

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
04 June 2020 (04.06.2020)



(10) International Publication Number
WO 2020/109354 A1

(51) International Patent Classification:

C07D 487/04 (2006.01) A61P 7/02 (2006.01)
A61K 31/519 (2006.01) A61P 9/08 (2006.01)
A61K 31/5365 (2006.01) A61P 3/10 (2006.01)

(21) International Application Number:

PCT/EP2019/082668

(22) International Filing Date:

27 November 2019 (27.11.2019)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

18208939.1 28 November 2018 (28.11.2018) EP

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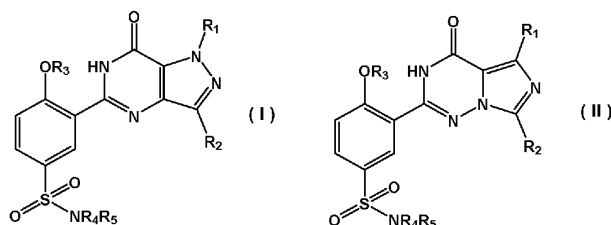
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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB,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

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,

(54) Title: NOVEL DUAL MODE OF ACTION SOLUBLE GUANYLATE CYCLASE ACTIVATORS AND PHOSPHODIESTERASE INHIBITORS AND USES THEREOF



(57) Abstract: The present invention relates to compounds of formula (I) or formula (II) or pharmaceutically acceptable salt, solvate or hydrate thereof, wherein said compound of formula (I) and said compound of formula II each comprises at least one ONO₂ or ONO moiety; R₁ is C₁-C₃alkyl; R₂ is H, C₁-C₆alkyl, C₃-C₆cycloalkyl, C₁-C₂alkoxy, C₂-C₄alkenyl; R₃ is C₁-C₄alkyl optionally substituted with C₁-C₂alkoxy, C₃-C₄cycloalkyl, C₂-C₄alkenyl; R₄ and R₅ are each independently H or C₁-C₆alkyl optionally substituted with F, OH, ONO, ONO₂, COOH, C₁-C₃alkoxy, C₃-C₆cycloalkyl; or together with the nitrogen atom to which they are attached form a heterocyclic ring, wherein preferably said heterocyclic ring is selected from aziridine, azetidine, pyrrolidine, piperidine, morpholine, piperazine, homo-piperazine, 2,5-diazabicyclo[2.2.1]heptane and 3,7-diazabicyclo[3.3.0]octane, wherein said heterocyclic ring is optionally substituted with independently one or more R₆; R₆ is C₁-C₆alkyl optionally substituted with independently one or more halogen, OH, ONO, ONO₂, C₁-C₃alkoxy, C₁-C₃haloalkoxy, COOR₇, NR₈R₉, C=NR₁₀; R₇ is H, or C₁-C₄alkyl optionally substituted with F, OH, ONO, ONO₂, NR₈R₉; R₈ and R₉ are independently H, or C₁-C₄alkyl optionally substituted with ONO, ONO₂; R₁₀ is C₁-C₄alkyl optionally substituted with F, ONO, ONO₂; C₃-C₆cycloalkyl; pharmaceutical compositions thereof, and their use in methods of treating or preventing a disease alleviated by inhibition of PDE5 in a human or in a non-human mammal.

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TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a
patent (Rule 4.17(ii))*

Published:

- *with international search report (Art. 21(3))*