Synthesis of Lewis X trisaccharide analogues in which glucose and rhamnose replace N-acetylglucosamine and fucose, respectively

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Abstract	Two analogues of the Le(x) trisaccharide, alpha-L-Fucp -(1 --> 3)-[beta-D-Galp -(1 --> 4)]-D-Glcp were synthesized as allyl glycosides. In these derivatives either only the N-acetylglucosamine is replaced by glucose or both the N-acetylglucosamine and the facosyl residue are replaced by glucose and rhamnose, respectively. Our synthetic scheme used armed beta-thiophenyl fuco- and rhamnoside glycosyl donors that were prepared anomerically pure from the corresponding alpha-glycosyl bromides. The protecting groups were chosen to allow access to the fully deprotected trisaccharides without reduction of the allyl glycosidic group. These analogues will be used as soluble antigens in binding experiments with anti-Le(x) antibodies and can also be conjugated to a carrier protein and used as immunogens. In the course of this synthetic work, we also describe the use of reversed-phase HPLC to purify key protected trisaccharide intermediates prior to their deprotection.
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