

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
28 June 2007 (28.06.2007)

PCT

(10) International Publication Number  
**WO 2007/071456 A1**

(51) International Patent Classification:  
*C07C 211/60* (2006.01) *A61K 31/403* (2006.01)  
*C07D 209/88* (2006.01) *A61K 31/21* (2006.01)  
*A61P 29/00* (2006.01)

Ulrich [DE/DE]; Bredowstr. 24, 10551 Berlin (DE).  
TOSCHI, Luisella [IT/DE]; Soemmeringstr. 40, 10589  
Berlin (DE). PETERS-KOTTIG, Michaele [DE/DE];  
Rheinsberger Strasse 73, 10115 Berlin (DE).

(21) International Application Number:  
PCT/EP2006/0 12640

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

(22) International Filing Date:  
21 December 2006 (21.12.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
10 2005 062 741.2  
22 December 2005 (22.12.2005) DE

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT,  
RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA,  
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (for all designated States except US): BAYER  
SCHERING PHARMA AKTIENGESELLSCHAFT  
[DE/DE]; Müllerstrasse 178, 13353 Berlin (DE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): BRÄUER, Nico  
[DE/DE]; Westendstr. 2a, 07743 Jena (DE). BUCH-  
MANN, Bernd [DE/DE]; Erdmannstr. 44, 16540 Hohen  
Neuendorf (DE). HUWE, Christoph [DE/DE]; Sand-  
hauser Str. 111, 13505 Berlin (DE). LINDENTHAL,  
Bernhard [DE/DE]; Wilkestr. 19, 13507 Berlin (DE).  
LANGER, Gernot [DE/DE]; Wilhelmshavener Str. 63,  
10551 Berlin (DE). PETERS, Olaf [DE/DE]; Langen-  
hainer Str. 8, 99891 Tabarz (DE). SCHUBERT, Gerd  
[DE/DE]; Friedenstr. 31, 07743 Jena (DE). BOTHE,

Published:

- with international search report
- with amended claims

Date of publication of the amended claims: 23 August 2007

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: FLUORENES AND CARBAZOLES AS LIGANDS OF THE EP<sub>2</sub> RECEPTOR

(57) Abstract: The present invention relates to carbazoles/fluorenes, to processes for their preparation and to their use for preparing pharmaceutical agents for the treatment of disorders connected to the EP<sub>2</sub> receptor.

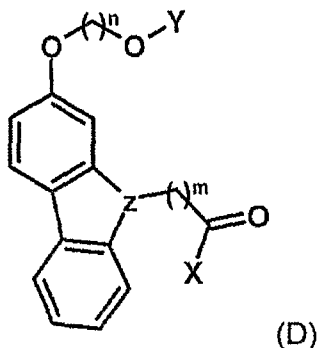


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## AMENDED CLAIMS

received by the International Bureau on 05 July 2007 (05.07.2007)

1. A compound of the general formula D



5

where

Y is a 5-12-membered, mono- or bicyclic aryl or heteroaryl radical which may optionally be mono- or polysubstituted by

10

a d-Cs-alkyl

which may be straight or branched, saturated or unsaturated, and may optionally be mono- or polysubstituted by R<sup>1</sup> where R<sup>1</sup> is the -O-Ci-C<sub>6</sub>-alkyl group, cyano, -NCd-Cs-alkyDa, -NH-d-Cg-alkyl, -C<sub>4</sub>-C<sub>8</sub>-cycloamine, -NH<sub>2</sub>, -CO-CH<sub>3</sub>-, -SO<sub>2</sub>-NH<sub>2</sub>, -Ci-C<sub>6</sub>-alkyl, -SO<sub>2</sub>-NH-CO-Ci-C<sub>6</sub>-alkyl, -SOa-NH-d-Ce-alkyl, -SO<sub>2</sub>-C<sub>1</sub>-C<sub>5</sub>-alkyl, -NH-CO-Ci-Ce-alkyl, NO<sub>2</sub>, -OH, -COOH or halogen,

15

20

R<sup>1</sup> where R<sup>1</sup> is as defined above,

25

a saturated or unsaturated 4-8-membered heterocycle which optionally bears 1-3 nitrogen or oxygen atoms and is optionally substituted by -OCH<sub>3</sub>, -COCH<sub>3</sub>, -d-Cs-alkyl, -Ci-C<sub>2</sub>-alkyl-O-CH<sub>3</sub> or a keto group,

30

an -SO<sub>2</sub>-NH<sub>2</sub>, -SO<sub>2</sub>-CH<sub>3</sub>, -NH-CO-CH<sub>3</sub> group,

NO<sub>2</sub>, -OH, -COOH or halogen,  
 a fused 5-7-membered carbocycle optionally substituted by a keto group,

5 a 6-12-membered, mono- or bicyclic heterocycle which may be saturated or unsaturated, is interrupted once or more than once by nitrogen, oxygen or sulfur, and is optionally mono- or polysubstituted by

10 R<sup>1</sup>, where R<sup>1</sup> is as defined above,

an oxygen or a keto group,

Z is a carbon or nitrogen radical,

15 X is an -OH, -NH<sub>2</sub> group, an -O-C<sub>1</sub>-C<sub>6</sub>-alkyl, -N(C<sub>1</sub>-C<sub>3</sub>-alkyl)<sub>2</sub>, -NH-d-C<sub>6</sub>-alkyl, C<sub>4</sub>-C<sub>8</sub>-cycloamine, -NH-SO<sub>2</sub>-ci-C<sub>5</sub>-alkyl or a saturated or unsaturated -C<sub>3</sub>-C<sub>8</sub>-cycloalkyl radical which may optionally be substituted,

20 n is 1-7,

m is 1-4  
 25 and their salts with physiologically acceptable bases and their cyclodextrin clathrates.

2. A compound as claimed in claim 1 where

Y is a 5-12-membered, mono- or bicyclic aryl or heteroaryl radical which may optionally be mono- or polysubstituted by

30 a C<sub>1</sub>-C<sub>6</sub>-alkyl  
 which may be straight or branched, saturated or unsaturated, and may optionally be mono- or polysubstituted by R<sup>2</sup>, where R<sup>2</sup> is the  
 35 -O-Ci-C<sub>3</sub>-alkyl group, cyano,  
 -N(C<sub>1</sub>-C<sub>3</sub>-alkyl)<sub>2</sub>, NH-C<sub>1</sub>-C<sub>3</sub>-alkyl,  
 -NH<sub>2</sub>, -CO-CH<sub>3</sub>-, -Ci-C<sub>3</sub>-alkyl,

-SO<sub>2</sub>-NH<sub>2</sub>, -SO<sub>2</sub>-NH-CO-C<sub>1</sub>-C<sub>3</sub>-alkyl,  
 SO<sub>2</sub>-NHCi-C<sub>3</sub>-alkyl, -SO<sub>2</sub>-C<sub>1</sub>-C<sub>3</sub>-alkyl,  
 -NH-CO-C<sub>1</sub>-C<sub>3</sub>-alkyl, NO<sub>2</sub>, -OH, -COOH,  
 -C<sub>4</sub>-C<sub>6</sub>-cycloamine or halogen,

5

R<sup>2</sup>, where R<sup>2</sup> is as defined above,

a saturated or unsaturated 5-7-membered  
 heterocycle which optionally bears  
 10 1-3 nitrogen or oxygen atoms and is  
 optionally substituted by -OCH<sub>3</sub>, -C<sub>1</sub>-C<sub>3</sub>-  
 alkyl, -Ci-C<sub>2</sub>-alkyl-OCH<sub>3</sub> or a keto group,

an -SO<sub>2</sub>-NH<sub>2</sub>, -SO<sub>2</sub>-CH<sub>3</sub>, -NH-CO-CH<sub>3</sub> group,  
 15 -NO<sub>2</sub>, -OH, -COOH or halogen,

a fused 5-7-membered carbocycle option-  
 ally substituted by a keto group,

20 a 6-12-membered, mono- or bicyclic hetero-  
 cycle which may be saturated or unsaturated,  
 is interrupted once or more than once by  
 nitrogen, oxygen or sulfur, and is optionally  
 mono- or polysubstituted by an -OCH<sub>3</sub>, -CO-CH<sub>3</sub>  
 25 group, -C<sub>1</sub>-C<sub>3</sub>-alkyl, cyano, oxygen or a keto  
 group,

Z is a carbon or nitrogen radical,

30 X is an OH or NH<sub>2</sub> group,  
 an -O-Ci-Cs-alkyl, -N(C<sub>1</sub>-C<sub>6</sub>-alkyl)<sub>2</sub>, -NH-C<sub>1</sub>-C<sub>6</sub>-  
 alkyl, -C<sub>4</sub>-C<sub>8</sub>-cycloamine, -NH-SO<sub>2</sub>-C<sub>1</sub>-C<sub>6</sub>-alkyl  
 or a saturated or unsaturated -C<sub>3</sub>-C<sub>8</sub>-  
 cycloalkyl radical which may optionally be  
 35 substituted,

n is 2-5,

m is 1-3.

3. A compound as claimed in claims 1 and 2 where  
 Y is a 6-12-membered mono- or bicyclic aryl  
 radical which may optionally be mono- or  
 5 polysubstituted and which is optionally mono-  
 or polysubstituted by

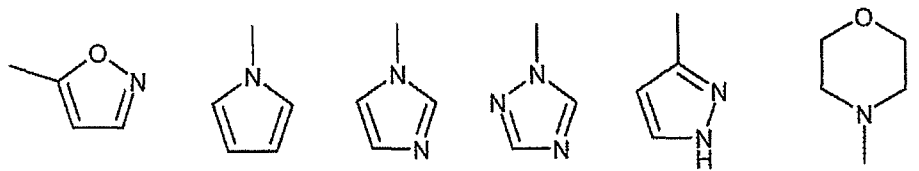
a C<sub>1</sub>-C<sub>6</sub>-alkyl

10 which may be straight or branched,  
 saturated or unsaturated, and may  
 optionally be mono- or poly-  
 substituted by R<sup>3</sup>, where R<sup>3</sup> is the  
 -OCH<sub>3</sub> group, -CO-CH<sub>3</sub>, cyano, -NH<sub>2</sub>,  
 -N(CH<sub>3</sub>)<sub>2</sub>, -NHCH<sub>3</sub>, -SO<sub>2</sub>-NH<sub>2</sub>,  
 -SO<sub>2</sub>-NH-CO-CH<sub>3</sub>, -SO<sub>2</sub>-NH-CH<sub>3</sub>, -SO<sub>2</sub>-CH<sub>3</sub>,  
 15 -NH-CO-CH<sub>3</sub>, -NO<sub>2</sub>, -OH, -COOH or  
 halogen,

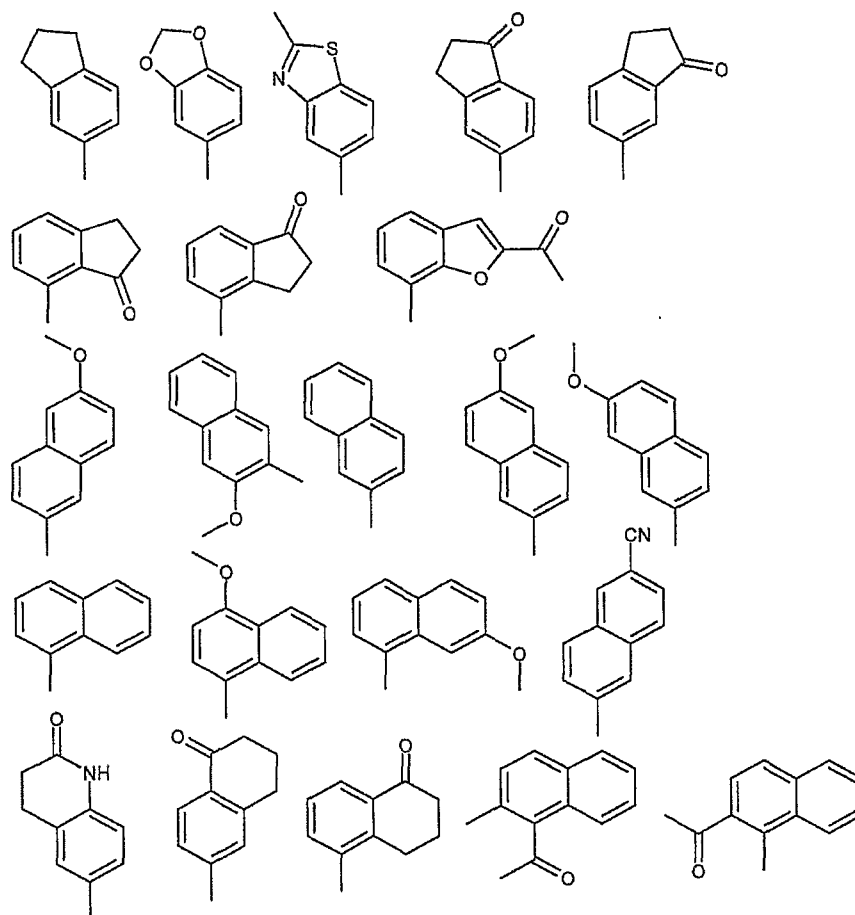
R<sup>3</sup>, where R<sup>3</sup> is as defined above,

20 an -SO<sub>2</sub>-NH<sub>2</sub>, -SO<sub>2</sub>-CH<sub>3</sub>, -NH-CO-CH<sub>3</sub> group,  
 NO<sub>2</sub>, -OH, -COOH or halogen,

or the group



25 represent the group



- Z is a carbon or a nitrogen radical,
- 5 X is a hydroxyl group,  $-N(CH_3)_2$ ,  $-NH-CH_3$ ,  
 $-NHSO_2-CH_3$ ,
- n is 3-5,
- 10 m is 1-2.

4. A compound as claimed in claims 1-3 selected from a group which comprises the following compounds :
- 15 . (R/S) [2- (4-m-tolyloxybutoxy) -9H-fluoren-9-yl] acetic acid
- (R/S) {2- [4- (3-hydroxy-5-methoxyphenoxy)butoxy] -9H-fluoren-9-yl} acetic acid
- . (R/S) {2- [4- (3-hydroxyphenoxy)butoxy] -9H-fluoren-9-yl} acetic acid
- 20 . (R/S) {2- [4- (3-acetylaminophenoxy)butoxy] -9H-fluoren-

- 9-yl}acetic acid
- . ethyl {2- [4- (3-hydroxyphenoxy) butoxy] carbazol-9-yl} - acetate
  - ethyl [2- (4 -m-tolyloxybutoxy) carbazol-9-yl] acetate
  - 5 • ethyl {2- [4- (3-acetylamino-phenoxy) butoxy] carbazol-9-yl}acetate
  - . ethyl {2- [4- (3-hydroxy-5-methoxyphenoxy) butoxy] - carbazol -9-yl }acetate
  - . methyl 3- [4- (9-ethoxycarbonylmethyl-9H-carbazol-2-yloxy) butoxy] benzoate
  - 10 • ethyl 3- {2- [4- (3-hydroxyphenoxy) butoxy] carbazol-9-yl }propionate
  - . ethyl 3- [2- (4 -m-tolyloxybutoxy) carbazol- 9-yl] propionate
  - 15 • ethyl 3- {2- [4- (3-acetylamino-phenoxy) butoxy] carbazol-9-yl }propionate
  - ethyl 3- {2- [4- (3-hydroxy-5-methoxyphenoxy) butoxy] - carbazol -9-yl }propionate
  - methyl 3- {4- [9- (2-ethoxycarbonylethyl) -9H-carbazol-2-yloxy] butoxy} benzoate
  - 20 . {2- [4- (3-hydroxyphenoxy) butoxy] carbazol-9-yl} acetic acid
  - [2- (4 -m-tolyloxybutoxy) carbazol-9-yl] acetic acid
  - {2- [4- (3-acetylamino-phenoxy) butoxy] carbazol- 9-yl}acetic acid
  - 25 • {2- [4- (3 -hydroxy- 5-methoxyphenoxy) butoxy] carbazol-9-yl}acetic acid
  - 3- [4- (9-carboxymethyl- 9H- carbazol- 2-yloxy) butoxy] - benzoic acid
  - 30 . 3- {2- [4- (3-hydroxyphenoxy) butoxy] carbazol-9-yl}propionic acid
  - . 3- [2- (4 -m-tolyloxybutoxy) carbazol-9-yl] propionic acid
  - 3- {2- [4- (3-acetylamino-phenoxy) butoxy] carbazol- 9-yl}propionic acid
  - 35 • 3- {2- [4- (3 -hydroxy- 5-methoxyphenoxy) butoxy] carbazol-9-yl }propionic acid
  - . 3- {4- [9- (2-carboxyethyl) -9H- carbazol -2-yloxy] butoxy} - benzoic acid
  - . {2- [4- (2-acetylphenoxy) butoxy] carbazol-9-yl}acetic

**acid**

- {2- [4- (3-acetylphenoxy) butoxy] carbazol- 9-yl} acetic acid
- 5 • {2- [4- (4-nitrophenoxy) butoxy] carbazol- 9-yl} acetic acid
- {2- [4- (3-nitrophenoxy) butoxy] carbazol -9 -yl} acetic acid
- {2- [4- (3-oxoindan-4-yloxy)butoxy] carbazol -9 -yl} acetic acid
- 10 • {2- [4- (4-chlorophenoxy) butoxy] carbazol-9-yl} acetic acid
- {2- [4- (3-fluorophenoxy) butoxy] carbazol- 9-yl} acetic acid
- {2- [4- (3, 5-dime thoxyphenoxy) butoxy] carbazol- 9-yl} acetic acid
- 15 • {2- [4- (2-fluorophenoxy) butoxy] carbazol- 9-yl} acetic acid
- {2- [4- (2-pyrrol -1-ylphenoxy) butoxy] carbazol- 9-yl} acetic acid
- 20 • {2- [4- (3 -isopropylphenoxy) butoxy] carbazol- 9-yl} acetic acid
- {2- [4- (4 -pyrrol -1-ylphenoxy) butoxy] carbazol-9-yl} acetic acid
- {2- [4- (2-isoxazol-5-ylphenoxy)butoxy] carbazol-9-yl} acetic acid
- 25 • {2- [4- (2- isoxazol -5-yl-4-me thylphenoxy) butoxy] - carbazol-9-yl} acetic acid
- {2- [4- (2-acetylbenzofuran-7-yloxy)butoxy] carbazol- 9-yl} acetic acid
- 30 • {2- [4- (2-morpholin-4-ylphenoxy)butoxy] carbazol-9-yl} acetic acid
- {2- [4- (6-methoxynaphthalen-2-yloxy)butoxy] carbazol- 9-yl} acetic acid
- 35 • {2- [4- (2-chlorophenoxy )butoxy] carbazol -9-yl } acetic acid
- {2- [4- (3 -chlorophenoxy) butoxy] carbazol- 9-yl} acetic acid
- {2- [4- (4-fluorophenoxy) butoxy] carbazol-9-yl} acetic acid

- {2- [4- (4- [1,2,4] triazol-1-ylphenoxy) butoxy] carbazol-9-yl}acetic acid
- (2-{4- [2- (1H-pyrazol-3-yl)phenoxy] butoxy} carbazol-9-yl) acetic acid
- 5 . 3- [2- (4-phenoxybutoxy) carbazol-9-yl] propionic acid
- . 3-{2- [4- (2-acetylphenoxy)butoxy] carbazol-9-yl}propionic acid
- . 3-{2- [4- (3-acetylphenoxy) butoxy] carbazol-9-yl}propionic acid
- 10 • 3-{2- [4- (4-acetylphenoxy) butoxy] carbazol-9-yl}propionic acid
- 3-{2- [4- (4-acetylamino-phenoxy) butoxy] carbazol-9-yl}propionic acid
- . 3-{2- [4- (4-methoxyphenoxy) butoxy] carbazol-9-yl}propionic acid
- 15 . 3-{2- [4- (4-nitrophenoxy) butoxy] carbazol-9-yl}propionic acid
- . 3-{2-[4- (2-nitrophenoxy) butoxy] carbazol-9-yl}propionic acid
- 20 • 3-{2- [4- (3-oxoindan-4-yloxy) butoxy] carbazol-9-yl}propionic acid
- . 3-{2- [4- (5-oxo-5,6,7,8-tetrahydronaphthalen-2-yloxy) butoxy] carbazol-9-yl}propionic acid
- . 3-{2-[4- (1-oxoindan-5-yloxy) butoxy] carbazol-9-yl}propionic acid
- 25 . 3-{2- [4- (4-chlorophenoxy) butoxy] carbazol-9-yl}propionic acid
- . 3-{2-[4-(2-methoxyphenoxy) butoxy] carbazol-9-yl}propionic acid
- 30 • 3- [2- (4-o-tolyloxybutoxy) carbazol-9-yl] propionic acid
- . 3- [2- (4-p-tolyloxybutoxy) carbazol-9-yl] propionic acid
- . 3-{2- [4- (3-methoxyphenoxy) butoxy] carbazol-9-yl}propionic acid
- . 3-{2- [4- (naphthalen-2-yloxy) butoxy] carbazol-9-yl}propionic acid
- 35 • 3-{2- [4- (1-oxoindan-4-yloxy) butoxy] carbazol-9-yl}propionic acid
- . 3-{2- [4- (5-oxo-5,6,7,8-tetrahydronaphthalen-1-yloxy) butoxy] carbazol-9-yl}propionic acid

- 3-{2-[4-(3-fluorophenoxy) butoxy] carbazol-9-yl}propionic acid
- 3-{2-[4-(3,5-dimethoxyphenoxy) butoxy] carbazol-9-yl}propionic acid
- 5 . 3-{2-[4-(4-imidazol-1-ylphenoxy) butoxy] carbazol-9-yl}propionic acid
- 3-{2-[4-(3-oxoindan-5-yloxy) butoxy] carbazol-9-yl}propionic acid
- 3-{2-[4-(3,4-dimethoxyphenoxy) butoxy] carbazol-9-yl}propionic acid
- 10 . 3-{2-[4-(2-fluorophenoxy) butoxy] carbazol-9-yl}propionic acid
- 3-{2-[4-(2-pyrrol-1-ylphenoxy) butoxy] carbazol-9-yl}propionic acid
- 15 . 3-{2-[4-(benzo[1,3]dioxol-5-yloxy) butoxy] carbazol-9-yl}propionic acid
- 3-(2-{4-[4-(2-oxopropyl) phenoxy] butoxy} carbazol-9-yl)propionic acid
- . 3-{2-[4-(3-dimethylaminophenoxy) butoxy] carbazol-9-yl}propionic acid
- 20 . 3-{2-[4-(4-methoxymethylphenoxy) butoxy] carbazol-9-yl}propionic acid
- . 3-{2-[4-(4-dimethylaminomethylphenoxy) butoxy] carbazol-9-yl}propionic acid
- 25 . 3-(2-{4-[4-(2-methoxyethyl) phenoxy] butoxy} carbazol-9-yl)propionic acid
- . 3-{2-[4-(2,3-dimethoxyphenoxy) butoxy] carbazol-9-yl}propionic acid
- . 3-{2-[4-(2-isoxazol-5-ylphenoxy) butoxy] carbazol-9-yl}propionic acid
- 30 . 3-{2-[4-(2-oxo-1,2,3,4-tetrahydroquinolin-6-yloxy) butoxy] carbazol-9-yl}propionic acid
- . 3-{2-[4-(2-methylbenzothiazol-5-yloxy) butoxy] carbazol-9-yl}propionic acid
- 35 . 3-{2-[4-(2-methanesulfonylphenoxy) butoxy] carbazol-9-yl}propionic acid
- . 3-{2-[4-(4-sulfamoylphenoxy) butoxy] carbazol-9-yl}propionic acid
- . 3-{2-[4-(3-methoxynaphthalen-2-yloxy) butoxy] carbazol-

- 9-yl}propionic acid
- 3-{2-[4-(2-isoxazol-5-yl-4-methylphenoxy) butoxy] - carbazol-9-yl}propionic acid
  - 3-{2-[4-(2-acetylbenzofuran-7-yloxy)butoxy] carbazol-
- 5 9-yl}propionic acid
- 3-{2-[4-(1-acetylnaphthalen- 2-yloxy) butoxy] carbazol - 9-yl}propionic acid
  - 3-{2-[4-(3-raorpholin-4-ylphenoxy)butoxy] carbazol-9-yl}propionic acid
- 10 • 3-{2-[4-(6-methoxynaphthalen- 2-yloxy) butoxy] carbazol-9-yl}propionic acid
- 3-{2-[4-(4-cyanome thyIphenoxy) butoxy] carbazol- 9-yl}propionic acid
  - 3-{2-[4-(4 -cyanophenoxy) butoxy] carbazol- 9-yl}propionic acid
- 15 • 3-{2-[4-(2-cyanophenoxy )butoxy] carbazol -9-yl}propionic acid
- 3-{2-[4-(2-chlorophenoxy) butoxy] carbazol- 9-yl}propionic acid
- 20 • 3-{2-[4-(3-chlorophenoxy) butoxy] carbazol -9-yl}propionic acid
- 3-{2-[4-(4 -fluorophenoxy) butoxy] carbazol- 9-yl}propionic acid
  - 3-{2-[4-(4-[1,2,4] triazol-1-ylphenoxy) butoxy] - carbazol-9-yl}propionic acid
- 25 • 3-(2-{4-[2-(1H-pyrazol -3-yDphenoxy] butoxy} carbazol -9-yl)propionic acid
- [2-(3-phenoxypropoxy) carbazol- 9-yl] acetic acid
  - {2-[3-(2-acetylphenoxy)propoxy] carbazol-9-yl}acetic acid
- 30 acid
- {2-[3-(3-acetylphenoxy)propoxy] carbazol -9-yl}acetic acid
  - {2-[3-(4-acetyIphenoxy )propoxy] carbazol- 9-yl}acetic acid
- 35 • {2-[3-(4-acetylaminophenoxy)propoxy] carbazol-9-yl}acetic acid
- {2-[3-(4~methoxyphenoxy)propoxy] carbazol- 9-yl}acetic acid
  - {2-[3-(3-nitrophenoxy)propoxy] carbazol -9-yl}acetic acid

## acid

- {2- [3- (2-nitrophenoxy) propoxy] carbazol- 9-yl} acetic acid
- 5 • {2- [3- (3-oxoindan-4-yloxy) propoxy] carbazol-9-yl}acetic acid
- {2- [3- (5-OXO-5, 6,7, 8-tetrahydronaphthalen-2-yloxy )propoxy] carbazol -9-yl }acetic acid
- {2- [3- (1-oxoindan- 5-yloxy) propoxy] carbazol-9-yl}acetic acid
- 10 • {2- [3- (4-chlorophenoxy) propoxy] carbazol-9-yl}acetic acid
- [2- (3 -o- tolyloxypropoxy) carbazol- 9-yl] acetic acid
- [2- (3 -m- tolyloxypropoxy) carbazol- 9-yl] acetic acid
- [2- (3 -p- tolyloxypropoxy) carbazol -9-yl] acetic acid
- 15 • {2- [3- (3 -methoxyphenoxy) propoxy] carbazol -9-yl} acetic acid
- {2- [3- (naphthalen-1 -yloxy) propoxy] carbazol- 9-yl}acetic acid
- {2- [3- (3-acetylaminophenoxy) propoxy] carbazol- 9-yl}acetic acid
- 20 • {2- [3- (1-oxoindan-4 -yloxy) propoxy] carbazol- 9-yl}acetic acid
- {2- [3- (5-OXO-5, 6,7, 8-tetrahydronaphthalen-1-yloxy) propoxy] carbazol -9-yl} acetic acid
- 25 • {2- [3- (3-fluorophenoxy) propoxy] carbazol-9-yl}acetic acid
- {2- [3- (3, 5-dimethoxyphenoxy) propoxy] carbazol-9-yl}acetic acid
- {2- [3- (4 -imidazol-1-ylphenoxy) propoxy] carbazol-9-yl}acetic acid
- 30 • {2- [3- (3-oxoindan- 5-yloxy) propoxy] carbazol-9-yl}acetic acid
- {2- [3- (3 ,4-dimethoxyphenoxy) propoxy] carbazol- 9-yl}acetic acid
- 35 • {2- [3- (2 -acetylaminophenoxy) propoxy] carbazol-9-yl}acetic acid
- {2- [3- (7-methoxynaphthalen- 2-yloxy) propoxy] carbazol -9-yl}acetic acid
- {2- [3- (2-fluorophenoxy) propoxy] carbazol -9-yl} acetic acid

## acid

- {2- [3- (2-pyrrol -1 -ylphenoxy) propoxy] carbazol-9-yl}acetic acid
- 5 • {2- [3- (benzo [1,3] dioxol -5-yloxy) propoxy] carbazol- 9-yl} acetic acid
- (2- {3- [4 - (2-oxopropyl )phenoxy] propoxy} carbazol -9-yl) acetic acid
- {2- [3- (4-methoxynaphthalen-1 -yloxy) propoxy] carbazol-9-yl}acetic acid
- 10 • {2- [3- (2-isopropylphenoxy) propoxy] carbazol -9-yl} acetic acid
- {2- [3- (3-isopropylphenoxy) propoxy] carbazol-9-yl}acetic acid
- {2- [3- (3-dimethylaminophenoxy) propoxy] carbazol-9-yl}acetic acid
- 15 • {2- [3- (2-dimethylaminomethylphenoxy) propoxy] carbazol-9-yl}acetic acid
- (2- {3- [4- (2-methoxyethyl) phenoxy] propoxy } carbazol -9-yl) acetic acid
- 20 • {2- [3- (2, 3-dimethoxyphenoxy) propoxy] carbazol-9-yl}acetic acid
- {2- [3- (2-isoxazol-5 -ylphenoxy) propoxy] carbazol- 9-yl}acetic acid
- {2- [3- (2-methylbenzothiazol- 5-yloxy) propoxy] carbazol-9-yl}acetic acid
- 25 • {2- [3- (2-methanesulf onylphenoxy) propoxy] carbazol-9-yl}acetic acid
- {2- [3- (3-methoxynaphthalen- 2-yloxy) propoxy] carbazol -9-yl}acetic acid
- 30 • {2- [3- (7-methoxynaphthalen- 1-yloxy) propoxy] carbazol -9-yl}acetic acid
- {2- [3- (2-isoxazol-5-yl-4-methylphenoxy) propoxy] - carbazol-9-yl}acetic acid
- {2- [3- (2-acetylbenzofuran- 7-yloxy) propoxy] carbazol-9-yl}acetic acid
- 35 • {2- [3- (2-morpholin-4-ylphenoxy) propoxy] carbazol-9-yl}acetic acid
- {2- [3- (2-acetylnaphthalen-1 -yloxy) propoxy] carbazol-9-yl}acetic acid

- {2- [3- (1-acetylnaphthalen-2-yloxy) propoxy] carbazol-9-yl}acetic acid
- {2- [3- (3-morpholin-4-ylphenoxy) propoxy] carbazol- 9-yl}acetic acid
- 5 • {2- [3- (4 -methanesulfonylphenoxy) propoxy] carbazol-9-yl}acetic acid
- {2- [3- (2 -cyanophenoxy) propoxy] carbazol- 9-yl} acetic acid
- {2- [3- (2-chlorophenoxy) propoxy] carbazol- 9-yl} acetic acid
- 10 acid
- {2- [3- (3 -chlorophenoxy) propoxy] carbazol- 9-yl} acetic acid
- {2- [3- (4-fluorophenoxy) propoxy] carbazol-9-yl}acetic acid
- 15 • (2- {3- [2- (1H-pyrazol~3-yl)phenoxy] propoxy }carbazol- 9-yl) acetic acid
- [2- (5-phenoxyptyloxy) carbazol- 9-yl] acetic acid
- {2- [5- (2-acetylphenoxy)ptyloxy] carbazol -9-yl}acetic acid
- 20 • {2- [5- (3-acetylphenoxy)ptyloxy] carbazol-9-yl}acetic acid
- {2- [5- (4-acetylphenoxy)ptyloxy] carbazol-9-yl}acetic acid
- {2- [5- (4-acetylaminophenoxy) pentyloxy] carbazol- 9-yl}acetic acid
- 25 • {2- [5- (4 -methoxyphenoxy) pentyloxy] carbazol- 9-yl}acetic acid
- {2- [5- (3 -cyanophenoxy) pentyloxy] carbazol- 9-yl} acetic acid
- 30 • {2- [5- (4-nitrophenoxy) pentyloxy] carbazol-9-yl}acetic acid
- {2- [5- (3-nitrophenoxy) pentyloxy] carbazol- 9-yl} acetic acid
- {2- [5- (2 -nitrophenoxy) pentyloxy] carbazol-9-yl}acetic acid
- 35 acid
- {2- [5- (3-oxoindan-4-yloxy) pentyloxy] carbazol-9-yl}acetic acid
- {2- [5- (5-OXO-5 ,6,7, 8-tetrahydronaphthalen-2-yloxy) pentyloxy] carbazol- 9-yl} acetic acid

- {2- [5- (1-oxoindan-5-yloxy) pentyloxy] carbazol-9-yl}acetic acid
- {2- [5- (4-chlorophenoxy) pentyloxy] carbazol-9-yl}acetic acid
- 5 • {2- [5- (2-methoxyphenoxy) pentyloxy] carbazol-9-yl}acetic acid
- [2- (5-o-tolyloxy) pentyloxy] carbazol-9-yl}acetic acid
- [2- (5-m-tolyloxy) pentyloxy] carbazol-9-yl}acetic acid
- [2- (5-p-tolyloxy) pentyloxy] carbazol-9-yl}acetic acid
- 10 • {2- [5- (3-methoxyphenoxy) pentyloxy] carbazol-9-yl}acetic acid
- {2- [5- (naphthalen-1-yloxy) pentyloxy] carbazol-9-yl}acetic acid
- {2- [5- (3-acetylaminophenoxy) pentyloxy] carbazol-9-yl}acetic acid
- 15 • {2- [5- (1-oxoindan-4-yloxy) pentyloxy] carbazol-9-yl}acetic acid
- {2- [5- (5-oxo-5,6,7,8-tetrahydronaphthalen-1-yloxy) pentyloxy] carbazol-9-yl}acetic acid
- 20 • {2- [5- (3-fluorophenoxy) pentyloxy] carbazol-9-yl}acetic acid
- {2- [5- (3,5-dimethoxyphenoxy) pentyloxy] carbazol-9-yl}acetic acid
- {2- [5- (4-imidazol-1-ylphenoxy) pentyloxy] carbazol-9-yl}acetic acid
- 25 • {2- [5- (3-oxoindan-5-yloxy) pentyloxy] carbazol-9-yl}acetic acid
- {2- [5- (3,4-dimethoxyphenoxy) pentyloxy] carbazol-9-yl}acetic acid
- 30 • {2- [5- (2-acetylaminophenoxy) pentyloxy] carbazol-9-yl}acetic acid
- {2- [5- (2-fluorophenoxy) pentyloxy] carbazol-9-yl}acetic acid
- {2- [5- (2-pyrrol-1-ylphenoxy) pentyloxy] carbazol-9-yl}acetic acid
- 35 • {2- [5- (benzo[1,3]dioxol-5-yloxy) pentyloxy] carbazol-9-yl}acetic acid
- {2- [5- (4-isopropylphenoxy) pentyloxy] carbazol-9-yl}acetic acid

- . {2- [5- (indan-5-yloxy)pentyl] carbazol-9-yl}acetic acid
- . {2- [5- (4-methoxynaphthalen-1-yloxy) pentyl] - carbazol-9-yl}acetic acid
- 5 • {2- [5- (2-isopropylphenoxy) pentyl] carbazol-9-yl}acetic acid
- {2- [5- (3-isopropylphenoxy) pentyl] carbazol-9-yl}acetic acid
- . {2- [5- (3-dimethylaminophenoxy) pentyl] carbazol-9-yl}acetic acid
- 10 • {2- [5- (2-dimethylaminomethylphenoxy) pentyl] - carbazol-9-yl}acetic acid
- (2- {5- [4- (2-methoxyethyl)phenoxy] pentyl } carbazol-9-yl) acetic acid
- 15 • {2- [5- (2,3-dimethoxyphenoxy) pentyl] carbazol-9-yl}acetic acid
- {2- [5- (2-isoxazol-5-ylphenoxy) pentyl] carbazol-9-yl}acetic acid
- {2- [5- (2-oxo-1,2,3,4-tetrahydroquinolin-6-yloxy) pentyl] carbazol-9-yl}acetic acid
- 20 . {2- [5- (6-cyanonaphthalen-2-yloxy) pentyl] carbazol-9-yl}acetic acid
- {2- [5- (2-methanesulfonylphenoxy) pentyl] carbazol-9-yl}acetic acid
- 25 • {2- [5- (2-isoxazol-5-yl-4-methylphenoxy) pentyl] - carbazol-9-yl}acetic acid
- . {2- [5- (2-morpholin-4-ylphenoxy) pentyl] carbazol-9-yl}acetic acid
- {2- [5- (2-acetylnaphthalen-1-yloxy)pentyl] carbazol-9-yl}acetic acid
- 30 • {2- [5- (3-morpholin-4-ylphenoxy) pentyl] carbazol-9-yl}acetic acid
- . {2- [5- (6-methoxynaphthalen-2-yloxy) pentyl] - carbazol-9-yl}acetic acid
- 35 • {2- [5- (4-cyanomethylphenoxy) pentyl] carbazol-9-yl}acetic acid
- . {2- [5- (4-methanesulfonylphenoxy) pentyl] carbazol-9-yl}acetic acid
- {2- [5- (4-cyanophenoxy) pentyl] carbazol-9-yl}acetic acid

## acid

- {2- [5- (2-cyanophenoxy) pentyloxy] carbazol-9-yl}acetic acid
- 5     • {2- [5- (2-chlorophenoxy) pentyloxy] carbazol- 9-yl} acetic acid
- {2- [5- (4-fluorophenoxy) pentyloxy] carbazol- 9-yl} acetic acid
- {2- [5- (4- [1,2,4]triazol-1 -ylphenoxy )pentyloxy] - carbazol-9-yl}acetic acid
- 10    • (2- {5- [2- (1H-pyrazol-3-yl) phenoxy] pentyloxy} carbazol-9-yl) acetic acid
- 3- [2- (4-m-tolyloxybutoxy) carbazol -9-yl] propionic acid
- 3- {2- [4- (3-acetylamino phenoxy) butoxy] carbazol- 9-yl} propionic acid
- 15    • N-ethyl-2- [2- (4-m-tolyloxybutoxy) carbazol- 9-yl] acetamide
- N,N-diethyl-2- [2- (4-m-tolyloxybutoxy) carbazol- 9-yl] acetamide
- N- {2- [2- (4-m-tolyloxybutoxy) carbazol -9-yl] acetyl}-
- 20    methanesulfonamide.

5. Medicaments which comprise at least one of the compounds of the formula D as claimed in claim 1-4.

25 6. The medicament as claimed in claim 5 comprising suitable formulation and carrier substances .

7. The use of the medicament as claimed in claim 5 and 6, characterized in that the medicament is used for  
30 the treatment and prophylaxis of disorders.

8. The use as claimed in claim 7 for the treatment and prophylaxis of disorders connected to the EP<sub>2</sub> receptor.

35

9. The use as claimed in claim 7 for the treatment and prophylaxis of fertility disorders.

10. The use as claimed in claim 7 for the treatment

and prophylaxis of menstrual complaints.

11. The use as claimed in claim 7 for the treatment and prophylaxis of endometriosis.

5

12. The use of the compounds as claimed in claims 1-4 for modulating the EP<sub>2</sub> receptor.

10

13. The use as claimed in claim 7 for the treatment and prophylaxis of pain.

14. The use as claimed in claim 7 for the treatment and prophylaxis of a disorder which is caused by elevated intraocular pressure.

15

15. The use of the compounds as claimed in claims 1-4 and of the medicament as claimed in claim 5 for fertility control.

20

16. The use as claimed in claim 7 for the treatment and prophylaxis of osteoporosis .

17. The use as claimed in claim 7 for the treatment and prophylaxis of inflammatory disorders.

25

18. The use as claimed in claim 7, characterized in that the inflammatory disorder is multiple sclerosis.

30

19. The use of the compounds of the general formula D as claimed in claims 1-4 in the form of a pharmaceutical preparation for enteral, parenteral, vaginal and oral administration.

35

20. A process for preparing the compounds as claimed in claims 1-4, characterized in that a bromoalkyl side chain is inserted in a hydroxy-fluorene or hydroxycarbazole derivative of type A in step 1, an aryl ether is introduced into compounds of type B in

step 2, and

an ester hydrolysis to give the end compounds D is effected in step 3, and

5 an amine group or sulfonamide group is inserted into the carbonic acids of type D to give further examples of the end compounds D in step 4.

21. An intermediate of the general formula A, B and c.