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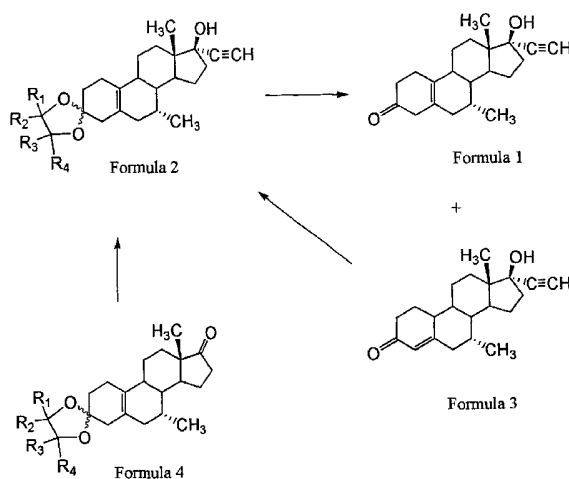
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(54) Title: PROCESS AND INTERMEDIATES TO PREPARE 17.BETA.-HYDROXY-7.ALFA.-METHYL-19-NOR-17.ALFA.-
PREGN-5(10)-EN-20-YN-3-ONE



(57) Abstract: The present invention is a process for the preparation of 17 β -hydroxy-7 α -methyl-19-nor-17 α -pregn-5(10)-en-20-yn-3-one (17 α -ethynyl-17 β -hydroxy-7 α -methyl-5(10)-estren-3-one, tibolone) of formula 1, which comprises hydrolysis of 17 α -ethynyl-17 β -hydroxy-7 α -methyl-5(10)-estrene 3,3-cyclic ketals of formula 2, where groups R₁, R₂, R₃ and R₄ are hydrogen atoms or alkyl groups, or R₁ and R₃, taken together with the carbon atoms within the dioxolane ring to which they are attached, form an alicyclic ring fused to the dioxolane ring, with R₂ and R₄ being hydrogen atoms, or R₁ and R₃ together with the carbon atoms to which they are attached form an aromatic ring fused to the dioxolane ring, where R₂ and R₄, taken together, form a chemical bond within said aromatic ring. In addition, the present invention includes an intermediate, compound of formula 2 and two processes to prepare 17 α -ethynyl-17(3-hydroxy-7 α -methyl-5(10)-estrene 3,3-cyclic ketals of formula 2: (a) by contacting 17 α -ethynyl-17 β -hydroxy-7 α -methyl-4-estren-3-one with vicinal diols in the presence of a protic acid, and (b) by contacting 7 α -methyl-5(10)-estrene-17-one 3,3-cyclic ketals of formula 4, where R₁-R₄ are defined as above, with metal acetylides, in inert solvents.



KZ, LC, LT, LU, LV, MD, MK, MX, NO, NZ, PT, RO, RU, SE, SG, SK, SY, TJ, TM, TR, UA, UZ, YU, ZA, Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR)

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Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DINUNNO, CECIL M. ET AL: "7.alpha.-Methylnorethindrone enanthate 10.beta.-hydroperoxide: isolation and characterization" STEROIDS (1983), 42(4), 401-8 , XP009027390 page 404, line 10-21 compound III page 406, paragraphs 2,3 --- -/--	17-20

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HOYTE, ROBERT M. ET AL: "7.alpha.-Methyl-17.alpha.-(E-2'-125I!iodo vinyl)-19-nortestosterone: a new radioligand for the detection of androgen receptor" STEROIDS, vol. 58, no. 1, 1993, pages 13-23, XP009027391	17-20
Y	page 15, column 1, paragraph 1; figure 1	1-8, 12-16, 21-23
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Y	column 2, line 65 -column 3, line 13; example 3	1-8, 12-16, 21-23
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Information on patent family members

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