Supplementary Information

Figure S1. Relative activity of 3-OST1 (A) and 3-OST3a (B) on synthetic oligosaccharides. The values presented are calculated from the AUC of 3-O-sulfated oligosaccharide product peaks that are shown in Figures 1 and 2. Data has been normalized to the AUC for oligosaccharide 6. The error bar indicates the standard error of the mean (SEM) from three independent experiments.
Figure S2. Theoretical 3-OST3a modification sites on oligosaccharide 2 and their respective disaccharide products upon digestion with heparitinase I, II & III. A. No 3-O-sulfate groups are added to the oligosaccharide. B. One 3-O-sulfate group is added to the first GlcNS6S residue. C. One 3-O-sulfate group is added to the second GlcNS6S residue. D. 3-O-sulfate groups are added to both GlcNS6S residues.
Figure S3. MS spectra of non-3-O-sulfated disaccharide products of oligosaccharides 2, 3, and 6.
Figure S4. MS spectra of intact 3-0-sulfated oligosaccharide products derived from oligosaccharide substrates 2, 3 and 6.