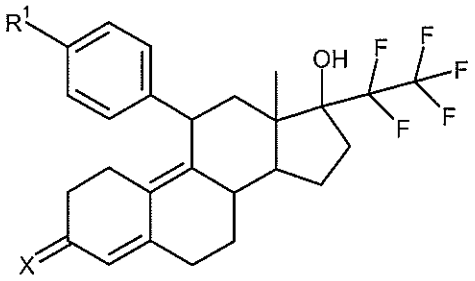
Patent claims

1. Compound of formula I



I,

in which

R^1 stands either for a residue Y or for a phenyl ring substituted once or twice with a residue Y,

Y is selected from the group comprising SR^2, $S(O)R^3$, $S(O)_2R^3$, $S(O)(NH)R^3$, $S(O)(NR^4)R^3$, $S(O)_2NR^9R^{10}$,

R^2 stands for hydrogen, C_1-C_6-alkyl, C_7-C_{10}-aralkyl or aryl,

R^3 stands for C_1-C_6-alkyl or aryl,

R^4 stands for a group $S(O)_2R^6$,

R^6 stands for phenyl or 4-methylphenyl

X denotes an oxygen atom, NOR^7 or $NNHSO_2R^7$,

R^7 is selected from the group comprising hydrogen, C_1-C_{10}-alkyl, aryl

R^9, R^{10} independently of one another are selected from the group comprising hydrogen, C_1-C_{10}-alkyl or aryl or alternatively represent, together with the nitrogen atom, a 3- to 8-membered, saturated or unsaturated heterocyclic ring

and their separate stereoisomers, their salts, solvates or solvates of the salts, including all crystal modifications.

2. Compound according to Claim 1, in which

R^1 stands either for a residue Y or for a phenyl ring substituted once with a residue Y,

Y is selected from the group comprising SR^2, $S(O)R^3$, $S(O)_2R^3$, $S(O)(NH)R^3$, $S(O)(NR^4)R^3$, $S(O)_2NR^9R^{10}$ and

R^2 stands for hydrogen, C_1-C_6-alkyl or S-CH_2-phenyl,

R^3 stands for C_1-C_6-alkyl and

X represents an oxygen atom,

R^6 represents phenyl or 4-methylphenyl and

R^9, R^{10} independently of one another represent hydrogen or C_1-C_6-alkyl or phenyl

and their separate stereoisomers, their salts, solvates or solvates of the salts.

3. Compound according to Claim 1, in which R^1 represents $S(O)_2R^3$ and X represents O.

4. Compound according to Claim 3, in which R^3 represents C_1-C_6-alkyl.

5. Compound according to Claim 4, in which R^3 represents methyl.

6. Compound according to Claim 1, in which R^1 represents $S(O)(NH)R^3$ and X represents O and the separate stereoisomers thereof.

7. Compound according to Claim 6, in which R^3 represents C_1-C_6-alkyl and the separate stereoisomers thereof.

8. Compound according to Claim 7, in which R^3 represents methyl and the separate stereoisomers thereof.

9. Compound according to Claim 1, in which R^1 represents SOR^3 and X represents O and the separate stereoisomers thereof.

10. Compound according to Claim 9, in which R^3 represents C_1-C_6-alkyl and the separate stereoisomers thereof.

11. Compound according to Claim 10, in which R^3 represents methyl and the separate stereoisomers thereof.

12. Compound according to Claim 1, in which R^1 represents SR^2 and X represents O.

13. Compound according to Claim 12, in which R^2 represents hydrogen.

14. Compound according to Claim 12, in which R^2 represents C_1-C_6-alkyl.

15. Compound according to Claim 14, in which R^2 represents methyl.

16. Compound according to Claim 12, in which R^2 represents aryl.

17. Compound according to Claim 16, in which R^2 represents phenyl.

18. Compound according to Claim 12, in which R^2 represents C_7-C_{10}-aralkyl.

19. Compound according to Claim 18, in which R^2 represents benzyl.

20. Compounds according to Claim 2, in which R^2 represents methyl, ethyl or hydrogen.

21. Compounds according to Claim 1, in which R^3 represents C_1-C_6-alkyl.

22. Compounds according to Claim 4, in which R^3 represents methyl or ethyl.

23. Compounds according to Claim 1, in which R^5 represents phenyl.

24. Compounds according to Claim 6, in which n=1.

25. Compounds according to Claim 1, in which X is an oxygen atom.

26. Compounds according to Claim 1, in which Y stands for SR^2 or $S(O)_2R^3$ or $S(O)(NH)R^3$ with R^2 equal to hydrogen, methyl or ethyl and R^3 equal to methyl or ethyl.

27. Compounds according to Claim 1, in which Y stands for $S(O)_2R^3$.

28. Compounds according to Claim 1

(11β,17β)-11-[4-(ethylsulphanyl)phenyl]-17-hydroxy-17-(pentafluoroethyl)estra-4,9-dien-3-one;

(11β,17β)-17-hydroxy-11-{4-[(RS)-methylsulphinyl]phenyl}-17-(pentafluoroethyl)estra-4,9-dien-3-one;
(11β,17β)-17-hydroxy-11-[4-(methylsulphonyl)phenyl]-17-(pentafluoroethyl)estra-4,9-dien-3-one;
(11β,17β)-11-[4-(ethylsulphonyl)phenyl]-17-hydroxy-17-(pentafluoroethyl)estra-4,9-dien-3-one;
(11β,17β)-11-[4-(benzylsulphanyl)phenyl]-17-hydroxy-17-(pentafluoroethyl)estra-4,9-dien-3-one;
N-[{4-[(11β,17β)-17-hydroxy-3-oxo-17-(pentafluoroethyl)estra-4,9-dien-11-yl]phenyl}(RS)(methyl) oxido-λ^6-sulphanylidene]-4-methylbenzene sulphonamide;
(11β,17β)-17-hydroxy-11-[4-(RS-methylsulphonimidoyl)phenyl]-17-(pentafluoroethyl)estra-4,9-dien-3-one;
(11β,17β)-17-hydroxy-11-[4'-(methylsulphanyl)biphenyl-4-yl]-17-(pentafluoroethyl)estra-4,9-dien-3-one;
(11β,17β)-17-hydroxy-11-[4'-(methylsulphonyl)biphenyl-4-yl]-17-(pentafluoroethyl)estra-4,9-dien-3-one;
N-[{4'-[(11β,17β)-17-hydroxy-3-oxo-17-(pentafluoroethyl)estra-4,9-dien-11-yl]biphenyl-4-yl}(RS)(methyl) oxido-λ^6-sulphanylidene]-4-methylbenzene sulphonamide;
(11β,17β)-17-hydroxy-11-[4'-(RS-methylsulphonimidoyl)biphenyl-4-yl]-17-(pentafluoroethyl)estra-4,9-dien-3-one;
(11β,17β)-17-hydroxy-17-(pentafluoroethyl)-11-(4'-sulphanylbiphenyl-4-yl)estra-4,9-dien-3-one;
4'-[(11β,17β))-17-hydroxy-3-oxo-17-(pentafluoroethyl)estra-4,9-dien-11-yl]-N,N-dimethylbiphenyl-4-sulphonamide;
4-[(11β,17β)-17-hydroxy-3-oxo-17-(pentafluoroethyl)estra-4,9-dien-11-yl]-N,N-dimethylbenzene sulphonamide

29. Compound according to one of the preceding claims, for use in the treatment and prophylaxis of diseases.

30. Compound according to one of Claims 1-28, for use in the treatment and prophylaxis of fibroids of the uterus, endometriosis, heavy menstrual bleeds, meningiomas, hormone-dependent breast cancers and complaints associated with the menopause or for fertility control and emergency contraception.

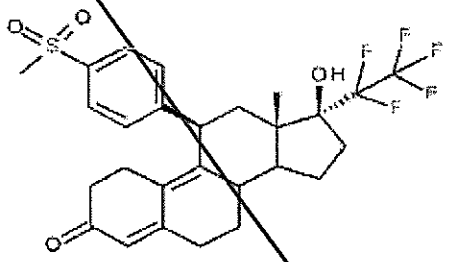
31. Use of a compound according to one of Claims 1-28, for the production of a medicinal product for the treatment and/or prophylaxis of fibroids of the uterus, endometriosis, heavy menstrual bleeds, meningiomas, hormone-dependent breast cancers and complaints associated with the menopause or for fertility control and emergency contraception.

32. Medicinal product containing a compound as defined in one of Claims 1-28, in combination with another active substance.

33. Medicinal product containing a compound as defined in one of Claims 1-28, in combination with an inert, non-toxic, pharmaceutically suitable excipient.

34. Medicinal product according to Claim 32 or 33 for the treatment and/or prophylaxis of fibroids of the uterus, endometriosis, heavy menstrual bleeds, meningiomas, hormone-dependent breast cancers and complaints associated with the menopause or for fertility control and emergency contraception.

35. Compound according to claim 1 (11β,17β)-17-hydroxy-11-[4-(methylsulphanyl)phenyl]-17-(pentafluoroethyl)estra-4,9-dien-3-one of the formula



and a pharmaceutical acceptable salt thereof.

36. A pharmaceutical composition comprising a compound or a salt of claim 35 and a pharmaceutically acceptable carrier.

37. Compound according to claim 35, for use in the treatment and prophylaxis of diseases.

38. Compound according to claim 35, for use in the treatment and prophylaxis of fibroids of the uterus, endometriosis, heavy menstrual bleeds, meningiomas, hormone-dependent breast cancers and complaints associated with the menopause or for fertility control and emergency contraception.

CLAIMS

1. An invention not claimed in any divisional application.