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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
27 November 2008 (27.11.2008)

PCT

(10) International Publication Number
WO 2008/144455 A1

(51) International Patent Classification:
A61K 31/70 (2006.01)

(21) International Application Number:
PCT/US2008/063806

(22) International Filing Date: 15 May 2008 (15.05.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/938,165 15 May 2007 (15.05.2007) US

(71) Applicant *(for all designated States except US)*: **HELICON THERAPEUTICS, INC.** [US/US]; 7473 Lusk Boulevard, San Diego, California 92121 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **SCOTT, Roderick E.m.** [GB/US]; 15127 Canyon Pass, Poway, California 02964 (US). **BOURTCHOULADZE, Rusiko** [US/US]; 160 Cabrini Boulevard, Apt. 77, New York, New York 10033 (US). **PETERS, Marco** [DE/US]; 340 Play Del Norte, La Jolla, California 92037 (US). **TULLY, Timothy P.** [US/US]; 819 Seabright Lane, Solana Beach, ca 92075 (US).

(74) Agent: **PELTO, Don J., Reg. No. 337**; Sheppard Mullin, Richter & Hampton, 1300 I Street, N.W., 11th Floor, East, Washington, DC 20005 (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, BR, BW, BY, BZ, CA, CH, 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, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,

[Continued on next page]

(54) Title: METHODS OF IDENTIFYING GENES INVOLVED IN MEMORY FORMATION USING SMALL INTERFERING RNA(SIRNA)

Figure 8

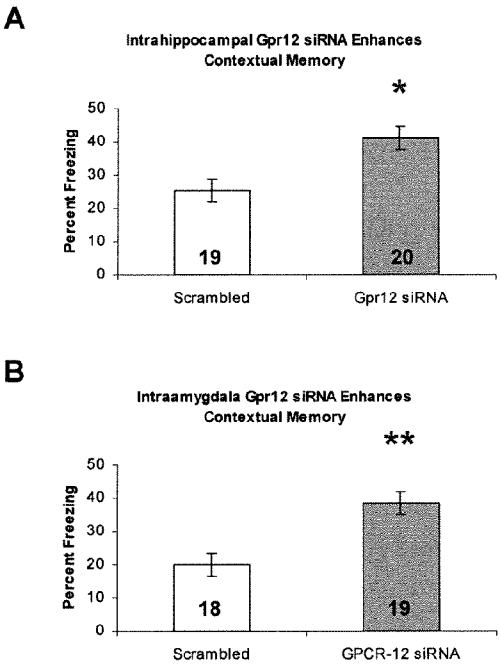


Figure 5: Effect of Gpr12 knockdown in hippocampus (A) and amygdala (B) on contextual fear memory.

(57) Abstract: The present invention relates to a method of identifying a gene or gene product associated with transcription dependent memory formation in an animal comprising the steps of: (a) administering to said animal sufficient small interfering RNA (siRNA) specific for the gene to inhibit gene function; (b) training said animal under conditions sufficient to induce transcription dependent memory formation in a normal untreated animal; and (c) determining the level of transcription dependent memory formation induced by the training of the treated animal. The present invention provides methods of using small interfering RNAs (siRNA) in hippocampus to identify genes and gene product whose inhibition affects contextual and temporal long-term (LTM) memory, but not short-term memory (STM).

WO 2008/144455 A1

ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*