

Figure legends for supplementary figures

Figure S1. (A, B) Major sulfated *O*-glycans synthesized by CHO/CD34/F7/C1/LSST (A) and CHO/CD34/F7/C2/LSST (B) lines. The released *O*-glycans were permethylated and analyzed by MALDI-MS in negative ion mode. Further MALDI-MS/MS analysis confirmed assignments for the $[M-H]^-$ molecular ions at m/z 1560 from both cell lines and m/z 1747 and 1921 from CHO/CD34/F7/C2/LSST, as annotated. The symbols used are in accord with those recommended by the Consortium for Functional Glycomics (CFG) as standard representation. S represents sulfate. (C–E) MALDI MS/MS analyses of major *O*-glycans from CHO/CD34/F7/C1/LSST (C) and CHO/CD34/F7/C2/LSST (D, E) lines in negative ion mode confirmed the presence of 6-sulfo sLeX on the 6-arm of predominantly core 2 structures in the latter line but on the 3-arm of an extended core 1 structure in the former. The combination of D ion at m/z 875 and G ions at either m/z 759 for the parent ions at m/z 1560 (C, D) or m/z 1120 for the parent ion at m/z 1920 (E), together with the B ion at m/z 1063 (C) or the corresponding E ion at m/z 992 (D, E) defines the sulfo sLeX epitope. Note that a series of fragment ions derived from concerted cleavages at the reducing end of GalNAcitol, including m/z 1151, 1294, and 1280, can be derived only from a core 2 structure with sulfo sLeX on the 6-arm. These ions are not present in (C), in which alternative fragment ions at m/z 1237 and 1283 indicate that sulfo sLeX is carried on an extended core 1 structure. The fragmentation pattern afforded by MALDI TOF/TOF in positive ion mode has been previously reported [32,34] and is directly applicable to patterns observed in negative ion mode except that fragment ions not carrying the negative charge afforded by sulfate are not observed. Fragment ion types corresponding to well established series are further annotated at the labeled peaks.

Figure S2. MS profiles of the sulfated *N*-glycans carrying sulfo sLeX epitope from the four cell

lines, CHO/CD34/F7/LSST (A), CHO/CD34/F7/C1/LSST (B), CHO/CD34/F7/C2/LSST (C), and CHO/CD34/F7/C1/C2/LSST (D). The *N*-glycans were permethylated and analyzed by MALDI-MS in negative ion mode. Further MALDI-MS/MS analysis confirmed that the $[M-H]^-$ molecular ions at m/z 3182 and m/z 3356 carry sulfo sLeX epitope. The symbols used are in accord with those recommended by CFG as standard representation. S represents sulfate.

Figure S3. Expression of Core1- β 3GlcNAcT and Core2GlcNAcT-1 in chronic *H. pylori* gastritis and gastric MALT lymphoma assessed by RT-PCR. Total RNA was prepared from FFPE tissue sections with chronic *H. pylori* gastritis (n = 5) and gastric MALT lymphoma (n = 5). RT, reverse transcription; Cont., control amplification using distilled water (minus template) (-) and plasmid harboring the target cDNA (+).