



(51) International Patent Classification:

A61K 38/04 (2006.01) *A61P 11/08* (2006.01)
A61K 38/16 (2006.01) *A61P 11/12* (2006.01)
A61P 1/00 (2006.01) *C07K 14/435* (2006.01)
A61P 11/06 (2006.01)

(21) International Application Number:

PCT/US2015/054693

(22) International Filing Date:

8 October 2015 (08.10.2015)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/061,461 8 October 2014 (08.10.2014) US

(71) Applicants: **THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL** [US/US]; 100 Europa Drive, Suite 430, Chapel Hill, North Carolina 27517 (US). **SPYRYX BIOSCIENCES, INC.** [US/US]; 15 TW Alexander Drive, Research Triangle Park, North Carolina 27709 (US).

(72) Inventors: **TARRAN, Robert**; 316 Burris Place, Chapel Hill, North Carolina 27516 (US). **CHRISTENSEN, Dale J.**; 203 Woodside Glen Place, Cary, North Carolina 27519 (US).

(74) Agent: **MYERS BIGEL SIBLEY & SAJOVEC, PA**; P.O. Box 37428, Raleigh, North Carolina 27627 (US).

(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, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, 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, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- with sequence listing part of description (Rule 5.2(a))

(54) Title: IMPROVED PEPTIDE INHIBITORS OF SODIUM CHANNELS

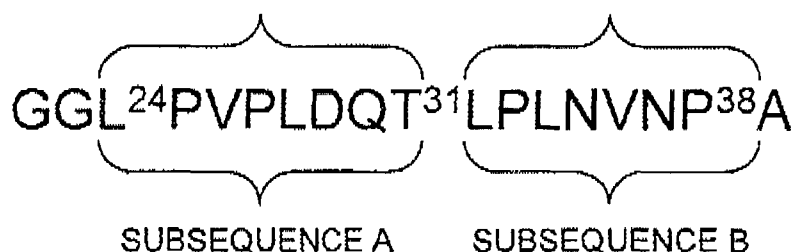


FIG. 1

(57) Abstract: The present invention relates to the ability of specialized non-naturally occurring peptides to bind to sodium channels and inhibit activation of the sodium channels. The invention further relates to methods for regulating of sodium absorption and fluid volume and treating disorders responsive to modulating sodium absorption by modulating the binding of specialized non-naturally occurring peptides to sodium channels.