

# Curriculum Vitae



## Balaram Mukhopadhyay, FRSC

Professor  
Department of Chemical Sciences  
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### Educational Qualifications (Starting from Graduation onwards):

S. No.	Degree	University	Year	Subjects	Percentage
1	B.Sc.	Bankura Christian College (Burdwan University)	1994	Chemistry (Hons), Physics, Mathematics, Biology	62%
2	M.Sc.	Burdwan University	1996	Chemistry (Organic Chemistry special)	73%
3	PhD	Indian Association for the Cultivation of Science (Jadavpur University)	2001	Chemistry	

### Details of professional training and research experience:

<b>Doctor of Philosophy</b>	<b>Mar 1997- Sep 2001;</b> Department of Biological Chemistry, Indian Association for the Cultivation of Science, Jadavpur, Kolkata-700 032. Chemical synthesis of biologically important carbohydrate molecules and development of new methodologies for the synthesis of mono- and disaccharide building blocks.
<b>Senior Postdoctoral Research Associate</b>	<b>Sep 2001-Sep 2005,</b> Centre for Carbohydrate Chemistry, School of Chemical Sciences and Pharmacy, University of East Anglia, Norwich NR4 7TJ, UK. Chemical and enzymatic synthesis of biologically active oligosaccharides, synthesis and evaluation of carbohydrate modified gold nanoparticles and glyco-quantum dots.

### Details of employment:

<b>Scientist C</b>	<b>Sep 2005-Dec 2007:</b> Medicinal and Process Chemistry Division, Central Drug Research Institute, Lucknow
<b>Assistant Professor</b>	<b>Jan 2008-Dec 2012:</b> Department of Chemical Sciences, Indian Institute of Science Education and Research (IISER) Kolkata

<b>Associate Professor</b>	<b>Dec 2012-Oct 2018:</b> Department of Chemical Sciences, Indian Institute of Science Education and Research (IISER) Kolkata
<b>Professor</b>	<b>Oct 2018-Oct 2025:</b> Department of Chemical Sciences, Indian Institute of Science Education and Research (IISER) Kolkata
<b>Professor HAG</b>	<b>Oct 2025-till date:</b> Department of Chemical Sciences, Indian Institute of Science Education and Research (IISER) Kolkata

### Award and Membership

No.	Description	Year
1	H. C. Srivastava Young Scientist Award by ACCTI	December 2017
2	Excellence in Carbohydrate Research Award by ACCTI	December 2018
3	Member of the Editorial Board: Carbohydrate Research, Elsevier	From September 2017
4	Life Member: Chemical Research Society India (CRSI)	
5	Life Member: Association of Carbohydrate Chemists and Technologists, India (ACCTI)	
6	Fellow: Indian Chemical Society	2021
7	Fellow of the Royal Society of Chemistry	2022

### PhD Students Graduated

No.	Name of the candidate	Title of the thesis	Year of award
1	Dr. Vishal Kumar Rajput	Synthesis of biologically active oligosaccharides and medicinally relevant sugar-heterocyclic hybrids	August 2009
2	Dr. Bimalendu Roy	Synthesis of biologically active oligosaccharides and sugar-heterocycle hybrids	September 2009
3	Dr. Somnath Dasgupta	Design and synthesis of biologically active oligosaccharides	December 2009
4	Dr. Santanu Mandal	Synthesis of biologically active oligosaccharides and glycoconjugates	October 2011
5	Dr. Priya Verma	Synthesis of biodynamic oligosaccharides and glycoconjugates of medicinal interest	November 2011
6	Dr. Somnath Mukherjee	Synthesis and supramolecular chemistry of carbohydrate derivatives and development of methodologies	March 2012
7	Dr. Prashant Ranjan Verma	Synthesis of bioactive oligosaccharides, development of methodologies and synthesis of metal-carbohydrate complexes for catalysis	December 2013
8	Dr. Rituparna Das	Synthesis of bacterial oligosaccharides and magnetic glyconanoparticles for potential biological applications	January 2015
9	Kumar Bhaskar Pal	Synthesis of biologically active oligosaccharides and insights of crystalline galactose derivatives	September 2015
10	Darshita Budhadev	Synthesis of biologically active oligosaccharides from plant and bacterial origin	September 2015

11	Ankita Mitra	Total Synthesis of the oligosaccharide repeating units related to bacterial O-antigens	August 2017
12	Vikramjit Sarkar	Chemical synthesis of biologically active oligosaccharides from bacterial origin	August 2017
13	Anirban Adak	Chemical Synthesis of Biologically Active Oligosaccharides	February 2021
14	Debasish Pal	Chemical synthesis of biologically active bacterial oligosaccharides	July 2022
15	Madhumita Bera	Chemical synthesis of biologically active oligosaccharides isolated from bacterial strain and medicinal plant	March 2023
16	Anirban Bera	Chemical synthesis of complex oligosaccharides from bacterial origin	May 2023
17	Sakshi Balasaria	Chemical synthesis of complex oligosaccharides from bacterial origin	November 2023

### Current Students

No.	Name of the candidate	Area of research	Position
1	Dr. Rituparna Das	Glycoconjugate, glyco-dendrimer, vaccine design	Research Associate III
2	Subrata Das	Synthesis of oligosaccharide	Senior Research Fellow
3	Sanajit Maiti	Synthesis of oligosaccharide	Senior Research Fellow
4	Bedangshu Mishra	Synthesis of oligosaccharide	Junior Research Fellow
5	Annesha Datta	Synthesis of oligosaccharide	Junior Research Fellow
6	Bidipta Biswas	Synthesis of oligosaccharide	Junior Research Fellow
7	Sirshendu Ghosh	Synthesis of oligosaccharide	Junior Research Fellow
8	Bijoy Rudra	Synthesis of oligosaccharide	Junior Research Fellow
9	Sujan De	Synthesis of oligosaccharide	Junior Research Fellow
10	Arismita De	Synthesis of oligosaccharide	Junior Research Fellow

### Funding:

1	<b>Synthesis of Biologically active resin glycosides and evaluation of their anti-cancer properties:</b> Department of Science and Technology (SR/FTP/CS-110/2005); <b>Rs. 15,24,000.00</b> ; Completed
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2	<b>Synthesis of the oligosaccharides related to the repeating units of the O-antigens from <i>Shigella boydii</i> type-16 and type-17 and further vaccine designing:</b> Department of Science and Technology (SR/S1/OC-67/2009); <b>Rs. 23,00,000.00</b> , Completed
3	<b>Synthesis hexasaccharide repeating unit of the O-antigen from <i>E. coli</i> O35 and a tetrasaccharide related to the capsular polysaccharide repeating unit of <i>Vibrio cholerae</i> serogroup O31 NRT36S:</b> Council for Scientific and Industrial Research [01(2370)/10/EMR-II], <b>Rs. 10,00,000.00</b> , Completed
4	<b>Synthesis of galactose-hetereocycle hybrids as novel anti-inflammatory and anti-tumor agents and of glyconanoparticles as galectin targeting tumor markers:</b> Swedish Research Council (Dnr 348-2007 6856); <b>Rs. 12,07,155.00</b> , Completed
5	<b>Synthesis of the oligosaccharides related to the repeating units of the O-antigens from <i>E. coli</i> O158, O36 AND O174 and further vaccine designing:</b> Scientific and Engineering Research Board (SB/S1/OC 48/2013); <b>Rs. 26,00,000.00</b> , Completed
6	<b>Synthesis of the complex oligosaccharides related to the O-antigens from <i>E. coli</i> O74, O145 and O156 with the scope for further glyco-conjugates and vaccine designing:</b> Scientific and Engineering Research Board (EMR/2017/003043); <b>Rs. 37,34,500.00</b> , Completed
7	<b>Chemical Synthesis of the Oligosaccharides Related to the Capsular Polysaccharides from <i>Acinetobacter baumannii</i> Strains for Potential Vaccine Development:</b> Scientific and Engineering Research Board (CRG/2022/005805); <b>Rs. 61,79,888.00</b> , Completed

### Administrative Responsibilities:

Position	Duration
Head of the Department	2012-2013
Officiating Registrar	2017-2018
Dean of Students Affairs	2020-2024
	2025-

### Other Details

No.	Description	Number
1	Total number of PhD awarded	17+3 (co-PI)
2	Total number of MS Thesis	16
3	Number of Current Students	09
4	Number of Papers published in International Journals	125
5	Number of Book Chapters	4
6	Number of Patent	1
7	Number of Extramural Projects (DST, CSIR, Swedish Research Council, SERB)	7

### Patent:

1	Novel Galactoside Inhibitors of Galectins: Ulf J. Nilsson, Hakon Leffler, Balaram Mukhopadhyay and Vishal K. Rajput, EP 2013/051339; 2013/110704
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### Book Chapter:

1	Iodine monobromide - update. R. A. Field and B. Mukhopadhyay in <b><i>Encyclopedia of Reagents in Organic Synthesis</i></b> , L. Paquette, P. Fuchs, D. Crich and P. Wipf Eds., John Wiley and Sons Ltd, 2004.
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2	Synthetic Glycans, Glycoarrays, and Glyconanoparticles to Investigate Host Infection by Trypanosoma cruzi Robert A. Field, Peterson Andrade, Vanessa L. Campo, Ivone Carvalho, Beatrice Y. M. Collet, Paul R. Crocker, Margherita Fais, Rositsa Karamanska, Balaram Mukhopadhyay, Sergey A. Nepogodiev, Abdul Rashid, Martin Rejzek, David A. Russell, Claire L. Schofield, and Renate M. van Well, <b>ACS Symposium Series</b> , Chapter 9, <b>2011</b> , pp 143-159.
3	Carbohydrate-based anti-bacterial and anti-cancer vaccines: Rituparna Das and Balaram Mukhopadhyay in <b>Carbohydrates in Drug Discovery and Development</b> edited by Vinod Tiwari, Chapter 14, <b>2020</b> .
4	Glycosidic bond formation methodology: challenges and impact in oligosaccharide synthesis: Rituparna Das and Balaram Mukhopadhyay in <b>Synthetic Strategies in Carbohydrate Chemistry</b> edited by Vinod Tiwari, Chapter 1, <b>2023</b> .

## List of Publications:

### 2025

125. Chemical Synthesis of the Pentasaccharide Repeating Unit of the O-Antigen from E. coli O36 with Extensive Use of Chemo-selective Glycosylations: Bijoy Rudra and Balaram Mukhopadhyay **Journal of Organic Chemistry** **2025**, 90, 17058-17067.
124. Chemical Synthesis of the Pentasaccharide Related to the Exopolysaccharide of Aeromonas veronii bv. Sobria Strain K49: Annesha Dutta and Balaram Mukhopadhyay **Journal of Organic Chemistry** **2025**, 90, 14984-14992.
123. Total synthesis of the D-acofriose-containing trisaccharide repeating unit of the O-antigen from Azospirillum brasilense JM6B2: Sanajit Maiti and Balaram Mukhopadhyay **Organic & Biomolecular Chemistry** **2025**, 23, 5847-5856.
122. Total synthesis of the linker-armed tetrasaccharide repeating unit of the O-polysaccharide from E. coli O50: Subrata Das and Balaram Mukhopadhyay **Carbohydrate Research** **2025**, 555, 109563.
121. Chemical synthesis of the conjugation-ready tetra- $\alpha$ -mannan oligosaccharide of the O-polysaccharide from Azospirillum griseum L-25-5w-1T: Annesha Dutta and Balaram Mukhopadhyay **Carbohydrate Research** **2025**, 109430.
120. The effect of neighbouring group participation and possible long range remote group participation in O-glycosylation: Rituparna Das and Balaram Mukhopadhyay, **Beilstein Journal of Organic Chemistry** **2025**, 21, 369-406.
119. Synthesis of the conjugation ready tetrasaccharide repeating unit of the O-polysaccharide from Halomonas fontilapidosi KR26: Bijoy Rudra and Balaram Mukhopadhyay, **Carbohydrate Research** **2025**, 549, 109371.
118. Synthesis of the conjugation-ready  $\beta$ -mannosamine-containing O-antigen repeat from *Vibrio cholerae* O14: Sanajit Maiti and Balaram Mukhopadhyay, **Organic & Biomolecular Chemistry** **2025**, 23, 1866-1873.

## 2024

117. Chemical synthesis of 6-deoxy-d-talose containing a tetrasaccharide repeating unit of the O-specific polysaccharide from *Enterobacter cloacae* G3422 in the form of its 2-aminoethyl glycoside: Subrata Das, Sanajit Maiti and Balam Mukhopadhyay, **Organic and Biomolecular Chemistry** **2024**, 22, 2414-2422.

## 2023

116. Synthesis of the hexasaccharide related to the exopolysaccharide from *Lactobacillus mucosae* VG1 through regioselective glycosylation: Anirban Adak, Madhumita Bera and Balam Mukhopadhyay, **Organic Letters** **2023**, 25, 4711-4714.
115. Multifunctional Alternating Bitter-Sweet Macromolecular Architecture: Subhasish Sahoo, Soumya Paul, Swagata Pan, Debasish Pal, Shubham Das, Sankar Maiti, Balam Mukhopadhyay, Paolo Tecilla and Priyadarsi De, **ACS Applied Polymer Materials** **2023**, 5, 1474-1486.
114. Chemical synthesis of the pentasaccharide repeating unit of the O-antigen from *Escherichia coli* strain SDLZB008 in the form of its 2-aminoethyl glycoside: Sakshi Balasaria and Balam Mukhopadhyay, **Carbohydrate Research** **2023**, 523, 108734.

## 2022

113. Chemical synthesis of  $\beta$ -D-ManNAc containing pentasaccharide repeating unit of the exopolysaccharide from *Lactobacillus rhamnosus* BIM B-1039 in the form of its *p*-methoxyphenyl glycoside: Anirban Bera and Balam Mukhopadhyay, **Carbohydrate Research** **2022**, 522, 108708.
112. Concise Synthesis of the Tetrasaccharide Repeating Unit of the O-antigen from *Escherichia coli* O131 containing N-acetyl neuraminic acid: Anirban Adak, Sakshi Balasaria and Balam Mukhopadhyay, **Carbohydrate Research** **2022**, 521, 108654.
111. Chemical synthesis of the linker-armed trisaccharide repeating unit of the O-antigen from *Pseudomonas putida* BIM B-1100: Debasish Pal and Balam Mukhopadhyay, **European Journal of Organic Chemistry** **2022**, 29, e202200374.
110. Chemical Synthesis of the Pentasaccharide Related to the Anti-inflammatory Oleanane Type Saponins Isolated from Medicinal Plant *Aster tataricus* L. f.: Madhumita Bera and Balam Mukhopadhyay, **Carbohydrate Research** **2022**, 108563.

## 2021

109. 1,6-Heptadiynes Based Cyclopolymerization Functionalized with Mannose by Post Polymer Modification for Protein Interaction: Pawan Kumar, Pintu Kanjilal, Rituparna Das, Tapan K. Dash, Manikandan Mohanan, Trong-Nghia Le, N. Vijayakameswara Rao, Balam Mukhopadhyay and Raja Shunmugam, **Carbohydrate Research** **2021**, 508, 108397.
108. A Brief Insight to the Role of Glyconanotechnology in Modern Day Diagnostics and Therapeutics: Rituparna Das and Balam Mukhopadhyay, **Carbohydrate Research** **2021**, 108394 ([Review Article](#)).
107. Chemical synthesis of the pentasaccharide repeating unit of the O-specific polysaccharide from *Ruminococcus gnavus*: Debasish Pal, Mrinal Naskar and Balam Mukhopadhyay, **Carbohydrate Research** **2021**, 507, 108384.
106. Chemical synthesis of  $\beta$ -L-rhamnose containing pentasaccharide repeating unit of the O-specific polysaccharide from a halophilic bacterium *Halomonas ventosae* RU5S2EL in the form of its 2-

aminoethyl glycoside: Debasish Pal and Balaram Mukhopadhyay, **Journal of Organic Chemistry** **2021**, 86, 8683-8694.

105. Chemical synthesis of the rare D-Fuc3NAc containing tetrasaccharide repeating unit of the O-antigenic polysaccharide from *E. coli* O74: Anirban Bera and Balaram Mukhopadhyay, **Carbohydrate Research** **2021**, 506, 108366.
104. Allyl piperidine-1-carbodithioate and benzyl 1H-imidazole 1 carbodithioate: two potential agents to combat against mycobacteria: Goutam Mukherjee, Koushik Mukherjee, Rituparna Das, R.S. Mandal, I. Roy, Balaram Mukhopadhyay, Alok Kumar Sil, **Journal of Applied Microbiology** **2021**, 130, 786-796.

#### **2020**

103. Edible marine algae: a new source for anti-mycobacterial agents. Goutam Mukherjee, Balaram Mukhopadhyay, Alok Kumar Sil, **Folia Microbiologica** **2020**. <https://doi.org/10.1007/s12223-020-00823-3>
102. Synthesis of the tetrasaccharide repeating unit of the O-antigen from *Pseudomonas putida* BIM B-1100 having rare D-Quip3NAc: Madhumita Bera and Balaram Mukhopadhyay, **Carbohydrate Research** **2020**, 107955.
101. Synthesis of the pentasaccharide repeating unit of the O-antigen from *Enterobacter cloacae* C4115 containing the rare  $\alpha$ -d-FucNAc: Aritra Chaudhury and Balaram Mukhopadhyay, **RSC Advances** **2020**, 10, 4942-4948.

#### **2019**

100. Chemical synthesis of the pentasaccharide repeating unit of the O-specific polysaccharide from *Escherichia coli* O132 in the form of its 2-aminoethyl glycoside: Debasish Pal and Balaram Mukhopadhyay, **Beilstein Journal of Organic Chemistry** **2019**, 15, 2563-2568.
99. Concise chemical synthesis of the pentasaccharide repeating unit of the O-antigen from *Escherichia albertii* O2: Madhumita Bera, Anirban Adak, Balaram Mukhopadhyay, **Carbohydrate Research** **2019**, 485, 107817.
98. Convergent Synthesis of the Hexasaccharide Repeating Unit of the O-antigenic OPS of *Escherichia coli* O133: Ankita Mitra and Balaram Mukhopadhyay, **European Journal of Organic Chemistry** **2019**, 30, 4869-4878.
97. Chemical synthesis of the 4-amino-4,6-dideoxy-D-glucose containing pentasaccharide repeating unit of the O-specific polysaccharide from *Aeromonas hydrophila* strain K691 in the form of its 2-aminoethyl glycoside: Anirban Adak and Balaram Mukhopadhyay, **Carbohydrate Research** **2019**, 476, 1-7.

#### **2018**

96. Synthesis of the tetrasaccharide related to the repeating unit of the O-antigen from *Azospirillum brasilense* Jm125A2 in the form of its 2-aminoethyl glycoside: Vikramjit Sarkar and Balaram Mukhopadhyay, **Carbohydrate Research** **2018**, 470, 13–18.
95. A 'Turn-on' Fluorescence Glycosyl Dithiocarbamate Probe for Selective Fluoride Sensing in Aqueous Medium: Rituparna Das, Bedangshu Mishra and Balaram Mukhopadhyay, **Synlett** **2018**, 29, 2001–2005.
94. Distinct Mechanoresponsive Luminescence, Thermochromism, Vapochromism, and Chlorine Gas Sensing by a Solid-State Organic Emitter: Anirban Adak, Tamas Panda, Anju Raveendran, Kochan

Sathyaseelan Bejoymohandas, K. S. Asha, A. P. Prakasham, Balaram Mukhopadhyay\*, and Manas K. Panda\* **ACS Omega**, **2018**, 3, 5291–5300.

93. Use of Glycosyl Dithiocarbamates: Small Molecule 'Turn-on' Fluorescent Probe for Carbohydrate Binding Proteins: Rituparna Das, Bedangshu Mishra and Balaram Mukhopadhyay, **ChemistrySelect** **2018**, 3, 648-652.

#### **2017**

92. Simple Carbohydrate-Derived Multifunctional Gels: Ankita Mitra, Vikramjit Sarkar and Balaram Mukhopadhyay, **ChemistrySelect** **2017**, 2, 9958-9961.
91. Synthesis of Two Hexasaccharides Related to the Repeating Unit of the O-Antigen from Escherichia coli TD2158: Kumar Bhaskar Pal and Balaram Mukhopadhyay, **ChemistrySelect** **2017**, 2, 7378-7381.
90. Carbohydrates in Fluoride Sensing: Use of Cyclodextrin and CNC-Based Chemical Probes: Rituparna Das and Balaram Mukhopadhyay, **ChemistrySelect** **2017**, 2, 4499-4504.
89. Flexibility in a Molecular Crystal Accomplished by Structural Modulation of Carbohydrate Epimer: Manas Kumar Panda, Kumar Bhaskar Pal, Gijo Raj, Rajesh Jana, Taro Moriwaki, Goutam Dev Mukherjee, Balaram Mukhopadhyay and Panche Naumov, **Crystal Growth and Design** **2017**, 17, 1759-1765.
88. Carbohydrate-based safe fuel gel with significant self-healing property: Kumar Bhaskar Pal and Balaram Mukhopadhyay, **ChemistrySelect** **2017**, 2, 967-974.

#### **2016**

87. Synthesis of the Pentasaccharide Repeating Unit Related to the Exopolysaccharide from Lactobacillus plantarum C88 in the Form of its 2-Aminoethyl Glycoside: Vikramjit Sarkar and Balaram Mukhopadhyay, **ChemistrySelect** **2016**, 1, 5948-5951.
86. Convergent chemical synthesis of the pentasaccharide repeating unit of the O-antigen from E. coli O158: Ankita Mitra and Balaram Mukhopadhyay, **RSC Advances** **2016**, 6, 85135 - 85141.
85. A selective galactose-coumarin-derived galectin-3 inhibitor demonstrates involvement of galectin-3-glycan interactions in a pulmonary fibrosis model: Vishal Rajput, Alison MacKinnon, Santanu Mandal, Patrick Collins, Helen Blanchard, Hakon Leffler, Tariq Sethi, Hans Schambye, Balaram Mukhopadhyay and Ulf Nilsson, **Journal of Medicinal Chemistry** **2016**, 59, 8141-8147.
84. Chemical O-glycosylations: an overview: Rituparna Das and Balaram Mukhopadhyay, **ChemistryOpen** **2016**, 5, 401-433.
83. Chemical synthesis of the hexasaccharide related to the repeating unit of the capsular polysaccharide from carbapenem resistant Klebsiella pneumoniae 2796 and 3264: Vikramjit Sarkar and Balaram Mukhopadhyay, **RSC Advances** **2016**, 6, 40147-40154.
82. Linear synthesis of the hexasaccharide related to the repeating unit of the O-antigen from Shigella flexneri serotype 1d (I: 7,8): Ankita Mitra and Balaram Mukhopadhyay, **Carbohydrate Research** **2016**, 426, 1-8.
81. Use of 'click chemistry' for the synthesis of carbohydrate-porphyrin dendrimers and their multivalent approach towards lectin sensing: Rituparna Das and Balaram Mukhopadhyay, **Tetrahedron Letters** **2016**, 57, 1775-1781.
80. Galactose-amidine derivatives as selective antagonists of galectin-9: Santanu Mandal, Vishal Kumar Rajput, Anders P. Sundin, Hakon Leffler, Balaram Mukhopadhyay, Ulf J. Nilsson, **Canadian Journal of Chemistry** **2016**, doi: 10.1139/cjc-2015-0598.

79. Hydrogen bonding-induced conformational change in a crystalline sugar derivative: Kumar Bhaskar Pal, Vikramjit Sarkar and Balam Mukhopadhyay, *Crystal Engineering Communications* **2016**, 18, 1156-1163

#### 2015

78. Convergent synthesis of the hexasaccharide related to the repeating unit of the O-antigen from E. Coli O120: Darshita Budhadev and Balam Mukhopadhyay, *RSC Advances* **2015**, 5, 98033-98040
77. H<sub>2</sub>SO<sub>4</sub>-silica: an efficient promoter for selective hydrolysis of benzylidene and isopropylidene groups in the presence of p-methoxybenzyl group: Prashant Ranjan Verma and Balam Mukhopadhyay, *Journal of Carbohydrate Chemistry* **2015**, 34, 319-337.
76. Chemical synthesis of the pentasaccharide related to the repeating unit of the O-antigen of Enterobacter cloacae G2277: Darshita Budhadev and Balam Mukhopadhyay, *Tetrahedron* **2015**, 71, 6155-6163.
75. Isolation of Phenazine 1,6-di-carboxylic acid from Pseudomonas aeruginosa strain HRW.1-S3 and its role in biofilm mediated crude oil degradation and cytotoxicity against bacterial and cancer cells: Debdeep Dasgupta, Abhinash Kumar, Balam Mukhopadhyay and Tapas K. Sengupta, *Applied Microbiology and Biotechnology* **2015**, 99, 8653-8665.
74. Concise chemical synthesis of the tetrasaccharide repeating unit of the O-antigen from bovine mastitis isolate E. coli serotype O174:H28: Ankita Mitra, Balam Mukhopadhyay, *Synthesis* **2015**, 47, 3061-3066.
73. Chemical synthesis of the pentasaccharide related to the repeating unit of the O-antigen from Salmonella enterica O44: Rituparna Das, Balam Mukhopadhyay, *Journal of Carbohydrate Chemistry* **2015**, 34, 247-262.
72. Synthesis of the trisaccharide repeating unit of the lipopolysaccharide of Moritella viscosa strain M2-226: Kumar Bhaskar Pal, Balam Mukhopadhyay, *Journal of Carbohydrate Chemistry* **2015**, 34, 173-182.
71. A correlation study between hydrogen bonded network and gelation ability of three galactose derivatives: Somnath Mukherjee, G. Rama Krishna, Balam Mukhopadhyay, C. Malla Reddy, *Crystal Engineering Communications* **2015**, 17, 3345 - 3353.
70. Chemical synthesis of the tetrasaccharide repeating unit of the O-polysaccharide isolated from Azospirillum brasilense SR80: Vikramjit Sarkar, Balam Mukhopadhyay, *Carbohydrate Research* **2015**, 406, 65-70.

#### 2014

69. Bioactive compound from Pseudomonas synxantha inhibits the growth of Mycobacteria: Koushik Mukherjee, Santanu Mandal, Balam Mukhopadhyay, Nitai Chandra Mandal and Alok Kumar Sil, *Microbiological Research* **2014**, 169, 794-802.
68. Concise synthesis of the tetrasaccharide repeating unit of the O-polysaccharide isolated from Edwardsiella tarda PCM 1156 strain: Rituparna Das, Mukul Mahanti and Balam Mukhopadhyay, *Carbohydrate Research* **2014**, 399, 15-20.
67. Synthesis of the tetrasaccharide repeating unit of the O-glycan from the polar flagellum flagellin of Azospirillum brasilense Sp7: Kumar Bhaskar Pal and Balam Mukhopadhyay, *Carbohydrate Research* **2014**, 400, 9-13.

66. Synthesis and evaluation of iminocoumaryl and coumaryl derivatized glycosides as galectin antagonists: Vishal Kumar Rajput, Hakon Leffler, Ulf J. Nilsson and Balaram Mukhopadhyay, **Bioorganic & Medicinal Chemistry Letters** **2014**, 24, 3516-3520.
65. Chemical synthesis of a tetrasaccharide related to the exocellular polysaccharide from *Rhodococcus* sp. RHA1: Darshita Budhadev and Balaram Mukhopadhyay, **Carbohydrate Research** **2014**, 394, 26-31.
64. Synthesis of two trisaccharides related to the hepatoprotective phenylethanoids leonoside E and F isolated from *Leonurus japonicus* Houtt: Darshita Budhadev and Balaram Mukhopadhyay, **Carbohydrate Research** **2014**, 384, 51-55.

#### 2013

63. Carbohydrate derived thiosemicarbazone and semicarbazone palladium complexes: Homogeneous catalyst for C-C cross coupling reactions: Prashant Ranjan Verma, Soumik Mandal, Parna Gupta and Balaram Mukhopadhyay, **Tetrahedron Letters** **2013**, 54, 4914-4917.
62. Concise synthesis of the trisaccharide repeating unit of the O-polysaccharide from *Aeromonas hydrophila* A19 (O:14): Kumar Bhaskar Pal, Balaram Mukhopadhyay, **Carbohydrate Research** **2013**, 379, 26-29.
61. Chemical synthesis of the tetrasaccharide repeating unit of the O-antigenic polysaccharide from *Plesiomonas shigelloides* strain AM36565: Rituparna Das, Balaram Mukhopadhyay, **Carbohydrate Research** **2013**, 376, 1-6.
60. Ruthenium and Osmium complexes of novel carbohydrate derived salen ligands: Synthesis, characterization and in-situ ligand reduction: Soumik Mandal, Santanu Mandal, Dipravath Seth, Parna Gupta and Balaram Mukhopadhyay, **Inorganica Chimica Acta** **2013**, 398, 83-88.
59. Antibacterial activity of long-chain fatty alcohols against *Mycobacteria*: Alok Sil, Koushik Mukherjee, Prosun Trivedi and Balaram Mukhopadhyay, **FEMS Microbiology Letters** **2013**, 338, 177-183.
58. Concise synthesis of a tetra- and a trisaccharide related to the repeating unit of the O-antigen from *Providencia rustigianii* O34 in the form of their p-methoxyphenyl glycosides: Prashant Ranjan Verma and Balaram Mukhopadhyay, **RSC Advances** **2013**, 3, 201-207.

#### 2012

57. Synthesis of a sugar-functionalized iridium complex and its application as a fluorescent lectin sensor: Soumik Mandal, Rituparna Das, Parna Gupta and Balaram Mukhopadhyay **Tetrahedron Letters** **2012**, 53, 3915-3918.
56. Phase-selective carbohydrate gelator: Somnath Mukherjee and Balaram Mukhopadhyay **RSC Advances** **2012**, 2(6), 2270 - 2273.
55. Synthesis of carbohydrate-functionalized thiophene-capped cyclopenta[c]thiophene for concanavalin A recognition: Soumyajit Das, Santanu Mandal, Balaram Mukhopadhyay and Sanjio S. Zade **Tetrahedron Letters** **2012**, 53, 1464-1467.

#### 2011

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