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(54) Title **URAT1 INHIBITOR AND USE THEREOF**

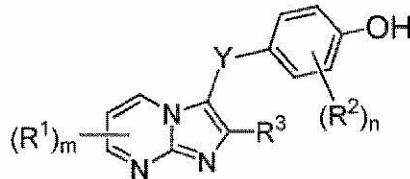
(56) References Cited: WO-A1-2016/150255, WO-A1-03/009839, EP-A1-3 275 867, CN-A-108 727 267, CN-A-106 432 229, EP-A1-0 061 380, WO-A1-2016/108282, WO-A1-99/58519
MICHAEL F. WEMPE ET AL: "Developing Potent Human Uric Acid Transporter 1 (hURAT1) Inhibitors", JOURNAL OF MEDICINAL CHEMISTRY, vol. 54, no. 8, 28 April 2011 (2011-04-28) , pages 2701-2713, XP055109293, ISSN: 0022-2623, DOI: 10.1021/jm1015022
WALSH, THOMAS F.: "Synthesis of new imidazo[1, 2-b]pyridazine isosteres of potent imidazo[4, 5-b]pyridine angiotensin II antagonists", Bioorganic & Medicinal Chemistry Letters, vol. 4, no. 1, 31 December 1994 (1994-12-31), pages 219-222, XP055605445, ISSN: 0960-894X, DOI: 10.1016/S0960-894X(01)81150-1

LEE MING-HAN H ET AL: "A benefit-risk assessment of benzbromarone in the treatment of gout: was its withdrawal from the market in the best interest of patients?", DRUG SAFETY, ADIS PRESS, AUCKLAND, NZ, vol. 31, no. 8, 1 January 2008 (2008-01-01), pages 643-665, XP009141466, ISSN: 0114-5916

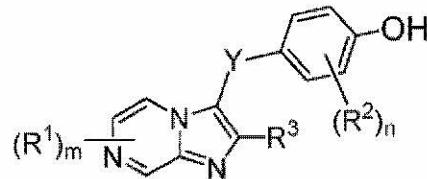
Enclosed is a translation of the patent claims in Norwegian. Please note that as per the Norwegian Patents Acts, section 66i the patent will receive protection in Norway only as far as there is agreement between the translation and the language of the application/patent granted at the EPO. In matters concerning the validity of the patent, language of the application/patent granted at the EPO will be used as the basis for the decision. The patent documents published by the EPO are available through Espacenet (<http://worldwide.espacenet.com>) or via the search engine on our website here: <https://search.patentstyret.no/>

PATENTKRAV

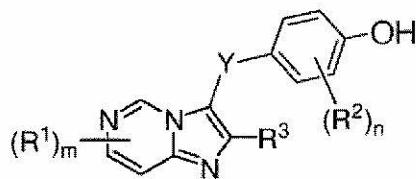
1. Forbindelse eller et farmasøytisk akseptabelt salt derav, hvori forbindelsen er valgt fra forbindelsene vist ved følgende strukturer,



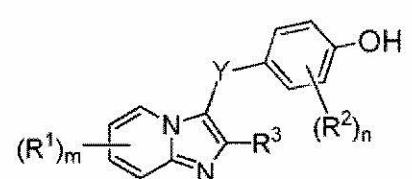
(II-A)



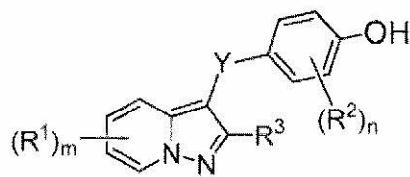
(II-B)



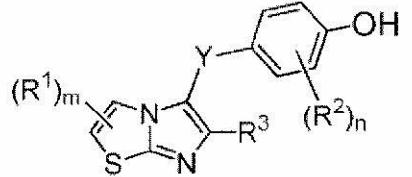
(II-C)



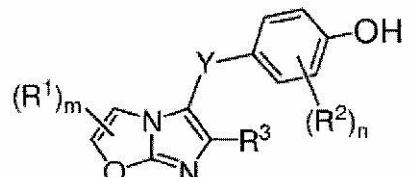
(II-D)



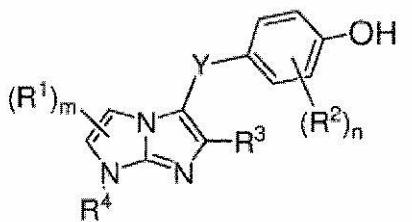
(III-A)



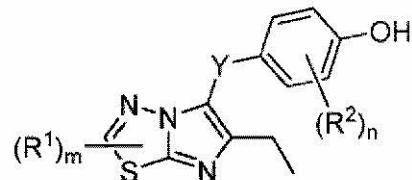
(IV-A)



(IV-B)



(IV-C)



(IV-D),

5

hvor i

Y er karbonyl, svovel, sulfon, sulfoksid, eventuelt substituert metylen eller imino;

10 R¹ er hydrogen, deuterium, hydroksy, halogen, nitro, amino, cyano, C₁₋₃ alkyl, substituert C₁₋₃ alkyl, substituert C₁₋₃ amino, C₁₋₃ alkoksyl eller substituert C₁₋₃ alkoksyl;

R² er hydrogen, halogen, nitro, cyano, C₁₋₃ alkyl eller C₁₋₃ halogenalkyl;

R³ er C₁₋₄ alkyl, substituert C₁₋₄ alkyl eller halogen;
 m er et heltall fra 0 til 3;
 n er 1 eller 2;
 substituenten i gruppen Y er valgt fra gruppen bestående av hydroksyl, amino,
 5 cyano, karboksyl, C₁₋₃ alkoksyl eller C₁₋₃ alkyl, substituenten i gruppen R¹, R²
 eller R³ er valgt fra gruppen bestående av hydroksyl, halogen, nitro, amino
 eller cyano;
 i formelen (II-D) og formelen (III-A) er Y ikke en karbonylgruppe;
 forutsatt at forbindelsen ikke er 2-etylimidazo[1,2-a]pyrimidin-3-yl)-(4-
 10 hydroksyfenyl)metanon.

2. Forbindelse eller farmasøytisk akseptabelt salt derav ifølge krav 1, hvori Y er CH-OH, CH-NH₂, CH-CN, NH, NCH₃ eller CO-gruppe, og R³ er en C₂₋₃ alkyl; i formel (II-D) og formel (III-A) er Y ikke en karbonylgruppe.

15 3. Forbindelse eller farmasøytisk akseptabelt salt derav ifølge krav 1, hvori R¹ er hydrogen, deuterium, hydroksy, halogen, nitro, amino, cyano, C₁₋₃ alkyl, C₁₋₃ haloalkyl, C₁₋₃-alkoksyl eller C₁₋₃-haloalkoksyl, og m er 0, 1 eller 2.

20 4. Forbindelse eller farmasøytisk akseptabelt salt derav ifølge krav 1, hvori forbindelsen er valgt fra gruppen bestående av:
 (3,5-dibrom-4-hydroksyfenyl)(2-etylimidazo[1,2-a]pyrimidin-3-yl)metanon;
 (3,5-dibrom-4-hydroksyfenyl)(2-etylimidazo[2,1-b]tiozol-5-yl)metanon;
 (3,5-dibrom-4-hydroksyfenyl)(2-etylimidazo[1,2-a]pyrazin-3-yl)metanon;
 25 3-brom-5-[(2-etylimidazo[1,2-alpyridin-3-yl)hydroksymetyl]-2-hydroksybenzonitril;
 5-[(2-etylimidazo[1,2-a]pyridin-3-yl)hydroksymetyl]-2-hydroksybenzonitril;
 2,6-dibrom-4-[(6-etylimidazo[2,1-b]tiozol-5-yl)hydroksymetyl]fenol;
 2,6-dibrom-4-[(2-etylimidazo[1,2-a]pyrazin-3-yl)hydroksymetyl]fenol;
 30 2-brom-4-[(2-ethyl-6-fluorimidazo[1,2-a]pyridin-3-yl)hydroksymetyl]-6-fluorfenol;
 2,6-dibrom-4-[(2-ethylpyrazolo[1,5-a]pyridin-3-yl)hydroksymetyl]fenol;
 2,6-dibrom-4-[(6-brom-2-etylimidazo[1,2-a]pyridin-3-yl)hydroksymetyl]fenol;
 2,6-dibrom-4-{{[(2-ethyl-7-(trifluormetyl)imidazo[1,2-a]pyridin-3-yl)]hydroksymetyl}fenol;
 35 2,6-dibrom-4-[(2-etylimidazo[1,2-a]pyridin-3-yl)metyl]fenol;

(3,5-dibrom-4-hydroksyfenyl)(6-etylimidazo[2,1-b][1,3,4]tiodiazol-5-yl)-
metanon;

2-brom-4-(2-etylimidazo[1,2-a]pyridin-3-yl)hydroksymetyl-6-metylfenol;

2,6-dibrom-4-((2-etyl-7-metoksyimidazo[1,2-a]pyridin-3-yl)hydroksy-
metyl)fenol.

5

5. Farmasøytisk sammensetning omfattende forbindelsen ifølge hvilket som helst av
kravene 1 til 4 eller farmasøytisk akseptabelt salt derav som aktiv ingrediens eller
hovedaktiv ingrediens, og en farmasøytisk akseptabel bærer.

10

6. Forbindelse ifølge hvilket som helst av kravene 1 til 4 eller av et farmasøytisk
akseptabelt salt derav for anvendelse for å fremme urinsyreutskillelse, spesielt for
behandling eller forebygging av hyperurikemi eller gikt.