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[Continued on next page]

(54) Title: METHOD FOR EXPRESSING SIALYLATED GLYCOPROTEINS IN MAMMALIAN CELLS AND CELLS THEREOF

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gi|2499225|sp|O08520|CMST_CRIGR   CMP-sialic acid transporter
(CMP-Sia-Tr) (CMP-SA-Tr)
 gi|1914676|emb|CAA72794.1|   CMP-sialic acid transporter [Cricetulus griseus]
          Length = 336

 Score =  562 bits (1448), Expect = e-159
 Identities = 334/335 (99%), Positives = 335/335 (100%)

Query: 1   AQARENVSLFFKLYCLAVMTLVAAAYTVALRYTRTTAKELYFSTTAVCVTEVIKLLISVG 60
            AQARENVSLFFKLYCLAVMTLVAAAYTVALRYTRTTAKELYFSTTAVCVTEVIKLLISVG
Sbjct: 2   AQARENVSLFFKLYCLAVMTLVAAAYTVALRYTRTTAKELYFSTTAVCVTEVIKLLISVG 61

Query: 61  LLAKETGSLGRFKASLSENVLGSPKELMKLSVPSLVYAVQNNVAFLALSNLDAAVYQVTY 120
            LLAKETGSLGRFKASLSENVLGSPKELMKLSVPSLVYAVQNN+AFLALSNLDAAVYQVTY
Sbjct: 62  LLAKETGSLGRFKASLSENVLGSPKELMKLSVPSLVYAVQNNMAFLALSNLDAAVYQVTY 121

Query: 121 QLKIPCTALCTVLMLNRTLSKLQWVSVFMLCGGVILVQWKPAQATKVVVEQSPLLGFGAI 180
            QLKIPCTALCTVLMLNRTLSKLQWVSVFMLCGGVILVQWKPAQATKVVVEQSPLLGFGAI
Sbjct: 122 QLKIPCTALCTVLMLNRTLSKLQWVSVFMLCGGVILVQWKPAQATKVVVEQSPLLGFGAI 181

Query: 181 AIAVLCSGFAGVYFEKVLKSSDTSLWVRNIQMYLSGIVVTLVGTYLSDGAEIKEKGFFYG 240
            AIAVLCSGFAGVYFEKVLKSSDTSLWVRNIQMYLSGIVVTLVGTYLSDGAEIKEKGFFYG
Sbjct: 182 AIAVLCSGFAGVYFEKVLKSSDTSLWVRNIQMYLSGIVVTLVGTYLSDGAEIKEKGFFYG 241

Query: 241 YTYYVWFVIFLASVGGLYTSVVVKYTDNIMKGFSAAAAIVLSTIASVMLFGLQITLSFAM 300
            YTYYVWFVIFLASVGGLYTSVVVKYTDNIMKGFSAAAAIVLSTIASVMLFGLQITLSFAM
Sbjct: 242 YTYYVWFVIFLASVGGLYTSVVVKYTDNIMKGFSAAAAIVLSTIASVMLFGLQITLSFAM 301

Query: 301 GALLVCISIYLYGLPRQDTTCIQQEATSKERVIGV 335
            GALLVCISIYLYGLPRQDTTCIQQEATSKERVIGV
Sbjct: 302 GALLVCISIYLYGLPRQDTTCIQQEATSKERVIGV 336
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(57) Abstract: Methods and systems for producing glycoproteins having sialylated oligosaccharides are provided. The invention comprises the genetic engineered cells with a CMP-sialic acid transporter (CMP-SAT) gene so that the cells express the CMP-SAT protein or fragment thereof at an above endogenous levels. The increase in CMP-SAT expression allows for the increased transport of the CMP-sialic acid into the Golgi apparatus so as to obtain sialylation of glycoproteins at above endogenous levels. In particular, the methods and systems of the invention are useful for producing complex sialylated glycoproteins in mammalian cells of interest, for example Chinese Hamster Ovary (CHO) cells.

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

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