Synthesis of branched and linear 1,4-linked galactan oligosaccharides

We report the synthesis of linear and branched (1→4)-D-galactans. Four tetra- and one pentasaccharide were accessed by adopting a procedure of regioselective ring opening of a 4,6-O-naphthylidene protecting group followed by glycosylation using phenyl thioglycoside donors. The binding of the linear pentasaccharide with galectin-3 is also investigated by determination of a co-crystal structure. The binding of the (1→4)-linked galactan to Gal-3 highlights oligosaccharides of pectic galactan, which is abundant in the human diet, as putative Gal-3 ligands.

General information
State: Published
Organisations: Department of Chemistry, Organic Chemistry, University of Copenhagen, SARomics Biostructure AB, Newcastle University
Pages: 1157-1162
Publication date: 2018
Peer-reviewed: Yes

Publication information
Journal: Organic and Biomolecular Chemistry
Volume: 16
Issue number: 7
ISSN (Print): 1477-0520
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.32 SJR 1.281 SNIP 0.767
Web of Science (2017): Impact factor 3.423
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.39 SJR 1.382 SNIP 0.805
Web of Science (2016): Impact factor 3.564
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 3.47 SJR 1.391 SNIP 0.85
Web of Science (2015): Impact factor 3.559
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 3.5 SJR 1.396 SNIP 0.903
Web of Science (2014): Impact factor 3.562
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 3.55 SJR 1.492 SNIP 0.892
Web of Science (2013): Impact factor 3.487
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): CiteScore 3.47 SJR 1.653 SNIP 0.939
Web of Science (2012): Impact factor 3.568
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): CiteScore 3.71 SJR 1.759 SNIP 0.967
Web of Science (2011): Impact factor 3.696
ISI indexed (2011): ISI indexed yes