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(71) Applicant: **REGENXBIO INC.** [US/US]; 9804 Medical Center Drive, Rockville, MD 20850 (US).

(72) Inventors: **PAKOLA, Stephen, Joseph**; 15 Lewis Road, Irvington, NY 10533 (US). **FALABELLA, Paulo**; 12324 Overpond Way, Potomac, ME 20854 (US). **NEVORET,**

Marie-Laure; 328 Chesapeake Trail, Virginia Beach, VA 23452 (US).

(74) Agent: **MARTINEK, Sebastian** et al.; JONES DAY, 250 Vesey Street, New York, NY 10281-1047 (US).

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(54) Title: TREATMENT OF MUCOPOLYSACCHARIDOSIS II WITH RECOMBINANT HUMAN IDURONATE-2-SULFATASE (IDS) PRODUCED BY HUMAN NEURAL OR GLIAL CELLS

Amino Acid Sequence of Human IDS

Iduronate-2-sulfatase (IDS)

→Signal →Mature 42kD
10 20 30 40 50
MPPPTGRL LNLGLVLSV CVALGSTQA **STTDA**NVL L¹LVDLRF
60 70 80 90 100
LCCYGDKLVK SPNTDQLRH SLLEQNAFAQ **QAVCA**PRPS FLGPRPDT
110 120 130 140 150
RLYDENSYWR VHAG**ST**IE QYEKNGVYT NSVGKVFHFG **TS****ST**DDSE
160 170 180 190 200
YKSEFPYH **ESSE**YENTKCRGPDHLRA NLICFVDVLD VFETLDPKQ
210 220 230 240 250
STQATQLLD KMTSAGFFP IAWYHSHIT PERYKRTQK LYPLE**ST**LA
260 270 280 290 300
PDEVTDLG EVAYNPKKI RQSEVQNI **IS**VEYGRTPV DFKRKIQY
310 320 330 340 350
PASVYLDIQ VKLLSALDD LQL**ST**PIIA FTSCHGKALG ERGENARYN
360 370 380 390 400
PDVACHVELI FYVECHIASI RHAGKILRPY LDPFIASQL MEGPQSMCL
410 420 430 440 450
VELVSLFFIL ASLALQVEE RCFVPSHVE LCKENKLEK HFRFDLEED
→Mature 14kD
460 470 480 490 500
PYLPQREEL IAYSQVERE DIPQWSDKP SLXDKIMGY STRTIDRYT
510 520 530 540 550
YKVGSELEDEY L**ST**PIIHAG ELYFVNDPL QENHES**ST**RO GGLQLQLP

Italics = signal sequence (MPPPTGRL LNLGLVLSV CVALG)

ST = N-linked glycosylation sites (GlcNAc...)

ESSE = Y-sulfation site (PSSERYENTKCRGPD)

Underline = amino-terminal sequence of 42kD and 14 kD peptides (Sleat 2005)

C⁶⁴ = formylglycine modification

N²⁴⁵ = M-6-P residue(s)

(57) Abstract: Compositions and methods are described for the delivery of recombinant human iduronate-2-sulfatase (IDS) produced by human neuronal or glial cells to the cerebrospinal fluid of the central nervous system (CNS) of a human subject diagnosed with mucopolysaccharidosis II (MPS II).

FIG. 1

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