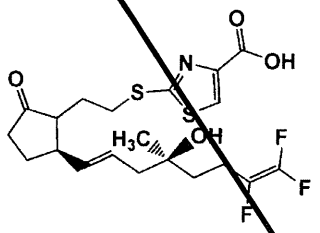
CLAIMS

[Claim 1] A salt of a compound represented by formula (I)



(I)

wherein



represents an α-configuration,



represents a β-configuration, and



represents an α-configuration, a β-configuration or a mixture thereof in an arbitrary ratio,
or a diastereomeric mixture thereof and 4-piperidinemethanol; a crystal thereof; or a cyclodextrin clathrate thereof.

[Claim 2] The salt, the crystal thereof or the cyclodextrin clathrate thereof according to Claim 1, wherein the compound represented by formula (I) is 2-[(2-{(1R,5R)-2-oxo-5-[(1E,4S)-7,8,8-trifluoro-4-hydroxy-4-methyl-1,7-octadien-1-yl]cyclopentyl}ethyl)thio]-1,3-thiazole-4-carboxylic acid.

[Claim 3] The salt, the crystal thereof or the cyclodextrin clathrate thereof according to Claim 1, wherein the compound represented by formula (I) is a

diastereomeric mixture of 2-[(2-{(1R,5R)-2-oxo-5-[(1E,4S)-7,8,8-trifluoro-4-hydroxy-4-methyl-1,7-octadien-1-yl]cyclopentyl}ethyl)thio]-1,3-thiazole-4-carboxylic acid.

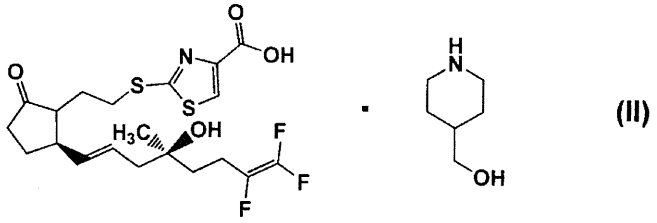
[Claim 4] The salt, the crystal thereof or the cyclodextrin clathrate thereof according to Claim 3, wherein the diastereomer of 2-[(2-{(1R,5R)-2-oxo-5-[(1E,4S)-7,8,8-trifluoro-4-hydroxy-4-methyl-1,7-octadien-1-yl]cyclopentyl}ethyl)thio]-1,3-thiazole-4-carboxylic acid is 2-[(2-{(1S,5R)-2-oxo-5-[(1E,4S)-7,8,8-trifluoro-4-hydroxy-4-methyl-1,7-octadien-1-yl]cyclopentyl}ethyl)thio]-1,3-thiazole-4-carboxylic acid.

[Claim 5] Piperidin-4-ylmethanol 2-[(2-{(1R,5R)-2-oxo-5-[(1E,4S)-7,8,8-trifluoro-4-hydroxy-4-methyl-1,7-octadien-1-yl]cyclopentyl}ethyl)thio]-1,3-thiazole-4-carboxylate, a diastereomeric mixture thereof, a crystal thereof or a cyclodextrin clathrate thereof.

[Claim 6] Piperidin-4-ylmethanol 2-[(2-{(1S,5R)-2-oxo-5-[(1E,4S)-7,8,8-trifluoro-4-hydroxy-4-methyl-1,7-octadien-1-yl]cyclopentyl}ethyl)thio]-1,3-thiazole-4-carboxylate, a crystal thereof or a cyclodextrin clathrate thereof.

[Claim 7] A mixture of piperidin-4-ylmethanol 2-[(2-{(1R,5R)-2-oxo-5-[(1E,4S)-7,8,8-trifluoro-4-hydroxy-4-methyl-1,7-octadien-1-yl]cyclopentyl}ethyl)thio]-1,3-thiazole-4-carboxylate and a diastereomer thereof: piperidin-4-ylmethanol 2-[(2-{(1S,5R)-2-oxo-5-[(1E,4S)-7,8,8-trifluoro-4-hydroxy-4-methyl-1,7-octadien-1-yl]cyclopentyl}ethyl)thio]-1,3-thiazole-4-carboxylate, a crystal thereof, or a cyclodextrin clathrate thereof.

[Claim 8] A compound represented by formula (II)



(II)

wherein



represents an α-configuration,



represents a β-configuration, and



represents an α-configuration, a β-configuration or a mixture thereof in an arbitrary ratio,
a crystal thereof or a cyclodextrin clathrate thereof.

[Claim 9] The crystal or the cyclodextrin clathrate thereof according to any one of Claims 1 to 8 which has a crystalline form having 2θ peaks at least at approximately 9.05, 9.44, 12.61, 13.96 and 18.09° in a powder X-ray diffraction spectrum.

[Claim 10] The crystal or the cyclodextrin clathrate thereof according to Claim 9 which has a crystalline form having 2θ peaks at least at approximately 9.05, 9.44, 12.61, 13.96, 18.09, 18.91, 19.42, 20.53, 21.77, 22.60, 23.38 and 24.59° in a powder X-ray diffraction spectrum.

[Claim 11] The crystal or the cyclodextrin clathrate thereof according to any one of Claims 1 to 8 which has a crystalline form having a substantially same powder X-ray diffraction spectrum as the powder X-ray diffraction spectrum shown in Fig. 1.

[Claim 12] The crystal or the cyclodextrin clathrate thereof according to any one of Claims 9 to 11 which has a crystalline form having an onset of an endothermic peak at approximately 118°C in differential scanning calorimetry.

[Claim 13] The crystal or the cyclodextrin clathrate thereof according to any one of Claims 9 to 11 which has a crystalline form having the chart of differential scanning calorimetry shown in Fig. 2.

[Claim 14] The crystal or the cyclodextrin clathrate thereof according to any one of Claims 1 to 8 which has a crystalline form having 2θ peaks at least at approximately 8.91, 9.71, 11.97, 13.23 and 15.88° in a powder X-ray diffraction spectrum.

[Claim 15] The crystal or the cyclodextrin clathrate thereof according to Claim 14 which has a crystalline form having 2θ peaks at least at approximately 8.91, 9.71, 11.97, 13.23, 15.88, 18.63, 19.02, 21.02, 22.91 and 23.85° in a powder X-ray diffraction spectrum.

[Claim 16] The crystal or the cyclodextrin clathrate thereof according to any one of Claims 1 to 8 which has a crystalline form having a substantially same powder X-ray diffraction spectrum as the powder X-ray diffraction spectrum shown in Fig. 3.

[Claim 17] The crystal or the cyclodextrin clathrate thereof according to any one of Claims 14 to 16 which has a crystalline form having an onset of an endothermic peak at approximately 113°C in differential scanning calorimetry.

[Claim 18] The crystal or the cyclodextrin clathrate thereof according to any one of Claims 14 to 16 which has a crystalline form having the chart of differential scanning calorimetry shown in Fig. 4.

[Claim 19] The crystal or the cyclodextrin clathrate thereof according to any one of Claims 1 to 8 which has a crystalline form having 2θ peaks at least at approximately 9.11, 13.43, 16.16, 17.77 and 18.69° in a powder X-ray diffraction spectrum.

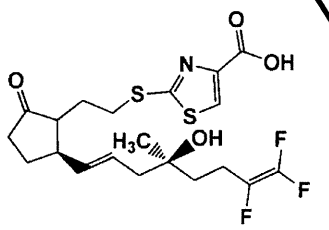
[Claim 20] The crystal or the cyclodextrin clathrate thereof according to Claim 19 which has a crystalline form having 2θ peaks at least at approximately 9.11, 13.43, 16.16, 17.77, 18.69, 19.24, 19.86, 21.19, 22.72 and 24.20° in a powder X-ray diffraction spectrum.

[Claim 21] The crystal or the cyclodextrin clathrate thereof according to any one of Claims 1 to 8 which has a crystalline form having a substantially same powder X-ray diffraction spectrum as the powder X-ray diffraction spectrum shown in Fig. 5.

[Claim 22] The crystal or the cyclodextrin clathrate thereof according to any one of Claims 19 to 21 which has a crystalline form having an onset of an endothermic peak at approximately 118°C in differential scanning calorimetry.

[Claim 23] The crystal or the cyclodextrin clathrate thereof according to any one of Claims 19 to 21 which has a crystalline form having the chart of differential scanning calorimetry shown in Fig. 6.

[Claim 24] A pharmaceutical composition containing as an active ingredient: a salt of a compound represented by formula (I)



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or a diastereomeric mixture thereof and 4-piperidinemethanol; a crystal thereof, or a cyclodextrin clathrate thereof.

[Claim 25] A pharmaceutical composition containing the crystal or the cyclodextrin clathrate thereof according to any one of Claims 9 to 23.

[Claim 26] The pharmaceutical composition according to Claim 24 or 25 which is an agent for contracting bladder detrusor and relaxing urethral sphincter.

[Claim 27] The pharmaceutical composition according to Claim 26 which is an agent for preventing, treating and/or ameliorating bladder contraction dysfunction and/or urethral relaxation dysfunction.

[Claim 28] The pharmaceutical composition according to Claim 27, wherein the bladder contraction dysfunction and/or the urethral relaxation dysfunction are underactive bladder.

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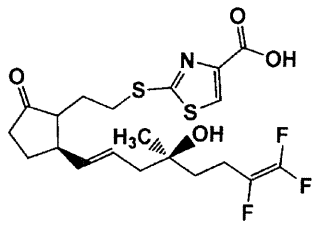

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[Claim 4] The salt, the crystal thereof or the cyclodextrin clathrate thereof according to Claim 3, wherein the diastereomer of 2-[(2-{(1R,5R)-2-oxo-5-[(1E,4S)-7,8,8-trifluoro-4-hydroxy-4-methyl-1,7-octadien-1-yl]cyclopentyl}ethyl)thio]-1,3-thiazole-4-carboxylic acid is 2-[(2-{(1S,5R)-2-oxo-5-[(1E,4S)-7,8,8-trifluoro-4-hydroxy-4-methyl-1,7-octadien-1-yl]cyclopentyl}ethyl)thio]-1,3-thiazole-4-carboxylic acid.

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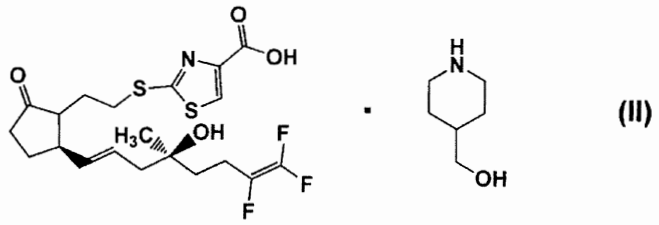

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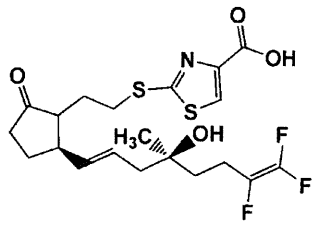
[Claim 24] A pharmaceutical composition containing as an active ingredient: a salt of a compound represented by formula (I)



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[Claim 25] A pharmaceutical composition containing the crystal or the cyclodextrin clathrate thereof according to any one of Claims 9 to 23.

[Claim 26] The pharmaceutical composition according to Claim 24 or 25 for use in contracting bladder detrusor and relaxing urethral sphincter.

[Claim 27] The pharmaceutical composition according to Claim 26 for use in preventing, treating and/or ameliorating bladder contraction dysfunction and/or urethral relaxation dysfunction.

[Claim 28] The pharmaceutical composition according to Claim 24 or 25 for use in preventing, treating and/or ameliorating underactive bladder.