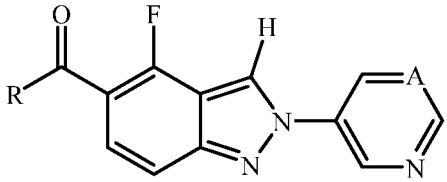


Table 8c is identical to Table 1c, except that the structure shown under the heading "Table 1c" is replaced by the structure shown above.

TABLE 8e

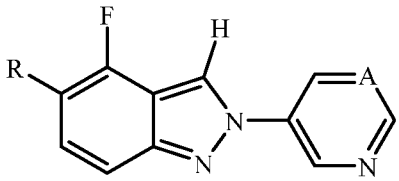


Table 8e is identical to Table 1e, except that the structure shown under the heading "Table 1e" is replaced by the structure shown above.

TABLE 9a

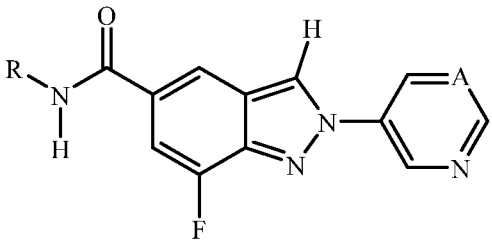


Table 9a is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 9c

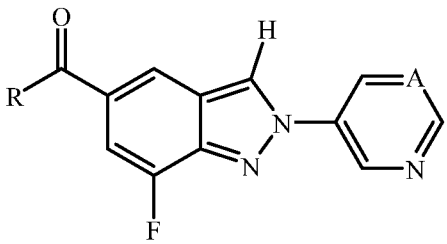


Table 9c is identical to Table 1c, except that the structure shown under the heading "Table 1c" is replaced by the structure shown above.

TABLE 9e

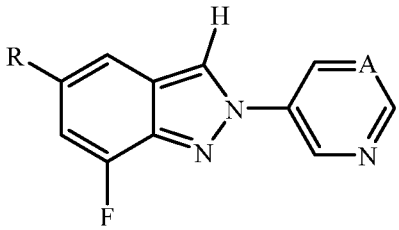


Table 9e is identical to Table 1e, except that the structure shown under the heading "Table 1e" is replaced by the structure shown above.

TABLE 10a

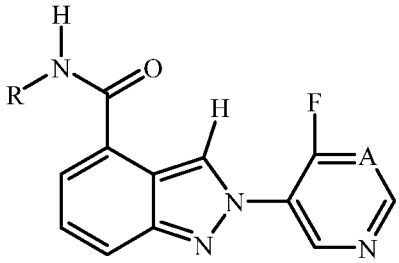


Table 10a is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 10b

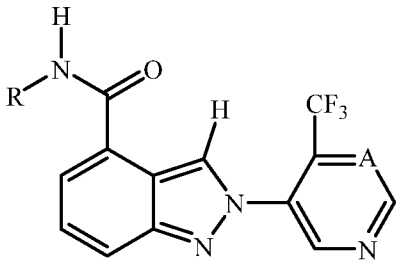


Table 10b is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 10c

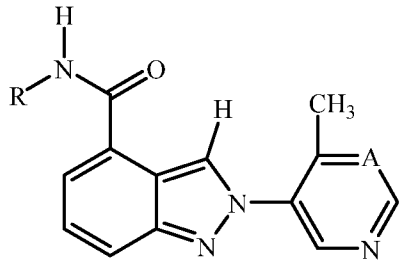


Table 10c is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 10d

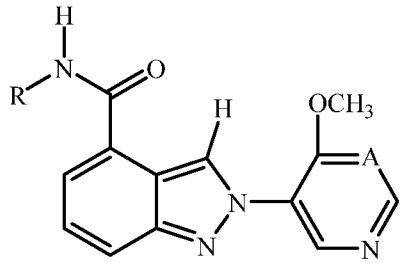


Table 10d is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 11a

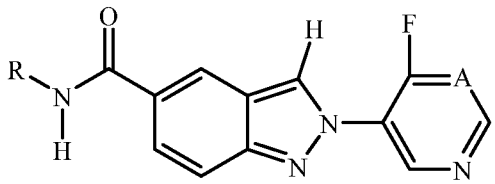


Table 11a is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 11b

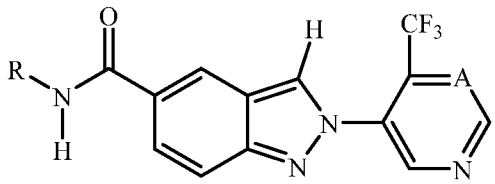


Table 11b is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 11c

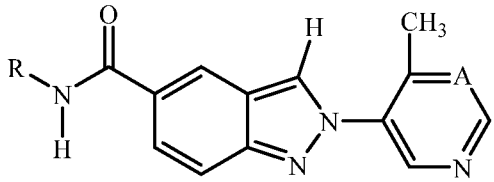


Table 11c is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 11d

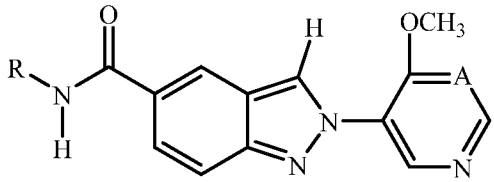


Table 11d is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 12a

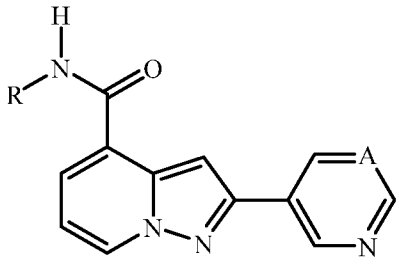


Table 12a is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 12c

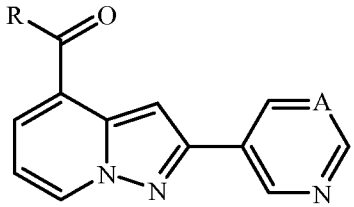


Table 12c is identical to Table 1c, except that the structure shown under the heading "Table 1c" is replaced by the structure shown above.

TABLE 12e

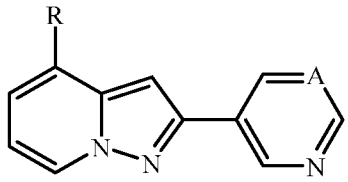


Table 12e is identical to Table 1e, except that the structure shown under the heading "Table 1e" is replaced by the structure shown above.

TABLE 13a

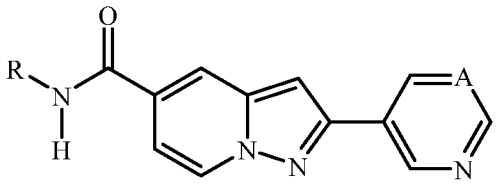


Table 13a is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 13c

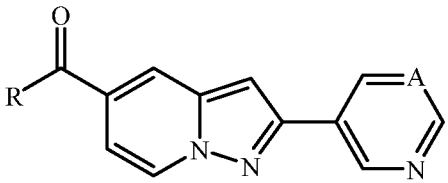


Table 13c is identical to Table 1c, except that the structure shown under the heading "Table 1c" is replaced by the structure shown above.

TABLE 13e

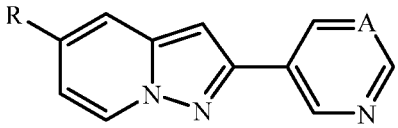


Table 13e is identical to Table 1e, except that the structure shown under the heading "Table 1e" is replaced by the structure shown above.

TABLE 14a

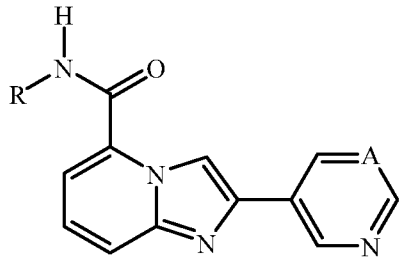


Table 14a is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 14c

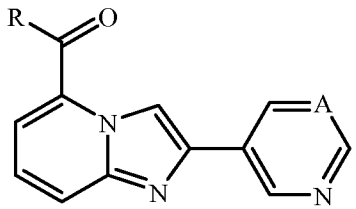


Table 14c is identical to Table 1c, except that the structure shown under the heading "Table 1c" is replaced by the structure shown above.

TABLE 14e

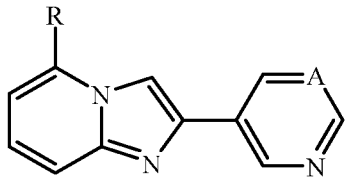


Table 14e is identical to Table 1e, except that the structure shown under the heading "Table 1e" is replaced by the structure shown above.

TABLE 15a

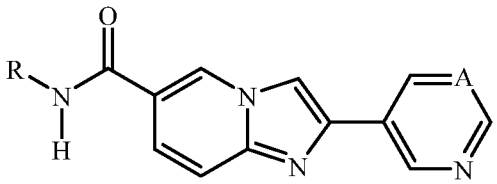


Table 15a is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 15c

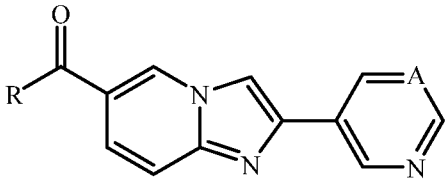


Table 15c is identical to Table 1c, except that the structure shown under the heading "Table 1c" is replaced by the structure shown above.

TABLE 15e

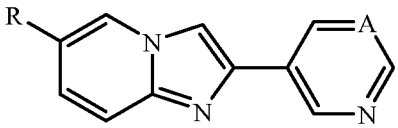


Table 15e is identical to Table 1e, except that the structure shown under the heading "Table 1e" is replaced by the structure shown above.

TABLE 16a

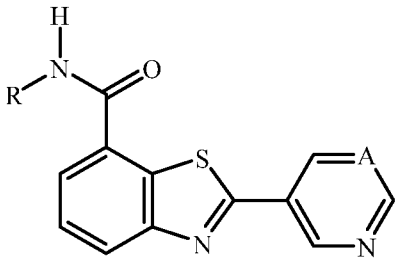


Table 16a is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 16c

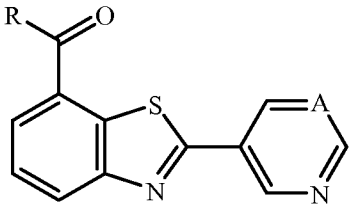


Table 16c is identical to Table 1c, except that the structure shown under the heading "Table 1c" is replaced by the structure shown above.

TABLE 16e

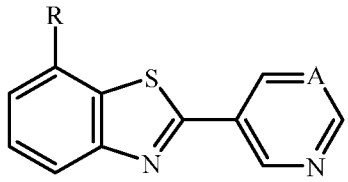


Table 16e is identical to Table 1e, except that the structure shown under the heading "Table 1e" is replaced by the structure shown above.

TABLE 17a

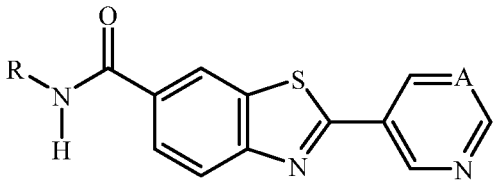


Table 17a is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 17c

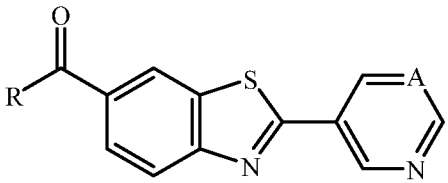


Table 17c is identical to Table 1c, except that the structure shown under the heading "Table 1c" is replaced by the structure shown above.

TABLE 17e

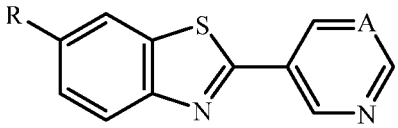


Table 17e is identical to Table 1e, except that the structure shown under the heading "Table 1e" is replaced by the structure shown above.

TABLE 18a

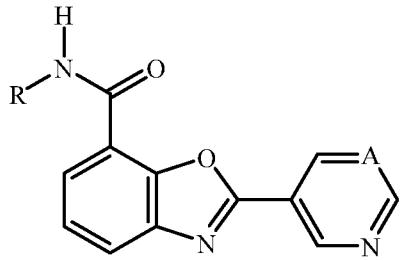


Table 18a is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 18c

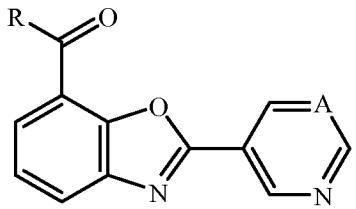


Table 18c is identical to Table 1c, except that the structure shown under the heading "Table 1c" is replaced by the structure shown above.

TABLE 18e

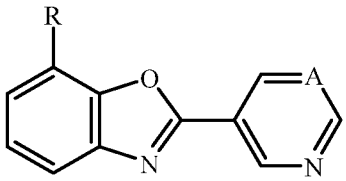


Table 18e is identical to Table 1e, except that the structure shown under the heading "Table 1e" is replaced by the structure shown above.

TABLE 19a

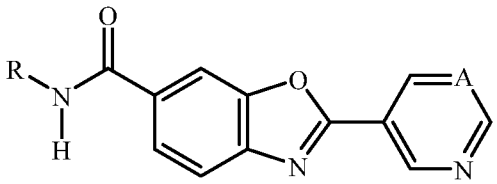


Table 19a is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 19c

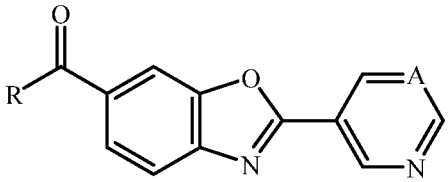


Table 19c is identical to Table 1c, except that the structure shown under the heading "Table 1c" is replaced by the structure shown above.

TABLE 19e

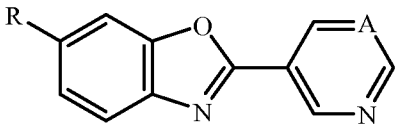


Table 19e is identical to Table 1e, except that the structure shown under the heading "Table 1e" is replaced by the structure shown above.

TABLE 20a

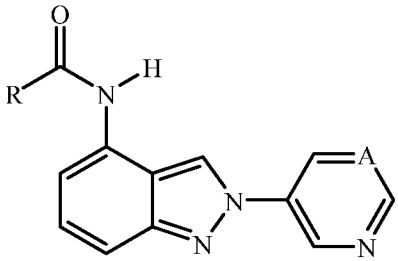


Table 20a is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 20b

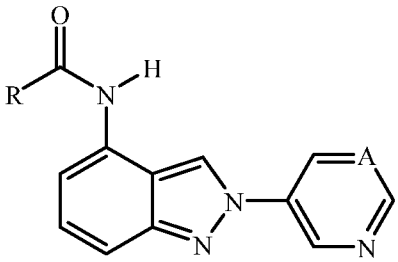


Table 20b is identical to Table 1e, except that the structure shown under the heading "Table 1e" is replaced by the structure shown above.

TABLE 21a

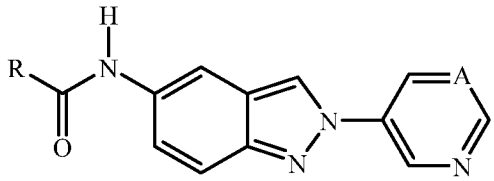


Table 21a is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 21b

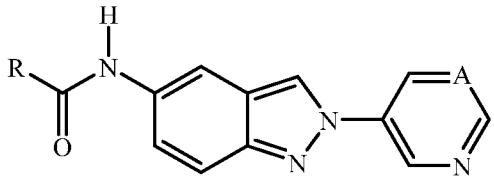


Table 21b is identical to Table 1e, except that the structure shown under the heading "Table 1e" is replaced by the structure shown above.

TABLE 22a

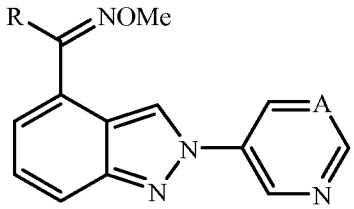


Table 22a is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 22b

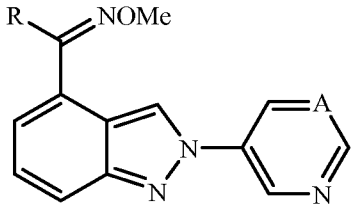


Table 22b is identical to Table 1e, except that the structure shown under the heading "Table 1e" is replaced by the structure shown above.

TABLE 23a

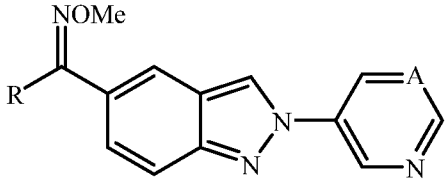


Table 23a is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 23b

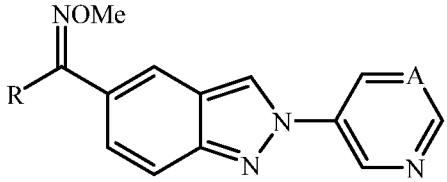


Table 23b is identical to Table 1e, except that the structure shown under the heading "Table 1e" is replaced by the structure shown above.

TABLE 24a

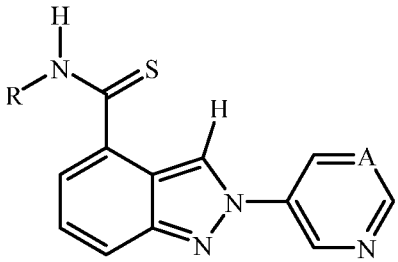


Table 24a is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 24b

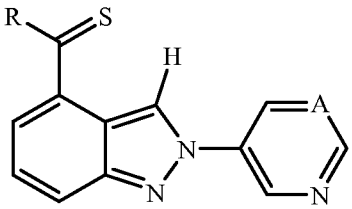


Table 24b is identical to Table 1c, except that the structure shown under the heading "Table 1c" is replaced by the structure shown above.

TABLE 24c

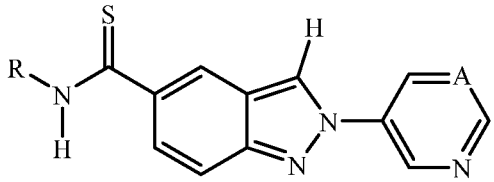


Table 24c is identical to Table 1a, except that the structure shown under the heading "Table 1a" is replaced by the structure shown above.

TABLE 24d

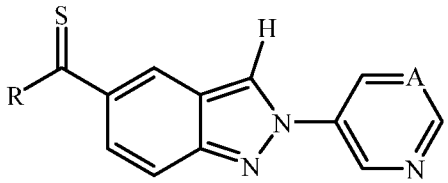


Table 24d is identical to Table 1c, except that the structure shown under the heading "Table 1c" is replaced by the structure shown above.

A compound of this invention will generally be used as an invertebrate pest control active ingredient in a composition, i.e. formulation, with at least one additional component selected from the group consisting of surfactants, solid diluents and liquid diluents, which serves as a carrier. The formulation or composition ingredients are selected to be consistent with the physical properties of the active ingredient, mode of application and environmental factors such as soil type, moisture and temperature.

Useful formulations include both liquid and solid compositions. Liquid compositions include solutions (including emulsifiable concentrates), suspensions, emulsions (including microemulsions, oil in water emulsions, flowable concentrates and/or suspoemulsions) and the like, which optionally can be thickened into gels. The general types of aqueous liquid compositions are soluble concentrate, suspension concentrate, capsule suspension, concentrated emulsion, microemulsion, oil in water emulsion, flowable concentrate and suspoemulsion. The general types of nonaqueous liquid compositions are emulsifiable concentrate, microemulsifiable concentrate, dispersible concentrate and oil dispersion.

The general types of solid compositions are dusts, powders, granules, pellets, prills, pastilles, tablets, filled films (including seed coatings) and the like, which can be water-dispersible ("wettable") or water-soluble. Films and coatings formed from film-forming solutions or flowable suspensions are particularly useful for seed treatment. Active ingredient can be (micro)encapsulated and further formed into a suspension or solid

formulation; alternatively the entire formulation of active ingredient can be encapsulated (or "overcoated"). Encapsulation can control or delay release of the active ingredient. An emulsifiable granule combines the advantages of both an emulsifiable concentrate formulation and a dry granular formulation. High-strength compositions are primarily used as intermediates for further formulation.

Sprayable formulations are typically extended in a suitable medium before spraying. Such liquid and solid formulations are formulated to be readily diluted in the spray medium, usually water, but occasionally another suitable medium like an aromatic or paraffinic hydrocarbon or vegetable oil. Spray volumes can range from about one to several thousand liters per hectare, but more typically are in the range from about ten to several hundred liters per hectare. Sprayable formulations can be tank mixed with water or another suitable medium for foliar treatment by aerial or ground application, or for application to the growing medium of the plant. Liquid and dry formulations can be metered directly into drip irrigation systems or metered into the furrow during planting. Liquid and solid formulations can be applied onto seeds of crops and other desirable vegetation as seed treatments before planting to protect developing roots and other subterranean plant parts and/or foliage through systemic uptake.

The formulations will typically contain effective amounts of active ingredient, diluent and surfactant within the following approximate ranges which add up to 100 percent by weight.

	Weight Percent		
	Active Ingredient	Diluent	Surfactant
Water-Dispersible and Water-soluble Granules, Tablets and Powders	0.001–90	0–99.999	0–15
Oil Dispersions, Suspensions, Emulsions, Solutions (including Emulsifiable Concentrates)	1–50	40–99	0–50
Dusts	1–25	70–99	0–5
Granules and Pellets	0.001–99	5–99.999	0–15
High Strength Compositions	90–99	0–10	0–2

Solid diluents include, for example, clays such as bentonite, montmorillonite, attapulgite and kaolin, gypsum, cellulose, titanium dioxide, zinc oxide, starch, dextrin, sugars (e.g., lactose, sucrose), silica, talc, mica, diatomaceous earth, urea, calcium carbonate,

sodium carbonate and bicarbonate, and sodium sulfate. Typical solid diluents are described in Watkins et al., *Handbook of Insecticide Dust Diluents and Carriers*, 2nd Ed., Dorland Books, Caldwell, New Jersey.

Liquid diluents include, for example, water, *N*,*N*-dimethylalkanamides (e.g., *N*,*N*-dimethylformamide), limonene, dimethyl sulfoxide, *N*-alkylpyrrolidones (e.g., *N*-methylpyrrolidinone), alkyl phosphates (e.g., triethylphosphate), ethylene glycol, triethylene glycol, propylene glycol, dipropylene glycol, polypropylene glycol, propylene carbonate, butylene carbonate, paraffins (e.g., white mineral oils, normal paraffins, isoparaffins), alkylbenzenes, alkylnaphthalenes, glycerine, glycerol triacetate, sorbitol, aromatic hydrocarbons, dearomatized aliphatics, alkylbenzenes, alkylnaphthalenes, ketones such as cyclohexanone, 2-heptanone, isophorone and 4-hydroxy-4-methyl-2-pentanone, acetates such as isoamyl acetate, hexyl acetate, heptyl acetate, octyl acetate, nonyl acetate, tridecyl acetate and isobornyl acetate, other esters such as alkylated lactate esters, dibasic esters alkyl and aryl benzoates, γ-butyrolactone, and alcohols, which can be linear, branched, saturated or unsaturated, such as methanol, ethanol, *n*-propanol, isopropyl alcohol, *n*-butanol, isobutyl alcohol, *n*-hexanol, 2-ethylhexanol, *n*-octanol, decanol, isodecyl alcohol, isooctadecanol, cetyl alcohol, lauryl alcohol, tridecyl alcohol, oleyl alcohol, cyclohexanol, tetrahydrofurfuryl alcohol, diacetone alcohol, cresol and benzyl alcohol. Liquid diluents also include glycerol esters of saturated and unsaturated fatty acids (typically C_6–C_{22}), such as plant seed and fruit oils (e.g., oils of olive, castor, linseed, sesame, corn (maize), peanut, sunflower, grapeseed, safflower, cottonseed, soybean, rapeseed, coconut and palm kernel), animal-sourced fats (e.g., beef tallow, pork tallow, lard, cod liver oil, fish oil), and mixtures thereof. Liquid diluents also include alkylated fatty acids (e.g., methylated, ethylated, butylated) wherein the fatty acids may be obtained by hydrolysis of glycerol esters from plant and animal sources, and can be purified by distillation. Typical liquid diluents are described in Marsden, *Solvents Guide*, 2nd Ed., Interscience, New York, 1950.

The solid and liquid compositions of the present invention often include one or more surfactants. When added to a liquid, surfactants (also known as "surface-active agents") generally modify, most often reduce, the surface tension of the liquid. Depending on the nature of the hydrophilic and lipophilic groups in a surfactant molecule, surfactants can be useful as wetting agents, dispersants, emulsifiers or defoaming agents.

Surfactants can be classified as nonionic, anionic or cationic. Nonionic surfactants useful for the present compositions include, but are not limited to: alcohol alkoxylates such as alcohol alkoxylates based on natural and synthetic alcohols (which may be branched or linear) and prepared from the alcohols and ethylene oxide, propylene oxide, butylene oxide

or mixtures thereof; amine ethoxylates, alkanolamides and ethoxylated alkanolamides; alkoxylated triglycerides such as ethoxylated soybean, castor and rapeseed oils; alkylphenol alkoxylates such as octylphenol ethoxylates, nonylphenol ethoxylates, dinonyl phenol ethoxylates and dodecyl phenol ethoxylates (prepared from the phenols and ethylene oxide, propylene oxide, butylene oxide or mixtures thereof); block polymers prepared from ethylene oxide or propylene oxide and reverse block polymers where the terminal blocks are prepared from propylene oxide; ethoxylated fatty acids; ethoxylated fatty esters and oils; ethoxylated methyl esters; ethoxylated tristyrylphenol (including those prepared from ethylene oxide, propylene oxide, butylene oxide or mixtures thereof); fatty acid esters, glycerol esters, lanolin-based derivatives, polyethoxylate esters such as polyethoxylated sorbitan fatty acid esters, polyethoxylated sorbitol fatty acid esters and polyethoxylated glycerol fatty acid esters; other sorbitan derivatives such as sorbitan esters; polymeric surfactants such as random copolymers, block copolymers, alkyd peg (polyethylene glycol) resins, graft or comb polymers and star polymers; polyethylene glycols (pegs); polyethylene glycol fatty acid esters; silicone-based surfactants; and sugar-derivatives such as sucrose esters, alkyl polyglycosides and alkyl polysaccharides.

Useful anionic surfactants include, but are not limited to: alkylaryl sulfonic acids and their salts; carboxylated alcohol or alkylphenol ethoxylates; diphenyl sulfonate derivatives; lignin and lignin derivatives such as lignosulfonates; maleic or succinic acids or their anhydrides; olefin sulfonates; phosphate esters such as phosphate esters of alcohol alkoxylates, phosphate esters of alkylphenol alkoxylates and phosphate esters of styryl phenol ethoxylates; protein-based surfactants; sarcosine derivatives; styryl phenol ether sulfate; sulfates and sulfonates of oils and fatty acids; sulfates and sulfonates of ethoxylated alkylphenols; sulfates of alcohols; sulfates of ethoxylated alcohols; sulfonates of amines and amides such as *N*,*N*-alkyltaurates; sulfonates of benzene, cumene, toluene, xylene, and dodecyl and tridecylbenzenes; sulfonates of condensed naphthalenes; sulfonates of naphthalene and alkyl naphthalene; sulfonates of fractionated petroleum; sulfosuccinamates; and sulfosuccinates and their derivatives such as dialkyl sulfosuccinate salts.

Useful cationic surfactants include, but are not limited to: amides and ethoxylated amides; amines such as *N*-alkyl propanediamines, tripropylenetriamines and dipropylenetetramines, and ethoxylated amines, ethoxylated diamines and propoxylated amines (prepared from the amines and ethylene oxide, propylene oxide, butylene oxide or mixtures thereof); amine salts such as amine acetates and diamine salts; quaternary ammonium salts such as quaternary salts, ethoxylated quaternary salts and diquaternary salts; and amine oxides such as alkyldimethylamine oxides and bis-(2-hydroxyethyl)-alkylamine oxides.

Also useful for the present compositions are mixtures of nonionic and anionic surfactants or mixtures of nonionic and cationic surfactants. Nonionic, anionic and cationic surfactants and their recommended uses are disclosed in a variety of published references including *McCutcheon's Emulsifiers and Detergents*, annual American and International Editions published by McCutcheon's Division, The Manufacturing Confectioner Publishing Co.; Sisely and Wood, *Encyclopedia of Surface Active Agents*, Chemical Publ. Co., Inc., New York, 1964; and A. S. Davidson and B. Milwidsky, *Synthetic Detergents*, Seventh Edition, John Wiley and Sons, New York, 1987.

Compositions of this invention may also contain formulation auxiliaries and additives, known to those skilled in the art as formulation aids (some of which may be considered to also function as solid diluents, liquid diluents or surfactants). Such formulation auxiliaries and additives may control: pH (buffers), foaming during processing (antifoams such polyorganosiloxanes), sedimentation of active ingredients (suspending agents), viscosity (thixotropic thickeners), in-container microbial growth (antimicrobials), product freezing (antifreezes), color (dyes/pigment dispersions), wash-off (film formers or stickers), evaporation (evaporation retardants), and other formulation attributes. Film formers include, for example, polyvinyl acetates, polyvinyl acetate copolymers, polyvinylpyrrolidone-vinyl acetate copolymer, polyvinyl alcohols, polyvinyl alcohol copolymers and waxes. Examples of formulation auxiliaries and additives include those listed in *McCutcheon's Volume 2: Functional Materials*, annual International and North American editions published by McCutcheon's Division, The Manufacturing Confectioner Publishing Co.; and PCT Publication WO 03/024222.

The compound of Formula **1** and any other active ingredients are typically incorporated into the present compositions by dissolving the active ingredient in a solvent or by grinding in a liquid or dry diluent. Solutions, including emulsifiable concentrates, can be prepared by simply mixing the ingredients. If the solvent of a liquid composition intended for use as an emulsifiable concentrate is water-immiscible, an emulsifier is typically added to emulsify the active-containing solvent upon dilution with water. Active ingredient slurries, with particle diameters of up to 2,000 μm can be wet milled using media mills to obtain particles with average diameters below 3 μm. Aqueous slurries can be made into finished suspension concentrates (see, for example, U.S. 3,060,084) or further processed by spray drying to form water-dispersible granules. Dry formulations usually require dry milling processes, which produce average particle diameters in the 2 to 10 μm range. Dusts and powders can be prepared by blending and usually grinding (such as with a hammer mill or fluid-energy mill). Granules and pellets can be prepared by spraying the active material upon preformed granular carriers or by agglomeration techniques. See Browning,

"Agglomeration", *Chemical Engineering*, December 4, 1967, pp 147–48, *Perry's Chemical Engineer's Handbook*, 4th Ed., McGraw-Hill, New York, 1963, pages 8–57 and following, and WO 91/13546. Pellets can be prepared as described in U.S. 4,172,714. Water-dispersible and water-soluble granules can be prepared as taught in U.S. 4,144,050, U.S. 3,920,442 and DE 3,246,493. Tablets can be prepared as taught in U.S. 5,180,587, U.S. 5,232,701 and U.S. 5,208,030. Films can be prepared as taught in GB 2,095,558 and U.S. 3,299,566.

For further information regarding the art of formulation, see T. S. Woods, "The Formulator's Toolbox – Product Forms for Modern Agriculture" in *Pesticide Chemistry and Bioscience, The Food–Environment Challenge*, T. Brooks and T. R. Roberts, Eds., Proceedings of the 9th International Congress on Pesticide Chemistry, The Royal Society of Chemistry, Cambridge, 1999, pp. 120–133. See also U.S. 3,235,361, Col. 6, line 16 through Col. 7, line 19 and Examples 10–41; U.S. 3,309,192, Col. 5, line 43 through Col. 7, line 62 and Examples 8, 12, 15, 39, 41, 52, 53, 58, 132, 138–140, 162–164, 166, 167 and 169–182; U.S. 2,891,855, Col. 3, line 66 through Col. 5, line 17 and Examples 1–4; Klingman, *Weed Control as a Science*, John Wiley and Sons, Inc., New York, 1961, pp 81–96; Hance et al., *Weed Control Handbook*, 8th Ed., Blackwell Scientific Publications, Oxford, 1989; and *Developments in formulation technology*, PJB Publications, Richmond, UK, 2000.

In the following Examples, all formulations are prepared in conventional ways. Compound numbers refer to compounds in Index Tables A–N. Without further elaboration, it is believed that one skilled in the art using the preceding description can utilize the present invention to its fullest extent. The following Examples are, therefore, to be construed as merely illustrative, and not limiting of the disclosure in any way whatsoever. Percentages are by weight except where otherwise indicated.

Example A

High Strength Concentrate

Compound 8	98.5%
silica aerogel	0.5%
synthetic amorphous fine silica	1.0%

Example B

Wettable Powder

Compound 14	65.0%
dodecylphenol polyethylene glycol ether	2.0%
sodium ligninsulfonate	4.0%
sodium silicoaluminate	6.0%

montmorillonite (calcined)	23.0%

Example C

Granule

Compound 16	10.0%
attapulgite granules (low volatile matter, 0.71/0.30 mm; U.S.S. No. 25–50 sieves)	90.0%

Example D

Extruded Pellet

Compound 19	25.0%
anhydrous sodium sulfate	10.0%
crude calcium ligninsulfonate	5.0%
sodium alkylnaphthalenesulfonate	1.0%
calcium/magnesium bentonite	59.0%

Example E

Emulsifiable Concentrate

Compound 41	10.0%
polyoxyethylene sorbitol hexoleate	20.0%
C_6–C_{10} fatty acid methyl ester	70.0%

Example F

Microemulsion

Compound 42	5.0%
polyvinylpyrrolidone-vinyl acetate copolymer	30.0%
alkylpolyglycoside	30.0%
glyceryl monooleate	15.0%
water	20.0%

Example G

Seed Treatment

Compound 51	20.00%
polyvinylpyrrolidone-vinyl acetate copolymer	5.00%
montan acid wax	5.00%
calcium ligninsulfonate	1.00%
polyoxyethylene/polyoxypropylene block copolymers	1.00%
stearyl alcohol (POE 20)	2.00%
polyorganosilane	0.20%
colorant red dye	0.05%
water	65.75%

Example H

Fertilizer Stick

Compound 54	2.5%
pyrrolidone-styrene copolymer	4.8%
tristyrylphenyl 16-ethoxylate	2.3%
talc	0.8%
corn starch	5.0%
slow-release fertilizer	36.0%
kaolin	38.0%
water	10.6%

Example I

Suspension Concentrate

compound 55	35%
butyl polyoxyethylene/polypropylene block copolymer	4.0%
stearic acid/polyethylene glycol copolymer	1.0%
styrene acrylic polymer	1.0%
xanthan gum	0.1%
propylene glycol	5.0%
silicone based defoamer	0.1%
1,2-benzisothiazolin-3-one	0.1%
water	53.7%

Example J

Emulsion in Water

compound 76	10.0%
butyl polyoxyethylene/polypropylene block copolymer	4.0%
stearic acid/polyethylene glycol copolymer	1.0%
styrene acrylic polymer	1.0%
xanthan gum	0.1%
propylene glycol	5.0%
silicone based defoamer	0.1%
1,2-benzisothiazolin-3-one	0.1%
aromatic petroleum based hydrocarbon	20.0
water	58.7%

Example K

Oil Dispersion	
compound 19	25%
polyoxyethylene sorbitol hexaoleate	15%
organically modified bentonite clay	2.5%
fatty acid methyl ester	57.5%

Example L

Suspoemulsion	
compound 42	10.0%
imidacloprid	5.0%
butyl polyoxyethylene/polypropylene block copolymer	4.0%
stearic acid/polyethylene glycol copolymer	1.0%
styrene acrylic polymer	1.0%
xanthan gum	0.1%
propylene glycol	5.0%
silicone based defoamer	0.1%
1,2-benzisothiazolin-3-one	0.1%
aromatic petroleum based hydrocarbon	20.0%
water	53.7%

Compounds of this invention exhibit activity against a wide spectrum of invertebrate pests. These pests include invertebrates inhabiting a variety of environments such as, for example, plant foliage, roots, soil, harvested crops or other foodstuffs, building structures or animal integuments. These pests include, for example, invertebrates feeding on foliage (including leaves, stems, flowers and fruits), seeds, wood, textile fibers or animal blood or tissues, and thereby causing injury or damage to, for example, growing or stored agronomic crops, forests, greenhouse crops, ornamentals, nursery crops, stored foodstuffs or fiber products, or houses or other structures or their contents, or being harmful to animal health or public health. Those skilled in the art will appreciate that not all compounds are equally effective against all growth stages of all pests.

These present compounds and compositions are thus useful agronomically for protecting field crops from phytophagous invertebrate pests, and also nonagronomically for protecting other horticultural crops and plants from phytophagous invertebrate pests. This utility includes protecting crops and other plants (i.e. both agronomic and nonagronomic) that contain genetic material introduced by genetic engineering (i.e. transgenic) or modified by mutagenesis to provide advantageous traits. Examples of such traits include tolerance to

herbicides, resistance to phytophagous pests (e.g., insects, mites, aphids, spiders, nematodes, snails, plant-pathogenic fungi, bacteria and viruses), improved plant growth, increased tolerance of adverse growing conditions such as high or low temperatures, low or high soil moisture, and high salinity, increased flowering or fruiting, greater harvest yields, more rapid maturation, higher quality and/or nutritional value of the harvested product, or improved storage or process properties of the harvested products. Transgenic plants can be modified to express multiple traits. Examples of plants containing traits provided by genetic engineering or mutagenesis include varieties of corn, cotton, soybean and potato expressing an insecticidal *Bacillus thuringiensis* toxin such as YIELD GARD®, KNOCKOUT®, STARLINK®, BOLLGARD®, NuCOTN® and NEWLEAF®, INVICTA RR2 PRO™, and herbicide-tolerant varieties of corn, cotton, soybean and rapeseed such as ROUNDUP READY®, LIBERTY LINK®, IMI®, STS® and CLEARFIELD®, as well as crops expressing *N*-acetyltransferase (GAT) to provide resistance to glyphosate herbicide, or crops containing the HRA gene providing resistance to herbicides inhibiting acetolactate synthase (ALS). The present compounds and compositions may interact synergistically with traits introduced by genetic engineering or modified by mutagenesis, thus enhancing phenotypic expression or effectiveness of the traits or increasing the invertebrate pest control effectiveness of the present compounds and compositions. In particular, the present compounds and compositions may interact synergistically with the phenotypic expression of proteins or other natural products toxic to invertebrate pests to provide greater-than-additive control of these pests.

Compositions of this invention can also optionally comprise plant nutrients, e.g., a fertilizer composition comprising at least one plant nutrient selected from nitrogen, phosphorus, potassium, sulfur, calcium, magnesium, iron, copper, boron, manganese, zinc, and molybdenum. Of note are compositions comprising at least one fertilizer composition comprising at least one plant nutrient selected from nitrogen, phosphorus, potassium, sulfur, calcium and magnesium. Compositions of the present invention which further comprise at least one plant nutrient can be in the form of liquids or solids. Of note are solid formulations in the form of granules, small sticks or tablets. Solid formulations comprising a fertilizer composition can be prepared by mixing the compound or composition of the present invention with the fertilizer composition together with formulating ingredients and then preparing the formulation by methods such as granulation or extrusion. Alternatively solid formulations can be prepared by spraying a solution or suspension of a compound or composition of the present invention in a volatile solvent onto a previous prepared fertilizer composition in the form of dimensionally stable mixtures, e.g., granules, small sticks or tablets, and then evaporating the solvent.

Nonagronomic uses refer to invertebrate pest control in the areas other than fields of crop plants. Nonagronomic uses of the present compounds and compositions include control of invertebrate pests in stored grains, beans and other foodstuffs, and in textiles such as clothing and carpets. Nonagronomic uses of the present compounds and compositions also include invertebrate pest control in ornamental plants, forests, in yards, along roadsides and railroad rights of way, and on turf such as lawns, golf courses and pastures. Nonagronomic uses of the present compounds and compositions also include invertebrate pest control in houses and other buildings which may be occupied by humans and/or companion, farm, ranch, zoo or other animals. Nonagronomic uses of the present compounds and compositions also include the control of pests such as termites that can damage wood or other structural materials used in buildings.

Nonagronomic uses of the present compounds and compositions also include protecting human and animal health by controlling invertebrate pests that are parasitic or transmit infectious diseases. The controlling of animal parasites includes controlling external parasites that are parasitic to the surface of the body of the host animal (e.g., shoulders, armpits, abdomen, inner part of the thighs) and internal parasites that are parasitic to the inside of the body of the host animal (e.g., stomach, intestine, lung, veins, under the skin, lymphatic tissue). External parasitic or disease transmitting pests include, for example, chiggers, ticks, lice, mosquitoes, flies, mites and fleas. Internal parasites include heartworms, hookworms and helminths. Compounds and compositions of the present invention are suitable for systemic and/or non-systemic control of infestation or infection by parasites on animals. Compounds and compositions of the present invention are particularly suitable for combating external parasitic or disease transmitting pests. Compounds and compositions of the present invention are suitable for combating parasites that infest agricultural working animals, such as cattle, sheep, goats, horses, pigs, donkeys, camels, buffalos, rabbits, hens, turkeys, ducks, geese and bees; pet animals and domestic animals such as dogs, cats, pet birds and aquarium fish; as well as so-called experimental animals, such as hamsters, guinea pigs, rats and mice. By combating these parasites, fatalities and performance reduction (in terms of meat, milk, wool, skins, eggs, honey, etc.) are reduced, so that applying a composition comprising a compound of the present invention allows more economic and simple husbandry of animals.

Examples of agronomic or nonagronomic invertebrate pests include eggs, larvae and adults of the order Lepidoptera, such as armyworms, cutworms, loopers, and heliothines in the family Noctuidae (e.g., pink stem borer (*Sesamia inferens* Walker), corn stalk borer (*Sesamia nonagrioides* Lefebvre), southern armyworm (*Spodoptera eridania* Cramer), fall armyworm (*Spodoptera frugiperda* J. E. Smith), beet armyworm (*Spodoptera exigua*

Hübner), cotton leafworm (*Spodoptera littoralis* Boisduval), yellowstriped armyworm (*Spodoptera ornithogalli* Guenée), black cutworm (*Agrotis ipsilon* Hufnagel), velvetbean caterpillar (*Anticarsia gemmatalis* Hübner), green fruitworm (*Lithophane antennata* Walker), cabbage armyworm (*Barathra brassicae* Linnaeus), soybean looper (*Pseudoplusia includens* Walker), cabbage looper (*Trichoplusia ni* Hübner), tobacco budworm (*Heliothis virescens* Fabricius)); borers, casebearers, webworms, coneworms, cabbageworms and skeletonizers from the family Pyralidae (e.g., European corn borer (*Ostrinia nubilalis* Hübner), navel orangeworm (*Amyelois transitella* Walker), corn root webworm (*Crambus caliginosellus* Clemens), sod webworms (Pyralidae: *Crambinae*) such as sod worm (*Herpetogramma licarsisalis* Walker), sugarcane stem borer (*Chilo infuscatellus* Snellen), tomato small borer (*Neoleucinodes elegantalis* Guenée), green leafroller (*Cnaphalocrocis medinalis*), grape leaffolder (*Desmia funeralis* Hübner), melon worm (*Diaphania nitidalis* Stoll), cabbage center grub (*Helluala hydralis* Guenée), yellow stem borer (*Scirpophaga incertulas* Walker), early shoot borer (*Scirpophaga infuscatellus* Snellen), white stem borer (*Scirpophaga innotata* Walker), top shoot borer (*Scirpophaga nivella* Fabricius), dark-headed rice borer (*Chilo polychrysus* Meyrick), striped riceborer (*Chilo suppressalis* Walker), cabbage cluster caterpillar (*Crocidolomia binotalis* English)); leafrollers, budworms, seed worms, and fruit worms in the family Tortricidae (e.g., codling moth (*Cydia pomonella* Linnaeus), grape berry moth (*Endopiza viteana* Clemens), oriental fruit moth (*Grapholita molesta* Busck), citrus false codling moth (*Cryptophlebia leucotreta* Meyrick), citrus borer (*Ecdytolopha aurantiana* Lima), redbanded leafroller (*Argyrotaenia velutinana* Walker), obliquebanded leafroller (*Choristoneura rosaceana* Harris), light brown apple moth (*Epiphyas postvittana* Walker), European grape berry moth (*Eupoecilia ambiguella* Hübner), apple bud moth (*Pandemis pyrusana* Kearfott), omnivorous leafroller (*Platynota stultana* Walsingham), barred fruit-tree tortrix (*Pandemis cerasana* Hübner), apple brown tortrix (*Pandemis heparana* Denis & Schiffermüller)); and many other economically important lepidoptera (e.g., diamondback moth (*Plutella xylostella* Linnaeus), pink bollworm (*Pectinophora gossypiella* Saunders), gypsy moth (*Lymantria dispar* Linnaeus), peach fruit borer (*Carposina niponensis* Walsingham), peach twig borer (*Anarsia lineatella* Zeller), potato tuberworm (*Phthorimaea operculella* Zeller), spotted teniform leafminer (*Lithocolletis blancardella* Fabricius), Asiatic apple leafminer (*Lithocolletis ringoniella* Matsumura), rice leaffolder (*Lerodea eufala* Edwards), apple leafminer (*Leucoptera scitella* Zeller)); eggs, nymphs and adults of the order Blattodea including cockroaches from the families Blattellidae and Blattidae (e.g., oriental cockroach (*Blatta orientalis* Linnaeus), Asian cockroach (*Blatella asahinai* Mizukubo), German cockroach (*Blattella germanica* Linnaeus), brownbanded cockroach (*Supella longipalpa* Fabricius), American cockroach

(*Periplaneta americana* Linnaeus), brown cockroach (*Periplaneta brunnea* Burmeister), Madeira cockroach (*Leucophaea maderae* Fabricius)), smoky brown cockroach (*Periplaneta fuliginosa* Service), Australian Cockroach (*Periplaneta australasiae* Fabr.), lobster cockroach (*Nauphoeta cinerea* Olivier) and smooth cockroach (*Symploce pallens* Stephens)); eggs, foliar feeding, fruit feeding, root feeding, seed feeding and vesicular tissue feeding larvae and adults of the order Coleoptera including weevils from the families Anthribidae, Bruchidae, and Curculionidae (e.g., boll weevil (*Anthonomus grandis* Boheman), rice water weevil (*Lissorhoptrus oryzophilus* Kuschel), granary weevil (*Sitophilus granarius* Linnaeus), rice weevil (*Sitophilus oryzae* Linnaeus)), annual bluegrass weevil (*Listronotus maculicollis* Dietz), bluegrass billbug (*Sphenophorus parvulus* Gyllenhal), hunting billbug (*Sphenophorus venatus vestitus*), Denver billbug (*Sphenophorus cicatristriatus* Fahraeus)); flea beetles, cucumber beetles, rootworms, leaf beetles, potato beetles, and leafminers in the family Chrysomelidae (e.g., Colorado potato beetle (*Leptinotarsa decemlineata* Say), western corn rootworm (*Diabrotica virgifera virgifera* LeConte)); chafers and other beetles from the family Scarabaeidae (e.g., Japanese beetle (*Popillia japonica* Newman), oriental beetle (*Anomala orientalis* Waterhouse, *Exomala orientalis* (Waterhouse) Baraud), northern masked chafer (*Cyclocephala borealis* Arrow), southern masked chafer (*Cyclocephala immaculata* Olivier or *C. lurida* Bland), dung beetle and white grub (Aphodius spp.), black turfgrass ataenius (*Ataenius spretulus* Haldeman), green June beetle (*Cotinis nitida* Linnaeus), Asiatic garden beetle (*Maladera castanea* Arrow), May/June beetles (*Phyllophaga* spp.) and European chafer (*Rhizotrogus majalis* Razoumowsky)); carpet beetles from the family Dermestidae; wireworms from the family Elateridae; bark beetles from the family Scolytidae and flour beetles from the family Tenebrionidae.

In addition, agronomic and nonagronomic pests include: eggs, adults and larvae of the order Dermaptera including earwigs from the family Forficulidae (e.g., European earwig (*Forficula auricularia* Linnaeus), black earwig (*Chelisoches morio* Fabricius)); eggs, immatures, adults and nymphs of the orders Hemiptera and Homoptera such as, plant bugs from the family Miridae, cicadas from the family Cicadidae, leafhoppers (e.g. *Empoasca* spp.) from the family Cicadellidae, bed bugs (e.g., *Cimex lectularius* Linnaeus) from the family Cimicidae, planthoppers from the families Fulgoroidae and Delphacidae, treehoppers from the family Membracidae, psyllids from the family Psyllidae, whiteflies from the family Aleyrodidae, aphids from the family Aphididae, phylloxera from the family Phylloxeridae, mealybugs from the family Pseudococcidae, scales from the families Coccidae, Diaspididae and Margarodidae, lace bugs from the family Tingidae, stink bugs from the family Pentatomidae, chinch bugs (e.g., hairy chinch bug (*Blissus leucopterus hirtus* Montandon)

and southern chinch bug (*Blissus insularis* Barber)) and other seed bugs from the family Lygaeidae, spittlebugs from the family Cercopidae squash bugs from the family Coreidae, and red bugs and cotton stainers from the family Pyrrhocoridae.

Agronomic and nonagronomic pests also include : eggs, larvae, nymphs and adults of the order Acari (mites) such as spider mites and red mites in the family Tetranychidae (e.g., European red mite (*Panonychus ulmi* Koch), two spotted spider mite (*Tetranychus urticae* Koch), McDaniel mite (*Tetranychus mcdanieli* McGregor)); flat mites in the family Tenuipalpidae (e.g., citrus flat mite (*Brevipalpus lewisi* McGregor)); rust and bud mites in the family Eriophyidae and other foliar feeding mites and mites important in human and animal health, i.e. dust mites in the family Epidermoptidae, follicle mites in the family Demodicidae, grain mites in the family Glycyphagidae; ticks in the family Ixodidae, commonly known as hard ticks (e.g., deer tick (*Ixodes scapularis* Say), Australian paralysis tick (*Ixodes holocyclus* Neumann), American dog tick (*Dermacentor variabilis* Say), lone star tick (*Amblyomma americanum* Linnaeus)) and ticks in the family Argasidae, commonly known as soft ticks (e.g., relapsing fever tick (*Ornithodoros turicata*), common fowl tick (*Argas radiatus*)); scab and itch mites in the families Psoroptidae, Pyemotidae, and Sarcoptidae; eggs, adults and immatures of the order Orthoptera including grasshoppers, locusts and crickets (e.g., migratory grasshoppers (e.g., *Melanoplus sanguinipes* Fabricius, *M. differentialis* Thomas), American grasshoppers (e.g., *Schistocerca americana* Drury), desert locust (*Schistocerca gregaria* Forskal), migratory locust (*Locusta migratoria* Linnaeus), bush locust (*Zonocerus* spp.), house cricket (*Acheta domesticus* Linnaeus), mole crickets (e.g., tawny mole cricket (*Scapteriscus vicinus* Scudder) and southern mole cricket (*Scapteriscus borellii* Giglio-Tos)); eggs, adults and immatures of the order Diptera including leafminers (e.g., *Liriomyza* spp. such as serpentine vegetable leafminer (*Liriomyza sativae* Blanchard)), midges, fruit flies (Tephritidae), frit flies (e.g., *Oscinella frit* Linnaeus), soil maggots, house flies (e.g., *Musca domestica* Linnaeus), lesser house flies (e.g., *Fannia canicularis* Linnaeus, *F. femoralis* Stein), stable flies (e.g., *Stomoxys calcitrans* Linnaeus), face flies, horn flies, blow flies (e.g., *Chrysomya* spp., *Phormia* spp.), and other muscoid fly pests, horse flies (e.g., *Tabanus* spp.), bot flies (e.g., *Gastrophilus* spp., *Oestrus* spp.), cattle grubs (e.g., *Hypoderma* spp.), deer flies (e.g., *Chrysops* spp.), keds (e.g., *Melophagus ovinus* Linnaeus) and other Brachycera, mosquitoes (e.g., *Aedes* spp., *Anopheles* spp., *Culex* spp.), black flies (e.g., *Prosimulium* spp., *Simulium* spp.), biting midges, sand flies, sciarids, and other Nematocera; eggs, adults and immatures of the order Thysanoptera including onion thrips (*Thrips tabaci* Lindeman), flower thrips (*Frankliniella* spp.), and other foliar feeding thrips; insect pests of the order Hymenoptera including ants of the Family Formicidae including the Florida carpenter ant (*Camponotus floridanus* Buckley), red carpenter ant

(*Camponotus ferrugineus* Fabricius), black carpenter ant (*Camponotus pennsylvanicus* De Geer), white-footed ant (*Technomyrmex albipes* fr. Smith), big headed ants (*Pheidole* sp.), ghost ant (*Tapinoma melanocephalum* Fabricius); Pharaoh ant (*Monomorium pharaonis* Linnaeus), little fire ant (*Wasmannia auropunctata* Roger), fire ant (*Solenopsis geminata* Fabricius), red imported fire ant (*Solenopsis invicta* Buren), Argentine ant (*Iridomyrmex humilis* Mayr), crazy ant (*Paratrechina longicornis* Latreille), pavement ant (*Tetramorium caespitum* Linnaeus), cornfield ant (*Lasius alienus* Förster) and odorous house ant (*Tapinoma sessile* Say). Other Hymenoptera including bees (including carpenter bees), hornets, yellow jackets, wasps, and sawflies (*Neodiprion* spp.; *Cephus* spp.); insect pests of the order Isoptera including termites in the Termitidae (e.g., *Macrotermes* sp., *Odontotermes obesus* Rambur), Kalotermitidae (e.g., *Cryptotermes* sp.), and Rhinotermitidae (e.g., *Reticulitermes* sp., *Coptotermes* sp., *Heterotermes tenuis* Hagen) families, the eastern subterranean termite (*Reticulitermes flavipes* Kollar), western subterranean termite (*Reticulitermes hesperus* Banks), Formosan subterranean termite (*Coptotermes formosanus* Shiraki), West Indian drywood termite (*Incisitermes immigrans* Snyder), powder post termite (*Cryptotermes brevis* Walker), drywood termite (*Incisitermes snyderi* Light), southeastern subterranean termite (*Reticulitermes virginicus* Banks), western drywood termite (*Incisitermes minor* Hagen), arboreal termites such as *Nasutitermes* sp. and other termites of economic importance; insect pests of the order Thysanura such as silverfish (*Lepisma saccharina* Linnaeus) and firebrat (*Thermobia domestica* Packard); insect pests of the order Mallophaga and including the head louse (*Pediculus humanus capitis* De Geer), body louse (*Pediculus humanus* Linnaeus), chicken body louse (*Menacanthus stramineus* Nitszch), dog biting louse (*Trichodectes canis* De Geer), fluff louse (*Goniocotes gallinae* De Geer), sheep body louse (*Bovicola ovis* Schrank), short-nosed cattle louse (*Haematopinus eurysternus* Nitzsch), long-nosed cattle louse (*Linognathus vituli* Linnaeus) and other sucking and chewing parasitic lice that attack man and animals; insect pests of the order Siphonoptera including the oriental rat flea (*Xenopsylla cheopis* Rothschild), cat flea (*Ctenocephalides felis* Bouche), dog flea (*Ctenocephalides canis* Curtis), hen flea (*Ceratophyllus gallinae* Schrank), sticktight flea (*Echidnophaga gallinacea* Westwood), human flea (*Pulex irritans* Linnaeus) and other fleas afflicting mammals and birds. Additional arthropod pests covered include: spiders in the order Araneae such as the brown recluse spider (*Loxosceles reclusa* Gertsch & Mulaik) and the black widow spider (*Latrodectus mactans* Fabricius), and centipedes in the order Scutigeromorpha such as the house centipede (*Scutigera coleoptrata* Linnaeus).

Examples of invertebrate pests of stored grain include larger grain borer (*Prostephanus truncatus*), lesser grain borer (*Rhyzopertha dominica*), rice weevil (*Stiophilus oryzae*), maize

weevil (*Stiophilus zeamais*), cowpea weevil (*Callosobruchus maculatus*), red flour beetle (*Tribolium castaneum*), granary weevil (*Stiophilus granarius*), Indian meal moth (*Plodia interpunctella*), Mediterranean flour beetle (*Ephestia kuhniella*) and flat or rusty grain beetle (*Cryptolestis ferrugineus*).

Compounds of the present invention may have activity on members of the Classes Nematoda, Cestoda, Trematoda, and Acanthocephala including economically important members of the orders Strongylida, Ascaridida, Oxyurida, Rhabditida, Spirurida, and Enoplida such as but not limited to economically important agricultural pests (i.e. root knot nematodes in the genus *Meloidogyne*, lesion nematodes in the genus *Pratylenchus*, stubby root nematodes in the genus *Trichodorus*, etc.) and animal and human health pests (i.e. all economically important flukes, tapeworms, and roundworms, such as *Strongylus vulgaris* in horses, *Toxocara canis* in dogs, *Haemonchus contortus* in sheep, *Dirofilaria immitis* Leidy in dogs, *Anoplocephala perfoliata* in horses, *Fasciola hepatica* Linnaeus in ruminants, etc.).

Compounds of the invention may have activity against pests in the order Lepidoptera (e.g., *Alabama argillacea* Hübner (cotton leaf worm), *Archips argyrospila* Walker (fruit tree leaf roller), *A. rosana* Linnaeus (European leaf roller) and other *Archips* species, *Chilo suppressalis* Walker (rice stem borer), *Cnaphalocrosis medinalis* Guenée (rice leaf roller), *Crambus caliginosellus* Clemens (corn root webworm), *Crambus teterrellus* Zincken (bluegrass webworm), *Cydia pomonella* Linnaeus (codling moth), *Earias insulana* Boisduval (spiny bollworm), *Earias vittella* Fabricius (spotted bollworm), *Helicoverpa armigera* Hübner (American bollworm), *Helicoverpa zea* Boddie (corn earworm), *Heliothis virescens* Fabricius (tobacco budworm), *Herpetogramma licarsisalis* Walker (sod webworm), *Lobesia botrana* Denis & Schiffermüller (grape berry moth), *Pectinophora gossypiella* Saunders (pink bollworm), *Phyllocnistis citrella* Stainton (citrus leafminer), *Pieris brassicae* Linnaeus (large white butterfly), *Pieris rapae* Linnaeus (small white butterfly), *Plutella xylostella* Linnaeus (diamondback moth), *Spodoptera exigua* Hübner (beet armyworm), *Spodoptera litura* Fabricius (tobacco cutworm, cluster caterpillar), *Spodoptera frugiperda* J. E. Smith (fall armyworm), *Trichoplusia ni* Hübner (cabbage looper) and *Tuta absoluta* Meyrick (tomato leafminer)).

Compounds of the invention have significant activity on members from the order Homoptera including: *Acyrthosiphon pisum* Harris (pea aphid), *Aphis craccivora* Koch (cowpea aphid), *Aphis fabae* Scopoli (black bean aphid), *Aphis gossypii* Glover (cotton aphid, melon aphid), *Aphis pomi* De Geer (apple aphid), *Aphis spiraecola* Patch (spirea aphid), *Aulacorthum solani* Kaltenbach (foxglove aphid), *Chaetosiphon fragaefolii* Cockerell (strawberry aphid), *Diuraphis noxia* Kurdjumov/Mordvilko (Russian wheat aphid), *Dysaphis plantaginea* Paaserini (rosy apple aphid), *Eriosoma lanigerum* Hausmann

(woolly apple aphid), *Hyalopterus pruni* Geoffroy (mealy plum aphid), *Lipaphis erysimi* Kaltenbach (turnip aphid), *Metopolophium dirrhodum* Walker (cereal aphid), *Macrosiphum euphorbiae* Thomas (potato aphid), *Myzus persicae* Sulzer (peach-potato aphid, green peach aphid), *Nasonovia ribisnigri* Mosley (lettuce aphid), *Pemphigus* spp. (root aphids and gall aphids), *Rhopalosiphum maidis* Fitch (corn leaf aphid), *Rhopalosiphum padi* Linnaeus (bird cherry-oat aphid), *Schizaphis graminum* Rondani (greenbug), *Sitobion avenae* Fabricius (English grain aphid), *Therioaphis maculata* Buckton (spotted alfalfa aphid), *Toxoptera aurantii* Boyer de Fonscolombe (black citrus aphid), and *Toxoptera citricida* Kirkaldy (brown citrus aphid); *Adelges* spp. (adelgids); *Phylloxera devastatrix* Pergande (pecan phylloxera); *Bemisia tabaci* Gennadius (tobacco whitefly, sweetpotato whitefly), *Bemisia argentifolii* Bellows & Perring (silverleaf whitefly), *Dialeurodes citri* Ashmead (citrus whitefly) and *Trialeurodes vaporariorum* Westwood (greenhouse whitefly); *Empoasca fabae* Harris (potato leafhopper), *Laodelphax striatellus* Fallen (smaller brown planthopper), *Macrolestes quadrilineatus* Forbes (aster leafhopper), *Nephotettix cinticeps* Uhler (green leafhopper), *Nephotettix nigropictus* Stål (rice leafhopper), *Nilaparvata lugens* Stål (brown planthopper), *Peregrinus maidis* Ashmead (corn planthopper), *Sogatella furcifera* Horvath (white-backed planthopper), *Sogatodes orizicola* Muir (rice delphacid), *Typhlocyba pomaria* McAtee white apple leafhopper, *Erythroneoura* spp. (grape leafhoppers); *Magicidada septendecim* Linnaeus (periodical cicada); *Icerya purchasi* Maskell (cottony cushion scale), *Quadraspidiotus perniciosus* Comstock (San Jose scale); *Planococcus citri* Risso (citrus mealybug); *Pseudococcus* spp. (other mealybug complex); *Cacopsylla pyricola* Foerster (pear psylla), *Trioza diospyri* Ashmead (persimmon psylla).

Compounds of this invention also have activity on members from the order Hemiptera including: *Acrosternum hilare* Say (green stink bug), *Anasa tristis* De Geer (squash bug), *Blissus leucopterus leucopterus* Say (chinch bug), *Cimex lectularius* Linnaeus (bed bug) *Corythuca gossypii* Fabricius (cotton lace bug), *Cyrtopeltis modesta* Distant (tomato bug), *Dysdercus suturellus* Herrich-Schäffer (cotton stainer), *Euchistus servus* Say (brown stink bug), *Euchistus variolarius* Palisot de Beauvois (one-spotted stink bug), *Graptosthetus* spp. (complex of seed bugs), *Halymorpha halys* Stål (brown marmorated stink bug), *Leptoglossus corculus* Say (leaf-footed pine seed bug), *Lygus lineolaris* Palisot de Beauvois (tarnished plant bug), *Nezara viridula* Linnaeus (southern green stink bug), *Oebalus pugnax* Fabricius (rice stink bug), *Oncopeltus fasciatus* Dallas (large milkweed bug), *Pseudatomoscelis seriatus* Reuter (cotton fleahopper). Other insect orders controlled by compounds of the invention include Thysanoptera (e.g., *Frankliniella occidentalis* Pergande (western flower thrips), *Scirthothrips citri* Moulton (citrus thrips), *Sericothrips variabilis* Beach (soybean thrips), and *Thrips tabaci* Lindeman (onion thrips); and the order Coleoptera (e.g.,

Leptinotarsa decemlineata Say (Colorado potato beetle), *Epilachna varivestis* Mulsant (Mexican bean beetle) and wireworms of the genera *Agriotes*, *Athous* or *Limonius*).

Note that some contemporary classification systems place Homoptera as a suborder within the order Hemiptera.

Of note is use of compounds of this invention for controlling western flower thrips (*Frankliniella occidentalis*). Of note is use of compounds of this invention for controlling potato leafhopper (*Empoasca fabae*). Of note is use of compounds of this invention for controlling cotton melon aphid (*Aphis gossypii*). Of note is use of compounds of this invention for controlling green peach aphid (*Myzus persicae*). Of note is use of compounds of this invention for controlling sweetpotato whitefly (*Bemisia tabaci*).

Compounds of the present invention may also be useful for increasing vigor of a crop plant. This method comprises contacting the crop plant (e.g., foliage, flowers, fruit or roots) or the seed from which the crop plant is grown with a compound of Formula **1** in amount sufficient to achieve the desired plant vigor effect (i.e. biologically effective amount). Typically the compound of Formula **1** is applied in a formulated composition. Although the compound of Formula **1** is often applied directly to the crop plant or its seed, it can also be applied to the locus of the crop plant, i.e. the environment of the crop plant, particularly the portion of the environment in close enough proximity to allow the compound of Formula **1** to migrate to the crop plant. The locus relevant to this method most commonly comprises the growth medium (i.e. medium providing nutrients to the plant), typically soil in which the plant is grown. Treatment of a crop plant to increase vigor of the crop plant thus comprises contacting the crop plant, the seed from which the crop plant is grown or the locus of the crop plant with a biologically effective amount of a compound of Formula **1**.

Increased crop vigor can result in one or more of the following observed effects: (a) optimal crop establishment as demonstrated by excellent seed germination, crop emergence and crop stand; (b) enhanced crop growth as demonstrated by rapid and robust leaf growth (e.g., measured by leaf area index), plant height, number of tillers (e.g., for rice), root mass and overall dry weight of vegetative mass of the crop; (c) improved crop yields, as demonstrated by time to flowering, duration of flowering, number of flowers, total biomass accumulation (i.e. yield quantity) and/or fruit or grain grade marketability of produce (i.e. yield quality); (d) enhanced ability of the crop to withstand or prevent plant disease infections and arthropod, nematode or mollusk pest infestations; and (e) increased ability of the crop to withstand environmental stresses such as exposure to thermal extremes, suboptimal moisture or phytotoxic chemicals.

The compounds of the present invention may increase the vigor of treated plants compared to untreated plants by killing or otherwise preventing feeding of phytophagous

invertebrate pests in the environment of the plants. In the absence of such control of phytophagous invertebrate pests, the pests reduce plant vigor by consuming plant tissues or sap, or transmiting plant pathogens such as viruses. Even in the absence of phytophagous invertebrate pests, the compounds of the invention may increase plant vigor by modifying metabolism of plants. Generally, the vigor of a crop plant will be most significantly increased by treating the plant with a compound of the invention if the plant is grown in a nonideal environment, i.e. an environment comprising one or more aspects adverse to the plant achieving the full genetic potential it would exhibit in an ideal environment.

Of note is a method for increasing vigor of a crop plant wherein the crop plant is grown in an environment comprising phytophagous invertebrate pests. Also of note is a method for increasing vigor of a crop plant wherein the crop plant is grown in an environment not comprising phytophagous invertebrate pests. Also of note is a method for increasing vigor of a crop plant wherein the crop plant is grown in an environment comprising an amount of moisture less than ideal for supporting growth of the crop plant. Of note is a method for increasing vigor of a crop plant wherein the crop is rice. Also of note is a method for increasing vigor of a crop plant wherein the crop is maize (corn). Also of note is a method for increasing vigor of a crop plant wherein the crop is soybean.

Compounds of this invention can also be mixed with one or more other biologically active compounds or agents including insecticides, fungicides, nematocides, bactericides, acaricides, herbicides, herbicide safeners, growth regulators such as insect molting inhibitors and rooting stimulants, chemosterilants, semiochemicals, repellents, attractants, pheromones, feeding stimulants, other biologically active compounds or entomopathogenic bacteria, virus or fungi to form a multi-component pesticide giving an even broader spectrum of agronomic and nonagronomic utility. Thus the present invention also pertains to a composition comprising a biologically effective amount of a compound of Formula **1**, at least one additional component selected from the group consisting of surfactants, solid diluents and liquid diluents, and at least one additional biologically active compound or agent. For mixtures of the present invention, the other biologically active compounds or agents can be formulated together with the present compounds, including the compounds of Formula **1**, to form a premix, or the other biologically active compounds or agents can be formulated separately from the present compounds, including the compounds of Formula **1**, and the two formulations combined together before application (e.g., in a spray tank) or, alternatively, applied in succession.

Examples of such biologically active compounds or agents with which compounds of this invention can be formulated are insecticides such as abamectin, acephate, acequinocyl, acetamiprid, acrinathrin, afidopyropen ([(3*S*,4*R*,4a*R*,6*S*,6a*S*,12*R*,12a*S*,12b*S*)-3-

[(cyclopropylcarbonyl)oxy]-1,3,4,4a,5,6,6a,12,12a,12b-decahydro-6,12-dihydroxy-4,6a,12b-trimethyl-11-oxo-9-(3-pyridinyl)-2*H*,11*H*-naphtho[2,1-*b*]pyrano[3,4-*e*]pyran-4-yl]methyl cyclopropanecarboxylate), amidoflumet, amitraz, avermectin, azadirachtin, azinphos-methyl, benfuracarb, bensultap, bifenthrin, bifenazate, bistrifluron, borate, , buprofezin, cadusafos, carbaryl, carbofuran, cartap, carzol, chlorantraniliprole, chlorfenapyr, chlorfluazuron, chlorpyrifos, chlorpyrifos-methyl, chromafenozide, clofentezin, clothianidin, cyantraniliprole (3-bromo-1-(3-chloro-2-pyridinyl)-*N*-[4-cyano-2-methyl-6-[(methylamino)carbonyl]phenyl]-1*H*-pyrazole-5-carboxamide), cyclaniliprole (3-bromo-*N*-[2-bromo-4-chloro-6-[[(1-cyclopropylethyl)amino]carbonyl]phenyl]-1-(3-chloro-2-pyridinyl)-1*H*-pyrazole-5-carboxamide), cycloprothrin, cycloxaprid ((5*S*,8*R*)-1-[(6-chloro-3-pyridinyl)methyl]-2,3,5,6,7,8-hexahydro-9-nitro-5,8-Epoxy-1*H*-imidazo[1,2-*a*]azepine) cyflumetofen, cyfluthrin, beta-cyfluthrin, cyhalothrin, gamma-cyhalothrin, lambda-cyhalothrin, cypermethrin, alpha-cypermethrin, zeta-cypermethrin, cyromazine, deltamethrin, diafenthiuron, diazinon, dieldrin, diflubenzuron, dimefluthrin, dimehypo, dimethoate, dinotefuran, diofenolan, emamectin, endosulfan, esfenvalerate, ethiprole, etofenprox, etoxazole, fenbutatin oxide, fenitrothion, fenothiocarb, fenoxycarb, fenpropathrin, fenvalerate, fipronil, flometoquin (2-ethyl-3,7-dimethyl-6-[4-(trifluoromethoxy)phenoxy]-4-quinolinyl methyl carbonate), flonicamid, flubendiamide, flucythrinate, flufenerim, flufenoxuron, flufenoxystrobin (methyl (α*E*)-2-[[2-chloro-4-(trifluoromethyl)phenoxy]methyl]-α-(methoxymethylene)benzeneacetate), flufensulfone (5-chloro-2-[(3,4,4-trifluoro-3-buten-1-yl)sulfonyl]thiazole), fluhexafon, fluopyram, flupiprole (1-[2,6-dichloro-4-(trifluoromethyl)phenyl]-5-[(2-methyl-2-propen-1-yl)amino]-4-[(trifluoromethyl)sulfinyl]-1*H*-pyrazole-3-carbonitrile), flupyradifurone (4-[[(6-chloro-3-pyridinyl)methyl](2,2-difluoroethyl)amino]-2(5*H*)-furanone), fluvalinate, tau-fluvalinate, fonophos, formetanate, fosthiazate, halofenozide, heptafluthrin ([2,3,5,6-tetrafluoro-4-(methoxymethyl)phenyl]methyl 2,2-dimethyl-3-[(1*Z*)-3,3,3-trifluoro-1-propen-1-yl]cyclopropanecarboxylate), hexaflumuron, hexythiazox, hydramethylnon, imidacloprid, indoxacarb, insecticidal soaps, isofenphos, lufenuron, malathion, meperfluthrin ([2,3,5,6-tetrafluoro-4-(methoxymethyl)phenyl]methyl (1*R*,3*S*)-3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate), metaflumizone, metaldehyde, methamidophos, methidathion, methiodicarb, methomyl, methoprene, methoxychlor, metofluthrin, methoxyfenozide, metofluthrin, monocrotophos, monofluorothrin ([2,3,5,6-tetrafluoro-4-(methoxymethyl)phenyl]methyl 3-(2-cyano-1-propen-1-yl)-2,2-dimethylcyclopropanecarboxylate), nicotine, nitenpyram, nithiazine, novaluron, noviflumuron, oxamyl, parathion, parathion-methyl, permethrin, phorate, phosalone, phosmet, phosphamidon, pirimicarb, profenofos, profluthrin, propargite, protrifenbute,

pyflubumide (1,3,5-trimethyl-*N*-(2-methyl-1-oxopropyl)-*N*-[3-(2-methylpropyl)-4-[2,2,2-trifluoro-1-methoxy-1-(trifluoromethyl)ethyl]phenyl]-1*H*-pyrazole-4-carboxamide), pymetrozine, pyrafluprole, pyrethrin, pyridaben, pyridalyl, pyrifluquinazon, pyriminostrobin (methyl (α*E*)-2-[[[2-[(2,4-dichlorophenyl)amino]-6-(trifluoromethyl)-4-pyrimidinyl]oxy]methyl]-α-(methoxymethylene)benzeneacetate), pyriprole, pyriproxyfen, rotenone, ryanodine, silafluofen, spinetoram, spinosad, spirodiclofen, spiromesifen, spirotetramat, sulprofos, sulfoxaflor (*N*-[methyloxido[1-[6-(trifluoromethyl)-3-pyridinyl]ethyl]-λ^4-sulfanylidene]cyanamide), tebufenozide, tebufenpyrad, teflubenzuron, tefluthrin, terbufos, tetrachlorvinphos, tetramethrin, tetramethylfluthrin ([2,3,5,6-tetrafluoro-4-(methoxymethyl)phenyl]methyl 2,2,3,3-tetramethylcyclopropanecarboxylate), tetraniliprole, thiacloprid, thiamethoxam, thiodicarb, thiosultap-sodium, tioxazafen (3-phenyl-5-(2-thienyl)-1,2,4-oxadiazole), tolfenpyrad, tralomethrin, triazamate, trichlorfon, triflumezopyrim (2,4-dioxo-1-(5-pyrimidinylmethyl)-3-[3-(trifluoromethyl)phenyl]-2*H*-pyrido[1,2-*a*]pyrimidinium inner salt), triflumuron, *Bacillus thuringiensis* delta-endotoxins, entomopathogenic bacteria, entomopathogenic viruses and entomopathogenic fungi.

Of note are insecticides such as abamectin, acetamiprid, acrinathrin, afidopyropen, amitraz, avermectin, azadirachtin, benfuracarb, bensultap, bifenthrin, buprofezin, cadusafos, carbaryl, cartap, chlorantraniliprole, chlorfenapyr, chlorpyrifos, clothianidin, cyantraniliprole, cyclaniliprole, cycloprothrin, cyfluthrin, beta-cyfluthrin, cyhalothrin, gamma-cyhalothrin, lambda-cyhalothrin, cypermethrin, alpha-cypermethrin, zeta-cypermethrin, cyromazine, deltamethrin, dieldrin, dinotefuran, diofenolan, emamectin, endosulfan, esfenvalerate, ethiprole, etofenprox, etoxazole, fenitrothion, fenothiocarb, fenoxycarb, fenvalerate, fipronil, flometoquin, flonicamid, flubendiamide, flufenoxuron, flufenoxystrobin, flufensulfone, flupiprole, flupyradifurone, fluvalinate, formetanate, fosthiazate, heptafluthrin, hexaflumuron, hydramethylnon, imidacloprid, indoxacarb, lufenuron, meperfluthrin, metaflumizone, methiodicarb, methomyl, methoprene, methoxyfenozide, metofluthrin, monofluorothrin, nitenpyram, nithiazine, novaluron, oxamyl, pyflubumide, pymetrozine, pyrethrin, pyridaben, pyridalyl, pyriminostrobin, pyriproxyfen, ryanodine, spinetoram, spinosad, spirodiclofen, spiromesifen, spirotetramat, sulfoxaflor, tebufenozide, tetramethrin, tetramethylfluthrin, thiacloprid, thiamethoxam, thiodicarb, thiosultap-sodium, tralomethrin, triazamate, triflumezopyrim, triflumuron, *Bacillus thuringiensis* delta-endotoxins, all strains of *Bacillus thuringiensis* and all strains of nucleo polyhedrosis viruses.

One embodiment of biological agents for mixing with compounds of this invention include entomopathogenic bacteria such as *Bacillus thuringiensis,* and the encapsulated delta-endotoxins of *Bacillus thuringiensis* such as MVP® and MVPII® bioinsecticides

prepared by the CellCap® process (CellCap®, MVP® and MVPII® are trademarks of Mycogen Corporation, Indianapolis, Indiana, USA); entomopathogenic fungi such as green muscardine fungus; and entomopathogenic (both naturally occurring and genetically modified) viruses including baculovirus, nucleopolyhedro virus (NPV) such as *Helicoverpa zea* nucleopolyhedrovirus (HzNPV), *Anagrapha falcifera* nucleopolyhedrovirus (AfNPV); and granulosis virus (GV) such as *Cydia pomonella* granulosis virus (CpGV).

Of particular note is such a combination where the other invertebrate pest control active ingredient belongs to a different chemical class or has a different site of action than the compound of Formula **1**. In certain instances, a combination with at least one other invertebrate pest control active ingredient having a similar spectrum of control but a different site of action will be particularly advantageous for resistance management. Thus, a composition of the present invention can further comprise a biologically effective amount of at least one additional invertebrate pest control active ingredient having a similar spectrum of control but belonging to a different chemical class or having a different site of action. These additional biologically active compounds or agents include, but are not limited to, acetylcholinesterase (AChE) inhibitors such as the carbamates methomyl, oxamyl, thiodicarb, triazamate, and the organophosphates chlorpyrifos; GABA-gated chloride channel antagonists such as the cyclodienes dieldrin and endosulfan, and the phenylpyrazoles ethiprole and fipronil; sodium channel modulators such as the pyrethroids bifenthrin, cyfluthrin, *beta*-cyfluthrin, cyhalothrin, *lambda*-cyhalothrin, cypermethrin, deltamethrin, dimefluthrin, esfenvalerate, metofluthrin and profluthrin; nicotinic acetylcholinereceptor (nAChR) agonists such as the neonicotinoids acetamiprid, clothianidin, dinotefuran, imidacloprid, nitenpyram, nithiazine, thiacloprid, and thiamethoxam, and sulfoxaflor; nicotinic acetylcholine receptor (nAChR) allosteric activators such as the spinosyns spinetoram and spinosad; chloride channel activators such as the avermectins abamectin and emamectin; juvenile hormone mimics such as diofenolan, methoprene, fenoxycarb and pyriproxyfen; selective homopteran feeding blockers such as pymetrozine and flonicamid; mite growth inhibitors such as etoxazole; inhibitors of mitochondrial ATP synthase such as propargite; ucouplers of oxidative phosphorylation via disruption of the proton gradient such as chlorfenapyr; nicotinic acetylcholine receptor (nAChR) channel blockers such as the nereistoxin analogs cartap; inhibitors of chitin biosynthesis such as the benzoylureas flufenoxuron, hexaflumuron, lufenuron, novaluron, noviflumuron and triflumuron, and buprofezin; dipteran moulting disrupters such as cyromazine; ecdysone receptor agonists such as the diacylhydrazines methoxyfenozide and tebufenozide; octopamine receptor agonists such as amitraz; mitochondrial complex III electron transport inhibitors such as hydramethylnon; mitochondrial complex I electron

transport inhibitors such as pyridaben; voltage-dependent sodium channel blockers such as indoxacarb; inhibitors of acetyl CoA carboxylase such as the tetronic and tetramic acids spirodiclofen, spiromesifen and spirotetramat; mitochondrial complex II electron transport inhibitors such as the ß-ketonitriles cyenopyrafen and cyflumetofen; ryanidine receptor modulators such as the anthranilic diamides chlorantraniliprole, cyantraniliprole and cyantraniliprole, diamides such as flubendiamide, and ryanodine receptor ligands such as ryanodine; compounds wherein the target site responsible for biological activity is unknown or uncharacterized such as azadirachtin, bifenazate, pyridalyl, pyrifluquinazon and triflumezopyrim; microbial disrupters of insect midgut membranes such as *Bacillus thuringensis* and the delta-endotoxins they produce and *Bacillus sphaericus*; and biological agents including nucleo polyhedro viruses (NPV) and other naturally occurring or genetically modified insecticidal viruses.

Further examples of biologically active compounds or agents with which compounds of this invention can be formulated are: fungicides such as acibenzolar-S-methyl, aldimorph, ametoctradin, amisulbrom, anilazine, azaconazole, azoxystrobin, benalaxyl (including benalaxyl-M), benodanil, benomyl, benthiavalicarb (including benthiavalicarb-isopropyl), benzovindiflupyr, bethoxazin, binapacryl, biphenyl, bitertanol, bixafen, blasticidin-S, boscalid, bromuconazole, bupirimate, buthiobate, carboxin, carpropamid, captafol, captan, carbendazim, chloroneb, chlorothalonil, chlozolinate, copper hydroxide, copper oxychloride, copper sulfate, coumoxystrobin, cyazofamid, cyflufenamid, cymoxanil, cyproconazole, cyprodinil, dichlofluanid, diclocymet, diclomezine, dicloran, diethofencarb, difenoconazole, diflumetorim, dimethirimol, dimethomorph, dimoxystrobin, diniconazole (including diniconazole-M), dinocap, dithianon, dithiolanes, dodemorph, dodine, econazole, etaconazole, edifenphos, enoxastrobin (also known as enestroburin), epoxiconazole, ethaboxam, ethirimol, etridiazole, famoxadone, fenamidone, fenaminstrobin, fenarimol, fenbuconazole, fenfuram, fenhexamide, fenoxanil, fenpiclonil, fenpropidin, fenpropimorph, fenpyrazamine, fentin acetate, fentin hydroxide, ferbam, ferimzone, flometoquin, fluazinam, fludioxonil, flufenoxystrobin, flumorph, fluopicolide, fluopyram, fluoxastrobin, fluquinconazole, flusilazole, flusulfamide, flutianil, flutolanil, flutriafol, fluxapyroxad, folpet, fthalide (also known as phthalide), fuberidazole, furalaxyl, furametpyr, hexaconazole, hymexazole, guazatine, imazalil, imibenconazole, iminoctadine albesilate, iminoctadine triacetate, iodicarb, ipconazole, isofetamid, iprobenfos, iprodione, iprovalicarb, isoprothiolane, isopyrazam, isotianil, kasugamycin, kresoxim-methyl, mancozeb, mandipropamid, mandestrobin, maneb, mapanipyrin, mepronil, meptyldinocap, metalaxyl (including metalaxyl-M/mefenoxam), metconazole, methasulfocarb, metiram, metominostrobin, metrafenone, myclobutanil, naftitine, neo-asozin (ferric methanearsonate),

nuarimol, octhilinone, ofurace, orysastrobin, oxadixyl, oxathiapiprolin, oxolinic acid, oxpoconazole, oxycarboxin, oxytetracycline, penconazole, pencycuron, penflufen, penthiopyrad, perfurazoate, phosphorous acid (including salts thereof, e.g., fosetyl-aluminm), picoxystrobin, piperalin, polyoxin, probenazole, prochloraz, procymidone, propamocarb, propiconazole, propineb, proquinazid, prothiocarb, prothioconazole, pyraclostrobin, pyrametostrobin, pyraoxystrobin, pyrazophos, pyribencarb, pyributacarb, pyrifenox, pyriofenone, perisoxazole, pyrimethanil, pyrifenox, pyrrolnitrin, pyroquilon, quinconazole, quinmethionate, quinoxyfen, quintozene, silthiofam, sedaxane, simeconazole, spiroxamine, streptomycin, sulfur, tebuconazole, tebufloquin, teclofthalam, tecloftalam, tecnazene, terbinafine, tetraconazole, thiabendazole, thifluzamide, thiophanate, thiophanate-methyl, thiram, tiadinil, tolclofos-methyl, tolprocarb, tolyfluanid, triadimefon, triadimenol, triarimol, triazoxide, tribasic copper sulfate, triclopyricarb, tridemorph, trifloxystrobin, triflumizole, trimoprhamide tricyclazole, trifloxystrobin, triforine, triticonazole, uniconazole, validamycin, valifenalate (also known as valifenal), vinclozolin, zineb, ziram, zoxamide and 1-[4-[4-[5-(2,6-difluorophenyl)-4,5-dihydro-3-isoxazolyl]-2-thiazolyl]-1-piperidinyl]-2-[5-methyl-3-(trifluoromethyl)-1*H*-pyrazol-1-yl]ethanone; nematocides such as fluopyram, spirotetramat, thiodicarb, fosthiazate, abamectin, iprodione, fluensulfone, dimethyl disulfide, tioxazafen, 1,3-dichloropropene (1,3-D), metam (sodium and potassium), dazomet, chloropicrin, fenamiphos, ethoprophos, cadusaphos, terbufos, imicyafos, oxamyl, carbofuran, tioxazafen, *Bacillus firmus* and *Pasteuria nishizawae*; bactericides such as streptomycin; acaricides such as amitraz, chinomethionat, chlorobenzilate, cyhexatin, dicofol, dienochlor, etoxazole, fenazaquin, fenbutatin oxide, fenpropathrin, fenpyroximate, hexythiazox, propargite, pyridaben and tebufenpyrad.

In certain instances, combinations of a compound of this invention with other biologically active (particularly invertebrate pest control) compounds or agents (i.e. active ingredients) can result in a greater-than-additive (i.e. synergistic) effect. Reducing the quantity of active ingredients released in the environment while ensuring effective pest control is always desirable. When synergism of invertebrate pest control active ingredients occurs at application rates giving agronomically satisfactory levels of invertebrate pest control, such combinations can be advantageous for reducing crop production cost and decreasing environmental load.

Compounds of this invention and compositions thereof can be applied to plants genetically transformed to express proteins toxic to invertebrate pests (such as *Bacillus thuringiensis* delta-endotoxins). Such an application may provide a broader spectrum of plant protection and be advantageous for resistance management. The effect of the

exogenously applied invertebrate pest control compounds of this invention may be synergistic with the expressed toxin proteins.

General references for these agricultural protectants (i.e. insecticides, fungicides, nematocides, acaricides, herbicides and biological agents) include *The Pesticide Manual, 13th Edition*, C. D. S. Tomlin, Ed., British Crop Protection Council, Farnham, Surrey, U.K., 2003 and *The BioPesticide Manual*, *2nd Edition*, L. G. Copping, Ed., British Crop Protection Council, Farnham, Surrey, U.K., 2001.

For embodiments where one or more of these various mixing partners are used, the weight ratio of these various mixing partners (in total) to the compound of Formula **1** is typically between about 1:3000 and about 3000:1. Of note are weight ratios between about 1:300 and about 300:1 (for example ratios between about 1:30 and about 30:1). One skilled in the art can easily determine through simple experimentation the biologically effective amounts of active ingredients necessary for the desired spectrum of biological activity. It will be evident that including these additional components can expand the spectrum of invertebrate pests controlled beyond the spectrum controlled by the compound of Formula **1** alone.

Table A lists specific combinations of a compound of Formula **1** with other invertebrate pest control agents illustrative of the mixtures, compositions and methods of the present invention. The first column of Table A lists the specific invertebrate pest control agents (e.g., "Abamectin" in the first line). The second column of Table A lists the mode of action (if known) or chemical class of the invertebrate pest control agents. The third column of Table A lists embodiment(s) of ranges of weight ratios for rates at which the invertebrate pest control agent can be applied relative to a compound of Formula **1** (e.g., "50:1 to 1:50" of abamectin relative to a compound of Formula **1** by weight). Thus, for example, the first line of Table A specifically discloses the combination of a compound of Formula **1** with abamectin can be applied in a weight ratio between 50:1 to 1:50. The remaining lines of Table A are to be construed similarly. Of further note Table A lists specific combinations of a compound of Formula **1** with other invertebrate pest control agents illustrative of the mixtures, compositions and methods of the present invention and includes additional embodiments of weight ratio ranges for application rates.

Table A

Invertebrate Pest Control Agent	Mode of Action or Chemical Class	Typical Weight Ratio
Abamectin	chloride channel activator	50:1 to 1:50
Acetamiprid	nicotinic acetylcholinereceptor (nAChR) agonist	150:1 to 1:200

Invertebrate Pest Control Agent	Mode of Action or Chemical Class	Typical Weight Ratio
Amitraz	octopamine receptor agonists	200:1 to 1:100
Avermectin	macrocyclic lactones	50:1 to 1:50
Azadirachtin	unknown site of action	100:1 to 1:120
Beta-cyfluthrin	sodium channel modulators	150:1 to 1:200
Bifenthrin	sodium channel modulators	100:1 to 1:10
Buprofezin	chitin biosynthesis inhibitors	500:1 to 1:50
Cartap	nicotinic acetylcholine receptor (nAChR) channel blocker	100:1 to 1:200
Chlorantraniliprole	ryanodine receptor modulator	100:1 to 1:120
Chlorfenapyr	uncouplers of oxidative phosphorylation	300:1 to 1:200
Chlorpyrifos	acetylcholinesterase inhibitor	500:1 to 1:200
Clothianidin	nicotinic acetylcholine receptor (nAChR) agonist	100:1 to 1:400
Cyantraniliprole	Ryanodine receptor modulator	100:1 to 1:120
Cyfluthrin	sodium channel modulator	150:1 to 1:200
Cyhalothrin	sodium channel modulator	150:1 to 1:200
Cypermethrin	sodium channel modulator	150:1 to 1:200
Cyromazine	dipteran moulting disrupter	400:1 to 1:50
Deltamethrin	sodium channel modulators	50:1 to 1:400
Dieldrin	GABA-gated chloride channel antagonist	200:1 to 1:100
Dinotefuran	nicotinic acetylcholine receptor (nAChR) agonist	150:1 to 1:200
Diofenolan	juvenile hormone mimic	150:1 to 1:200
Emamectin	chloride channel activator	50:1 to 1:10
Endosulfan	GABA-gated chloride channel antagonist	200:1 to 1:100
Esfenvalerate	sodium channel modulator	100:1 to 1:400
Ethiprole	GABA-regulated chloride channel antagonist	200:1 to 1:100
Fenothiocarb		150:1 to 1:200
Fenoxycarb	juvenile hormone mimic	500:1 to 1:100
Fenvalerate	sodium channel modulator	150:1 to 1:200
Fipronil	GABA-regulated chloride channel antagonist	150:1 to 1:100
Flonicamid	selective homopteran feeding blocker	200:1 to 1:100

Invertebrate Pest Control Agent	Mode of Action or Chemical Class	Typical Weight Ratio
Flubendiamide	ryanodine receptor modulator	100:1 to 1:120
Flufenoxuron	chitin biosynthesis inhibitor	200:1 to 1:100
Hexaflumuron	chitin biosynthesis inhibitor	300:1 to 1:50
Hydramethylnon	mitochondrial Complex III electron transport inhibitors	150:1 to 1:250
Imidacloprid	nicotinic acetylcholine receptor (nAChR) agonist	1000:1 to 1:1000
Indoxacarb	voltage-dependent sodium channel blocker	200:1 to 1:50
Lambda-cyhalothrin	sodium channel modulator	50:1 to 1:250
Lufenuron	chitin biosynthesis inhibitor	500:1 to 1:250
Metaflumizone	voltage-dependent sodium channel blocker	200:1 to 1:200
Methomyl	acetylcholinesterase inhibitor	500:1 to 1:100
Methoprene	juvenile hormone mimic	500:1 to 1:100
Methoxyfenozide	ecdysone receptor agonist	50:1 to 1:50
Nitenpyram	nicotinic acetylcholine receptor (nAChR) agonist	150:1 to 1:200
Nithiazine	nicotinic acetylcholine receptor (nAChR) agonist	150:1 to 1:200
Novaluron	chitin biosynthesis inhibitor	500:1 to 1:150
Oxamyl	acetylcholinesterase inhibitors	200:1 to 1:200
Pymetrozine	selective homopteran feeding blocker	200:1 to 1:100
Pyrethrin	sodium channel modulator	100:1 to 1:10
Pyridaben	mitochondrial Complex I electron transport inhibitor	200:1 to 1:100
Pyridalyl	unknown site of action	200:1 to 1:100
Pyriproxyfen	juvenile hormone mimic	500:1 to 1:100
Ryanodine	ryanodine receptor ligand	100:1 to 1:120
Spinetoram	nicotinic acetylcholine receptor (nAChR) allosteric activator	150:1 to 1:100
Spinosad	nicotinic acetylcholine receptor (nAChR) allosteric activators	500:1 to 1:10
Spirodiclofen	acetyl CoA carboxylase inhibitor	200:1 to 1:200

Invertebrate Pest Control Agent	Mode of Action or Chemical Class	Typical Weight Ratio
Spiromesifen	acetyl CoA carboxylase inhibitor	200:1 to 1:200
Tebufenozide	ecdysone receptor agonist	500:1 to 1:250
Thiacloprid	nicotinic acetylcholine receptor (nAChR) agonist	100:1 to 1:200
Thiamethoxam	nicotinic acetylcholine receptor (nAChR) agonist	1250:1 to 1:1000
Thiodicarb	acetylcholinesterase inhibitors	500:1 to 1:400
Thiosultap-sodium	Nicotinic acetylcholine receptor (nAChR) channel blocker	150:1 to 1:100
Tralomethrin	sodium channel modulator	150:1 to 1:200
Triazamate	acetyl cholinesterase inhibitors	250:1 to 1:100
Triflumezopyrim		
Triflumuron	chitin synthesis inhibitor	200:1 to 1:100
Bacillus thuringiensis	biological agents	50:1 to 1:10
Bacillus thuringiensis delta-endotoxin	biological agents	50:1 to 1:10
NPV (e.g., Gemstar)	biological agents	50:1 to 1:10

Of note is the composition of the present invention wherein the at least one additional biologically active compound or agent is selected from the Invertebrate Pest Control Agents listed in Table A above.

The weight ratios of a compound, including a compound of Formula **1**, an *N*-oxide or a salt thereof, to the additional invertebrate pest control agent typically are between 1000:1 and 1:1000, with one embodiment being between 500:1 and 1:500, another embodiment being between 250:1 and 1:200 and another embodiment being between 100:1 and 1:50.

Listed below in Tables B1 to B10 are embodiments of specific compositions comprising a compound of Formula **1** (compound numbers refer to compounds in Index Tables A-N) and an additional invertebrate pest control agent.

Table B1

Mixture No.	Cmpd. No.	and	Invertebrate Pest Control Agent	Mixture No.	Cmpd. No.	and	Invertebrate Pest Control Agent
B1-1	8	and	Abamectin	B1-38	8	and	Indoxacarb
B1-2	8	and	Acetamiprid	B1-39	8	and	Lambda-cyhalothrin
B1-3	8	and	Amitraz	B1-40	8	and	Lufenuron

Mixture No.	Cmpd. No.	and	Invertebrate Pest Control Agent
B1-4	8	and	Avermectin
B1-5	8	and	Azadirachtin
B1-6	8	and	Bensultap
B1-7	8	and	Beta-cyfluthrin
B1-8	8	and	Bifenthrin
B1-9	8	and	Buprofezin
B1-10	8	and	Cartap
B1-11	8	and	Chlorantraniliprole
B1-12	8	and	Chlorfenapyr
B1-13	8	and	Chlorpyrifos
B1-14	8	and	Clothianidin
B1-15	8	and	Cyantraniliprole
B1-16	8	and	Cyfluthrin
B1-17	8	and	Cyhalothrin
B1-18	8	and	Cypermethrin
B1-19	8	and	Cyromazine
B1-20	8	and	Deltamethrin
B1-21	8	and	Dieldrin
B1-22	8	and	Dinotefuran
B1-23	8	and	Diofenolan
B1-24	8	and	Emamectin
B1-25	8	and	Endosulfan
B1-26	8	and	Esfenvalerate
B1-27	8	and	Ethiprole
B1-28	8	and	Fenothiocarb
B1-29	8	and	Fenoxycarb
B1-30	8	and	Fenvalerate
B1-31	8	and	Fipronil
B1-32	8	and	Flonicamid
B1-33	8	and	Flubendiamide
B1-34	8	and	Flufenoxuron
B1-35	8	and	Hexaflumuron
B1-36	8	and	Hydramethylnon
B1-37	8	and	Imidacloprid

Mixture No.	Cmpd. No.	and	Invertebrate Pest Control Agent
B1-41	8	and	Metaflumizone
B1-42	8	and	Methomyl
B1-43	8	and	Methoprene
B1-44	8	and	Methoxyfenozide
B1-45	8	and	Nitenpyram
B1-46	8	and	Nithiazine
B1-47	8	and	Novaluron
B1-48	8	and	Oxamyl
B1-49	8	and	Phosmet
B1-50	8	and	Pymetrozine
B1-51	8	and	Pyrethrin
B1-52	8	and	Pyridaben
B1-53	8	and	Pyridalyl
B1-54	8	and	Pyriproxyfen
B1-55	8	and	Ryanodine
B1-56	8	and	Spinetoram
B1-57	8	and	Spinosad
B1-58	8	and	Spirodiclofen
B1-59	8	and	Spiromesifen
B1-60	8	and	Spirotetramat
B1-61	8	and	Sulfoxaflor
B1-62	8	and	Tebufenozide
B1-63	8	and	Tefluthrin
B1-64	8	and	Thiacloprid
B1-65	8	and	Thiamethoxam
B1-66	8	and	Thiodicarb
B1-67	8	and	Thiosultap-sodium
B1-68	8	and	Tolfenpyrad
B1-69	8	and	Tralomethrin
B1-70	8	and	Triazamate
B1-71	8	and	Triflumezopyrim
B1-72	8	and	Triflumuron
B1-73	8	and	*Bacillus thuringiensis*
B1-74	8	and	*Bacillus thuringiensis* delta-endotoxin

Mixture No.	Cmpd. No.	and	Invertebrate Pest Control Agent		Mixture No.	Cmpd. No.	and	Invertebrate Pest Control Agent
					B1-75	8	and	NPV (e.g., Gemstar)

Table B2

Table B2 is identical to Table B1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 14. For example, the first mixture in Table B2 is designated B2-1 and is a mixture of compound 14 and the additional invertebrate pest control agent abamectin.

Table B3

Table B3 is identical to Table B1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 16. For example, the first mixture in Table B3 is designated B3-1 and is a mixture of compound 16 and the additional invertebrate pest control agent abamectin.

Table B4

Table B4 is identical to Table B1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 19. For example, the first mixture in Table B4 is designated B4-1 and is a mixture of compound 19 and the additional invertebrate pest control agent abamectin.

Table B5

Table B5 is identical to Table B1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 41. For example, the first mixture in Table B5 is designated B5-1 and is a mixture of compound 41 and the additional invertebrate pest control agent abamectin.

Table B6

Table B6 is identical to Table B1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 42. For example, the first mixture in Table B6 is designated B6-1 and is a mixture of compound 42 and the additional invertebrate pest control agent abamectin.

Table B7

Table B7 is identical to Table B1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 51. For example, the first mixture in Table B7 is designated B7-1 and is a mixture of compound 51 and the additional invertebrate pest control agent abamectin.

Table B8

Table B8 is identical to Table B1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 54. For example, the first mixture in Table B8 is designated B8-1 and is a mixture of compound 54 and the additional invertebrate pest control agent abamectin.

Table B9

Table B9 is identical to Table B1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 55. For example, the first mixture in Table B9 is designated B9-1 and is a mixture of compound 55 and the additional invertebrate pest control agent abamectin.

Table B10

Table B10 is identical to Table B1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 76. For example, the first mixture in Table B10 is designated B10-1 and is a mixture of compound 76 and the additional invertebrate pest control agent abamectin.

The specific mixtures listed in Tables B1 to B10 typically combine a compound of Formula **1** with the other invertebrate pest agent in the ratios specified in Table A.

Listed below in Tables C1 to C10 are specific mixtures comprising a compound of Formula **1** (compound numbers (Cmpd. No.) refer to compounds in Index Tables A-N) and an additional invertebrate pest control agent. Tables C1 to C10 further list specific weight ratios typical of the mixtures of Tables C1 to C10. For example, the first weight ratio entry of the first line of Table C1 specifically discloses the mixture of Compound 8 of Index Table A with abamectin applied in a weight ratio of 100 parts Compound 1 to 1 part abamectin.

Table C1

Mixture No.	Cmpd. No.	and	Invertebrate Pest Control Agent	Typical Mixture Ratios (by weight)								
C1-1	8	and	Abamectin	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-2	8	and	Acetamiprid	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-3	8	and	Amitraz	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-4	8	and	Avermectin	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-5	8	and	Azadirachtin	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-6	8	and	Bensultap	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-7	8	and	Beta-cyfluthrin	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100

C1-8	8	and	Bifenthrin	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-9	8	and	Buprofezin	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-10	8	and	Cartap	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-11	8	and	Chlorantraniliprole	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-12	8	and	Chlorfenapyr	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-13	8	and	Chlorpyrifos	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-14	8	and	Clothianidin	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-15	8	and	Cyantraniliprole	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-16	8	and	Cyfluthrin	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-17	8	and	Cyhalothrin	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-18	8	and	Cypermethrin	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-19	8	and	Cyromazine	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-20	8	and	Deltamethrin	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-21	8	and	Dieldrin	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-22	8	and	Dinotefuran	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-23	8	and	Diofenolan	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-24	8	and	Emamectin	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-25	8	and	Endosulfan	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-26	8	and	Esfenvalerate	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-27	8	and	Ethiprole	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-28	8	and	Fenothiocarb	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-29	8	and	Fenoxycarb	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-30	8	and	Fenvalerate	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-31	8	and	Fipronil	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-32	8	and	Flonicamid	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-33	8	and	Flubendiamide	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-34	8	and	Flufenoxuron	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-35	8	and	Hexaflumuron	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-36	8	and	Hydramethylnon	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-37	8	and	Imidacloprid	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-38	8	and	Indoxacarb	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-39	8	and	Lambda-cyhalothrin	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-40	8	and	Lufenuron	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-41	8	and	Metaflumizone	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100

C1-42	8	and	Methomyl	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-43	8	and	Methoprene	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-44	8	and	Methoxyfenozide	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-45	8	and	Nitenpyram	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-46	8	and	Nithiazine	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-47	8	and	Novaluron	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-48	8	and	Oxamyl	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-49	8	and	Phosmet	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-50	8	and	Pymetrozine	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-51	8	and	Pyrethrin	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-52	8	and	Pyridaben	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-53	8	and	Pyridalyl	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-54	8	and	Pyriproxyfen	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-55	8	and	Ryanodine	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-56	8	and	Spinetoram	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-57	8	and	Spinosad	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-58	8	and	Spirodiclofen	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-59	8	and	Spiromesifen	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-60	8	and	Spirotetramat	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-61	8	and	Sulfoxaflor	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-62	8	and	Tebufenozide	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-63	8	and	Tefluthrin	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-64	8	and	Thiacloprid	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-65	8	and	Thiamethoxam	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-66	8	and	Thiodicarb	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-67	8	and	Thiosultap-sodium	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-68	8	and	Tolfenpyrad	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-69	8	and	Tralomethrin	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-70	8	and	Triazamate	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-71	8	and	Triflumezopyrim	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-72	8	and	Triflumuron	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-73	8	and	*Bacillus thuringiensis*	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100

C1-74	8	and	*Bacillus thuringiensis* delta-endotoxin	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100
C1-75	8	and	NPV (e.g., Gemstar)	100:1	10:1	5:1	2:1	1:1	1:2	1:5	1:10	1:100

Table C2

Table C2 is identical to Table C1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 14. For example, the first weight ratio entry of the first line of Table C2 specifically discloses the mixture of Compound 14 with abamectin applied in a weight ratio of 100 parts Compound 1 to 1 part abamectin.

Table C3

Table C3 is identical to Table C1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 16. For example, the first weight ratio entry of the first line of Table C3 specifically discloses the mixture of Compound 16 with abamectin applied in a weight ratio of 100 parts Compound 1 to 1 part abamectin.

Table C4

Table C4 is identical to Table C1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 19. For example, the first weight ratio entry of the first line of Table C4 specifically discloses the mixture of Compound 19 with abamectin applied in a weight ratio of 100 parts Compound 1 to 1 part abamectin.

Table C5

Table C5 is identical to Table C1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 41. For example, the first weight ratio entry of the first line of Table C5 specifically discloses the mixture of Compound 41 with abamectin applied in a weight ratio of 100 parts Compound 1 to 1 part abamectin.

Table C6

Table C6 is identical to Table C1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 42. For example, the first weight ratio entry of the first line of Table C6 specifically discloses the mixture of

Compound 42 with abamectin applied in a weight ratio of 100 parts Compound 1 to 1 part abamectin.

Table C7

Table C7 is identical to Table C1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 51. For example, the first weight ratio entry of the first line of Table C7 specifically discloses the mixture of Compound 51 with abamectin applied in a weight ratio of 100 parts Compound 1 to 1 part abamectin.

Table C8

Table C8 is identical to Table C1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 54. For example, the first weight ratio entry of the first line of Table C8 specifically discloses the mixture of Compound 54 with abamectin applied in a weight ratio of 100 parts Compound 1 to 1 part abamectin.

Table C9

Table C9 is identical to Table C1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 55. For example, the first weight ratio entry of the first line of Table C9 specifically discloses the mixture of Compound 55 with abamectin applied in a weight ratio of 100 parts Compound 1 to 1 part abamectin.

Table C10

Table C10 is identical to Table C1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 76. For example, the first weight ratio entry of the first line of Table C10 specifically discloses the mixture of Compound 76 with abamectin applied in a weight ratio of 100 parts Compound 1 to 1 part abamectin.

Listed below in Tables D1 to D10 are embodiments of specific compositions comprising a compound of Formula **1** (compound numbers (Cmpd. No.) refer to compounds in Index Tables A-N) and an additional fungicide.

Table D1

Mixture No.	Cmpd. No.	and	Fungicide	Mixture No.	Cmpd. No.	and	Fungicide
D1-1	8	and	Probenazole	D1-17	8	and	Difenoconazole
D1-2	8	and	Tiadinil	D1-18	8	and	Cyproconazole

Mixture No.	Cmpd. No.	and	Fungicide	Mixture No.	Cmpd. No.	and	Fungicide
D1-3	8	and	Isotianil	D1-19	8	and	Propiconazole
D1-4	8	and	Pyroquilon	D1-20	8	and	Fenoxanil
D1-5	8	and	Metominostrobin	D1-21	8	and	Ferimzone
D1-6	8	and	Flutolanil	D1-22	8	and	Fthalide
D1-7	8	and	Validamycin	D1-23	8	and	Kasugamycin
D1-8	8	and	Furametpyr	D1-24	8	and	Picoxystrobin
D1-9	8	and	Pencycuron	D1-25	8	and	Penthiopyrad
D1-10	8	and	Simeconazole	D1-26	8	and	Famoxadone
D1-11	8	and	Orysastrobin	D1-27	8	and	Cymoxanil
D1-12	8	and	Trifloxystrobin	D1-28	8	and	Proquinazid
D1-13	8	and	Isoprothiolane	D1-29	8	and	Flusilazole
D1-14	8	and	Azoxystrobin	D1-30	8	and	Mancozeb
D1-15	8	and	Tricyclazole	D1-31	8	and	Copper hydroxide
D1-16	8	and	Hexaconazole	D1-32	8	and	(a)

(a) 1-[4-[4-[5-(2,6-difluorophenyl)-4,5-dihydro-3-isoxazolyl]-2-thiazolyl]-1-piperidinyl]-2-[5-methyl-3-(trifluoromethyl)-1*H*-pyrazol-1-yl]ethanone

Table D2

Table D2 is identical to Table D1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 14. For example, the first mixture in Table D2 is designated D2-1 and is a mixture of compound 14 and the additional fungicide probenazole.

Table D3

Table D3 is identical to Table D1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 16. For example, the first mixture in Table D3 is designated D3-1 and is a mixture of compound 16 and the additional fungicide probenazole.

Table D4

Table D4 is identical to Table D1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 19. For example, the first mixture in Table D4 is designated D4-1 and is a mixture of compound 19 and the additional fungicide probenazole.

Table D5

Table D5 is identical to Table D1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 41. For example, the first mixture in Table D5 is designated D5-1 and is a mixture of compound 41 and the additional fungicide probenazole.

Table D6

Table D6 is identical to Table D1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 42. For example, the first mixture in Table D6 is designated D6-1 and is a mixture of compound 42 and the additional fungicide probenazole.

Table D7

Table D7 is identical to Table D1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 51. For example, the first mixture in Table D7 is designated D7-1 and is a mixture of compound 51 and the additional fungicide probenazole.

Table D8

Table D8 is identical to Table D1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 54. For example, the first mixture in Table D8 is designated D8-1 and is a mixture of compound 54 and the additional fungicide probenazole.

Table D9

Table D9 is identical to Table D1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 55. For example, the first mixture in Table D9 is designated D9-1 and is a mixture of compound 55 and the additional fungicide probenazole.

Table D10

Table D10 is identical to Table D1, except that each reference to compound 8 in the column headed "Cmpd. No." is replaced by a reference to compound 76. For example, the first mixture in Table D10 is designated D10-1 and is a mixture of compound 76 and the additional fungicide probenazole.

Invertebrate pests are controlled in agronomic and nonagronomic applications by applying one or more compounds of this invention, typically in the form of a composition, in a biologically effective amount, to the environment of the pests, including the agronomic

and/or nonagronomic locus of infestation, to the area to be protected, or directly on the pests to be controlled.

Thus the present invention comprises a method for controlling an invertebrate pest in agronomic and/or nonagronomic applications, comprising contacting the invertebrate pest or its environment with a biologically effective amount of one or more of the compounds of the invention, or with a composition comprising at least one such compound or a composition comprising at least one such compound and a biologically effective amount of at least one additional biologically active compound or agent. Examples of suitable compositions comprising a compound of the invention and a biologically effective amount of at least one additional biologically active compound or agent include granular compositions wherein the additional active compound is present on the same granule as the compound of the invention or on granules separate from those of the compound of the invention.

To achieve contact with a compound or composition of the invention to protect a field crop from invertebrate pests, the compound or composition is typically applied to the seed of the crop before planting, to the foliage (e.g., leaves, stems, flowers, fruits) of crop plants, or to the soil or other growth medium before or after the crop is planted.

One embodiment of a method of contact is by spraying. Alternatively, a granular composition comprising a compound of the invention can be applied to the plant foliage or the soil. Compounds of this invention can also be effectively delivered through plant uptake by contacting the plant with a composition comprising a compound of this invention applied as a soil drench of a liquid formulation, a granular formulation to the soil, a nursery box treatment or a dip of transplants. Of note is a composition of the present invention in the form of a soil drench liquid formulation. Also of note is a method for controlling an invertebrate pest comprising contacting the invertebrate pest or its environment with a biologically effective amount of a compound of the present invention or with a composition comprising a biologically effective amount of a compound of the present invention. Of further note is this method wherein the environment is soil and the composition is applied to the soil as a soil drench formulation. Of further note is that compounds of this invention are also effective by localized application to the locus of infestation. Other methods of contact include application of a compound or a composition of the invention by direct and residual sprays, aerial sprays, gels, seed coatings, microencapsulations, systemic uptake, baits, ear tags, boluses, foggers, fumigants, aerosols, dusts and many others. One embodiment of a method of contact is a dimensionally stable fertilizer granule, stick or tablet comprising a compound or composition of the invention. The compounds of this invention can also be impregnated into materials for fabricating invertebrate control devices (e.g., insect netting).

Compounds of the invention are useful in treating all plants, plant parts and seeds. Plant and seed varieties and cultivars can be obtained by conventional propagation and breeding methods or by genetic engineering methods. Genetically modified plants or seeds (transgenic plants or seeds) are those in which a heterologous gene (transgene) has been stably integrated into the plant's or seed's genome. A transgene that is defined by its particular location in the plant genome is called a transformation or transgenic event.

Genetically modified plant and seed cultivars which can be treated according to the invention include those that are resistant against one or more biotic stresses (pests such as nematodes, insects, mites, fungi, etc.) or abiotic stresses (drought, cold temperature, soil salinity, etc.), or that contain other desirable characteristics. Plants and seeds can be genetically modified to exhibit traits of, for example, herbicide tolerance, insect-resistance, modified oil profiles or drought tolerance. Useful genetically modified plants and seeds containing single gene transformation events or combinations of transformation events are listed in Table Z. Additional information for the genetic modifications listed in Table Z can be obtained from the following databases:

http://www2.oecd.org/biotech/byidentifier.aspx

http://www.aphis.usda.go

http://gmoinfo.jrc.ec.europa.eu

The following abbreviations are used in Table Z which follows: tol. is tolerance, res. is resistance, SU is sulfonylurea, ALS is acetolactate synthase, HPPD is 4-Hydroxyphenylpyruvate Dioxygenase, NA is Not Available?

Table Z

Crop	Event Name	Event Code	Trait(s)	Gene(s)
Alfalfa	J101	MON-00101-8	Glyphosate tol.	cp4 epsps (aroA:CP4)
Alfalfa	J163	MON-ØØ163-7	Glyphosate tol.	cp4 epsps (aroA:CP4)
Canola*	23-18-17 (Event 18)	CGN-89465-2	High lauric acid oil	te
Canola*	23-198 (Event 23)	CGN-89465-2	High lauric acid oil	te
Canola*	61061	DP-Ø61Ø61-7	Glyphosate tol.	gat4621
Canola*	73496	DP-Ø73496-4	Glyphosate tol.	gat4621
Canola*	GT200 (RT200)	MON-89249-2	Glyphosate tol.	cp4 epsps (aroA:CP4); goxv247
Canola*	GT73 (RT73)	MON-ØØØ73-7	Glyphosate tol.	cp4 epsps (aroA:CP4); goxv247
Canola*	HCN10 (Topas 19/2)	NA	Glufosinate tol.	bar
Canola*	HCN28 (T45)	ACS-BNØØ8-2	Glufosinate tol.	pat (syn)
Canola*	HCN92 (Topas 19/2)	ACS-BNØØ7-1	Glufosinate tol.	bar

Canola*	MON88302	MON-883Ø2-9	Glyphosate tol.	cp4 epsps (aroA:CP4)
Canola*	MPS961	NA	Phytate breakdown	phyA
Canola*	MPS962	NA	Phytate breakdown	phyA
Canola*	MPS963	NA	Phytate breakdown	phyA
Canola*	MPS964	NA	Phytate breakdown	phyA
Canola*	MPS965	NA	Phytate breakdown	phyA
Canola*	MS1 (B91-4)	ACS-BNØØ4-7	Glufosinate tol.	bar
Canola*	MS8	ACS-BNØØ5-8	Glufosinate tol.	bar
Canola*	OXY-235	ACS-BNØ11-5	Oxynil tol.	bxn
Canola*	PHY14	NA	Glufosinate tol.	bar
Canola*	PHY23	NA	Glufosinate tol.	bar
Canola*	PHY35	NA	Glufosinate tol.	bar
Canola*	PHY36	NA	Glufosinate tol.	bar
Canola*	RF1 (B93-101)	ACS-BNØØ1-4	Glufosinate tol.	bar
Canola*	RF2 (B94-2)	ACS-BNØØ2-5	Glufosinate tol.	bar
Canola*	RF3	ACS-BNØØ3-6	Glufosinate tol.	bar
Bean	EMBRAPA 5.1	EMB-PV051-1	Disease res.	ac1 (sense and antisense)
Brinjal (Eggplant)	EE-1		Insect res.	cry1Ac
Carnation	11 (7442)	FLO-07442-4	SU tol..; modified flower color	surB; dfr; hfl (f3'5'h)
Carnation	11363 (1363A)	FLO-11363-1	SU tol.; modified flower color	surB; dfr; bp40 (f3'5'h)
Carnation	1226A (11226)	FLO-11226-8	SU tol.; modified flower color	surB; dfr; bp40 (f3'5'h)
Carnation	123.2.2 (40619)	FLO-4Ø619-7	SU tol.; modified flower color	surB; dfr; hfl (f3'5'h)
Carnation	123.2.38 (40644)	FLO-4Ø644-4	SU tol.; modified flower color	surB; dfr; hfl (f3'5'h)
Carnation	123.8.12	FLO-4Ø689-6	SU tol.; modified flower color	surB; dfr; bp40 (f3'5'h)
Carnation	123.8.8 (40685)	FLO-4Ø685-1	SU tol.; modified flower color	surB; dfr; bp40 (f3'5'h)
Carnation	1351A (11351)	FLO-11351-7	SU tol.; modified flower color	surB; dfr; bp40 (f3'5'h)
Carnation	1400A (11400)	FLO-114ØØ-2	SU tol.; modified flower color	surB; dfr; bp40 (f3'5'h)
Carnation	15	FLO-ØØØ15-2	SU tol.; modified flower color	surB; dfr; hfl (f3'5'h)
Carnation	16	FLO-ØØØ16-3	SU tol.; modified flower color	surB; dfr; hfl (f3'5'h)
Carnation	4	FLO-ØØØØ4-9	SU tol.; modified flower color	surB; dfr; hfl (f3'5'h)
Carnation	66	FLO-ØØØ66-8	SU tol.; delayed senescence	surB; acc
Carnation	959A (11959)	FLO-11959-3	SU tol.; modified flower color	surB; dfr; bp40 (f3'5'h)
Carnation	988A (11988)	FLO-11988-7	SU tol.; modified flower color	surB; dfr; bp40 (f3'5'h)

Carnation	26407	IFD-26497-2	SU tol.; modified flower color	surB; dfr; bp40 (f3'5'h)
Carnation	25958	IFD-25958-3	SU tol.; modified flower color	surB; dfr; bp40 (f3'5'h)
Chicory	RM3-3	NA	Glufosinate tol.	bar
Chicory	RM3-4	NA	Glufosinate tol.	bar
Chicory	RM3-6	NA	Glufosinate tol.	bar
Cotton	19-51a	DD-Ø1951A-7	ALS herbicide tol.	S4-HrA
Cotton	281-24-236	DAS-24236-5	Glufosinate tol.; insect res.	pat (syn); cry1F
Cotton	3006-210-23	DAS-21Ø23-5	Glufosinate tol.; insect res.	pat (syn); cry1Ac
Cotton	31707	NA	Oxynil tol.; insect res.	bxn; cry1Ac
Cotton	31803	NA	Oxynil tol.; insect res.	bxn; cry1Ac
Cotton	31807	NA	Oxynil tol.; insect res.	bxn; cry1Ac
Cotton	31808	NA	Oxynil tol.; insect res.	bxn; cry1Ac
Cotton	42317	NA	Oxynil tol.; insect res.	bxn; cry1Ac
Cotton	BNLA-601	NA	Insect res.	cry1Ac
Cotton	BXN10211	BXN10211-9	Oxynil tol.	bxn; cry1Ac
Cotton	BXN10215	BXN10215-4	Oxynil tol.	bxn; cry1Ac
Cotton	BXN10222	BXN10222-2	Oxynil tol.	bxn; cry1Ac
Cotton	BXN10224	BXN10224-4	Oxynil tol.	bxn; cry1Ac
Cotton	COT102	SYN-IR102-7	Insect res.	vip3A(a)
Cotton	COT67B	SYN-IR67B-1	Insect res.	cry1Ab
Cotton	COT202		Insect res.	vip3A
Cotton	Event 1	NA	Insect res.	cry1Ac
Cotton	GMF Cry1A	GTL-GMF311-7	Insect res.	cry1Ab-Ac
Cotton	GHB119	BCS-GH005-8	Insect res.	cry2Ae
Cotton	GHB614	BCS-GH002-5	Glyphosate tol.	2mepsps
Cotton	GK12	NA	Insect res.	cry1Ab-Ac
Cotton	LLCotton25	ACS-GH001-3	Glufosinate tol.	bar
Cotton	MLS 9124	NA	Insect res.	cry1C
Cotton	MON1076	MON-89924-2	Insect res.	cry1Ac
Cotton	MON1445	MON-01445-2	Glyphosate tol.	cp4 epsps (aroA:CP4)
Cotton	MON15985	MON-15985-7	Insect res.	cry1Ac; cry2Ab2
Cotton	MON1698	MON-89383-1	Glyphosate tol.	cp4 epsps (aroA:CP4)
Cotton	MON531	MON-00531-6	Insect res.	cry1Ac
Cotton	MON757	MON-00757-7	Insect res.	cry1Ac
Cotton	MON88913	MON-88913-8	Glyphosate tol.	cp4 epsps (aroA:CP4)
Cotton	Nqwe Chi 6 Bt	NA	Insect res.	NA?
Cotton	SKG321	NA	Insect res.	cry1A; CpTI
Cotton	T303-3	BCS-GH003-6	Insect res.; glufosinate tol.	cry1Ab; bar

Cotton	T304-40	BCS-GH004-7	Insect res.; glufosinate tol.	cry1Ab; bar
Cotton	CE43-67B		Insect res.	cry1Ab
Cotton	CE46-02A		Insect res.	cry1Ab
Cotton	CE44-69D		Insect res.	cry1Ab
Cotton	1143-14A		Insect res.	cry1Ab
Cotton	1143-51B		Insect res.	cry1Ab
Cotton	T342-142		Insect res.	cry1Ab
Cotton	PV-GHGT07 (1445)		Glyphosate tol.	cp4 epsps (aroA:CP4)
Cotton	EE-GH3		Glyphosate tol.	mepsps
Cotton	EE-GH5		Insect res.	cry1Ab
Cotton	MON88701	MON-88701-3	Dicamba & glufosinate tol.	Modified dmo; bar
Cotton	OsCr11		Anti-allergy	Modified Cry j
Creeping Bentgrass	ASR368	SMG-368ØØ-2	Glyphosate tol.	cp4 epsps (aroA:CP4)
Eucalyptus	20-C		Salt tol.	codA
Eucalyptus	12-5C		Salt tol.	codA
Eucalyptus	12-5B		Salt tol.	codA
Eucalyptus	107-1		Salt tol.	codA
Eucalyptus	1/9/2001		Salt tol.	codA
Eucalyptus	2/1/2001		Salt tol.	codA
Eucalyptus			Cold tol.	des9
Flax	FP967	CDC-FL001-2	ALS herbicide tol.	als
Lentil	RH44		Imidazolinone tol.	als
Maize	3272	SYN-E3272-5	Modified alpha-amylase	amy797E
Maize	5307	SYN-05307-1	Insect res.	ecry3.1Ab
Maize	59122	DAS-59122-7	Insect res.; glufosinate tol.	cry34Ab1; cry35Ab1; pat
Maize	676	PH-000676-7	Glufosinate tol.; pollination control	pat; dam
Maize	678	PH-000678-9	Glufosinate tol.; pollination control	pat; dam
Maize	680	PH-000680-2	Glufosinate tol.; pollination control	pat; dam
Maize	98140	DP-098140-6	Glyphosate toll; ALS herbicide tol.	gat4621; zm-hra
Maize	Bt10	NA	Insect res.; glufosinate tol.	cry1Ab; pat
Maize	Bt176 (176)	SYN-EV176-9	Insect res.; glufosinate tol.	cry1Ab; bar
Maize	BVLA430101	NA	Phytate breakdown	phyA2
Maize	CBH-351	ACS-ZM004-3	Insect res.; glufosinate tol.	cry9C; bar
Maize	DAS40278-9	DAS40278-9	2,4-D tol.	aad-1
Maize	DBT418	DKB-89614-9	Insect res.; glufosinate tol.	cry1Ac; pinII; bar
Maize	DLL25 (B16)	DKB-89790-5	Glufosinate tol.	bar

Maize	GA21	MON-00021-9	Glyphosate tol.	mepsps
Maize	GG25		Glyphosate tol.	mepsps
Maize	GJ11		Glyphosate tol.	mepsps
Maize	Fl117		Glyphosate tol.	mepsps
Maize	GAT-ZM1		Glufosinate tol.	pat
Maize	LY038	REN-00038-3	Increased lysine	cordapA
Maize	MIR162	SYN-IR162-4	Insect res.	vip3Aa20
Maize	MIR604	SYN-IR604-5	Insect res.	mcry3A
Maize	MON801 (MON80100)	MON801	Insect res.; glyphosate tol.	cry1Ab; cp4 epsps (aroA:CP4); goxv247
Maize	MON802	MON-80200-7	Insect res.; glyphosate tol.	cry1Ab; cp4 epsps (aroA:CP4); goxv247
Maize	MON809	PH-MON-809-2	Insect res.; glyphosate tol.	cry1Ab; cp4 epsps (aroA:CP4); goxv247
Maize	MON810	MON-00810-6	Insect res.; glyphosate tol.	cry1Ab; cp4 epsps (aroA:CP4); goxv247
Maize	MON832	NA	Glyphosate tol.	cp4 epsps (aroA:CP4); goxv247
Maize	MON863	MON-00863-5	Insect res.	cry3Bb1
Maize	MON87427	MON-87427-7	Glyphosate tol.	cp4 epsps (aroA:CP4)
Maize	MON87460	MON-87460-4	Drought tol.	cspB
Maize	MON88017	MON-88017-3	Insect res.; glyphosate tol.	cry3Bb1; cp4 epsps (aroA:CP4)
Maize	MON89034	MON-89034-3	Insect res.	cry2Ab2; cry1A.105
Maize	MS3	ACS-ZM001-9	Glufosinate tol.; pollination control	bar; barnase
Maize	MS6	ACS-ZM005-4	Glufosinate tol.; pollination control	bar; barnase
Maize	NK603	MON-00603-6	Glyphosate tol.	cp4 epsps (aroA:CP4)
Maize	T14	ACS-ZM002-1	Glufosinate tol.	pat (syn)
Maize	T25	ACS-ZM003-2	Glufosinate tol.	pat (syn)
Maize	TC1507	DAS-01507-1	Insect res.; glufosinate tol.	cry1Fa2; pat
Maize	TC6275	DAS-06275-8	Insect res.; glufosinate tol.	mocry1F; bar
Maize	VIP1034		Insect res.; glufosinate tol.	vip3A; pat
Maize	43A47	DP-043A47-3	Insect res.; glufosinate tol.	cry1F; cry34Ab1; cry35Ab1; pat
Maize	40416	DP-040416-8	Insect res.; glufosinate tol.	cry1F; cry34Ab1; cry35Ab1; pat
Maize	32316	DP-032316-8	Insect res.; glufosinate tol.	cry1F; cry34Ab1; cry35Ab1; pat
Maize	4114	DP-004114-3	Insect res.; glufosinate tol.	cry1F; cry34Ab1; cry35Ab1; pat
Melon	Melon A	NA	Delayed ripening/senescence	sam-k
Melon	Melon B	NA	Delayed ripening/senescence	sam-k
Papaya	55-1	CUH-CP551-8	Disease res.	prsv cp
Papaya	63-1	CUH-CP631-7	Disease res.	prsv cp

Papaya	Huanong No. 1	NA	Disease res.	prsv rep
Papaya	X17-2	UFL-X17CP-6	Disease res.	prsv cp
Petunia	Petunia-CHS	NA	Modified product quality	CHS suppres.sion
Plum	C-5	ARS-PLMC5-6	Disease res.	ppv cp
Canola**	ZSR500	NA	Glyphosate tol.	cp4 epsps (aroA:CP4); goxv247
Canola**	ZSR502	NA	Glyphosate tol.	cp4 epsps (aroA:CP4); goxv247
Canola**	ZSR503	NA	Glyphosate tol.	cp4 epsps (aroA:CP4); goxv247
Poplar	Bt poplar	NA	Insect res.	cry1Ac; API
Poplar	Hybrid poplar clone 741	NA	Insect res.	cry1Ac; API
Poplar	trg300-1		High cellulose	AaXEG2
Poplar	trg300-2		High cellulose	AaXEG2
Potato	1210 amk	NA	Insect res.	cry3A
Potato	2904/1 kgs	NA	Insect res.	cry3A
Canola**	ZSR500	NA	Glyphosate tol.	cp4 epsps (aroA:CP4); goxv247
Canola**	ZSR502	NA	Glyphosate tol.	cp4 epsps (aroA:CP4); goxv247
Potato	ATBT04-27	NMK-89367-8	Insect res.	cry3A
Potato	ATBT04-30	NMK-89613-2	Insect res.	cry3A
Potato	ATBT04-31	NMK-89170-9	Insect res.	cry3A
Potato	ATBT04-36	NMK-89279-1	Insect res.	cry3A
Potato	ATBT04-6	NMK-89761-6	Insect res.	cry3A
Potato	BT06	NMK-89812-3	Insect res.	cry3A
Potato	BT10	NMK-89175-5	Insect res.	cry3A
Potato	BT12	NMK-89601-8	Insect res.	cry3A
Potato	BT16	NMK-89167-6	Insect res.	cry3A
Potato	BT17	NMK-89593-9	Insect res.	cry3A
Potato	BT18	NMK-89906-7	Insect res.	cry3A
Potato	BT23	NMK-89675-1	Insect res.	cry3A
Potato	EH92-527-1	BPS-25271-9	Modified starch/carbohydrate	gbss (antisense)
Potato	HLMT15-15	NA	Insect & disease res.	cry3A; pvy cp
Potato	HLMT15-3	NA	Insect & disease res.	cry3A; pvy cp
Potato	HLMT15-46	NA	Insect & disease res.	cry3A; pvy cp
Potato	RBMT15-101	NMK-89653-6	Insect & disease res.	cry3A; pvy cp
Potato	RBMT21-129	NMK-89684-1	Insect & disease res.	cry3A; plrv orf1; plrv orf2
Potato	RBMT21-152	NA	Insect & disease res.	cry3A; plrv orf1; plrv orf2
Potato	RBMT21-350	NMK-89185-6	Insect & disease res.	cry3A; plrv orf1; plrv orf2
Potato	RBMT22-082	NMK-89896-6	Insect & disease res.;	cry3A; plrv orf1; plrv

			Glyphosate tol.	orf2; cp4 epsps (aroA:CP4)
Potato	RBMT22-186	NA	Insect & disease res.; Glyphosate tol.	cry3A; plrv orf1; plrv orf2; cp4 epsps (aroA:CP4)
Potato	RBMT22-238	NA	Insect & disease res.; Glyphosate tol.	cry3A; plrv orf1; plrv orf2; cp4 epsps (aroA:CP4)
Potato	RBMT22-262	NA	Insect & disease res.; Glyphosate tol.	cry3A; plrv orf1; plrv orf2; cp4 epsps (aroA:CP4)
Potato	SEMT15-02	NMK-89935-9	Insect & disease res.	cry3A; pvy cp
Potato	SEMT15-07	NA	Insect & disease res.	cry3A; pvy cp
Potato	SEMT15-15	NMK-89930-4	Insect & disease res.	cry3A; pvy cp
Potato	SPBT02-5	NMK-89576-1	Insect res.	cry3A
Potato	SPBT02-7	NMK-89724-5	Insect res.	cry3A
Rice	7Crp#242-95-7		Anti-allergy	7crp
Rice	7Crp#10	NA	Anti-allergy	7crp
Rice	GM Shanyou 63	NA	Insect res.	cry1Ab; cry1Ac
Rice	Huahui-1/TT51-1	NA	Insect res.	cry1Ab; cry1Ac
Rice	LLRICE06	ACS-OS001-4	Glufosinate tol.	bar
Rice	LLRICE601	BCS-OS003-7	Glufosinate tol.	bar
Rice	LLRICE62	ACS-OS002-5	Glufosinate tol.	bar
Rice	Tarom molaii + cry1Ab	NA	Insect res.	cry1Ab (truncated)
Rice	GAT-OS2		Glufosinate tol.	bar
Rice	GAT-OS3		Glufosinate tol.	bar
Rice	PE-7		Insect res.	Cry1Ac
Rice	7Crp#10	NA	Anti-allergy	7crp
Rice	KPD627-8		High tryptophan	OASA1D
Rice	KPD722-4		High tryptophan	OASA1D
Rice	KA317		High tryptophan	OASA1D
Rice	HW5		High tryptophan	OASA1D
Rice	HW1		High tryptophan	OASA1D
Rice	B-4-1-18		Erect leaves semidwarf	Δ OsBRI1
Rice	G-3-3-22		Semidwarf	OSGA2ox1
Rice	AD77		Disease res.	DEF
Rice	AD51		Disease res.	DEF
Rice	AD48		Disease res.	DEF
Rice	AD41		Disease res.	DEF
Rice	13pNasNaatAprt1		Low iron tol.	HvNAS1; HvNAAT-A; APRT
Rice	13pAprt1		Low iron tol.	APRT
Rice	gHvNAS1-		Low iron tol.	HvNAS1; HvNAAT-A;

	gHvNAAT-1			HvNAAT-B
Rice	gHvIDS3-1		Low iron tol.	HvIDS3
Rice	gHvNAAT1		Low iron tol.	HvNAAT-A; HvNAAT-B
Rice	gHvNAS1-1		Low iron tol.	HvNAS1
Rice	NIA-OS006-4		Disease res.	WRKY45
Rice	NIA-OS005-3		Disease res.	WRKY45
Rice	NIA-OS004-2		Disease res.	WRKY45
Rice	NIA-OS003-1		Disease res.	WRKY45
Rice	NIA-OS002-9		Disease res.	WRKY45
Rice	NIA-OS001-8		Disease res.	WRKY45
Rice	OsCr11		Anti-allergy	Modified Cry j
Rice	17053		Glyphosate tol.	cp4 epsps (aroA:CP4)
Rice	17314		Glyphosate tol.	cp4 epsps (aroA:CP4)
Rose	WKS82 / 130-4-1	IFD-52401-4	Modified flower color	5AT; bp40 (f3'5'h)
Rose	WKS92 / 130-9-1	IFD-52901-9	Modified flower color	5AT; bp40 (f3'5'h)
Soybean	260-05 (G94-1, G94-19, G168)	NA	Modified oil/fatty acid	gm-fad2-1 (silencing locus)
Soybean	A2704-12	ACS-GM005-3	Glufosinate tol.	pat
Soybean	A2704-21	ACS-GM004-2	Glufosinate tol.	pat
Soybean	A5547-127	ACS-GM006-4	Glufosinate tol.	pat
Soybean	A5547-35	ACS-GM008-6	Glufosinate tol.	pat
Soybean	CV127	BPS-CV127-9	Imidazolinone tol.	csr1-2
Soybean	DAS68416-4	DAS68416-4	Glufosinate tol.	pat
Soybean	DP305423	DP-305423-1	Modified oil/fatty acid; ALS herbicide tol.	gm-fad2-1 (silencing locus); gm-hra
Soybean	DP356043	DP-356043-5	Modified oil/fatty acid; glyphosate tol.	gm-fad2-1 (silencing locus); gat4601
Soybean	FG72	MST-FG072-3	Glyphosate & HPPD tol.	2mepsps; hppdPF W336
Soybean	GTS 40-3-2 (40-3-2)	MON-04032-6	Glyphosate tol.	cp4 epsps (aroA:CP4)
Soybean	GU262	ACS-GM003-1	Glufosinate tol.	pat
Soybean	MON87701	MON-87701-2	Insect res.	cry1Ac
Soybean	MON87705	MON-87705-6	Modified oil/fatty acid; glyphosate tol.	fatb1-A (sense & antisense); fad2-1A (sense & antisense); cp4 epsps (aroA:CP4)
Soybean	MON87708	MON-87708-9	Dicamba & glyphosate tol.	dmo; cp4 epsps (aroA:CP4)
Soybean	MON87769	MON-87769-7	Modified oil/fatty acid; glyphosate tol.	Pj.D6D; Nc.Fad3; cp4 epsps (aroA:CP4)
Soybean	MON89788	MON-89788-1	Glyphosate tol.	cp4 epsps (aroA:CP4)
Soybean	W62	ACS-GM002-9	Glufosinate tol.	bar
Soybean	W98	ACS-GM001-8	Glufosinate tol.	bar

Soybean	MON87754	MON-87754-1	High oil	dgat2A
Soybean	DAS21606	DAS-21606	Aryloxyalkanoate & glufosinate tol.	Modified aad-12; pat
Soybean	DAS44406	DAS-44406-6	Aryloxyalkanoate, glyphosate & glufosinate tol.	Modified aad-12; 2mepsps; pat
Soybean	SYHT04R	SYN-0004R-8	Mesotrione tol.	Modified avhppd
Soybean	9582.814.19.1		Insect res. & glufosinate tol.	cry1Ac, cry1F, PAT
Squash	CZW3	SEM-ØCZW3-2	Disease res.	cmv cp, zymv cp, wmv cp
Squash	ZW20	SEM-0ZW20-7	Disease res.	zymv cp, wmv cp
Sugar Beet	GTSB77 (T9100152)	SY-GTSB77-8	Glyphosate tol.	cp4 epsps (aroA:CP4); goxv247
Sugar Beet	H7-1	KM-000H71-4	Glyphosate tol.	cp4 epsps (aroA:CP4)
Sugar Beet	T120-7	ACS-BV001-3	Glufosinate tol.	pat
Sugar Beet	T227-1		Glyphosate tol.	cp4 epsps (aroA:CP4)
Sugarcane	NXI-1T		Drought tol.	EcbetA
Sunflower	X81359		Imidazolinone tol.	als
Sweet Pepper	PK-SP01	NA	Disease res.	cmv cp
Tobacco	C/F/93/08-02	NA	Oxynil tol.	bxn
Tobacco	Vector 21-41	NA	Reduced nicotine	NtQPT1 (antisense)
Tomato	1345-4	NA	Delayed ripening/senescense	acc (truncated)
Tomato	35-1-N	NA	Delayed ripening/senescense	sam-k
Tomato	5345	NA	Insect res.	cry1Ac
Tomato	8338	CGN-89322-3	Delayed ripening/senescense	accd
Tomato	B	SYN-0000B-6	Delayed ripening/senescense	pg (sense or antisense)
Tomato	Da	SYN-0000DA-9	Delayed ripening/senescense	pg (sense or antisense)
Sunflower	X81359		Imidazolinone tol.	als
Tomato	Da Dong No 9	NA	Modified product	NA
Tomato	F (1401F, h38F, 11013F,7913F)	SYN-0000F-1	Delayed ripening/senescense	pg (sense or antisense)
Tomato	FLAVR SAVR™	CGN-89564-2	Delayed ripening/senescense	pg (sense or antisense)
Tomato	Huafan No 1	NA	Delayed ripening/senescense	anti-efe
Tomato	PK-TM8805R (8805R)	NA	Disease res.	cmv cp
Wheat	MON71800	MON-718ØØ-3	Glyphosate tol.	cp4 epsps (aroA:CP4)

* Argentine, ** Polish, # Eggplant

Treatment of genetically modified plants and seeds with compounds of the invention may result in super-additive or synergistic effects. For example, reduction in application rates, broadening of the activity spectrum, increased tolerance to biotic/abiotic stresses or

enhanced storage stability may be greater than expected from just simple additive effects of the application of compounds of the invention on genetically modified plants and seeds.

Compounds of this invention are also useful in seed treatments for protecting seeds from invertebrate pests. In the context of the present disclosure and claims, treating a seed means contacting the seed with a biologically effective amount of a compound of this invention, which is typically formulated as a composition of the invention. This seed treatment protects the seed from invertebrate soil pests and generally can also protect roots and other plant parts in contact with the soil of the seedling developing from the germinating seed. The seed treatment may also provide protection of foliage by translocation of the compound of this invention or a second active ingredient within the developing plant. Seed treatments can be applied to all types of seeds, including those from which plants genetically transformed to express specialized traits will germinate. Representative examples include those expressing proteins toxic to invertebrate pests, such as *Bacillus thuringiensis* toxin or those expressing herbicide resistance such as glyphosate acetyltransferase, which provides resistance to glyphosate. Seed treatments with compounds of this invention can also increase vigor of plants growing from the seed.

One method of seed treatment is by spraying or dusting the seed with a compound of the invention (i.e. as a formulated composition) before sowing the seeds. Compositions formulated for seed treatment generally comprise a film former or adhesive agent. Therefore typically a seed coating composition of the present invention comprises a biologically effective amount of a compound of Formula **1**, an *N*-oxide or salt thereof, and a film former or adhesive agent. Seed can be coated by spraying a flowable suspension concentrate directly into a tumbling bed of seeds and then drying the seeds. Alternatively, other formulation types such as wetted powders, solutions, suspoemulsions, emulsifiable concentrates and emulsions in water can be sprayed on the seed. This process is particularly useful for applying film coatings on seeds. Various coating machines and processes are available to one skilled in the art. Suitable processes include those listed in P. Kosters et al., *Seed Treatment: Progress and Prospects*, 1994 BCPC Mongraph No. 57, and references listed therein.

Compounds of Formula **1** and their compositions, both alone and in combination with other insecticides, nematicides, and fungicides, are particularly useful in seed treatment for crops including, but not limited to, maize or corn, soybeans, cotton, cereal (e.g., wheat, oats, barley, rye and rice), potatoes, vegetables and oilseed rape.

Other insecticides with which compounds of Formula **1** can be formulated to provide mixtures useful in seed treatment include abamectin, acetamiprid, acrinathrin, amitraz, avermectin, azadirachtin, bensultap, bifenthrin, buprofezin, cadusafos, carbaryl, carbofuran,

cartap, chlorantraniliprole, chlorfenapyr, chlorpyrifos, clothianidin, cyantraniliprole, cyfluthrin, beta-cyfluthrin, cyhalothrin, gamma-cyhalothrin, lambda-cyhalothrin, cypermethrin, alpha-cypermethrin, zeta-cypermethrin, cyromazine, deltamethrin, dieldrin, dinotefuran, diofenolan, emamectin, endosulfan, esfenvalerate, ethiprole, etofenprox, etoxazole, fenothiocarb, fenoxycarb, fenvalerate, fipronil, flonicamid, flubendiamide, flufenoxuron, fluvalinate, formetanate, fosthiazate, hexaflumuron, hydramethylnon, imidacloprid, indoxacarb, lufenuron, metaflumizone, methiocarb, methomyl, methoprene, methoxyfenozide, nitenpyram, nithiazine, novaluron, oxamyl, pymetrozine, pyrethrin, pyridaben, pyridalyl, pyriproxyfen, ryanodine, spinetoram, spinosad, spirodiclofen, spiromesifen, spirotetramat, sulfoxaflor, tebufenozide, tetramethrin, thiacloprid, thiamethoxam, thiodicarb, thiosultap-sodium, tralomethrin, triazamate, triflumuron, *Bacillus thuringiensis* delta-endotoxins, all strains of *Bacillus thuringiensis* and all strains of nucleo polyhedrosis viruses.

Fungicides with which compounds of Formula **1** can be formulated to provide mixtures useful in seed treatment include amisulbrom, azoxystrobin, boscalid, carbendazim, carboxin, cymoxanil, cyproconazole, difenoconazole, dimethomorph, fluazinam, fludioxonil, fluquinconazole, fluopicolide, fluoxastrobin, flutriafol, fluxapyroxad, ipconazole, iprodione, metalaxyl, mefenoxam, metconazole, myclobutanil, paclobutrazole, penflufen, picoxystrobin, prothioconazole, pyraclostrobin, sedaxane, silthiofam, tebuconazole, thiabendazole, thiophanate-methyl, thiram, trifloxystrobin and triticonazole.

Compositions comprising compounds of Formula **1** useful for seed treatment can further comprise bacteria and fungi that have the ability to provide protection from the harmful effects of plant pathogenic fungi or bacteria and/or soil born animals such as nematodes. Bacteria exhibiting nematicidal properties may include but are not limited to *Bacillus firmus*, *Bacillus cereus*, *Bacillius subtiliis* and *Pasteuria penetrans*. A suitable *Bacillus firmus* strain is strain CNCM I-1582 (GB-126) which is commercially available as BioNem^{TM}. A suitable *Bacillus cereus* strain is strain NCMM I-1592. Both *Bacillus* strains are disclosed in US 6,406,690. Other suitable bacteria exhibiting nematicidal activity are *B. amyloliquefaciens* IN937a and *B. subtilis* strain GB03. Bacteria exhibiting fungicidal properties may include but are not limited to *B. pumilus* strain GB34. Fungal species exhibiting nematicidal properties may include but are not limited to *Myrothecium verrucaria*, *Paecilomyces lilacinus* and *Purpureocillium lilacinum*.

Seed treatments can also include one or more nematicidal agents of natural origin such as the elicitor protein called harpin which is isolated from certain bacterial plant pathogens such as *Erwinia amylovora*. An example is the Harpin-N-Tek seed treatment technology available as N-Hibit^{TM} Gold CST.

Seed treatments can also include one or more species of legume-root nodulating bacteria such as the microsymbiotic nitrogen-fixing bacteria *Bradyrhizobium japonicum*. These inocculants can optionally include one or more lipo-chitooligosaccharides (LCOs), which are nodulation (Nod) factors produced by rhizobia bacteria during the initiation of nodule formation on the roots of legumes. For example, the Optimize® brand seed treatment technology incorporates LCO Promoter Technology™ in combination with an inocculant.

Seed treatments can also include one or more isoflavones which can increase the level of root colonization by mycorrhizal fungi. Mycorrhizal fungi improve plant growth by enhancing the root uptake of nutrients such as water, sulfates, nitrates, phosphates and metals. Examples of isoflavones include, but are not limited to, genistein, biochanin A, formononetin, daidzein, glycitein, hesperetin, naringenin and pratensein. Formononetin is available as an active ingredient in mycorrhizal inocculant products such as PHC Colonize® AG.

Seed treatments can also include one or more plant activators that induce systemic acquired resistance in plants following contact by a pathogen. An example of a plant activator which induces such protective mechanisms is acibenzolar-*S*-methyl.

The treated seed typically comprises a compound of the present invention in an amount from about 0.1 g to 1 kg per 100 kg of seed (i.e. from about 0.0001 to 1% by weight of the seed before treatment). A flowable suspension formulated for seed treatment typically comprises from about 0.5 to about 70% of the active ingredient, from about 0.5 to about 30% of a film-forming adhesive, from about 0.5 to about 20% of a dispersing agent, from 0 to about 5% of a thickener, from 0 to about 5% of a pigment and/or dye, from 0 to about 2% of an antifoaming agent, from 0 to about 1% of a preservative, and from 0 to about 75% of a volatile liquid diluent.

The compounds of this invention can be incorporated into a bait composition that is consumed by an invertebrate pest or used within a device such as a trap, bait station, and the like. Such a bait composition can be in the form of granules which comprise (a) active ingredients, namely a biologically effective amount of a compound of Formula **1**, an *N*-oxide, or salt thereof; (b) one or more food materials; optionally (c) an attractant, and optionally (d) one or more humectants. Of note are granules or bait compositions which comprise between about 0.001-5% active ingredients, about 40-99% food material and/or attractant; and optionally about 0.05-10% humectants, which are effective in controlling soil invertebrate pests at very low application rates, particularly at doses of active ingredient that are lethal by ingestion rather than by direct contact. Some food materials can function both as a food source and an attractant. Food materials include carbohydrates, proteins and lipids.

Examples of food materials are vegetable flour, sugar, starches, animal fat, vegetable oil, yeast extracts and milk solids. Examples of attractants are odorants and flavorants, such as fruit or plant extracts, perfume, or other animal or plant component, pheromones or other agents known to attract a target invertebrate pest. Examples of humectants, i.e. moisture retaining agents, are glycols and other polyols, glycerine and sorbitol. Of note is a bait composition (and a method utilizing such a bait composition) used to control at least one invertebrate pest selected from the group consisting of ants, termites and cockroaches. A device for controlling an invertebrate pest can comprise the present bait composition and a housing adapted to receive the bait composition, wherein the housing has at least one opening sized to permit the invertebrate pest to pass through the opening so the invertebrate pest can gain access to the bait composition from a location outside the housing, and wherein the housing is further adapted to be placed in or near a locus of potential or known activity for the invertebrate pest.

One embodiment of the present invention relates to a method for controlling invertebrate pests, comprising diluting the pesticidal composition of the present invention (a compound of Formula **1** formulated with surfactants, solid diluents and liquid diluents or a formulated mixture of a compound of Formula **1** and at least one other pesticide) with water, and optionally adding an adjuvant to form a diluted composition, and contacting the invertebrate pest or its environment with an effective amount of said diluted composition.

Although a spray composition formed by diluting with water a sufficient concentration of the present pesticidal composition can provide sufficient efficacy for controlling invertebrate pests, separately formulated adjuvant products can also be added to spray tank mixtures. These additional adjuvants are commonly known as “spray adjuvants” or “tank-mix adjuvants”, and include any substance mixed in a spray tank to improve the performance of a pesticide or alter the physical properties of the spray mixture. Adjuvants can be surfactants, emulsifying agents, petroleum-based crop oils, crop-derived seed oils, acidifiers, buffers, thickeners or defoaming agents. Adjuvants are used to enhancing efficacy (e.g., biological availability, adhesion, penetration, uniformity of coverage and durability of protection), or minimizing or eliminating spray application problems associated with incompatibility, foaming, drift, evaporation, volatilization and degradation. To obtain optimal performance, adjuvants are selected with regard to the properties of the active ingredient, formulation and target (e.g., crops, insect pests).

Among the spray adjuvants, oils including crop oils, crop oil concentrates, vegetable oil concentrates and methylated seed oil concentrates are most commonly used to improve the efficacy of pesticides, possibly by means of promoting more even and uniform spray deposits. In situations where phytotoxicity potentially caused by oils or other water-

immiscible liquids are of concern, spray compositions prepared from the composition of the present invention will generally not contain oil-based spray adjuvants. However, in situations where phytotoxicity caused by oil-based spray adjuvants is commercially insignificant, spray compositions prepared from the composition of the present composition can also contain oil-based spray adjuvants, which can potentially further increase control of invertebrate pests, as well as rainfastness.

Products identified as "crop oil" typically contain 95 to 98% paraffin or naphtha-based petroleum oil and 1 to 2% of one or more surfactants functioning as emulsifiers. Products identified as "crop oil concentrates" typically consist of 80 to 85% of emulsifiable petroleum-based oil and 15 to 20% of nonionic surfactants. Products correctly identified as "vegetable oil concentrates" typically consist of 80 to 85% of vegetable oil (i.e. seed or fruit oil, most commonly from cotton, linseed, soybean or sunflower) and 15 to 20% of nonionic surfactants. Adjuvant performance can be improved by replacing the vegetable oil with methyl esters of fatty acids that are typically derived from vegetable oils. Examples of methylated seed oil concentrates include MSO® Concentrate (UAP-Loveland Products, Inc.) and Premium MSO Methylated Spray Oil (Helena Chemical Company).

The amount of adjuvants added to spray mixtures generally does not exceed about 2.5% by volume, and more typically the amount is from about 0.1 to about 1% by volume. The application rates of adjuvants added to spray mixtures are typically between about 1 to 5 L per hectare. Representative examples of spray adjuvants include: Adigor® (Syngenta) 47% methylated rapeseed oil in liquid hydrocarbons, Silwet® (Helena Chemical Company) polyalkyleneoxide modified heptamethyltrisiloxane and Assist® (BASF) 17% surfactant blend in 83% paraffin based mineral oil.

The compounds of this invention can be applied without other adjuvants, but most often application will be of a formulation comprising one or more active ingredients with suitable carriers, diluents, and surfactants and possibly in combination with a food depending on the contemplated end use. One method of application involves spraying a water dispersion or refined oil solution of a compound of the present invention. Combinations with spray oils, spray oil concentrations, spreader stickers, adjuvants, other solvents, and synergists such as piperonyl butoxide often enhance compound efficacy. For nonagronomic uses such sprays can be applied from spray containers such as a can, a bottle or other container, either by means of a pump or by releasing it from a pressurized container, e.g., a pressurized aerosol spray can. Such spray compositions can take various forms, for example, sprays, mists, foams, fumes or fog. Such spray compositions thus can further comprise propellants, foaming agents, etc. as the case may be. Of note is a spray composition comprising a biologically effective amount of a compound or a composition of

the present invention and a carrier. One embodiment of such a spray composition comprises a biologically effective amount of a compound or a composition of the present invention and a propellant. Representative propellants include, but are not limited to, methane, ethane, propane, butane, isobutane, butene, pentane, isopentane, neopentane, pentene, hydrofluorocarbons, chlorofluorocarbons, dimethyl ether, and mixtures of the foregoing. Of note is a spray composition (and a method utilizing such a spray composition dispensed from a spray container) used to control at least one invertebrate pest selected from the group consisting of mosquitoes, black flies, stable flies, deer flies, horse flies, wasps, yellow jackets, hornets, ticks, spiders, ants, gnats, and the like, including individually or in combinations.

BIOLOGICAL EXAMPLES OF THE INVENTION

The following Tests demonstrate the control efficacy of compounds of this invention on specific pests. "Control efficacy" represents inhibition of invertebrate pest development (including mortality) that causes significantly reduced feeding. The pest control protection afforded by the compounds is not limited, however, to these species. See Index Tables A–N for compound descriptions.

Formulation and Spray Methodology for Tests A-F

Test compounds were formulated using a solution containing 10% acetone, 90% water and 300 ppm X-77® Spreader Lo-Foam Formula non-ionic surfactant containing alkylarylpolyoxyethylene, free fatty acids, glycols and isopropanol (Loveland Industries, Inc. Greeley, Colorado, USA). The formulated compounds were applied in 1 mL of liquid through a SUJ2 atomizer nozzle with 1/8 JJ custom body (Spraying Systems Co. Wheaton, Illinois, USA) positioned 1.27 cm (0.5 inches) above the top of each test unit. Test compounds were sprayed at the rates indicated, and each test was replicated three times.

Test A

For evaluating control of diamondback moth (*Plutella xylostella* (L.)) the test unit consisted of a small open container with a 12–14-day-old mustard plant inside. This was pre-infested with ~50 neonate larvae that were dispensed into the test unit via corn cob grits using an inoculator. The larvae moved onto the test plant after being dispensed into the test unit.

Test compounds were formulated and sprayed at 250 and/or 50 ppm. After spraying of the formulated test compound, each test unit was allowed to dry for 1 hour and then a black, screened cap was placed on top. The test units were held for 6 days in a growth chamber at

25 °C and 70% relative humidity. Plant feeding damage was then visually assessed based on foliage consumed, and larvae were assessed for mortality.

Of the compounds of Formula **1** tested at 250 ppm, the following provided very good to excellent levels of control efficacy (40% or less feeding damage and/or 100% mortality): 309, 501, 502, 344, 431, 466, 609, 658, 673, 720, 734, 735, 750, 819, 820, 822, 824, 844 and 859.

Of the compounds of Formula **1** tested at 50 ppm, the following provided very good to excellent levels of control efficacy (40% or less feeding damage and/or 100% mortality): 735 and 824.

Test B

For evaluating control of potato leafhopper (*Empoasca fabae* (Harris)) through contact and/or systemic means, the test unit consisted of a small open container with a 5–6-day-old Soleil bean plant (primary leaves emerged) inside. White sand was added to the top of the soil, and one of the primary leaves was excised prior to application of the test compound.

Test compounds were formulated and sprayed at 250 and/or 50 ppm. After spraying of the formulated test compound, the test units were allowed to dry for 1 hour before they were post-infested with 5 potato leafhoppers (18-to-21-day-old adults). A black, screened cap was placed on the top of the test unit, and the test units were held for 6 days in a growth chamber at 24 °C and 70% relative humidity. Each test unit was then visually assessed for insect mortality.

Of the compounds of Formula **1** tested at 250 ppm, the following resulted in at least 80% mortality: 21, 130, 131, 133, 300, 301, 309, 366, 367, 368, 370, 375, 380, 382, 386, 387, 388, 409, 466, 636, 646, 648, 664, 685, 802, 824, 827, 836, 837, 842, 843, 855 and 859.

Of the compounds of Formula **1** tested at 50 ppm, the following resulted in at least 80% mortality: 301, 309, 375, 380, 382, 386, 387, 388, 648, 836, 837, 842, 843 and 855.

Test C

For evaluating control of green peach aphid (*Myzus persicae* (Sulzer)) through contact and/or systemic means, the test unit consisted of a small open container with a 12–15-day-old radish plant inside. This was pre-infested by placing on a leaf of the test plant 30–40 aphids on a piece of leaf excised from a culture plant (cut-leaf method). The aphids moved onto the test plant as the leaf piece desiccated. After pre-infestation, the soil of the test unit was covered with a layer of sand.

Test compounds were formulated and sprayed at 250 and/or 50 ppm. After spraying of the formulated test compound, each test unit was allowed to dry for 1 hour and then a black, screened cap was placed on top. The test units were held for 6 days in a growth chamber at

19–21 °C and 50–70% relative humidity. Each test unit was then visually assessed for insect mortality.

Of the compounds of Formula **1** tested at 250 ppm, the following resulted in at least 80% mortality: 1, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 24, 25, 26, 27, 28, 34, 35, 36, 37, 39, 41, 42, 44, 46, 49, 51, 52, 53, 54, 55, 56, 57, 58, 60, 61, 62, 63, 64, 66, 67, 68, 69, 70, 72, 73, 74, 75, 76, 78, 79, 81, 84, 85, 86, 92, 96, 97, 98, 100, 102, 106, 111, 114, 117, 118, 121, 122, 124, 125, 131, 132, 133, 160, 161, 162, 163, 173, 300, 301, 308, 309, 320, 321, 322, 323, 324, 326, 329, 330, 331, 332, 333, 334, 335, 336, 338, 340, 341, 342, 343, 344, 345, 346, 348, 350, 351, 352, 353, 354, 363, 364, 366, 370, 372, 374, 375, 376, 377, 378, 380, 381, 382, 387, 388, 393, 400, 401, 402, 403, 404, 409, 410, 411, 412, 413, 415, 416, 419, 439, 440, 442, 443, 444, 445, 446, 447, 448, 449, 455, 456, 462, 463, 464, 500, 501, 502, 503, 600, 601, 603, 604, 605, 606, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 621, 623, 624, 626, 627, 628, 629, 630, 631, 636, 637, 638, 639, 640, 641, 642, 643, 645, 647, 648, 658, 667, 720, 721, 722, 723, 724, 726, 727, 729, 731, 732, 733, 734, 735, 736, 738, 746, 747, 748, 764, 765, 815, 819, 824, 826, 827, 828, 830, 831, 832, 833, 836, 837, 838, 839, 840, 841, 843, 844, 845, 848, 849, 850, 852, 855, 856, 857 and 858.

Of the compounds of Formula **1** tested at 50 ppm, the following resulted in at least 80% mortality: 6, 7, 8, 10, 11, 12, 13, 14, 16, 17, 18, 19, 21, 24, 25, 26, 27, 28, 34, 35, 36, 37, 39, 41, 42, 46, 49, 51, 52, 53, 54, 55, 56, 57, 58, 60, 62, 63, 64, 66, 67, 68, 69, 73, 75, 76, 78, 81, 84, 85, 86, 96, 121, 122, 124, 125, 131, 132, 133, 160, 161, 162, 163, 300, 308, 309, 320, 322, 323, 324, 325, 326, 329, 330, 331, 332, 333, 334, 335, 336, 338, 340, 342, 343, 344, 345, 346, 348, 350, 351, 352, 353, 354, 366, 374, 375, 376, 378, 380, 382, 387, 388, 401, 402, 403, 404, 409, 410, 411, 412, 413, 415, 419, 440, 443, 444, 445, 446, 447, 448, 455, 462, 463, 464, 500, 501, 502, 503, 600, 601, 604, 605, 606, 608, 609, 613, 614, 615, 616, 617, 619, 623, 626, 629, 630, 631, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 652, 654, 655, 656, 658, 659, 660, 661, 669, 683, 684, 685, 686, 695, 696, 720, 722, 723, 724, 726, 731, 732, 735, 736, 738, 744, 746, 747, 748, 758, 759, 764, 765, 766, 767, 771, 775, 780, 800, 801, 802, 803, 804, 805, 806, 807, 808, 815, 818, 819, 821, 823, 825, 826, 827, 828, 830, 831, 832, 833, 836, 837, 839, 840, 841, 843, 844, 845, 848, 849, 850, 852, 855, 856, 857, 858, 863, 864 and 865.

Test D

For evaluating control of cotton melon aphid (*Aphis gossypii* (Glover)) through contact and/or systemic means, the test unit consisted of a small open container with a 6–7-day-old cotton plant inside. This was pre-infested with 30–40 insects on a piece of leaf according to the cut-leaf method, and the soil of the test unit was covered with a layer of sand.

Test compounds were formulated and sprayed at 250 and/or 50 ppm. After spraying, the test units were maintained in a growth chamber for 6 days at 19 °C and 70% relative humidity. Each test unit was then visually assessed for insect mortality.

Of the compounds of Formula **1** tested at 250 ppm, the following resulted in at least 80% mortality: 6, 7, 8, 11, 12, 14, 16, 19, 21, 24, 25, 37, 39, 40, 41, 51, 52, 54, 55, 58, 62, 63, 64, 66, 67, 68, 69, 70, 79, 96, 131, 133, 160, 161, 309, 323, 336, 342, 345, 348, 350, 351, 353, 366, 401, 403, 412, 419, 440, 444, 447, 455, 462, 464, 500, 501, 503, 600, 605, 606, 608, 609, 612, 613, 614, 615, 616, 617, 618, 621, 623, 631, 636, 638, 639, 645, 667, 721, 724, 727, 728, 734, 735, 746, 765, 815, 819, 824, 831, 833, 836, 839, 840, 841, 844, 848, 850 and 858.

Of the compounds of Formula **1** tested at 50 ppm, the following resulted in at least 80% mortality: 6, 8, 14, 16, 19, 21, 24, 39, 41, 42, 51, 52, 54, 55, 58, 67, 76, 131, 133, 323, 348, 351, 401, 403, 601, 605, 606, 608, 609, 613, 614, 615, 616, 617, 623, 631, 636, 644, 645, 647, 649, 654, 655, 656, 657, 658, 683, 684, 685, 686, 695, 721, 724, 735, 736, 737, 738, 765, 775, 804, 818, 819, 821, 825, 826, 833, 839, 840, 841, 844, 855, 858 and 865.

Test E

For evaluating control of the Western Flower Thrips (*Frankliniellla occidentalis* (Pergande)) through contact and/or systemic means, the test unit consisted of a small open container with a 5–7-day-old Soleil bean plant inside.

Test compounds were formulated and sprayed at 250 and/or 50 ppm. After spraying, the test units were allowed to dry for 1 hour, and then 22–27 adult thrips were added to each unit. A black, screened cap was placed on top, and the test units were held for 6 days at 25 °C and 45–55% relative humidity.

Of the compounds of Formula **1** tested at 250 ppm, the following provided very good to excellent levels of control efficacy (30% or less plant damage and/or 100% mortality): 13, 64, 68, 70, 72, 131, 132, 133, 314, 340, 348, 367, 409, 410, 415, 464, 504, 601, 604, 609, 612, 613, 615, 616, 617, 618, 619, 620, 622, 623, 624, 625, 631, 636, 637, 638, 720, 721, 722, 733, 778, 819, 828, 833, 836, 837, 838, 839, 840, 841, 843, 844, 845, 849, 850 and 855.

Of the compounds of Formula **1** tested at 50 ppm, the following provided very good to excellent levels of control efficacy (30% or less plant damage and/or 100% mortality): 615, 616, 646, 655, 657, 669, 685, 686, 695, 696, 769, 774, 776, 780, 836, 839, 855 and 865.

Test F

For evaluating control of the sweetpotato whitefly (*Bemisia tabaci* (Gennadius)) through contact and/or systemic means, the test unit consisted of a small open container with a 12–14-day-old cotton plant inside. Prior to the spray application, both cotyledons were removed from the plant, leaving one true leaf for the assay. Adult whiteflies were allowed to

lay eggs on the plant and then were removed from the test unit. Cotton plants infested with at least 15 eggs were submitted to the test for spraying.

Test compounds were formulated and sprayed at 250 and/or 50 ppm. After spraying, the test units were allowed to dry for 1 hour. The cylinders were then removed, and the units were taken to a growth chamber and held for 13 days at 28 °C and 50–70% relative humidity. Each test unit was then visually assessed for insect mortality.

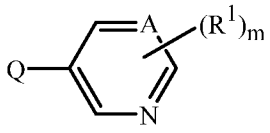
Of the compounds of Formula **1** tested at 250 ppm, the following resulted in at least 50% mortality: 8, 42, 58, 63, 64, 68, 72, 321, 324, 326, 330, 334, 339, 340, 348, 349, 360, 366, 368, 402, 403, 412, 456, 463, 606, 610, 636, 639, 726, 809, 824, 833, 836, 837, 839, 840, 841, 843, 844, 845, 849, 850, 852, 855, 856, 857

Of the compounds of Formula **1** tested at 50 ppm, the following resulted in at least 50% mortality: 326, 648, 818, 824, 833, 836, 837, 839, 843, 849, 850 and 855.

CLAIMS

What is claimed is:

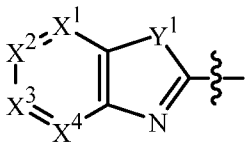
1. A compound selected from Formula **1**, an *N*-oxide or salt thereof,



1

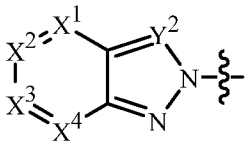
wherein

Q is



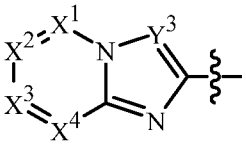
Q-1

,



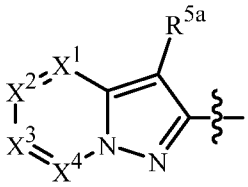
Q-2

,



Q-3

or



Q-4

;

A is CH, CR^1 or N;

each R^1 is independently halogen, cyano, nitro, C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy, C_1–C_4 haloalkoxy, C_1–C_4 alkylthio or C_1–C_4 haloalkylthio;

m is 0, 1, 2 or 3;

X^1, X^2, X^3 and X^4 are each independently CR^2, CR^3 or N, provided that (i) one of X^1, X^2, X^3 and X^4 is CR^2, and (ii) no more than one of X^1, X^2, X^3 and X^4 is N;

R^2 is $C(=Z)NR^6R^7$, $N(R^8)C(=Z)R^9$, $C(=NR^{10})R^{11}$ or Q^a;

each Z is independently O or S;

each R^3 is independently H, halogen, cyano, nitro, C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy or C_1–C_4 haloalkoxy;

Y^1 is O, S or NR^4;

Y^2 is N or CR^{5a};

Y^3 is N or CR^{5b};

R^4 is H or C_1–C_4 alkyl;

R^{5a} is H, halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy or C_1–C_4 haloalkoxy;

R^{5b} is H, halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy or C_1–C_4 haloalkoxy;

R^6 is H, $NR^{15}R^{16}$, OR^{17}, $C(=NR^{10})R^{11}$, $C(O)OR^{21}$, $C(O)NR^{15}R^{16}$, $C(O)R^{22}$, $S(O)_nR^{23}$ or Q^b; or C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_2–C_6 alkenyl or C_2–C_6 alkynyl, each unsubstituted or substituted with at least one R^x;

R^7 is H or Q^b; or C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_2–C_6 alkenyl or C_2–C_6 alkynyl, each unsubstituted or substituted with at least one R^x; or

R^6 and R^7 are taken together with the nitrogen atom to which they are attached to form a 3- to 10-membered ring containing ring members selected from carbon atoms and up to 2 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 2 nitrogen atoms, wherein up to 2 carbon atom ring members are independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, said ring being unsubstituted or substituted with up to 4 R^x; or

R^6 and R^7 are taken together as $=S(O)_pR^{18}R^{19}$ or $=S(=NR^{20})R^{18}R^{19}$;

each R^x is independently halogen, cyano, nitro, hydroxy, C_1–C_6 alkyl, C_1–C_6 haloalkyl, C_3–C_6 cycloalkyl, C_1–C_6 alkoxy, C_1–C_6 haloalkoxy, C_3–C_6 cycloalkoxy, $C(=NR^{10})R^{11}$, $C(O)OR^{21}$, $C(O)NR^{15}R^{16}$, $OC(O)R^{22}$, $NR^{25}R^{26}$, $NR^{24}C(O)R^{22}$, $C(O)R^{22}$, $S(O)_nR^{23}$, $Si(R^{28})_3$, $OSi(R^{28})_3$ or Q^b;

R^8 is H, $C(O)OR^{21}$, $C(O)NR^{15}R^{16}$, $C(O)R^{22}$, $S(O)_nR^{23}$ or Q^b; or C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_2–C_6 alkenyl or C_2–C_6 alkynyl, each unsubstituted or substituted with at least one R^x;

R^9 is H, $C(=NR^{10})R^{11}$, OR^{21} or $NR^{15}R^{16}$; or C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_2–C_6 alkenyl or C_2–C_6 alkynyl, each unsubstituted or substituted with at least one R^x; or phenyl, phenoxy or a 5- or 6-membered heterocyclic aromatic ring, each unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy; or a 3- to 6-membered heterocyclic non-aromatic ring, each ring containing ring members selected from carbon atoms and up to 3 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 2 nitrogen atoms, wherein up to 1 carbon atom ring member is independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, each ring being unsubstituted or substituted with at least one substituent independently selected

from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{10} is independently OR^{12}, $S(O)_nR^{13}$ or NHR^{14};

each R^{11} is independently H; or C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_2–C_6 alkenyl or C_2–C_6 alkynyl, each unsubstituted or substituted with at least one R^x; or C_1–C_6 alkoxy, C_1–C_6 haloalkoxy, C_3–C_6 cycloalkoxy, $C(O)OR^{21}$, $C(O)NR^{15}R^{16}$, $NR^{25}R^{26}$, $NR^{24}C(O)R^{22}$, $C(O)R^{22}$ or Q^b;

each R^{12} is independently C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, $C(O)R^{22}$, $S(O)_nR^{13}$ or Q^b;

each R^{13} is independently C_1–C_4 alkyl or C_1–C_4 haloalkyl;

R^{14} is C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, $C(O)R^{22}$ or $C(O)OR^{21}$; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{15} is independently H, C_1–C_6 alkyl, C_1–C_4 haloalkyl, $C(O)R^{27}$ or $S(O)_2R^{27}$; or phenyl or a 5- or 6-membered heterocyclic aromatic ring, each unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{16} is independently H, C_1–C_6 alkyl or C_1–C_4 haloalkyl; or

R^{15} and R^{16} are taken together with the nitrogen atom to which they are attached to form a 3- to 7-membered ring containing ring members selected from carbon atoms and up to 2 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 2 nitrogen atoms, wherein up to 2 carbon atom ring members are independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, said ring being unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

R^{17} is C_1–C_4 alkyl, C_3–C_6 cycloalkyl or C_1–C_4 haloalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{18} is independently C_1–C_4 alkyl or C_1–C_4 haloalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group

consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{19} is independently C_1–C_4 alkyl or C_1–C_4 haloalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy; or

R^{18} and R^{19} are taken together with the sulfur atom to which they are attached to form a ring;

R^{20} is H, cyano, C_1–C_4 alkyl, C_1–C_4 haloalkyl or $C(O)R^{22}$; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{21} is independently C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_3–C_6 cycloalkyl or C_3–C_6 halocycloalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{22} is independently C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_3–C_6 cycloalkyl or C_3–C_6 halocycloalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{23} is independently C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_3–C_6 cycloalkyl, C_3–C_6 halocycloalkyl, C_3–C_6 cycloalkylalkyl or C_3–C_6 halocycloalkylalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{24} is independently C_1–C_4 alkyl;

each R^{25} is independently H, C_1–C_4 alkyl or C_1–C_4 haloalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{26} is independently C_1–C_4 alkyl or C_1–C_4 haloalkyl; or phenyl, unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy; or

R^{25} and R^{26} are independently taken together with the nitrogen atom to which they are attached to form a 3- to 7-membered ring containing ring members selected from carbon atoms and up to 2 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 2 nitrogen atoms, wherein up to 2 carbon atom ring members are independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, said ring being unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{27} is independently C_1–C_6 alkyl, C_1–C_6 haloalkyl, C_1–C_6 alkoxy, C_1–C_6 haloalkoxy or $NR^{29}R^{30}$; or phenyl or a 5- or 6-membered heterocyclic aromatic ring, each unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{28} is independently C_1–C_6 alkyl, C_3–C_6 cycloalkyl or phenyl;

each R^{29} is independently H or Q^b; or C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_2–C_6 alkenyl or C_2–C_6 alkynyl, each unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each R^{30} is independently H or Q^b; or C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_2–C_6 alkenyl or C_2–C_6 alkynyl, each unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy; or

R^{29} and R^{30} are taken together with the nitrogen atom to which they are attached to form a 3- to 10-membered ring containing ring members selected from carbon atoms and up to 2 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 2 nitrogen atoms, wherein up to 2 carbon atom ring members are independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, said ring being unsubstituted or substituted with up to 4 substituents independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

Q^a is a 5- to 10-membered aromatic ring or ring system, each ring or ring system containing ring members selected from carbon atoms and up to 3 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 3

nitrogen atoms, wherein up to 2 carbon atom ring members are independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, each ring or ring system being unsubstituted or substituted with at least one R^x; or a 3- to 6-membered partially saturated ring, each ring containing ring members selected from carbon atoms and up to 2 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 2 nitrogen atoms, wherein up to 2 carbon atom ring members are independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, each ring unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each Q^b is independently phenyl, a 5- or 6-membered heterocyclic aromatic ring or a 3- to 6-membered heterocyclic non-aromatic ring, each ring containing ring members selected from carbon atoms and up to 2 heteroatoms independently selected from one oxygen atom, one sulfur atom, and up to 2 nitrogen atoms, wherein up to 2 carbon atom ring members are independently selected from C(=O) and C(=S) and the sulfur atom ring member is selected from S, S(O) or $S(O)_2$, each ring unsubstituted or substituted with at least one substituent independently selected from the group consisting of halogen, cyano, nitro, C_1–C_4 alkyl, C_3–C_6 cycloalkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy and C_1–C_4 haloalkoxy;

each n is independently 0, 1 or 2; and

p is 1 or 2.

2. The compound of Claim 1 wherein

X^1 is CR^2, and X^2, X^3 and X^4 are each independently CR^3; or X^2 is CR^2, and X^1, X^3 and X^4 are each independently CR^3.

3. The compound of Claim 2 wherein

Q is Q-1 or Q-2.

4. The compound of Claim 3 wherein

Q is Q-1; and

Y^1 is O or S.

5. The compound of Claim 3 wherein

Q is Q-2; and

Y^2 is CR^{5a}.

6. The compound of any one of Claims 2 through 5 wherein
A is CH or CF; and
m is 0.

7. The compound of Claim 1 that is selected from the group consisting of:
N-(1-methylethyl)-2-(3-pyridinyl)-2*H*-indazole-4-carboxamide;
N-cyclopropyl-2-(3-pyridinyl)-2*H*-indazole-4-carboxamide;
N-cyclohexyl-2-(3-pyridinyl)-2*H*-indazole-4-carboxamide;
2-(3-pyridinyl)-*N*-(2,2,2-trifluoroethyl)-2*H*-indazole-4-carboxamide;
2-(3-pyridinyl)-*N*-[(tetrahydro-2-furanyl)methyl]-2*H*-indazole-5-carboxamide;
methyl 2-[[2-(3-pyridinyl)-2*H*-indazol-5-yl]carbonyl]hydrazinecarboxylate;
N-[(2,2-difluorocyclopropyl)methyl]-2-(3-pyridinyl)-2*H*-indazole-5-carboxamide;
N-(2,2-difluoropropyl)-2-(3-pyridinyl)-2*H*-indazole-5-carboxamide;
2-(3-pyridinyl)-*N*-(2-pyrimidinylmethyl)-2*H*-indazole-5-carboxamide; and
N-[(5-methyl-2-pyrazinyl)methyl]-2-(3-pyridinyl)-2*H*-indazole-5-carboxamide.

8. A composition comprising a compound of Claim 1 and at least one additional component selected from the group consisting of surfactants, solid diluents and liquid diluents, said composition optionally further comprising at least one additional biologically active compound or agent.

9. The composition of Claim 8 wherein the at least one additional biologically active compound or agent is selected from the group consisting of abamectin, acephate, acequinocyl, acetamiprid, acrinathrin, afidopyropen, amidoflumet, amitraz, avermectin, azadirachtin, azinphos-methyl, benfuracarb, bensultap, bifenthrin, bifenazate, bistrifluron, borate, , buprofezin, carbaryl, carbofuran, cartap, carzol, chlorantraniliprole, chlorfenapyr, chlorfluazuron, chlorpyrifos, chlorpyrifos-methyl, chromafenozide, clofentezin, clothianidin, cyantraniliprole, cyclaniliprole, cycloprothrin, cycloxaprid, cyflumetofen, cyfluthrin, beta-cyfluthrin, cyhalothrin, gamma-cyhalothrin, lambda-cyhalothrin, cypermethrin, alpha-cypermethrin, zeta-cypermethrin, cyromazine, deltamethrin, diafenthiuron, diazinon, dieldrin, diflubenzuron, dimefluthrin, dimehypo, dimethoate, dinotefuran, diofenolan, emamectin, endosulfan, esfenvalerate, ethiprole, etofenprox, etoxazole, fenbutatin oxide, fenitrothion, fenothiocarb, fenoxycarb, fenpropathrin, fenvalerate, fipronil, flometoquin, flonicamid, flubendiamide, flucythrinate, flufenerim, flufenoxuron, flufenoxystrobin, flufensulfone, fluorpyram, flupiprole, flupyradifurone, fluvalinate, tau-fluvalinate, fonophos, formetanate, fosthiazate, halofenozide, heptafluthrin, hexaflumuron, hexythiazox, hydramethylnon, imidacloprid, indoxacarb, insecticidal soaps, isofenphos, lufenuron, malathion, meperfluthrin, metaflumizone, metaldehyde, methamidophos, methidathion,

methiodicarb, methomyl, methoprene, methoxychlor, metofluthrin, monocrotophos, monofluthrin, methoxyfenozide, nitenpyram, nithiazine, novaluron, noviflumuron, oxamyl, parathion, parathion-methyl, permethrin, phorate, phosalone, phosmet, phosphamidon, pirimicarb, profenofos, profluthrin, propargite, protrifenbute, pyflubumide, pymetrozine, pyrafluprole, pyrethrin, pyridaben, pyridalyl, pyrifluquinazon, pyriminostrobin, pyriprole, pyriproxyfen, rotenone, ryanodine, silafluofen, spinetoram, spinosad, spirodiclofen, spiromesifen, spirotetramat, sulprofos, sulfoxaflor, tebufenozide, tebufenpyrad, teflubenzuron, tefluthrin, terbufos, tetrachlorvinphos, tetramethrin, tetramethylfluthrin, thiacloprid, thiamethoxam, thiodicarb, thiosultap-sodium, tolfenpyrad, tralomethrin, triazamate, trichlorfon, triflumuron, all strains of *Bacillus thuringiensis*, entomopathogenic bacteria, all strains of *Nucleo polyhedrosis* viruses, entomopathogenic viruses and entomopathogenic fungi.

10. The composition of Claim 9 wherein the at least one additional biologically active compound or agent is selected from the group consisting of abamectin, acetamiprid, acrinathrin, afidopyropen, amitraz, avermectin, azadirachtin, benfuracarb, bensultap, bifenthrin, 3-bromo-1-(3-chloro-2-pyridinyl)-*N*-[4-cyano-2-methyl-6-[(methylamino)carbonyl]phenyl]-1*H*-pyrazole-5-carboxamide, buprofezin, carbaryl, cartap, chlorantraniliprole, chlorfenapyr, chlorpyrifos, clothianidin, cyantraniliprole, cyclaniliprole, cycloprothrin, cyfluthrin, beta-cyfluthrin, cyhalothrin, lambda-cyhalothrin, gamma-cyhalothrin, cypermethrin, alpha-cypermethrin, zeta-cypermethrin, cyromazine, deltamethrin, dieldrin, dinotefuran, diofenolan, emamectin, endosulfan, esfenvalerate, ethiprole, etofenprox, etoxazole, fenitrothion, fenothiocarb, fenoxycarb, fenvalerate, fipronil, flometoquin, flonicamid, flubendiamide, flufenoxuron, flufenoxystrobin, flufensulfone, flupiprole, flupyradifurone, fluvalinate, formetanate, fosthiazate, heptafluthrin, hexaflumuron, hydramethylnon, imidacloprid, indoxacarb, lufenuron, meperfluthirn, metaflumizone, methiodicarb, methomyl, methoprene, methoxyfenozide, metofluthrin, monofluthrin, nitenpyram, nithiazine, novaluron, oxamyl, pyflubumide, pymetrozine, pyrethrin, pyridaben, pyridalyl, pyriminostrobin, pyriproxyfen, ryanodine, spinetoram, spinosad, spirodiclofen, spiromesifen, spirotetramat, sulfoxaflor, tebufenozide, tetramethrin, thiacloprid, thiamethoxam, thiodicarb, thiosultap-sodium, tralomethrin, tetramethylfluthrin, triazamate, triflumuron, all strains of *Bacillus thuringiensis* and all strains of *Nucleo polyhedrosis* viruses.

11. A method for controlling an invertebrate pest comprising contacting the invertebrate pest or its environment with a biologically effective amount of a compound of Claim 1.

12. The method of Claim 11 wherein the environment is a plant.

13. The method of Claim 11 wherein the environment is an animal.

14. The method of Claim 11 wherein the environment is a seed.

15. The method of Claim 14 wherein the seed is coated with the compound of Claim 1 formulated as a composition comprising a film former or adhesive agent.

16. A treated seed comprising a compound of Claim 1 in an amount of from about 0.0001 to 1 % by weight of the seed before treatment.

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2015/019924

A. CLASSIFICATION OF SUBJECT MATTER

INV. C07D401/14 C07D413/14 C07D401/04 C07D403/04 C07D403/14
C07D407/14 C07D413/04 C07D417/04 C07D417/14 C07D471/04
C07D513/04 A01N43/40 A01N43/52 A01N43/56

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)

C07D A01N

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, WPI Data, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	WO 2015/038503 A1 (DU PONT [US]) 19 March 2015 (2015-03-19) examples	1-16
X	WO 2013/043521 A1 (MERCK SHARP & DOHME [US]; BENNETT D JONATHAN [US]; CAI JAIQIANG [GB];) 28 March 2013 (2013-03-28) example 37	1,2,6,8
X	WO 2007/139240 A1 (KOREA RES INST CHEM TECH [KR]; NO ZAE SUNG [KR]; JEON DONG JU [KR]; SO) 6 December 2007 (2007-12-06) examples 60, 61, 64, 66	1,2,6,8

-/--

[X] Further documents are listed in the continuation of Box C.

[X] 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
15 October 2015	23/10/2015

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Fazzi, Raffaella

1

Form PCT/ISA/210 (second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2015/019924

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CHO SUNG YUN ET AL: "Design and synthesis of novel 3-(benzo[d]oxazol-2-yl)-5-(1-(piperidin-4-yl)-1H-pyrazol-4-yl)pyridin-2-amine derivatives as selective G-protein-coupled receptor kinase-2 and -5 inhibitors", BIOORGANIC & MEDICINAL CHEMISTRY LETTERS, vol. 23, no. 24, 30 October 2013 (2013-10-30), pages 6711-6716, XP028788034, ISSN: 0960-894X, DOI: 10.1016/J.BMCL.2013.10.036 example 15	1-4,6

X	WO 2014/149207 A2 (DOW AGROSCIENCES LLC [US]) 25 September 2014 (2014-09-25) examples	1-16

X	HISANO TAKUZO ET AL: "Synthesis of benzoaxazoles, benzothiazoles and benzimidazoles and evaluation of their antifungal, insecticidal and herbicidal activities", CHEMICAL AND PHARMACEUTICAL BULLETIN, PHARMACEUTICAL SOCIETY OF JAPAN, JP, vol. 30, 1982, pages 2996-3004, XP002170422, ISSN: 0009-2363 examples	1-16

1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2015/019924

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2015038503 A1	19-03-2015	UY 35737 A	30-04-2015
		WO 2015038503 A1	19-03-2015
WO 2013043521 A1	28-03-2013	EP 2757884 A1	30-07-2014
		US 2014288094 A1	25-09-2014
		WO 2013043521 A1	28-03-2013
WO 2007139240 A1	06-12-2007	NONE	
WO 2014149207 A2	25-09-2014	NONE	