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(54) Title: METHODS AND FORMULATIONS FOR TREATING MUCOPOLYSACCHARIDOSIS II-ASSOCIATED HEARING LOSS WITH RECOMBINANT HUMAN IDURONATE-2-SULFATASE

(57) Abstract: The present disclosure provides methods and formulations for treating or preventing mucopolysaccharidosis II (MPS II)-associated hearing loss using recombinant human iduronate-2-sulfatase (IDS).

Amino Acid Sequence of Human IDS (SEQ ID NO:1)
Iduronate-2-sulfatase (IDS)
→ Signal → Mature 42kD
10 20 30 40 50
MPPPRTRGRGL LNLGLVLSV CVALGSETQA NSTTDALNVL LLIWDLRPS
60 70 80 90 100
LGCYGDLYR SPNIDQLASH SLFFQNAFAQ QAVCAPSRVS FLTGRRPDTT
110 120 130 140 150
RLYDFNSYMR VHAGNFSTIP QYFKENGYVT MSGVKVFHPG ISSNHTDDSP
160 170 180 190 200
YSWSFPYPYP SSEKYENTKT CRGPDGELHA NLLCPVDVLD VPEGTLPDKQ
210 220 230 240 250
STEQAIQLE KMKTASPFV LAVGYHKPHI PFYYPKEFQK LYPLENITLA
260 270 280 290 300
POPEVPDGLP PVAYNPWMDI RQREDVQALN ISVPYGPPIV DFQRKIRQSY
310 320 330 340 350
FASVSYLDLQ VGRLLSALDD LQLANSTIIA FTSDHGWALG EHGEWAKYSN
360 370 380 390 400
FDVATHVPLI FYVPRITASL PEAGEKLFYP LDPFDSASQL MEPRGRQMDL
410 420 430 440 450
VELVSLFPTL AGLAGLQVPP RCPVPSFHVE LCREGKNLLK HFRFRDLEED
→ Mature 14kD
460 470 480 490 500
PYLPGNPREL IAYSQYPRPS DIPQWNSDKP SLKDIKIMGY SIRTIDYRYT
510 520 530 540 550
VWVGFPNDEF LANFSDIHAG ELYFVDSOPL QDHNMVNDISQ GGDLFQLLMP
Italics = signal sequence (MPPPRTRGRGL LNLGLVLSV CVALG) (SEQ ID NO:46)
N = N-linked glycosylation sites (GlcNac...)
Boxed = Y-sulfation site (PSSEKYENTKTCRGPD) (SEQ ID NO:47)
Underscore = amino-terminal sequence of 42kD and 14kD peptides (Sleat 2005)
C⁶⁴ = formylglycine modification
N²⁶⁰ = M-6-P residue(s)

FIG. 1

WO 2025/075963 A1

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