Samir Ghosh

Post-doctoral Fellow, Department of Chemistry

The University of Toledo

Toledo, OH-43606, U.S.A

E-mail: samirgbhu@gmail.com

Date of Birth: February 01, 1983

Academic Qualifications:

Title of Ph.D. thesis (Chemistry): ***"Synthetic Studies on Oligosaccharides Related to Some Bacterial Polysaccharides."***

(Thesis Supervisor: **Dr. Anup Kumar Misra**, Prof., Division of Molecular Medicine, Bose Institute, P-1/12, C.I.T. Scheme VII-M, Kolkata-700054, India).

Degree	**University/Institute**	**Year**
Ph.D.	Jadavpur University, West Bengal, India	2011
NET	CSIR-UGC	2006
M.Sc.	Banaras Hindu University, U. P., India	2006
B.Sc	Calcutta University, West Bengal, India	2004

Professional experiences:

November, 2016-September, 2018: Research Scientist in TCG LIfeSciences, Kolkata, India.

Research experiences:

September, 2012- November, 2016 and September 2018-Present:

Postdoctoral Research Fellow, Department of Chemistry, The University of Toledo, Toledo, OH, 43606, U.S.A.

Project: Synthesis of Zwitterionic polysaccharide based Carbohydrate Cancer Vaccine.

With Prof. Peter R. Andreana

Nov, 2011 to Sept, 2012:

Postdoctoral Research Fellow, National Institute of Health (NIH), Bethesda, MD 20892, U.S.A.

Project: Synthetic oligosaccharide based vaccine against infections caused by Group B Streptococcus.

With Dr. Vince Pozsgay

April, 2007-Nov, 2011:

Doctoral research fellow under the guidance of Dr. Anup Kumar MIsra, Bose Institute, Kolkata, India.

Project: Synthetic Studies on Oligosaccharides Related to Some Bacterial Polysaccharides.

Research Summary (April, 2007-Till date):

- Total Synthesis of an Aminooxy Derivative of the Globo H.
- Total Synthesis of Zwitterionic Tetrasaccharide Repeating Unit fromBacteroides fragilis ATCC 25285/NCTC 9343 Capsular Polysaccharide PS A1 with Alternating Charges on Adjacent Monosaccharides
- Synthesis of an Aminooxy Derivative of the Tetrasaccharide Repeating Unit of Streptococcus dysgalactiae 2023 Polysaccharide for a PS A1 Conjugate Vaccine
- Total Synthesis of an Aminooxy Derivative of the Trisaccharide Globotriose Gb3.
- Synthesis of the hexasaccharide repeating unit corresponding to the cell wall lipopolysaccharide of *Azospirillum irakense* KBC1.
- Concise synthesis of a hexasaccharide present in the cell wall lipopolysaccharide of *Azospirillum lipoferum* Sp59b.
- Synthesis of a tri and tetrasaccharide present in the cell wall lipopolysaccharides of *Azospirillum brasilense* S17.
- Synthesis of a tetrasaccharide corresponding to the teichoic acid from the cell wall of *Streptomyces sp. VKM Ac-2275*.
- Concise synthesis of a hexasaccharide related to the adhesin receptor of *Streptococcus Oralis* ATCC 55229.
- Synthesis and evaluation of antitubercular activity of glycosyl thio- and sulfonyl acetamide derivatives.
- Syntheses and evaluation of glucosyl aryl thiosemicarbazide and glucosyl thiosemicarbazone derivatives as antioxidant and anti-dyslipidemic agents.

Research Interest:

- Development of novel reaction methodologies and total synthesis of biologically important complex oligosaccharides through rational protecting group manipulation and steroselective glycosylations, as well as studies of their physico-chemical properties and bioevaluation.
- Interested to learn glycobiology and to work in the interface of chemistry and biology to develop carbohydrate based molecules for controlling diseases.

Expertise:

- Interpretation of spectral data [IR, 1D and 2D NMR (COSY, HMQC, HMBC, TOCSY, Gated ^{1}H coupled ^{13}C NMR etc.), MS (EI, FAB, ESI)] of complex carbohydrates.
- Expertise in using Polarimeter (Perkin Elmer and Jasco), Rotary Evaporator, Freeze Drier, Ultracentifuge etc.
- Softwares handled: MS-Office (MS-Word, PowerPoint), ChemDraw, Adobe Photoshop, TopSpin 1.3 (Software for NMR analysis).
- Softwares used to search the online data base: Scifinder, Discovery Gate (Cross fire beilstein, MDL database), Pubmed, Web of Knowledge.

List of Publications

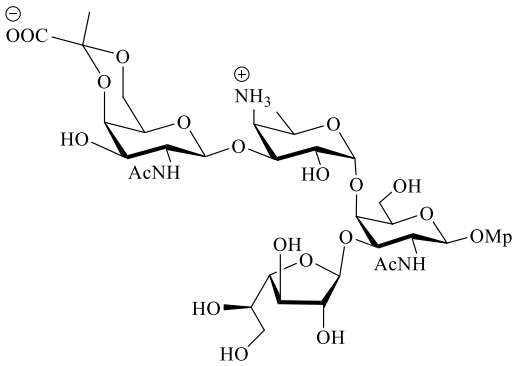
1. Synthesis of zwitterionic tetrasaccharide repeating unit from *Bacteroides fragilis* ATCC 25285/NCTC 9343 capsular polysaccharide PS A1 with alternating charges on adjacent monosaccharides. Pradheep Eradi, **Samir Ghosh** and Peter R. Andreana, ***Org. Lett.***, **2018**, *20* (15), 4526–4530
2. Synthesis of an Aminooxy Derivative of the Tetrasaccharide Repeating Unit of Streptococcus dysgalactiae 2023 Polysaccharide for a PS A1 Conjugate Vaccine. **Samir Ghosh**, Sharmeen Nishat and Peter R. Andreana, ***J. Org. Chem.***, **2016**, *81* (11), 4475–4484.
3. Total Synthesis of an Aminooxy Derivative of the Trisaccharide Globotriose Gb3. **Samir Ghosh**, Peter R. Andreana, ***J. Carbohydr. Chem*. (2014),** 33, 381-394.
4. Synthesis of the hexasaccharide repeating unit corresponding to the cell wall lipopolysaccharide of Azospirillum irakense KBC1. **Samir Ghosh**, Anup Kumar Misra, ***Tetrahedron: Asymmetry* (2010),** 21, 2755-2761.
5. Concise synthesis of a hexasaccharide present in the cell wall lipopolysaccharide of *Azospirillum lipoferum* Sp59b. **Samir Ghosh**, Anup Kumar Misra, ***Tetrahedron: Asymmetry* (2010),** *21, 725-730*
6. Synthesis of a tetrasaccharide corresponding to the teichoic acid from the cell wall of *Streptomyces sp. VKM Ac-2275*. **Samir Ghosh**, Anup Kumar Misra, ***Tetrahedron: Asymmetry* (2009),** *20, 2688-2693*
7. Concise synthesis of a hexasaccharide related to the adhesin receptor of *Streptococcus Oralis* ATCC 55229. **Samir Ghosh**, Anup Kumar Misra, ***J. Carbohydr. Chem*. (2009),** *28, 447-462***.**
8. Synthesis of a tri and tetrasaccharide present in the cell wall lipopolysaccharides of *Azospirillum brasilense* S17. Shashi Pandey, **Samir Ghosh,** Anup Kumar Misra, ***Synthesis* (2009)**, 2584-2590.
9. Syntheses and evaluation of glucosyl aryl thiosemicarbazide and glucosyl thiosemicarbazone derivatives as antioxidant and anti-dyslipidemic agents. **Samir Ghosh,** Anup Kumar Misra, Gitika Bhatia, M. M. Khan, A. K. Khanna, ***Bioorganic & Medicinal Chemistry Letters* (2009),** *19*, 386-389.
10. Synthesis and evaluation of antitubercular activity of glycosyl thio- and sulfonyl acetamide derivatives. **Samir Ghosh,** Pallavi Tiwari, Shashi Pandey, Anup Kumar Misra, Vinita Chaturvedi, Anil Gaikwad, Shalini Bhatnagar, Sudhir Sinha, ***Bioorganic & Medicinal Chemistry Letters* (2008),** *18*, 4002-4005.

Conferences/Workshops Attended:

- **Samir Ghosh**, Sharmeen Nishat, Kevin R. Trabbic and Peter R. Andreana, **Syntheses of Aminooxy Derivative of Globo H and Tetrasaccharide Repeating Unit of *Streptococcus dysgalactiae* 2023 Polysaccharide to Obtain PS A1 Conjugate Vaccines**. (Oral), Present in the 11th Midwest Carbohydrate Symposium 2015, held at Cleveland State University.
- Samir Ghosh, Peter R Andreana, **"Total Synthesis of an Aminooxy Derivative of the Trisaccharide Globotriose Gb3"** (Poster), present in the 9th Midwest Carbohydrate Symposium 2013, held at The University of Toledo.
- 8th Midwest Carbohydrate Symposium 2012, held at Wayne State University 5-6th Oct, 2012.
- Samir Ghosh, Anup Kumar Misra "**Synthesis of a tetrasaccharide corresponding to the teichoic acid from the cell wall of *Streptomyces sp. VKM Ac-2275***." (**Poster**), present in the national CARBO-XXIV Conference held at L. M. College of Science & Technology, Jodhpur (7-9 November, 2009)**.**
- International Symposium on Perspectives of Cell Signaling and Molecular Medicine, held at Bose Institute, Kolkata (27-29 November, 2008)
- National Symposium on Designing the molecular World through Chemistry, held at Banaras Hindu University, Varanasi (24-25 March, 2006).

Graphical presentation of the work carried out during PhD and Postdoc:

➢ Synthesis of zwitterionic tetrasaccharide repeating unit from *Bacteroides fragilis* ATCC 25285/NCTC 9343 capsular polysaccharide PS A1 with alternating charges on adjacent monosaccharides.



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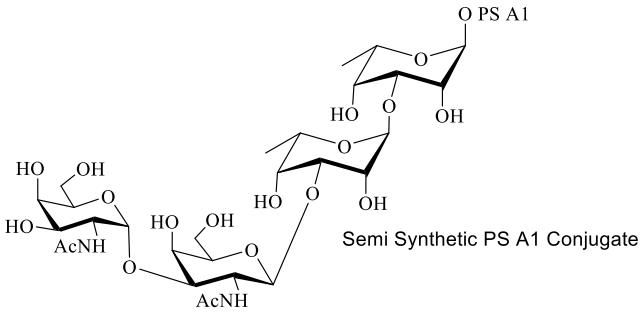
- Synthesis of an Aminooxy Derivative of the Trisaccharide Globo-H.



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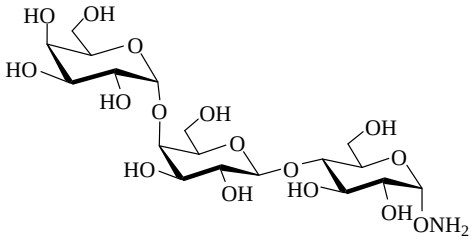

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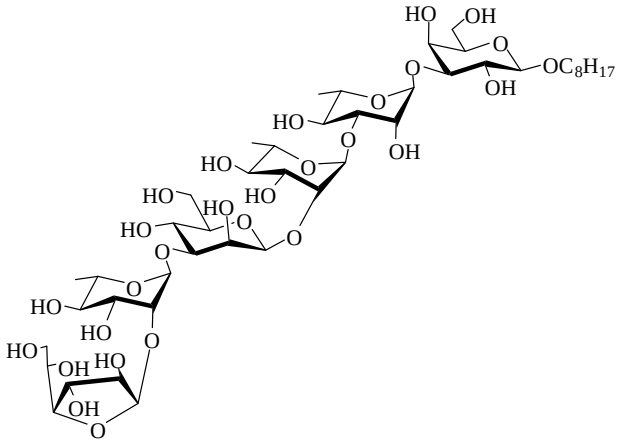

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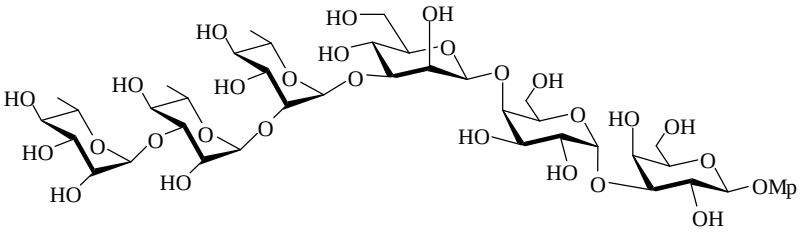

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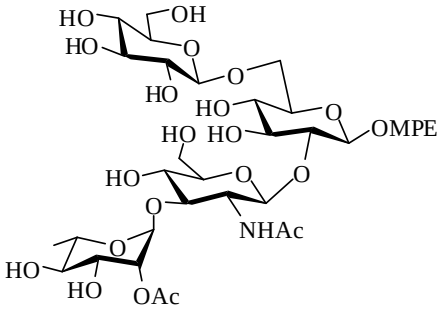

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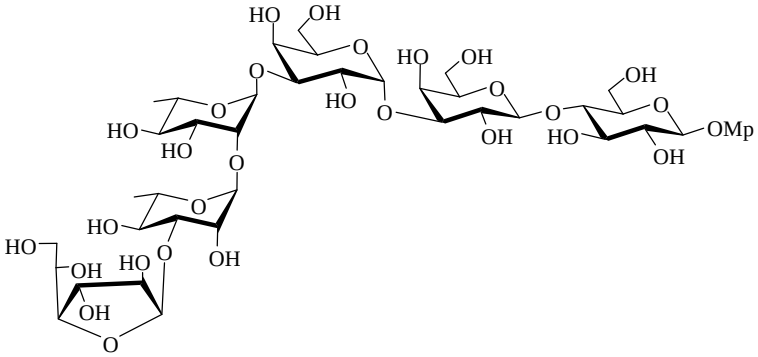

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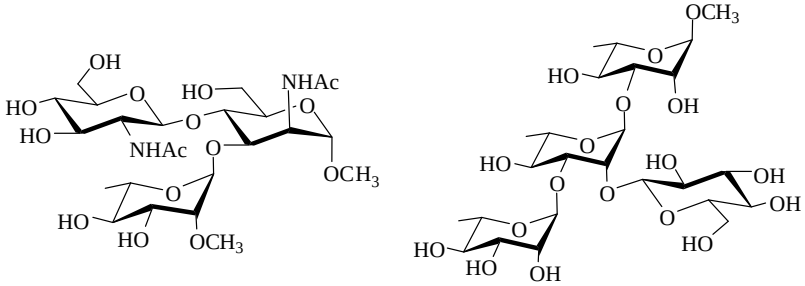
- Synthesis of a tri and tetrasaccharide present in the cell wall lipopolysaccharides of *Azospirillum brasilense* S17.



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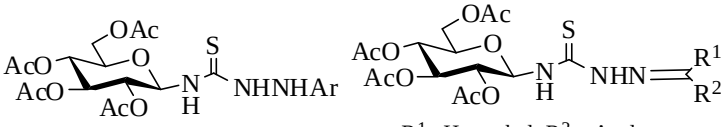
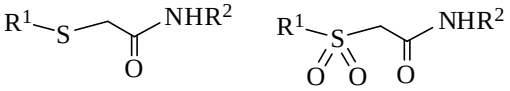


R^1= H, methyl; R^2 = Aryl

Bioorganic & Medicinal Chemistry Letters (2009), *19, 386–389*

- Synthesis and evaluation of antitubercular activity of glycosyl thio- and sulfonyl acetamide derivatives.



R^1 = mono-, disaccharides; R^2 = H, C_8H_{17}, $C_{12}H_{25}$

Bioorganic & Medicinal Chemistry Letters **(2009)**, *18, 4002-4005*.