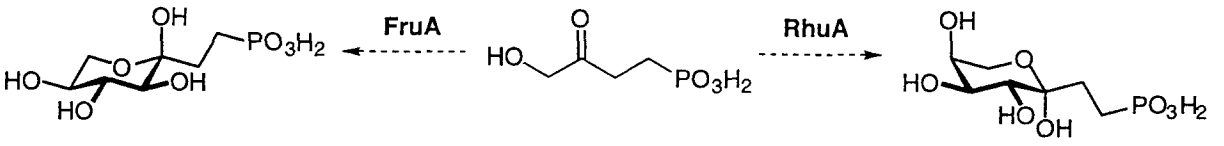
*Carbohydr. Res.* **1997**, *305*, 313

## Practical synthesis of 4-hydroxy-3-oxobutylphosphonic acid and its evaluation as a bio-isosteric substrate of DHAP aldolases

Hans-Lothar Arth, Wolf-Dieter Fessner
*Department of Organic Chemistry, RWTH Aachen, D-52056 Aachen, Germany*

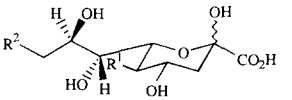



*Carbohydr. Res.* **1997**, *305*, 323

## The chemoenzymatic synthesis of 9-substituted 3,9-dideoxy-D-*glyxero*-D-*galacto*-2-nonulosonic acids

David C.M. Kong, Mark von Itzstein
*Department of Medicinal Chemistry, Victorian College of Pharmacy, Monash University (Parkville Campus), 381 Royal Parade, Parkville, Victoria 3052, Australia*

The preparation of some novel C-9 modified Kdn analogues has been achieved from the corresponding 6-modified mannoses using Neu5Ac aldolase.

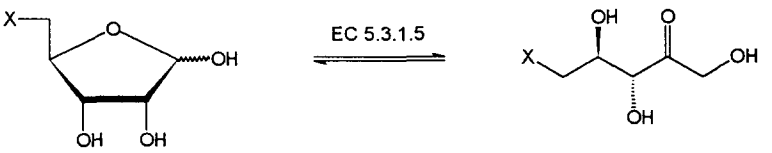


**13** $R^1$ = OH, $R^2$ = $N_3$
**14** $R^1$ = OH, $R^2$ = Br

*Carbohydr. Res.* **1997**, *305*, 331

## Glucose isomerase catalysed isomerisation reactions of (*2R,3R*)-configured alsofuranoses into the corresponding open-chain 2-ketoses

Michael Ebner, Arnold E. Stütz
*Institut für Organische Chemie der Technischen Universität Graz, Stremayrgasse 16, A-8010 Graz, Austria*




*Carbohydr. Res.* **1997**, *305*, 337

## Enzymatic synthesis of L-tagatose from galactitol with galactitol dehydrogenase from *Rhodobacter sphaeroides* D

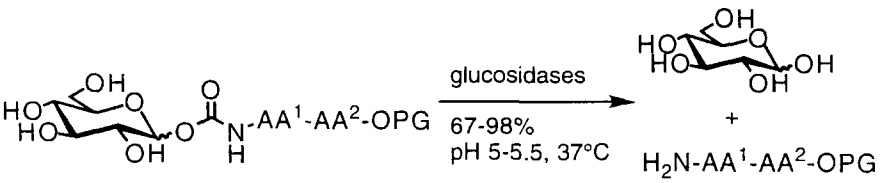
Alexander Huwig, Susanne Emmel, Gregor Jäkel, Friedrich Giffhorn
*Inst. Applied Microbiology, Saarbrücken, Germany*

Bioconversion of galactitol **1** to L-tagatose **2** by galactitol dehydrogenase from Rhodobacter sphaeroides D. Operational conditions are described in *Experimental.*

*Carbohydr. Res.* **1997**, *305*, 341

## The tetrabenzylglucosyloxycarbonyl(BGloc)-group a carbohydrate-derived enzyme-labile urethane protecting group

Thomas Kappes, Herbert Waldmann
*Institut für Organische Chemie, Universität Karlsruhe, Richard-Willsätter-Allee 2, D-76128 Karlsruhe, Germany*

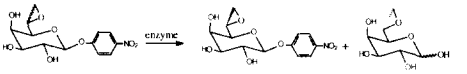



*Carbohydr. Res.* **1997**, *305*, 351

## Diastereoselective resolution of 6-substituted glycosides *via* enzymatic hydrolysis

Urszula Grabowska [c], David A. MacManus [b], Keith Biggadike [a], Mike I. Bird [a], Stephen Davies [b], Timothy Gallagher [c], Lee D. Hall [d], Evgeny N. Vulfson [b]
[a] *GlaxoWellcome, Medicines Research Centre, Stevenage, SG1 2NY, UK*
[b] *Food Macromolecular Sciences Department, Institute of Food Research, Earley Gate, Whiteknights Road, Reading, RG6 6BZ, UK*
[c] *School of Chemistry, University of Bristol, Bristol, BS8 1TS, UK*
[d] *X-Ray Crystallographic Unit, School of Chemistry, University of Bristol, Bristol, BS8 1TS, UK*

The enzymatic resolution of diastereomeric β-D-galactosides incorporating a variety of stereogenic centres at the 6-position is described.



*Carbohydr. Res.* **1997**, *305*, 363

## Trisaccharide synthesis by glycosyl transfer from *p*-nitrophenyl β-D-*N*-acetylgalactosaminide on to disaccharide acceptors catalysed by the β-*N*-acetylhexosaminidase from *Aspergillus oryzae*

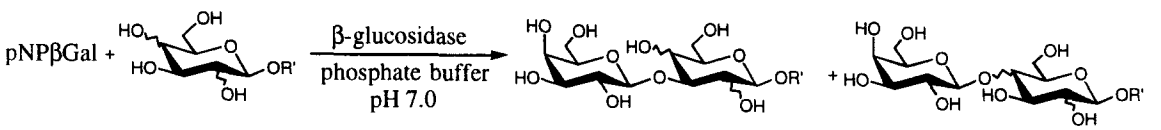
Suddham Singh, Michaela Scigelova, Peter Critchley, David H.G. Crout
*Department of Chemistry, University of Warwick, Coventry CV4 7AL, UK*

β-D-GalNAc-*p*NP + α-D-Glc-(1→4)-β-D-SEt ⟶ β-D-GalNAc-(1→4)-α-D-Glc-(1→4)-β-D-SEt

*Carbohydr. Res.* **1997**, *305*, 371

## Enzymatic synthesis of disaccharides using *Agrobacterium* sp. β-glucosidase

Heiko Prade, Lloyd F. Mackenzie, Stephen G. Withers
*Protein Engineering Network of Centres of Excellence of Canada and Department of Chemistry, University of British Columbia, 2036 Main Mall, Vancouver, British Columbia, Canada, V6T 1Z1*




**9-67% Yield**

*Carbohydr. Res.* **1997**, *305*, 383

## Regioselectivity of the enzymatic transgalactosidation of D- and L-xylose catalysed by β-galactosidases

Esther Montero [1], Jose Alonso [1], Francisco J. Cañada [1], Alfonso Fernández--Mayoralas [1], Manuel Martín-Lomas [2]

[1] *Instituto de Química Orgánica, CSIC, Juan de la Cierva 3, 28006 Madrid, Spain*
[2] *Instituto de Investigaciones Químicas, CSIC, Isla de la Cartuja, Sevilla, Spain*

The synthesis of β-D-galactopyranosyl-xyloses using different β-galactosidases is described.

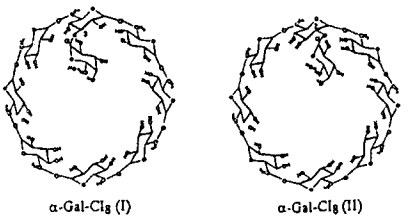
β-D-Gal-ONP + Xylose $\xrightarrow{\text{β-Galactosidase}}$ β-D-Gal-(1→2)-Xyl, β-D-Gal-(1→3)-Xyl, β-D-Gal-(1→4)-Xyl

*Carbohydr. Res.* **1997**, *305*, 393

## Enzymatic synthesis, isolation, and analysis of novel α- and β-galactosyl-cycloisomalto-octaoses

Kyoko Koizumi [a], Toshiko Tanimoto [a], Yoko Kubota [a], Sumio Kitahata [b]

[a] *School of Pharmaceutical Sciences, Mukogawa Women's University, 11-68 Koshien Kyuban-cho, Nishinomiya 663, Japan*
[b] *Osaka Municipal Technical Research Institute, 1-6-50 Morinomiya, Jyoto-ku, Osaka, 536, Japan*



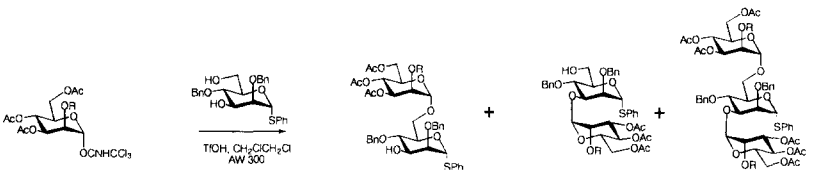

and their β-galactosyl isomers [β-Gal-CI8 (I), (II)]

*Carbohydr. Res.* **1997**, *305*, 401

## Chemoenzymatic synthesis of the branched oligosaccharides which correspond to the core structure of N-linked sugar chains

Ichiro Matsuo [a], Megumi Isomura [a], Tatsuo Miyazaki [b], Tohru Sakakibara [b], Katsumi Ajisaka [a]

[a] *Meiji Institute of Health Science,Meiji Milk Products Co., Ltd., 540 Naruda, Odawara 250, Japan*
[b] *Department of Chemistry, Yokohama City University, Seto, Kanazawa-ku, Yokohama 236, Japan*

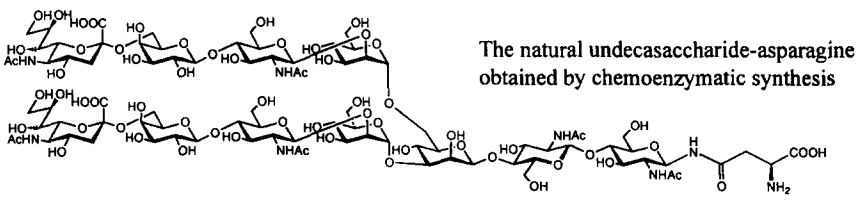



*Carbohydr. Res.* **1997**, *305*, 423

## Chemoenzymatic synthesis of a sialylated diantennary N-Glycan kinked to asparagine

Carlo Unverzagt

*Institut für Organische Chemie und Biochemie, TU München, Lichtenbergstr. 4, D-85748 Garching, Germany*



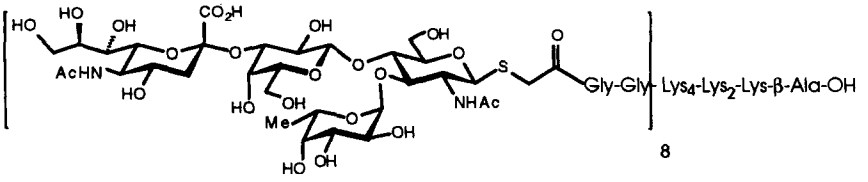
The natural undecasaccharide-asparagine **1** was obtained by chemoenzymatic synthesis

**1**

*Carbohydr. Res.* **1997**, *305*, 433

## Chemoenzymatic synthesis of dendritic sialy Lewis$^x$

Monica M. Palcic [a], Hong Li [a], Diana Zanini [b], Resham S. Bhella [a], René Roy [b]
[a] *Department of Chemistry, University of Alberta, Edmonton, AB Canada T6G 2G2*
[b] *Department of Chemistry, University of Ottawa, Ottawa, ON Canada K1N 6N5*

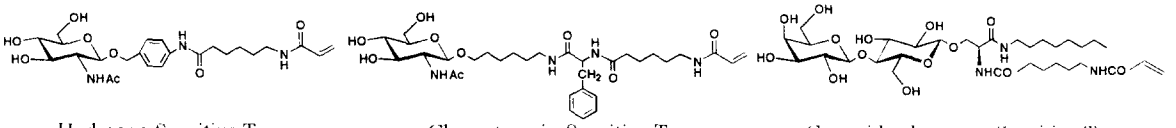



8

*Carbohydr. Res.* **1997**, *305*, 443

## High performance polymer supports for enzyme-assisted synthesis of glucoconjugates

Kuriko Yamada, Eriko Fujita, Shin-Ichiro Nishimura
*Division of Biological Sciences, Graduate School of Science, Hokkaido University, Nishi-8, Kita-10, Kitaku, Sappora 060, Japan*

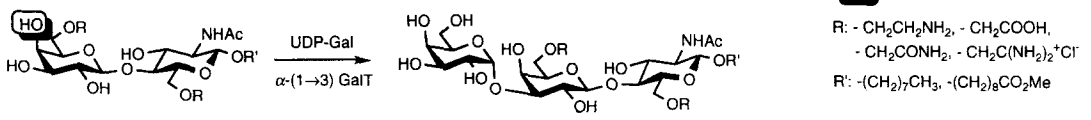



Hydrogen-Sensitive Type α-Chymotrypsin-Sensitive Type Ceramide glycanase-Sensitive Type

*Carbohydr. Res.* **1997**, *305*, 483

## Acceptor hydroxyl group mapping for calf thymus α-(1 → 3)-galactosyltransferase and enzymatic synthesis of α-D-Gal*p*-(1 → 3)-β-D-Gal*p*-(1 → 4)-β-D-Glc*p*NAc analogs

Keiko Sujino [a,b], Carles Malet [a], Ole Hindsgaul [a], Monica M. Palcic [a]
[a] *Department of Chemistry, University of Alberta, Edmonton, Alberta T6G 2G2 Canada*
[b] *The Noguchi Institute, 1-8-1, Kaga, Itabashi-ku, Tokyo 173 Japan*




*Carbohydr. Res.* **1997**, *305*, 491

## Enzymatic synthesis of site-specifically α1-3-fucosylated polylactosamines containing either a sialy Lewis X, a VIM-2, or a sialylated and internally difucosylated sequence

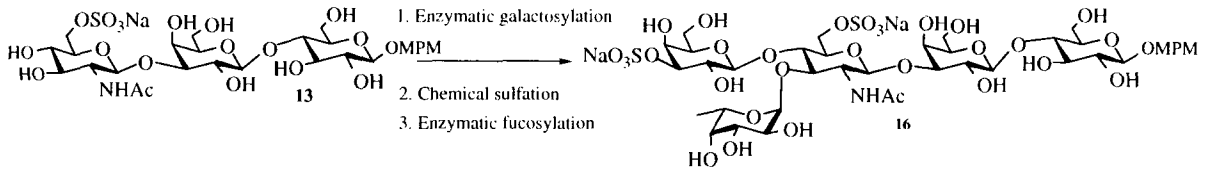
Jarkko Räbinä [a,b], Jari Natunen [a], Ritva Niemelä [a], Heidi Salminen [a], Kristiina Ilves [a], Olli Aitio [a,c], Hannu Maaheimo [a], Jari Helin [a], Ossi Renkonen [a]
[a] *Inst. of Biotechnology and Dept. of Biosciences (Division of Biochemistry), University of Helsinki, Finland*
[b] *Haartman Inst., Dept. of Bacteriology and Immunology, University of Helsinki, Finland*
[c] *Dept. of Pharmacy, Division of Pharmaceutical Chemistry, University of Helsinki, Finland*

Enzymatic synthesis of hexasaccharides Neu5Ac(α2-3)Gal(β1-4)GlcNAc(β1-3)Gal(β1-4)[Fuc(α1-3)]GlcNAc and Neu5Ac(α2-3)Gal(β1-4)[Fuc(α1-3)]GlcNAc(β1-3)Gal(β1-4)GlcNAc, and nonasaccharide Neu5Ac(ga2-3)Gal(β1-4)GlcNAc(β1-3)Gal(β1-4)[Fuc(α1-3)]GlcNAc(β1-3)Gal(β1-4)[Fuc(α1-3)]GlcNAc is described.

*Carbohydr. Res.* **1997**, *305*, 501

## Chemo-enzymatic synthesis of a $3^{IV},6^{III}$ disulfated Lewis$^x$ pentasaccharide, A candidate ligand for human L-selectin

André Lubineau, Claudine Augé, Nicole Le Goff, Christine Le Narvor
*Institut de Chimie Moléculaire d'Orsay, U.R.A. C.N.R.S. 462, Université de Paris-Sud, Bt 420, F-91405, Orsay, France*




*Carbohydr. Res.* **1997**, *305*, 511

## Fucosyltransferase-catalyzed formation of L-galactosylated Lewis structures

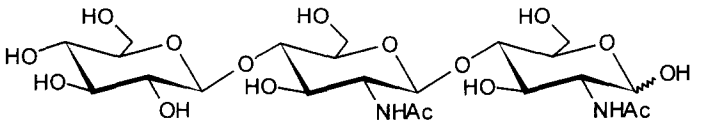
Katja Stangier [a,b], Monica M. Palcic [a], David R. Bundle [a], Ole Hindsgaul [a], Joachim Thiem [b]
[a] *Department of Chemistry, University of Alberta, Edmonton, Alberta T6G 2G2, Canada*
[b] *Institut für Organische Chemie, Universität Hamburg, D-20146 Hamburg, Germany*

α1-3/4 FucT could be employed for L-galactosylation of disaccharide acceptor substrates with (modified) GDP-L-Gal to give (modified) L-galactosylated Le$^a$ and Le$^x$ trisaccharide derivatives.

*Carbohydr. Res.* **1997**, *305*, 519

## β-Glucosylation of chitooligomers by galactosyltransferase

Vladimír Křen [a], Jana Dvořáková [a], Ulrike Gambert [b], Petr Sedmera [a], Vladimír Havlíček [a], Joachim Thiem [b], Karel Bezouška [c]
[a] *Institute of Microbiology, Czech. Acad. Sci., Laboratory of Biotransformation, CZ 142 20 Prague 4, Czech Republic*
[b] *Institute of Organic Chemistry, University of Hamburg, D-20146, Germany*
[c] *Faculty of Science, Charles University Prague, Dept. of Biochemistry, CZ 128 40 Prague 2, Czech Republic*

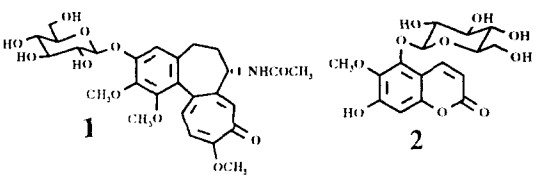


*Carbohydr. Res.* **1997**, *305*, 525

## Effects of organic cosolvents on the stability and activity of the β-1,4-galactosyltransferase from bovine colostrum

Sergio Riva [a], Barbara Sennino [a], Francesca Zambianchi [a], Bruno Danieli [b], Luigi Panza [b]
*Instituto di Chimica degli Ormoni, C.N.R., Via Mario Bianco 9, I 20131 Milano, Italy*
*Dipartimento di Chimica Organica ed Industriale, Universita' di Milano, Via Venezian 21, I 20131 Milano, Italy*

The influence of different organic cosolvents on the stability and activity of the β-1,4-galactosyltransferase from bovine colostrum and of its ancillary enzyme UDP-galactose-4'-epimerase has been investigated using the alkaloid glucoside colchicoside (**1**) and the coumarinic glucoside fraxin (**2**) as model substrates.

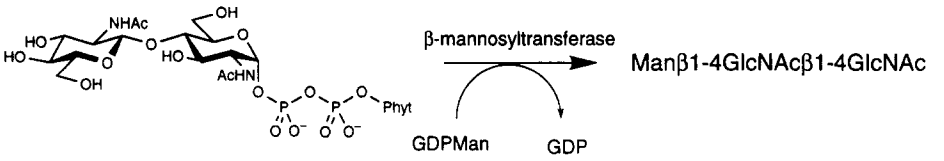


*Carbohydr. Res.* **1997**, *305*, 533

## The chemoenzymatic synthesis of the core trisaccharide of N-linked oligosaccharides using a recombinant β-mannosyltransferase

Gregory M. Watt, Leigh Revers, Matthew C. Webberley, Iain B.H. Wilson, Sabine L. Flitsch

*The Edinburgh Centre for Protein Technology, Department of Chemistry, King's Buildings, The University of Edinburgh, West Mains Road, Edinburgh EH9 3JJ, UK*




*Carbohydr. Res.* **1997**, *305*, 549

## Structural characterization of the maltose acceptor products synthesized by *Leuconostoc mesenteroides* NRRL B-1299 dextransucrase

Marguerite Dols [a], Magali Remaud-Simeon [a], René-Marc Willemot [a], Michel R. Vignon [b], Pierre Monsan [a]

[a] *Centre de Bioingénierie Gilbert Durand, UMR. CNRS 5504 - LA. INRA. INSA Complexe Scientifique de Rangueil, F-31077 Toulouse, France*

[b] *CERMAV-CNRS, F-38041 Grenoble, France*

The structure of three different families of oligosaccharides synthesized during acceptor reaction with maltose and sucrose by *L. mesenteroides* NRRL B-1299 dextransucrase was solved. A cascade scheme for the biosynthetic pathway is proposed.

*Carbohydr. Res.* **1997**, *305*, 561

## Transfer reactions catalyzed by cyclodextrin glucosyltransferase using 4-thiomaltosyl and *C*-maltosyl fluorides as artificial donors

Laurent Bornaghi [a], Jean-Pierre Utille [a], El Djouhar Rekaï [b], Jean-Maurice Mallet [b], Pierre Sinaÿ [b], Hugues Driguez [a]

[a] *Centre de Recherches sur les Macromolécules Végétales, CNRS, B.P. 53, 38041 Grenoble cedex 9, France*

[b] *Ecole Normal Supérieure, Département de Chimie, 24 rue Lhomond, 75231 Paris cedex 05, France*