

(V)

or its pharmaceutically acceptable salt thereof;

wherein,

R₂ is substituted or unsubstituted phenyl or substituted or unsubstituted naphthyl;

5 R₁, X, Z, 'n', and 'q' are as defined in claim 1.

6. The compound of claim 1, wherein 'm' is 0 or 1.

7. The compound of claim 1, wherein 'p' is 0 or 1.

8. The compound of claim 1, wherein 'q' is 0, 1 or 2.

10 9. The compound of claim 1 ~~to claim 5~~, wherein R₁ is selected from halogen, substituted or unsubstituted alkyl, substituted or unsubstituted haloalkyl, substituted or unsubstituted cycloalkyl, cyano, -OR₆, -C(O)alkyl, wherein R₆ is hydrogen, substituted or unsubstituted alkyl, substituted or unsubstituted haloalkyl, or substituted or unsubstituted cycloalkyl; and 'q' is 0, 1, or 2.

15 10. The compound of claim 1, wherein R₂ is substituted or unsubstituted aryl wherein the aryl is substituted or unsubstituted phenyl or substituted or unsubstituted naphthyl.

11. The compound of claim 2 ~~to 5 and claim 10~~, wherein the substituent(s) on phenyl or naphthyl may be one or more and are independently selected from halogen, hydroxyl, substituted or unsubstituted alkyl, substituted or unsubstituted haloalkyl, and substituted or unsubstituted alkoxy.

20 12. The compound of claim 1 ~~to claim 5~~, wherein X is selected from a bond, -(CR_cR_d)_r-, -O-, -NR₇-, -NR₇(CR_cR_d)_r-, -O(CR_cR_d)_r-, -C(O)NR₇-, -C(O)NR₇(CR_cR_d)_r-, -(CR_cR_d)_rNR₇(CR_cR_d)_r-, -(CR_cR_d)_rcycloalkylene-, cycloalkylene-, cycloalkylene(CR_cR_d)_r- and -O-cycloalkylene where

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cycloalkylene may be substituted or unsubstituted; R₇ is hydrogen or substituted or unsubstituted alkyl; R_c and R_d are hydrogen or alkyl and 'r' is 1, 2 or 3.

13. The compound of claim 1 ~~to claim 5~~, wherein Z is -OR₆ wherein R₆ is selected from hydrogen, substituted or unsubstituted alkyl, substituted or unsubstituted haloalkyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl.

14. The compound of claim 1 ~~to claim 5~~, wherein Z is NR₁₀R₁₁ wherein R₁₀ and R₁₁ may be same or different and are independently selected from hydrogen, substituted or unsubstituted alkyl, -(CR_cR_d)_r-C(O)OH, -(CR_cR_d)_r-C(O)O-alkyl, substituted or unsubstituted cycloalkyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl; or R₁₀ and R₁₁, together with the nitrogen atom to which they are attached, may form a saturated or unsaturated 3 to 12 membered cyclic ring, where the unsaturated cyclic ring may have one or two double bonds; wherein R_c and R_d are hydrogen or substituted or unsubstituted alkyl and 'r' is 1, 2 or 3.

15. The compound of claim 1, wherein R_a is hydrogen; R_b is hydrogen; R₁ is selected from halogen, substituted or unsubstituted alkyl, substituted or unsubstituted haloalkyl, substituted or unsubstituted cycloalkyl, cyano, -OR₆, -C(O)alkyl wherein R₆ is hydrogen, substituted or unsubstituted alkyl, substituted or unsubstituted haloalkyl, or substituted or unsubstituted cycloalkyl; 'q' is 0, 1, or 2; R₂ is substituted or unsubstituted aryl; R₃ is hydrogen; R₄ is hydrogen; R₅ is substituted or unsubstituted alkyl; X is selected from a bond, -(CR_cR_d)_r-, -O-, -NR₇-, -NR₇(CR_cR_d)_r-, -O(CR_cR_d)_r-, -C(O)NR₇-, -C(O)NR₇(CR_cR_d)_r- wherein R₇ is hydrogen or substituted or unsubstituted alkyl, R_c and R_d are hydrogen or substituted or unsubstituted alkyl, 'r' is 1, 2, or 3; Z is -OR₆ or NR₁₀R₁₁ wherein R₆ is selected from hydrogen, substituted or unsubstituted alkyl, substituted or unsubstituted haloalkyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl; R₁₀ and R₁₁ may be same or different and are independently selected from hydrogen, substituted or unsubstituted alkyl, -(CR_cR_d)_r-C(O)OH, -(CR_cR_d)_r-C(O)O-alkyl, substituted or unsubstituted cycloalkyl or R₁₀ and R₁₁ together may form a substituted or unsubstituted, saturated or

cardiac, renal or intestinal dysfunctions, podocyte-related diseases, abnormal intestinal motility, diarrhea, augmenting gastrin or gastric acid secretion to directly or indirectly benefit in atrophic gastritis or to improve absorption of pharmacological compounds, drugs or supplements from gastro-intestinal tract by augmenting gastric acidity.

5 ~~23. Use of a compound for the manufacture of a medicament for treating, managing and/or lessening the diseases or disorders, syndromes or conditions associated with the modulation of calcium sensing receptor (CaSR) in a subject in need thereof wherein the method comprises administering to the subject a therapeutically effective amount of a compound of claim 1 or a pharmaceutically acceptable salt thereof.~~

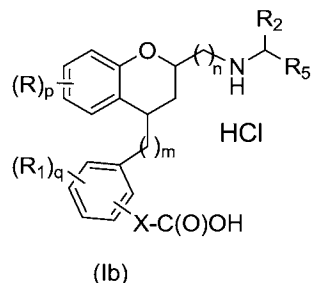
10 ~~24. The use of claim 23, wherein the diseases, disorders, syndromes or conditions associated with the modulation of calcium sensing receptor (CaSR) are selected from hyperparathyroidism, chronic renal failure (with or without dialysis), chronic kidney disease (with or without dialysis) and their complications.~~

15 ~~25. The use of claim 24, wherein hyperparathyroidism is primary hyperparathyroidism, secondary hyperparathyroidism or tertiary hyperparathyroidism.~~

20 ~~26. The use of claim 23, wherein the diseases, disorders, syndromes or conditions associated with the modulation of CaSR receptors are selected from the group consisting of parathyroid adenoma, parathyroid hyperplasia, parathyroid carcinoma, vascular & valvular calcification, abnormal calcium homeostasis, hyperecalcemia, abnormal phosphorous homeostasis, hypophosphatemia, bone related diseases or complications arising due to hyperparathyroidism, chronic kidney disease or parathyroid carcinoma, bone loss post renal transplantation, osteitis fibrosa cystica, adynamic bone disease, renal bone diseases, cardiovascular complications arising due to hyperparathyroidism or chronic kidney disease, certain malignancies in which $(Ca^{2+})_e$ ions are abnormally high, cardiac, renal or intestinal dysfunctions, podocyte-related diseases, abnormal intestinal motility, diarrhea, augmenting gastrin or gastric acid secretion to directly or indirectly benefit in atrophic gastritis or to improve absorption of~~

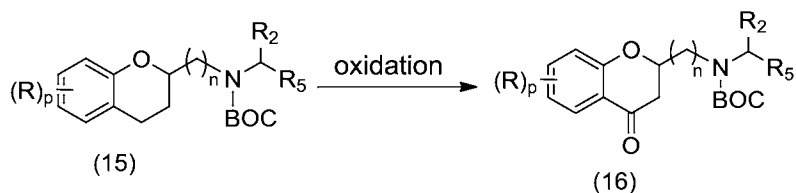
pharmacological compounds, drugs or supplements from gastro-intestinal tract by augmenting gastric acidity.

27.23. A process for the preparation of compound of Formula (Ib):

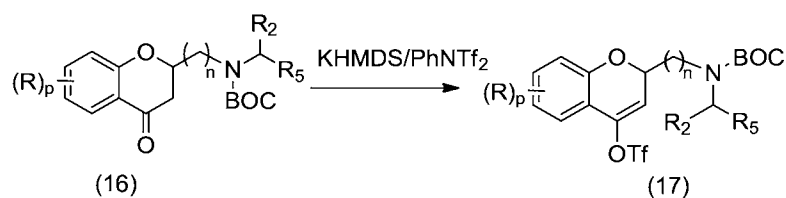


wherein X, R, R₁, R₂, R₅ 'm', 'n', 'p' and 'q' are as described in claim-1, the process comprising the steps of:

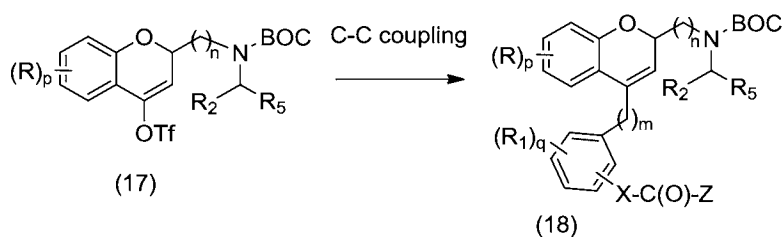
a) oxidizing a compound of Formula (15) by using suitable oxidation agents to give compound of Formula (16) in suitable solvent(s);



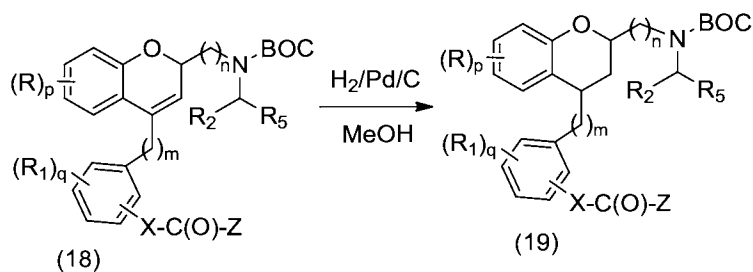
b) converting a compound of Formula (16) to compound of Formula (17) using PhNTf₂ (*N*-phenylbis(trifluoromethanesulfonyl)imide) in presence of KHMDS (potassium hexamethyldisilazide);



c) coupling of compound of Formula (17) with suitable aryl boronic acid or aryl boronic ester by following Suzuki coupling reaction to give compound of Formula (18) where Z is -OR₆ and R₆ is alkyl or benzyl;

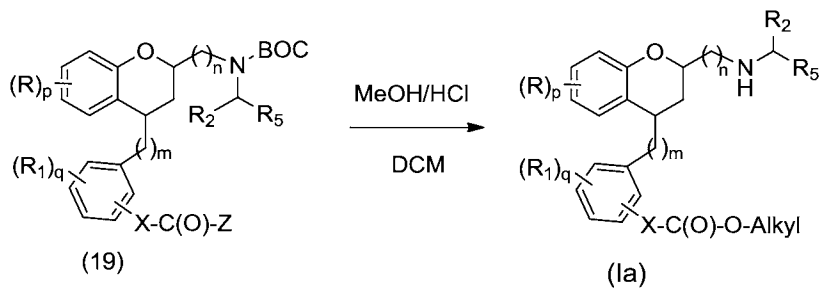


- d) when Z is O-alkyl, then reducing the compound of Formula (18) with hydrogen over Palladium-Carbon to give ester compound of Formula (19) where Z is -O-alkyl;



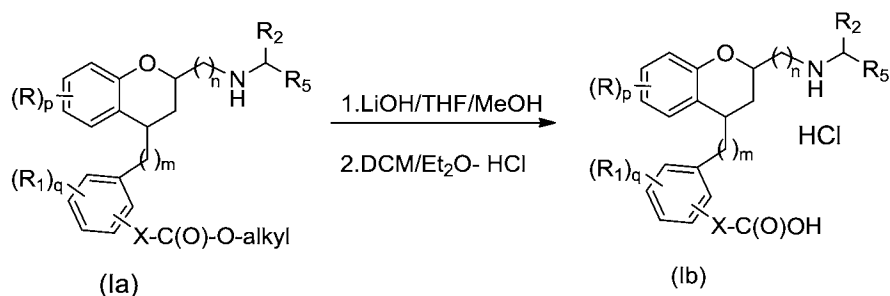
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- e) converting the compound of Formula (19) obtained in step d) to the compound of Formula (Ia);

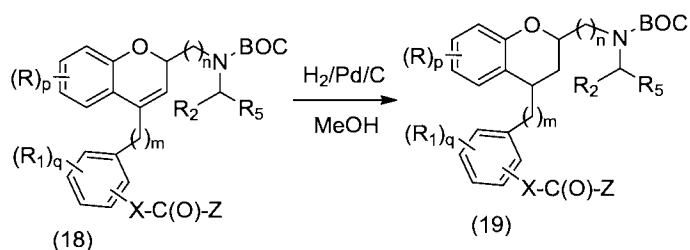


- f) hydrolyzing the ester group in compound of Formula (Ia) to corresponding acid compound using suitable base and in suitable solvents;
- g) converting the compound obtained in step f) to its hydrochloride salt having Formula (Ib);

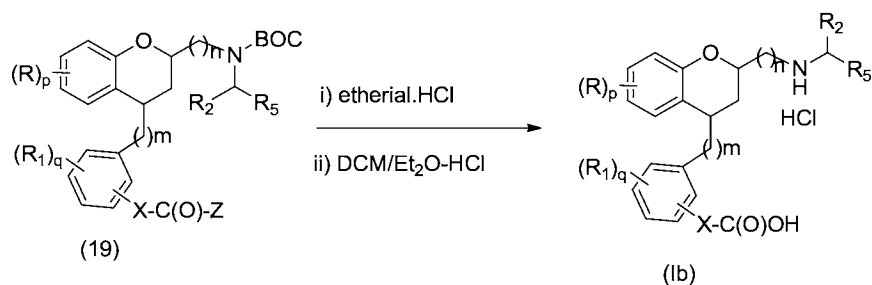
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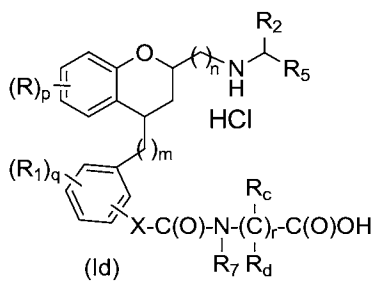
- h) when Z is O-benzyl in compound of Formula (18), then reducing the compound of Formula (18) with hydrogen over Palladium-Carbon to give acid compound of Formula (19) where Z is OH;



- i) converting the compound of Formula (19) obtained in step h) to the compound of Formula (1b);

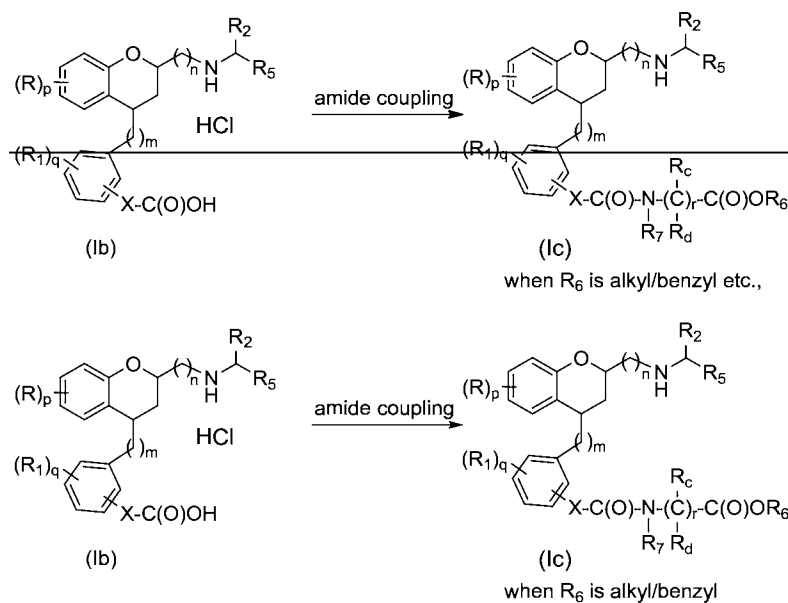


28.24. A process for the preparation of compound of Formula (Id):

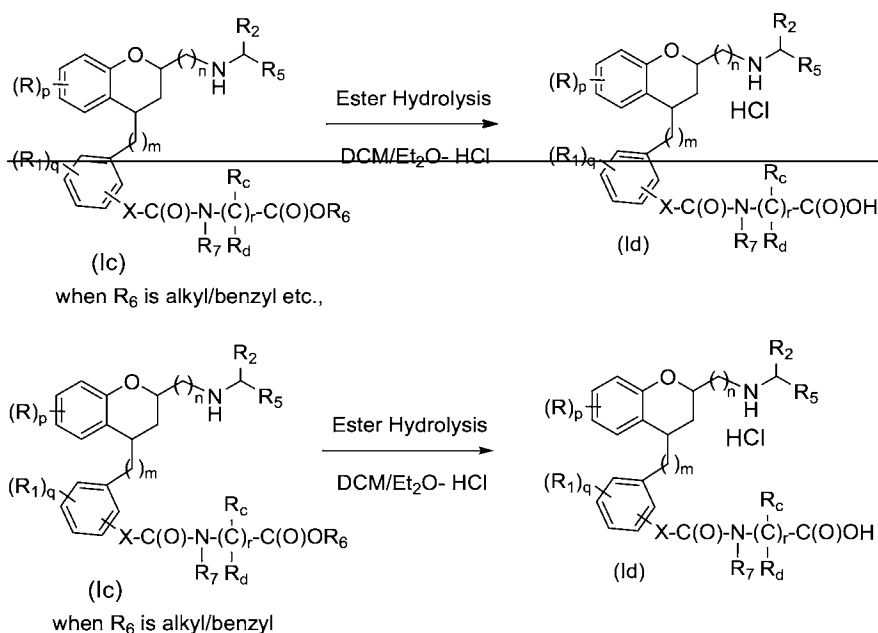


wherein X, R, R₁, R₂, R₅, R₇, R_c, R_d 'm', 'n', 'p', 'q' and 'r' are as described in claim 1,
the process comprising the steps of:

- a) coupling of acid compound of Formula (Ib) with suitable amines using suitable amide coupling reagents to give compound of Formula (Ic);



- b) hydrolyzing the amido ester group, if the compound of Formula (Ic) is an ester, to corresponding acid compound of Formula (Id) using suitable reagent and solvents.



25. A compound which is 2, 6-Dimethyl-3-((2*R*, 4*S*)-2-(((*R*)-1-(naphthalen-1-yl) ethyl) amino) methyl) chroman-4-yl)benzoic acid hydrochloride.
26. A compound which is 2-Methyl-5-((2*R*,4*S*)-2-(((*R*)-1-(naphthalen-1-yl)ethyl)amino) methyl)chroman-4-yl)benzoic acid hydrochloride.
27. A compound which is 3-((2*R*,4*S*)-2-(((*R*)-1-(4-Fluoro-3-methoxyphenyl) ethyl) amino)methyl)chroman-4-yl)-5-methylbenzoic acid hydrochloride.
28. A compound which is 5-((2*R*,4 *S*)-2-(((*R*)-1-(4-Fluoronaphthalen-1-yl) ethyl) amino) methyl)chroman-4-yl)-2-methyl benzoic acid hydrochloride.
29. A compound which is 5-((2*S*,4*R*)-2-(2-(((*R*)-1-(4-Fluoro-3-methoxy phenyl) ethyl) amino) ethyl) chroman-4-yl)-2-methylbenzoic acid hydrochloride.