

# Professor Robert A. Field

*Department of Chemistry and Manchester Institute of Biotechnology,  
University of Manchester, 131 Princess Street, Manchester M1 7DN, UK*

## Personal Details

Date of Birth: 3<sup>rd</sup> February 1964

Nationality: British

Web: <https://www.research.manchester.ac.uk/portal/robert.field.html>

Twitter: @Rob\_Field\_Lab

## Contact Details

Phone (mobile): 0770-203-3260

E-mail: [robert.field@manchester.ac.uk](mailto:robert.field@manchester.ac.uk)

OrcidID: 0000-0001-8574-0275

## Education and Research Experience

BSc Biology and Chemistry (2i)  
University of East Anglia, 1982-1986

Intercalation 1984-1985  
Institute of Food Research, Norwich  
Lipid Research Group (Coxon)

PhD Glycosidase Inhibition, 1986-1989  
University of East Anglia (Haines)

PDRA, 1989-1994  
University of Oxford (Baldwin)  
University of Dundee (Ferguson/Homans)  
University of Alberta (Hindsgaul)

Lecturer/Reader/Professor in Chemistry  
University of St Andrews, 1994-2000

Professor in Chemistry  
University of East Anglia, 2001-2007

Project Leader in Biological Chemistry  
John Innes Centre, Norwich, 2007-2019

Visiting Professor in Medicine,  
Imperial College London, 2016-2019

Honorary Professor in Chemistry,  
University of East Anglia, 2007-

Joint Founder, Director and CSO,  
Iceni Diagnostics Ltd, 2014-

Professor of Chemistry and Director,  
Manchester Institute of Biotechnology,  
University of Manchester, 2020-

## Awards and Prizes

Royal Society of Chemistry Carbohydrate Award 1996

Fellow of the Association of Carbohydrate Chemists and Technologists, India, 2018

Iceni Diagnostics - Longitude Prize Discovery Award 2016

## Research Theme

*Carbohydrates and Natural Products; Agrochemicals and Therapeutics; Analytics and Diagnostics*

Research in the Field group embraces the development and exploitation of chemical principles and tools to address questions in molecular science, in the broadest sense, with a carbohydrate theme running throughout. Field's research interests span the contemporary challenges and opportunities presented by sustainable nutrition, infectious diseases and industrial biotechnology. While the group are chemistry-driven, projects range from bacterial adhesion and infection, through plant and algal polysaccharide biochemistry and enzymology, to the development of small molecule inhibitor approaches to understand carbohydrate metabolism. Projects typically involve a mix of chemical and enzymatic synthesis, inhibitor development, protein biochemistry, structural biology, metabolomics, proteomics and transcriptomics analysis. From a biology perspective, the group works cross-Kingdom - plants, algae, animals, bacteria, viruses and parasitic protozoa – which inevitably requires collaboration to ensure relevance and impact.

## Science Outlook

While Field group activities are firmly based in molecular science, our skill set reaches well beyond the classical discipline boundaries: we focus on solving problems, making pragmatic use of chemical and biological approaches, as required. As a result, we collaborate *extensively*, with chemists, biologists, spectroscopists, structural biologists, engineers and materials scientists. Our approach is to reach out and embrace life sciences challenges and in so doing to set influence the biology agenda, rather than merely responding to it - chemistry (in the broadest sense) driving biology, rather than being led by it.

## Research Group

The Field group consists of a mix of chemists and biochemists, currently comprising 3 PDRAs plus 3 PhD students, plus oversight of 4 PDRAs and 2 EU ITN PhD students at Icen Diagnostics.

To date, 34 PhD students have graduated through the group (plus 4 joint PhDs with Universities in Brazil and Thailand) and a similar number of postdocs have been trained. They have all gone on to careers in science-related areas (with the exception of one who joined the church): 8 have secured academic positions, including 3 full Professors (Leeds, NIPER Chandigarh, IISER Kolkata); 1 became a medic; 1 runs the organic chemistry teaching laboratories at the University of Oxford; another runs the GSK Open Lab in Spain; 1 is a High School Head of Chemistry; 1 is a Business Development manager at Pfizer (Boston), another is Head of Academic Liaison for GSK (Philadelphia); several have moved into the biotech sector, including at Novo Nordisk (Denmark), GE Healthcare (Sweden), Gilead (UK), Kemin Industries (US), Baxter Healthcare (France), Heptares Therapeutics (UK) and Biomarin Pharmaceuticals (US); plus 2 with my own company Icen Diagnostics. Full details of PhD graduate destination are below.

## Entrepreneurship and Commercialisation

Field is co-Founder, with David Russell, and CEO of JIC-UEA spin-out Icen Diagnostics - <http://www.icendiagnosics.com/> The company operates in carbohydrate-based point-of-care diagnostics and the development of carbohydrate-based vaccines. Established in 2014, the company currently employs 5 scientists and turns over ca £300K pa. Local investment (£240K) has just been finalised in order to accelerate product development (rapid diagnostics for avian influenza). Recurring sub-contract work for third parties is a core element of the business

## Management, Leadership and Administration

During my time at JIC, I have: served on the Research Committee, Tenure-Track Committee, and Scientific Resources Committee. I have operated as a Theme Lead for the Institute Strategic Program on Understanding and Exploiting Metabolism, and as the academic lead and line manager for all metabolite analysis and proteomics activities in the Institute Platform (covering mass spectrometry and NMR). I previously held positions of Head of Organic Chemistry at St Andrews (1998-00) and Head of the School of Chemical Sciences and Pharmacy Research Committee at UEA (2002-06), in both cases with responsibility for managing faculty performance as well as income streams.

With changes in BBSRC process, in 2011 I was tasked with devising and leading the introduction of recognition and reward schemes in the Institute. I led the development of a BBSRC staff code-compliant promotions scheme applicable to all levels. I have chaired numerous promotion panels that range from horticulture services staff through technology platform senior scientists to senior project leaders at the FRS level. Similarly, I have chaired tenure review panels for project leaders at all levels, as well as disciplinary panels.

As academic lead for all HR matters at JIC (ca 450 staff; hiring, training, appraisals, promotions, disciplinary), I have experience of operational strategy and logistics, and change management in a leading research-focussed enterprise. In conjunction with the HR team, I led the process of restructuring the Institute in 2010. Due to preceding turn-over in the HR team, there was no in-house knowledge of BBSRC processes for effecting a restructure. Nonetheless, a reduction in core-funded posts from 450 to 400 was required; this involved the pooling and transparent review of over 150 individuals; numerous contractual rearrangements were implemented, but ultimately only 2 individuals were the subject of compulsory redundancy.

My HR-related activities are written into the Institute Core Capability Grant (essentially the operations equivalent of the science strategic programs). I currently serve on the Institute Strategic HR Committee and Institute Negotiation and Consultation Committee (Trade Union interface); I Chair the Redeployment and Redundancy Committee and until recently I Chaired the JIC Promotions panel. I also Chair the cross-Institution Norwich Research Park Research Facilities Coordination Committee. I am regularly consulted by UK and overseas Universities (Australia, Austria, Canada, the Netherlands, New Zealand, South Africa, US) and research Institutes (Quadram Institute, Rothamsted Research, Babraham Institute) as an independent reviewer for appointments, promotions and tenure reviews [including serving on the Promotion Committee of the UEA School of Biological Sciences (2010-16) and faculty recruitments in Chemistry, Pharmacy and Biological Sciences (10 posts since 2008), and at the Dean level (Science faculty; Health faculty)]. I have served on numerous (8) faculty recruitment panels for Kings' College, in support of the reintroduction of their Chemistry department. I was a member of the quinquennial review panel for the Molecular Microbiology Department, University of Dundee in 2017.

### Refereeing

I review for a wide range of journals spanning chemistry, biochemistry, plant science, microbiology, synthetic biology, infectious diseases and biotechnology. This typically includes 4-6 reviews per year for the Nature stable journals plus PNAS.

I have regularly served as a reviewer (and panel member – see below) for the BBSRC, EPSRC and MRC, as well as charities including the Wellcome Trust, the Association for International Cancer Research, and Yorkshire Cancer Research. I have also supported the funding agencies in the US (NIH and NSF), Austria, Brazil (FAPESP), Canada (NSF, NICHR), the Netherlands, the EU and the ERC.

### Editorial Work

2014-18	Editor in Chief, <i>Carbohydrate Research</i>
2010-14	Editor, <i>Carbohydrate Research</i>
2008-	Editorial Advisory Board, <i>Trends in Carbohydrate Research</i> .
2002-	Editorial Advisory Board, <i>Natural Product Reports</i>

### Conference Organisation

2022	ESBOC, Greynog
2022	RSC Chemical Biology Symposium, London
2018	CBMNet Engineering trafficking in plants for biopharmaceutical production, Toronto
2018	RSC Chemical Biology symposium, London
2017	Learned Societies Partnership on Antimicrobial Resistance meeting, London
2017	IBCarb – Polysaccharides, Cambridge
2016	RSC Chemical Biology symposium, London
2016	IBCarb-PhycoNet – Algal polysaccharides, Edinburgh
2015	RSC Chemical Biology symposium, London
2015	IBCarb-RSC-Biochemical Society – Chemical glycobiology, St Andrews
2009	RSC Carbohydrate group, Sugars in Norwich
2007	RSC Carbohydrate group, Glycoarrays, Manchester
2006	International Carbohydrate Symposium, Glasgow
2005	UK Carbohydrate Chemistry Network – Norwich-Oxford-Leiden-Zurich
2004	International Meeting on Total Food, Norwich
2003	RSC Bioorganic and Carbohydrate groups meeting, Fribush
2003	Macromolecular Chemistry and Biology II, Port Sunlight
2002	RSC Bioorganic Group Postgraduate Symposium, Norwich
2002	UKCCN/RSC. Carbohydrates: Diet, Health and Medicine, York
2001	Macromolecular Chemistry and Biology I, Lancaster

## External Committees – Funding Agencies, Learned Societies

2022	UKRI Molecules to Landscapes panel
2019, 21, 23	ERC Consolidator panel
2019	BBSRC ALERT 18 panel
2018	Chair, EPSRC Fellowships panel
2018	EPSRC Physical Sciences panel, outlines for Centres for Doctoral Training
2018	Chair, RSC CBID Awards panel
2017-20	President, RSC Chemistry-Biology Interface Division
2017	RSC REF 2021 Advisory Group
2017-	RSC Science, Education and Industry Board
2017-	RSC Awards Working Group
2017	BBSRC Steering group for Resistance in Agriculture Highlight
2016,21	Vice-President, RSC Chemistry-Biology Interface Division
2016, 17x2, 18x2	BBSRC Committee B core member
2016	Chair EPSRC Physical Sciences panel
2016	BBSRC-FAPESP Bioenergy panel, Brazil
2014, 15	Wellcome Trust Investigator Award Interview panels
2013-18	Co-Director BBSRC IBCarb Network
2012-17	Steering Group for BBSRC AgriNet
2009	Member of EPSRC Chemistry panel
2008-14	Glycan Array/Carbohydrate Library Subcommittee of the US NIGMS-funded Consortium for Functional Glycomics
2008-13	Steering Committee for the BBSRC Synthetic Biology Network on Synthetic Plant Products for Industry (SPPI-NET)
2008	BBSRC Bioenergy panel
2008	EPSRC Adventurous Chemistry Review Panel
2005-07	Founder and Executive member, UK Glycosciences Forum
2005, 07	RCUK Basic Technologies panels
2005, 06	BBSRC REI panels
2005	Chair of EPSRC Chemistry panel to review National Facilities
2005	Review of EPSRC National Service for X-ray crystallography
2004-08	BBSRC Biochemistry and Cell Biology committee
2003-06	EPSRC Strategic Advisory Team for Chemistry
2003-06	RSC Perkin Division Council
2003-06	Founder, EPSRC-funded UK Carbohydrate Chemistry Network
2003-	MRC Advisory Board / Panel of Experts
2003	Royal Society-India panel to review collaborative work on tuberculosis
2002, 10, 15	Chair EPSRC Chemistry panels
2002-03,10-12	Chair RSC Carbohydrate Group
2001, 02, 09	EPSRC Chemistry panels
2001-05	BBSRC-EPSRC-MRC Discipline Hopping panels
1998-03	BBSRC Biomolecular Sciences committee

## Membership of Professional Bodies

1985-	Royal Society of Chemistry (C.Chem., FRSC)
1986-	Biochemical Society
1999-	American Chemical Society

## Field Group PhD Graduates and Current Employment

### Current/recruitment ongoing

[2026] David Garmeson, MIB

[2025] Andrew Yacoup, MIB

[2024] Iakovia Ttoffi, IcenI ITN-MIB

[2023] Alex Munro-Clark, MIB

[2022] Pedro Hernando, IcenI ITN-UEA

[2022] Jessica Lloyd, MIB-QIB-IcenI iCASE

2019 Brydie Moore, JIC. Freelance medical writer.

2018 Rebecca Winsbury, JIC. PHE, Porton Down

2018 Sakonwan Kuhadomlarp, JIC. PI, Mahidol University, Thailand

2017 Ana Luisa Morotti, co-supervised with Ivone Carvalho, USP Ribeirao Preto, Brazil.

2017 Ben Wagstaff, JIC. Senior PDRA MIB

2017 Edward Hems, JIC. RA with Barrie Wilkinson, JIC, Norwich

2015 Michael Rugen, JIC. Cobra Biologics, Keele

2013 Ellis O'Neill, JIC. Independent Research Fellow, University of Nottingham

2012 Stephan Goetz, JIC. German Civil Service

2011 Christian Ruzanski, JIC. Senior Scientist, Novo Nordisk, Copenhagen, Denmark

2009 Margherita Fais, JIC. Science Adult Education Teacher, Bayreuth, Germany

2009 Simone Dedola, JIC. General Manager, IcenI Diagnostics, Norwich

2007 Monica Tello, JIC. Global Technical Manager, GE Healthcare, Belgium

2006 Beatrice Collet, UEA. Project Manager at Kemin Industries, Iowa, US

2005 Nigel Jones, UEA. Technical Manager, United Molasses, London

2005 Anelore Chauvin, UEA. Project Manager, Baxter Healthcare, Belgium

2004 Laurence Marmuse, UEA. Nanotechnology Project Manager, Imthernat, Lyon, France

2004 Corin Wing, UEA. Principal Medical Writer, Envision Pharma Group, London

2003 James Errey, UEA. VP Structural Biology, Evotec, UK

2003 Lluís Ballell, UEA. Open Lab Head, GSK Tres Cantos, Spain

2003 Tiina Karkainen, UEA. Research Chemist, Pharmatory, Finland

2002 Vellupillai Sri Kannathasan, St Andrews. Structural Genomics Consortium, Oxford

2001 Robert Bowles, St Andrews. Technical Manager at Laboratory Services, New York

2001 Giles Newbury, St Andrews. Medic, South Manchester Teaching Hospital

2001 Irene Kirton, St Andrews. Administrator at Crosthwaite and Gardiner, Sussex

2000 Steven Marsh, St Andrews. Senior QA and Automation Engineer, Brady plc, Cambridge

2000 Darren Gibson, St Andrews. Innovation Manager, Edith Cowan University, Perth WA

1999 Jennifer Harrison, St Andrews. Professor at Pawsey Supercomputing Centre, Perth WA

1999 Phil McGurk, St Andrews. Business Development Lead, Pfizer, Boston, US

1998 Fran Mazzei, St Andrews. Joint with Tony Butler. European Medicines Agency, Amsterdam

1998 Bruce Turnbull, St Andrews. Professor of Biomolecular Chemistry, Leeds

1997 Peter Cura, St Andrews. Copywriter, Luxus, Finland

1997 Shona Scheuerl, St Andrews. Head of Chemistry, Dollar Academy, Scotland

1997 Malcolm Stewart, Dundee. Joint with John Brimacombe, Head of the undergraduate organic chemistry teaching laboratories, Oxford

1995 Jillian Brown, Dundee. Joint with Mike Ferguson. Senior Scientist, BioMarin Pharmaceuticals, San Diego

## Research Funding

Total academic research funding to date ca £44M, of which ca £14M as PI.

Funder	Title	Dates	Role	Value
<b>Under consideration</b>				
Leverhulme Trust	Understanding and exploiting enigmatic sugars <i>en route</i> to carbohydrate vaccines	2023-26	Col (with Miller, Keele)	£240K
<b>Current</b>				
EU H2020/UKRI	GlyciNoVi ITN	2023-25	UoM PI (lead Nativi, Florence).	Euros400K
EPSRC	The UK Dynamic Nuclear Polarisation Magic Angle Spinning NMR Facility	2022-27	Col	£2.9M
BBSRC 21ALERT	Advancing 'omics analysis with a Sciex ZenoToF 7600 mass spectrometer	2022	Col	£750K
Innovate UK Biomedical Internship	Sugars, Enzymes and Diagnostics	2020-22	PI	£105K
AZ	Ligands for influenza HA	2022	PI	£24K
EU H2020	PoLiMeR ITN – Polymers In the Liver: Metabolism and Regulation	2019-23	PI Bakker (Groningen). JIC PI	Euros400K
BBSRC sLola,	Glycoengineering Veterinary Vaccines	2016-22	JIC/UoM PI with LSHTM, Cambridge, Exeter, Roslin Inst and Dstl,	£4.3M JIC/UoM £480K
<b>Complete</b>				
SYNBIOCHEM FTMA	Ligands for Covid-19 spike protein	2020	PI	£25K
MRC DART/Iceni Diagnostics iCASE	Bioactive sugars - sweet alternatives to antibiotics	2018-22	PI	£110K
Environment Agency/Broads Authority/Drainage Board	Student support, Algal blooms on the Norfolk Broads	2017-20	PI	£15K
EPSRC/Innovate UK Industrial Biotechnology Catalyst Early Stage Translation	New Enzymatically Produced Interpenetrating Starch-Cellulose Gels	2016-20	JIC PI with Bristol Engineering, UEA Pharmacy and Bath Chemistry	£2.8M, JIC £400K
BBSRC/Innovate UK Industrial Biotechnology Catalyst Early Stage	Glycoenzymes for Bioindustries	2015-20	JIC PI with Manchester, QIB and Newcastle	£3.4M JIC £750K
BBSRC	Flexible Talent Mobility Account	2019-21	PI, on behalf of JIC Director	£205K
BBSRC Institute Strategic Program	Molecules from Nature: Field group component	2017-2019	PI	£620K
BBSRC Institute equipment grant	600 MHz NMR with cryoprobe	2017-2020	Col with O'Connor and Wilkinson	£1.2M
JIC Knowledge Exchange and Commercialisation	Scalable enzymatic routes to carbohydrate bioactives	2018	PI	£48K
BBSRC	Flexible Talent Mobility Account	2017-19	PI, on behalf of JIC Director	£120K
BBSRC-Newton Fund	Probiotics for Sustainable Aquaculture in the Developing World	2016-19	JIC PI with Stirling, RVC, World Fish (Bangladesh) and KUFOS (India)	£1.5M JIC £400K

BBSRC/Iceni Diagnostics iCASE	Controlling Anti-Microbial Action Spectrum with Sugars	2015-19	PI	£120K
BBSRC/EU ERA-CAPS	Designing starch	2015-18	JIC PI with ETH-Z and HHU Dusseldorf	€1.2M JIC €450K
BBSRC Open Plant Synthetic Biology Centre Cambridge-JIC	Engineering digestion-resistant starch in potato	2015-18	Col + lead on ms instrumentation. PIs Sanders (JIC) + Baulcombe (Cam)	Ctre £11.8M, £500K to starch project + £1.8M instruments
BBSRC/Mologic iCASE	Molecular address tags for vaccines	2014-18	PI	£120K
BBSRC NIBB	IBCarb Network in Industrial Biotech and Bioenergy	2014-18	Co-Director with Flitsch (Manchester)	£2.1M
BBSRC IBCarb Business Interaction Voucher with Cambridge Display Technology	OLED sensors for sugar-protein interactions	2017-18	PI	£15K
BBSRC International Workshop	Engineering protein trafficking in plants for biopharmaceutical production	2018	PI	£10K
BBSRC Taiwan partnering award	O-GlcNAc modification and regulation of the NLRP3 inflammasome	2016-18	PI with UEA, Quadram Institute Biosciences and KCL	£25K
India Department of Biotechnology	Fellowship to support Eeshan Kalita. Enzyme and starch modification	2016-17	JIC PI	£30K
BBSRC Institute Strategic Program	Understanding and Exploiting Metabolism: Field group component	2006-17	PI	£2.38M
AMT Fruit consultancy and contract work	Algal Biotechnology for Fruit Waste Valorisation	2016-17	PI	£25K
BCarb Proof of Concept project with SES van der Have	Structural and Biological Assessment of Sugar Beat Pulp Polysaccharides	2016-17	PI	£80K
BBSRC Follow-on Fund	Glyconanoparticle diagnostics for influenza infection	2015-17	Joint PI with Russell (UEA)	£240K
Norwich Research Park Translational Fund	Clinical assessment of glyconanoparticle flu sensors	2015	PI	£50K
Nelson County Potatoes consultancy and contract work	Control of potato cyst nematode with natural products	2015	PI	£20K
BBSRC Pathfinder	Opportunities for a point-of-care diagnostic for norovirus	2015	PI	£10K
BBSRC Taiwan Partnering Award	Omics Platforms for Exploration of Bioactive Phytocompounds	2014-16	Col	£25K
Norwich Research Park Translational Fund	Development of norovirus sensors for beta-testing	2014	PI	£50K
BBSRC Pathfinder	Influenza virus detection	2014	PI	£10K
BBSRC/Environment Agency iCASE	Algal Blooms on the Norfolk Broads	2013-17	PI	£100K
Norwich Research Park studentship	Chemistry of Algal Natural Product Toxins	2013-17	PI	£100K
Dstl contract	Vaccine candidates for meliodosis	2013-16	PI	£260K

BBSRC Taiwan Partnering Award	Taiwan-NRP: Natural Product Bioactives	2013-15	PI	£25K
BBSRC JIC Institute Development Grant	Metabolites analysis of algal blooms: establishing LC-MS approaches	2013	PI	£25K
BBSRC China Partnering Award	Building Links between JIC and CAS: Towards a CAS-JIC Joint Centre	2013	Col	£30K
BBSRC Crop Improvement Industry Club	Glucosidase inhibitors: new approaches to malting efficiency	2012-15	Col with Smith (JIC)	£495K
Royal Society Newton Fellowship for Matilde Moncayo	Iminosugar inhibitors of plant carbohydrate metabolism	2012-14	PI	£120K
BBSRC TRDF	Screening Carbohydrate-Active Enzymes - a Fluorescent Solution	2012	Col with Wagner (Kings)	£120K £30K to JIC
BBSRC Crop Improvement Industry Club studentship	Barley branching enzymes and resistant starch	2011-15	PI	£110K
BBSRC TRDF	Evaluating SPR array imaging for glycobiology	2011	PI	£80K
BBSRC JIC Institute Development grant	Advanced NMR training for facility manager	2009	PI	£25K
EPSRC Basic Technologies Follow-on	Exploitation of Glycoarrays - Translation to End-use	2009-10	Col	£1.2M £200K to JIC
BBSRC/Mologic iCASE	Carbohydrate antigens: diagnostics and therapeutics	2009-13	PI	£85K
AstraZeneca PhD studentship co-fund	Xenopus as a toxicology model	2008-12	Col with Wheeler (UEA)	£25K
BBSRC SCIBS Initiative	Chemical interrogation: a new "systems" approach to starch metabolism in germinating barley seeds	2006-09	UEA PI with Smith (JIC)	£750K £290K to UEA
EPSRC/RCUK Basic Technologies Program	Glycochips - carbohydrate microarrays	2006-09	UEA PI with UK consortium	£3.6M £390K to UEA
BBSRC responsive mode	Biochemistry of plant acylCoA binding proteins using a targeted proteomics approach	2005-08	UEA PI with Slabas (Durham)	£420K £190K to UEA
EU Alþan PhD Scholarship	Towards self-assembling carbohydrate structures	2005-08	PI	£35K
EPSRC responsive mode	Chemoenzymatic synthesis of fluorinated sugar nucleotides for combinatorial biosynthesis	2005-07	UEA PI with Percy (Leicester)	£400K £205K to UEA
EPSRC responsive mode	Towards the chemical synthesis of rhamnogalacturonan II	2004-08	PI	£345K
EPSRC/Pfizer Industrial CASE	A chemical genetic approach to studying macrophage migration <i>in vivo</i>	2004-07	Col with Wheeler (UEA)	£75K
EPSRC Crime Prevention Initiative	Nanostructured assemblies for detection of biological agents	2004-07	Col with Russell (UEA)	£220K
Leverhulme Trust	Study leave fellowship	2004	PI	£30K
EU Marie Curie Fellowship for van Well	Chemical synthesis of parasite mucins	2003-05	PI	£80K
BBSRC responsive mode	<i>Bordetella pertussis</i> lipopolysaccharide: structure biosynthesis and enzymology	2002-05	PI	£176K



EPSRC Networks	UK Carbohydrate Chemistry Network	2002-05	PI	£62K
MRC Discipline Hopping Scheme	<i>Xenopus laevis</i> as a simple vertebrate model for chemical genetics	2002	PI with Wheeler (UEA)	£70K
EPSRC ROPA	Glycosylation with in situ separation: carbohydrate chemistry on a tlc plate	2001-02	PI	£70K
Garfield Weston Foundation	Carbohydrate chemistry and biology at UEA	2000-02	PI	£250K
MRC Collaborative Centre	Microbial carbohydrate-active enzymes as targets for therapy	2000-02	UEA PI with Taylor + Naismith (St Andrews)	£1.4M £350K to UEA
GSK Action TB program	Fully funded studentship	1999-02	PI	£65K
GSK CASE contribution	Fucosyltransferase drug targets	1998-01	PI	£8K
NIH Collaboration Initiative	The mycobacterial cell wall as a drug target	1998	UEA PI with McNeil (Colorado)	\$50K
Wellcome Trust equipment bid	MALDI-ToF mass spectrometer	1998	Col with St Andrews team	£200K
BBSRC Structure-based Design Initiative	Structure-based inhibitor design for carbohydrate-binding bacterial toxins	1996-98	Col with Homans (St Andrews)	£236K
EPSRC responsive mode	The synthesis of conformationally restricted sugars	1995-97	PI	£80K
Royal Society	Equipment grant	1995	PI	£10K
Pfizer	New Investigator Award	1995	PI	£9K
Wellcome Trust	<i>Trypanosoma cruzi</i> trans-sialidase	1994-97	PI	£120K
GSK CASE contribution	Inhibitors of glycosyltransferases	1994-97	PI	£8K

## Research Lectures

### 2021

- 232. Autumn: Invited lecture. Cardiff University.
- 231. Sept: Invited lecture. Keele University
- 230. July: Invited lecture. Imperial College
- 229. June: Invited lecture. Lund University, Sweden
- 228. May: DSM HMO donation program, online
- 227. Apr: Invited lecture. SYNBIOCARB, Prague, online

### 2021

- 226. Nov: Invited lecture. University of Glasgow
- 225. Mar: Invited lecture. University of East Anglia
- 224. Jan: Invited lecture. British Psychological Society, online

### 2020

- 223. Nov: Plenary lecture. Euglena International Network, online
- 222. Oct: Plenary lecture. India International Carbohydrate E-Meeting
- 221. March: Invited lecture. University of Manchester

### 2019

- 220. Oct: Norwich Science Festival, Norwich
- 219. June: Invited lecture. 6th Beilstein Symposium on Glyco-Bioinformatics, Frankfurt, Germany
- 218. May: Invited lecture. 53<sup>rd</sup> ESBOC symposium, Gregynog
- 217. Apr: Invited lecture, Anglo-French AMR workshop. London
- 216. Mar: Invited lecture, EPSRC Chemical Biology Community Workshop, Birmingham
- 215. Feb: Invited lecture, Loughborough University
- 214. Jan: Invited lecture. Carbomet - Glycomaterials Workshop, Grenoble, France

### 2018

- 213. Dec: Plenary lecture. CARBO-XXXIII – Carbohydrates: Chemistry, Biology and Industrial Applications Kolkata, India
- 212. Oct: Keynote lecture. CHE + PHA undergraduate prize giving, UEA
- 211. Sept: Keynote lecture. Institute of Chemical Biology MRes conference, Imperial College
- 210. July: Plenary lecture. International Carbohydrate Symposium, Lisbon, Portugal
- 209. May: EPSRC Directed Assembly Network, Birmingham
- 208. Apr: Animal and Plant Health Agency, Weybridge
- 207. Mar: BioCatNet, Biotechnological routes to multifunctional materials, Manchester
- 206. Mar: Keynote lecture. RSC Bioorganic Chemistry + Chemical Biology Group, UEA
- 205. Mar: Invited lecture. BiomaGUNE, San Sebastian, Spain
- 204. Mar: Invited lecture. Cardiff University

### 2017

- 203. Nov: Invited lecture. University of Oxford (Plant Sciences)
- 202. Sept: Keynote lecture. Biochemical Society, "Glycobiology and Infectious Disease", Keele
- 201. July: Invited lecture. Eurocarb 19, Barcelona, Spain
- 200. June: Keynote lecture. MRC-DTB India workshop, Scarborough
- 199. May: Keynote lecture. UK-Latin America Workshop, Manchester
- 198. Feb: Invited lecture. GlycoBioTec 2017, Berlin, Germany

### 2016

- 197. Dec: Keynote lecture. IBCarb GCRF Workshop, Manchester
- 196. Nov: Keynote lecture. BBSRC Pesticide Resistance Town Meeting, London
- 195. Oct: Keynote lecture. BBSRC Pesticide Resistance Town Meeting, Newcastle
- 194. Oct: Invited lecture. Institute of Fisheries Management, Norwich
- 193. Sept: Invited lecture. PhycoNet - Centre for Process Innovation, Middlesbrough
- 192. July: Invited lecture. International Carbohydrate Symposium, New Orleans, US

191. June: Invited lecture. University of Dundee
190. May: Invited lecture. Imperial College, London
189. May: Invited lecture. NDMC, Taipei, Taiwan
188. May: Keynote lecture. AgriNet, Syngenta, UK

## **2015**

187. Dec: Invited lecture. Universite de Rennes, France
186. Oct: Invited lecture. A-Star Bioprocessing Technology Institute, Singapore
185. Oct: Invited lecture. Naresuan University, Phitsanulok, Thailand
184. September: Plenary lecture. Manchester Biomolecular 2015
183. August: Invited lecture. RSC-Biochem Soc meeting, St Andrews
182. Aug: Invited lecture. Eurocarb 18, Moscow, Russia
181. July: Invited lecture. OpenPlant, Cambridge
180. June: Invited lecture. Carbohydrates Gordon Research Conference, New England, US
179. April: Invited lecture, University of York
178. March: Keynote lecture. SelectBio Advances in Microarray Technologies, Berlin, Germany
177. March: Invited lecture. JIC-Chinese Academy of Science symposium, Beijing, China
176. March: Invited lecture. Newton Fund Aquaculture Sandpit, Kerala, India

## **2014**

175. Oct: Invited lecture. Fire blight workshop, Bolzano, Italy
174. Sept: Keynote lecture, RSC Carbohydrate Group, Warwick
173. June: Invited lecture. RSC Bioorganic Group, Fribush, Scotland
172. May: Invited lecture. Beilstein Symposium on Chemistry and Time, Chiemsee, Germany
171. May: Invited lecture. USP Ribeirao Preto, Brazil
170. May: Keynote lecture. FAPESP-SGC-Nature conference on *Chemical Probe-based Open Science: Uncovering New Human and Plant Biology*, Campinas, Brazil
169. May: Invited lecture. Academia Sinica, Taiwan
168. Apr: Invited lecture. Shanghai Institute of Organic Chemistry, China
167. Apr: Invited lecture, Phyconet, UCL
166. Mar: Invited lecture. Agri-Innovation: Emerging science for crop research, Imperial College
165. Mar: Invited lecture. University of St Andrews
164. Mar: Invited lecture. University of Oxford (Chemistry)
163. Feb: Invited lecture. University of Glasgow
162. Jan: Keynote lecture, 27<sup>th</sup> International Carbohydrate Symposium, Bangalore, India
161. Jan: Invited lecture. Emerging Trends in Glycoscience and Glycotechnology. IIT, Dehli, India
160. Jan: Invited lecture. IISER, Kolkata, India

## **2013**

159. Sept: Invited lecture. RSC Bioorganic Group, Fribush, Scotland
158. July: Plenary lecture. EPSRC Directed Assembly Network, Newcastle
157. July: Invited lecture, ECUST, Shanghai, China
156. June: 22<sup>nd</sup> International Glycoconjugate Symposium, Dalian, China
155. June: Keynote lecture, 3<sup>rd</sup> Beilstein Symposium on Glyco-Bioinformatics, Potsdam, Germany
154. May: Invited lecture, University of Copenhagen.
153. Apr: Invited lecture. John Innes Centre-Chinese Academy of Science symposium, Norwich
152. Jan: Invited lecture, School of Pharmacy, University of East Anglia, Norwich

## **2012**

151. Dec: Invited lecture, University of Namur, Belgium
150. Oct: Invited lecture, Nordic Starch Network Symposium, Copenhagen, Denmark
149. Oct: Invited lecture, CERMAV, Grenoble, France
148. Sept: Invited lecture, RSC Carbohydrate Group + COST joint meeting, Birmingham
147. Apr: John Innes Centre-Chinese Academy of Science symposium, Shanghai, China
146. Apr: Invited lecture, Shanghai Institute for Plant Physiology and Ecology, China
145. Apr: Invited lecture, Shanghai Institute of Organic Chemistry, China

144. Apr: Invited lecture, Royal Golden Jubilee Congress XIII, Bangkok, Thailand  
143. March: Invited lecture, Novel Field-Based Diagnostics International Workshop, FERA, York

### **2011**

142. Nov: 6<sup>th</sup> European Symposium on Grain Processing, Carlsberg Laboratory, Denmark  
141. Oct: Invited lecture, American Assoc of Cereal Chemists International, Palm Springs, USA.  
140. June: Plenary lecture, EPSRC Directed Assembly Network, Diamond/RAL, UK.  
139. June: Invited lecture, Canadian Chemical Society meeting, Montreal, Canada.  
138. May: Invited lecture, Glycobiology Gordon Conference, Lucca, Italy.  
137. May: Invited lecture, UEA Centre for Molecular and Structural Biochemistry, Spring Meeting.  
136. April: Invited lecture, RSC Carbohydrate and Bioorganic meeting, King's College London.  
135. Jan: Invited lecture, Syngenta Synthetic Biology workshop, Jealott's Hill, UK.

### **2010**

134. Oct: Invited lecture, MexicoBio 2010, Guanajuato, Mexico.  
133. Sept: Plenary lecture, 10<sup>th</sup> Jornadas de Carbohidratos, Granada, Spain.  
132. Sept: Invited lecture, RSC Carbohydrate Group meeting on Chemical Glycobiology, Dundee.  
131. Aug: Invited lecture, ACS National Meeting, Carbohydrate Nanotechnology, Boston, USA.  
130. Aug: Invited lecture, AIST, Sapporo, Japan.  
129. Aug: Invited lecture, International Carbohydrate Symposium, Tokyo, Japan.  
128. Mar: Invited lecture, University of Liverpool.

### **2009**

127. July: Invited lecture, 15<sup>th</sup> European Carbohydrate Symposium, Vienna, Austria.  
126. May: Plenary lecture, Alberta Ingenuity Centre for Carbohydrate Science, Banff, Canada.  
125. Mar: Invited lecture, ACS National Meeting, Carbohydrate Sensors, Salt Lake City, USA.  
124. Mar: Invited lecture, NIGMS/CFG Workshop on Glycan Microarrays, La Jolla, USA.  
123. Invited lecture, Jan: SPPI-NET (Synthetic Biology Network), Durham

### **2008**

122. Dec: Invited lecture. Royal Society UK-China Workshop, University of Bath.  
121. Nov: Invited lecture. Biacore Interactions day, Hinxtton.  
120. October: Invited lecture, Durham University.  
119. September: Invited lecture. RSC Carbohydrate and Biotechnology Groups, "Glycomics: from Biology to Therapeutics", London.  
118. August: Invited lecture, Plant Polysaccharide Workshop, Sigtuna, Sweden.  
117. July: Invited lecture, International Carbohydrate symposium, Oslo, Norway.  
116. March: Invited lecture. 5<sup>th</sup> European Symposium on Enzymes in Grain Processing, Norwich.  
115. February: Invited lecture, School of Chemical Sciences and Pharmacy, UEA

### **2007**

114. December: Inaugural lecture. CARBO-XXII – Carbohydrates: Chemistry, Biology and Industrial Applications, NIPER, Chandigarh, India.  
113. November: Invited lecture, Rothamsted Research, Harpenden, UK  
112. November: Invited lecture, Cranfield University  
111. October: Invited lecture. Royal Society of Medicine, Jenner Symposium, Dublin.  
110. October: Invited lecture. RSC Carbohydrate Group, University of Manchester.  
109. July: Plenary lecture, Symposium in honour of Prof Bryan Jones, Cardiff University.  
108. June. Eastern Region Biotechnology Initiative, , Cambridge.  
107. June: Invited lecture. Gordon Conference on Carbohydrates, Tilton, New Hampshire, USA.  
106. May: Invited lecture, YSBL/CNAP, University of York  
105. March: Invited lecture, University of Westminster.

### **2006**

104. November: Invited lecture. EuroSciCon meeting on Glycomics, London.  
103. November: Invited lecture, Carlsberg Laboratory, Copenhagen, Denmark.

102. November: Neils Bohr Lecturer, Royal Vet + Agricultural University, Copenhagen, Denmark.
101. November: Invited lecture, University College, London.
100. October: Invited lecture, RSC/Dstl Workshop on CBRNI Decontamination, Oxfordshire.
99. August: Invited lecture. Gordon Research Conference on Bioorganic Chemistry, Oxford.
98. July: Invited lecture. ICS Satellite Meeting on Synthesis, Vancouver, Canada.
97. July: Invited lecture, University of Guelph, Canada.
96. July: Invited lecture, Albert Einstein College of Medicine, New York, USA.
95. July: Invited lecture. Gordon Research Conference on Biocatalysis, Rhode Island, USA
94. April: Invited lecture. RSC Carbohydrate Group Chemistry. University of Liverpool.
93. April: Invited lecture. RSC Chemistry of the Cell Symposium. University of Cardiff.
92. March: Invited lecture, ACS National meeting, Atlanta, USA.
91. February: Bimala Charan Law Memorial Lecture, IACS, Calcutta, India.
90. February: Invited lecture, NIPER, Chandigarh, India.
89. February: Plenary lecture. Conference on Drug Discovery, CDRI, Lucknow, India.
88. February: Invited lecture, University of Loughborough.

### **2005**

87. September: Firth, Scotland, RSC Bioorganic Group Meeting
86. June: John Innes Centre, Norwich
85. June: University of Leeds
84. June: Invited lecture. Brazilian Chemical Society Annual Symposium, Pocos de Caldos, Brazil
83. May: University of Sao Paulo, Ribeirão Preto, Brazil
82. March: University of Missouri, St Louis, US
81. March: ACS National Meeting, San Diego, US
80. March: University of Cambridge
79. February: Invited lecture. University of Sheffield Chemical Biology Symposium

### **2004**

78. December: University of Edinburgh
77. September: John Innes Centre, Norwich
76. May: Invited lecture. New Perspectives in Medicinal Chemistry, University of Liverpool.
75. April: University of Glasgow. From Synthesis and Enzymology to Chemical Genomics.
74. March: Alberta Ingenuity Centre for Carbohydrate Science, University of Alberta, Canada
73. January: Invited lecture. Southampton Organic Synthesis Symposium

### **2003**

72. January: London School of Pharmacy
71. February: Chemical Biology Forum, Leicester
70. February: Oxford, Dyson Perrins Laboratory
69. March: University of Birmingham, School of Biosciences
68. April: RSC Carbohydrate Group Spring Meeting, Huddersfield
67. April: Heads of University Biological Sciences Forum, Leeds
66. May: University of Bath, School of Pharmacy and Pharmacology
65. November: Arrow Therapeutics, London
64. December: University of Stockholm

### **2002**

63. January: Invited lecture. RSC Organic Mechanisms Group, University of Manchester
62. April: University of Manchester
61. June: University of Reading, Dept of Chemistry
60. July: Invited lecture. Syngenta: Combinatorial Chemistry Meets Cell Biology
59. July: NRP Symposium, Norwich
58. August: Invited lecture. Wyeth-Ayerst, New York, US

### **2001**

57. April: Institute of Food Research, Norwich

56. May: University of Bristol
55. June: University of Birmingham
54. June: University of Nottingham (Chemistry)
53. September: RSC Bioorganic and carbohydrate Groups Meeting, Firth, Scotland
52. October: Nottingham Trent University
51. November: Arrow Therapeutics, London
50. November: UMIST
49. December: University of Nottingham (Pharmacy)
48. December: Invited lecture. RSC, Charles Rees symposium, London

### **2000**

47. March: University of Aberdeen
46. March: GlaxoWellcome, Stevenage. Action TB Meeting
45. May: University of Durham
44. May: Ultrafine, Salford. Carbohydrates
43. June: Pharmacia-UpJohn, Uppsala, Sweden

### **1999**

42. January: University of Sheffield
41. February: University of Liverpool
40. March: Salford University – Greater Manchester Meeting
39. March: RSC Carbohydrate Group Meeting, York. RSC Carbohydrate Award Lecture
38. April: Heriot-Watt University
37. May: University of Cambridge
36. May: SCI Meeting on Carbohydrates in Medicinal Chemistry, London
35. July: Biological Challenges for Organic Chemistry II, University of St Andrews
34. September: New Advances in Anti-Tuberculosis Chemotherapy, IQS, Barcelona
33. October: UEA, Norwich
32. November: University of Loughborough
31. November: Northern Glycosciences Group, Edinburgh

### **1998**

30. March: RSC Carbohydrate Group Meeting, Birmingham

### **1997**

29. July: Biochemical Society Meeting, Dundee. Specificity of *trans*-Sialidase.
28. July: Biochemical Society Meeting, Dundee. <sup>13</sup>C-Enriched Saccharides
27. September: Young Organic Chemists meeting, Gregynog
26. September: Martek Biosciences, Baltimore, US
25. October: University of Birmingham
24. November: 5th North American Chemical Congress, Cancun, Mexico
23. November: University of York
22. November: Ohio State University, US

### **1996**

21. March: Roche, London, UK
20. May: University of Salford
19. May: University of Cambridge. Ley Group Seminar
18. July: University of Kent. 6th International Meeting on Reaction Mechanisms
17. August: Scottish Biomedical Research Trust, Edinburgh
16. September: Young Organic Chemists Meeting, Gregynog
15. September: Ciba-Geigy, Basle, Switzerland
14. October: Zeneca Agrochemicals, UK
13. October: University of Edinburgh
12. December: University of Strathclyde

**1995**

11. August: University of St Andrews. RSC Biological Challenges for Organic Chemistry

**1994**

10. November: University of St Andrews

**1993**

9. March: RSC Carbohydrate Group Meeting, Dundee

8. August: Monsanto, St Louis, US

7. October: University of Dundee

6. December: RSC Perkin Division Meeting, Aberdeen.

**1992**

5. January: University of Dundee.

4. October: University of East Anglia

**1991**

3. August: University of Dundee.

2. September: EUROCARB VI, Heriot Watt University, Edinburgh.

1. October: Oxford Centre for Molecular Sciences.

## Publications, Reviews and Patents

[https://scholar.google.co.uk/citations?user=0d\\_SVTEAAAAJ&hl=en](https://scholar.google.co.uk/citations?user=0d_SVTEAAAAJ&hl=en)

### SUBMITTED

292. Cross-linked enzyme aggregates (CLEAs) derived from levansucrase and inulosucrase are highly efficient catalysts for the synthesis of levan-type fructooligosaccharides. T. Charoenwongpaiboon, K. Wangpaiboon, R. A. Field, M. Prousoontorn, R. Pichyangkura, *Molecular Catalysis*, 2022, manuscript MOLCAA-D-22-01014

291. Synthesis of C6-modified mannose 1-phosphates and evaluation of derived sugar nucleotides against GDP-mannose dehydrogenase. S. Ahmadipour, A. Wahart, J. Dolan, L. Beswick, C. S. Hawes, R. A. Field, G. J. Miller, *Beilstein J. Org. Chem.*, 2022, manuscript ID 24695126.

290. Euglenoids will change the biotechnology world. T. E. Ebenezer, R. Low, E. C. O'Neill, I.-S. Huang, R. Sánchez Thomas, P. Cardol, R. A. Field, S. Guerrero, T. Ishikawa, M. Nakazawa, K. Suzuki, A. Sur, B. J. Saville, A. G. B. Simpson, A. DeSimone, M. Hammond, K. Tyler, V. Hampl, P. V. Zimba, M. Shah, S. C. Farrow, G. Horst, P. Myler, E. Linton, M. Ginger, A. Karnkowska, N. Hall, M. C. Field, *BIOLOPEN/2022/059561*, [doi.org/10.31219/osf.io/j9b4f](https://doi.org/10.31219/osf.io/j9b4f)

### ACCEPTED

289. Synthesis of cholera toxin B-subunit glycoconjugates using site-specific orthogonal oxime and sortase ligation reactions. J. P. Dolan, D. C. Machin, S. Dedola, R. A. Field, M. E. Webb, W. B. Turnbull, *Frontiers in Chemistry*, 2022, manuscript number 958272.

288. Glycosylated Gold Nanoparticles as Alternatives to Immunoassays in Point of Care Diagnostics: From Aggregation to Lateral Flow. A. N. Baker, G. W. Hawker-Bond, P. G. Georgiou, S. Dedola, R. A. Field, M. I. Gibson, *Chem. Soc. Rev.*, 2022, DOI: 10.1039/D2CS00267A.

### PUBLISHED

#### 2022

287. Recent advances in nanoparticle-based targeting tactics for antibacterial photodynamic therapy, B. Thomas-Moore, C. Arnau del Valle, R. A. Field, M. J. Marin, *Photochem. Photobiol. Sci.*, 2022, 21, 1111-1131.

286. Discovery of the euglenatides: potent antiproliferative cyclic peptides isolated from the freshwater photosynthetic microalga *Euglena gracilis*. M. Aldholmi, R. Ahmad, F. Reyes, I. Pérez-Victoria, D. Carretero-Molina, J. Martín, O. Genilloud, L. Gourbeyre, T. Gefflaut, H. Carlsson, A. Maklakov, E. C. O'Neill, R. A. Field, B. Wilkinson, M. O'Connell, A. Ganesan, *Angew. Chem. Int. Ed.*, 2022, 61, e202203175

285. Levan-type fructooligosaccharides synthesis by novel levansucrase-inulosucrase fusion enzyme. T. Charoenwongpaiboon, K. Wangpaiboon, R. A. Field, M. Prousoontorn, R. Pichyangkura, *Biochem. Eng. J.*, 2022, 185, 108524.

284. Spinning sugars in antigen biosynthesis: a direct study of the *Coxiella burnetii* and *Streptomyces griseus* TDP-sugar epimerases. A. R. Cross, S. Roy, M. Vivoli Vega, M. Rejzek, S. A. Nepogodiev, M. Cliff, M. N. Isupov, R. A. Field, J. Prior, N. J. Harmer on behalf of the GoVV consortium, *J. Biol. Chem.*, 2022, 298, 101903.

283. Biochemical basis of xylooligosaccharide utilisation by gut bacteria. R. P. Singh, R. Bhaiyya, R. Thakur, J. Niharika, C. Singh, D. Latousakis, G. Saalbach, S. A. Nepogodiev, P. Singh, S. C. Sharma, S. Sengupta, N. Juge, R. A. Field, *Int. J. Mol. Sci.*, 2022, 23, 2992.

282. Anomeric 1,2,3-triazole-linked sialic acid derivatives show selective inhibition towards bacterial neuraminidase over trypanosome *trans*-sialidase. P. de Andrade, S. Ahmadipour, R. A. Field,



*Beilstein J. Org. Chem.*, 2022, 18, 208-216.

281. Sweet targets: sugar nucleotide biosynthesis inhibitors. S. Ahmadipour, J. Reynisson, R. A. Field, G. J. Miller, *Future Med. Chem.*, 2022, 14, 295-298.

280. Lateral Flow Glyco-Assays for the Rapid and Low-Cost Detection of Lectins - Polymeric Linkers and Particle Engineering are Essential for Selectivity and Performance, A. Baker, S.-J. Richards, S. Dedola, R. A. Field, G. Panagiotis, M. Walker, M. I. Gibson, *Advanced Healthcare Materials*, 2022, 11, article 2101784

279. End-Functionalized Poly(Vinyl Pyrrolidone) for Ligand Display in Lateral Flow Device Test Lines. A. Baker, T. Congdon, S.-J. Richards, P. Georgiou, M. Walker, S. Dedola, R. A. Field, M. I. Gibson, *ACS Polymer Gold*, 2022, 2, 69-79.

278. Lipopolysaccharide associated with microbial  $\beta$ -2,6-fructofuranose polysaccharide *Erwinia herbicola* levan mediates TLR4-dependent immunomodulatory activity *in vitro*. I. D. Young, S. A. Nepogodiev, I. M. Black, G. Le Gall, A. Wittmann, D. Latousakis, T. Visnapuu, P. Azadi, R. A. Field, N. Juge, N. Kawasaki, *Carbohydr. Polym.*, 2022, 277, article 118606.

## **2021**

277. Dissecting the toxicity and mitigating the impact of harmful Pymnesium blooms in eutrophic waters. B. A. Wagstaff, J. Pratscher, P. Rivera, E. S. Hems E. Brooks, M. Rejzek, J. Todd, J. C. Murrell, R. A. Field, *Env. Sci. Technol.*, 2021, 55, 16538-16551.

276. Glycan-based Flow-Through Device for the Detection of SARS-COV-2. A. Baker, S.-J. Richards, S. Pandey, C. Guy, A. Ahmad, M. Hasan, C. Biggs, P. Georgiou, AQ. Zwetsloot, A. Straube, S. Dedola, R. A. Field, N. Anderson, M. Walker, D. Grammatopoulos, M. I. Gibson, *ACS Sensors*, 2021, 6, 10, 3696-3705.

275. Prospects for anti-Candida therapy through targeting the cell wall: a mini-review, S. Ahmadipour, R. A. Field, G. J. Miller, *The Cell Surface*, 2021, 7, 100063.

274. Structural basis of the substrate binding specificity of cellodextrin phosphorylase from *Ruminiclostridium thermocellum* revealed by NMR spectroscopy. V Gabrielli, J. C. Muñoz-García, G. Pergolizzi, P. de Andrade, Y. Khimyak, R. A. Field, J. Angulo, *Chem. Eur. J.*, 2021, 27, 15688-15698

273. Characterization and application of a nanoparticulate exopolysaccharide from *Leuconostoc holzapfelii* KM01 isolated from Thai fermented dessert, Khao-Mak. T. Charoenwongpaiboon, K. Wangpaiboon, R. Pichyangkura, P. Mahalapbutr, S. A. Nepogodiev, P. Wonganan, R. A. Field, *Int. J. Biol. Macromol.*, 2021, 187, 690-698.

272. Recent advances in enzymatic synthesis of  $\beta$ -glucan and cellulose, G. S. Bulmer, P. de Andrade, R. A. Field, J. van Munster, *Carbohydr. Res.*, 2021, 508, 108411.

271. Post-synthesis self- and co-assembly of enzymatically produced fluorinated cellodextrins and cellulose nanocrystals. R. Nigmatullin, R. Harniman, R. A. Field, S. J. Eichhorn, *Langmuir*, 2021, 37, 9215–9221.

270. Recent Developments in the Use of Glyconanoparticles and Related Quantum Dots for the Detection of Lectins, Viruses, Bacteria and Cancer Cells. P. J. Hernando, S. Dedola, M. J. Marín, R. A. Field, *Frontiers in Chemistry*, 2021, Volume 9 | Article 668509.

269. Chemoenzymatic synthesis of fluorinated cellodextrins identifies a new allomorph for cellulose-like materials. P. de Andrade, J. C. Munoz-Garcia, G. Pergolizzi, S. A. Nepogodiev, V.

Gabrielli, D. Iuga, L. Fabian, R. Nigamatullin, M. Johns, R. Harniman, S. J. Eichhorn, J. Angulo, Y. Z. Khimyak, R. A. Field, *Chem. Eur. J.*, 2021, 27, 1374-1382.

## **2020**

268. Targeted chemoenzymatic synthesis of sugar nucleotide probes reveal an inhibitor of the GDP-D-mannose dehydrogenase from *Pseudomonas aeruginosa*. L. Beswick, E. Dimitriou, S. Ahmadipour, A. Zafar, M. Rejzek, J. Reynisson, R. A. Field, G. J. Miller, *ACS Chem. Biol.*, 2020, 15, 3086-3092.

267. Ascertaining the biochemical function of an essential pectin methylesterase in the gut microbe *Bacteroides thetaiotaomicron*. C.-J. Duan, A. Baslé, M. Visona Liberato, J. Gray, S. A. Nepogodiev, R. A. Field, N. Juge, D. Ndeh, *J. Biol. Chem.*, 2020, 295, 18625-18637.

266. Role of conserved calcium-binding residues in fructooligosaccharide synthesis of *Lactobacillus reuteri* 121 inulosucrase. T. Charoenwongpaiboon, P. Punnatin, M. Klaewkla, P. P. Na Ayutthaya, K. Wangpaiboon, S. Chunsrivirod, R. A. Field, R. Pichyangkura, *ACS Omega*, 2020, 5, 43, 28001-28011

265. The SARS-COV-2 spike protein binds sialic acids, and enables rapid detection in a lateral flow point of care diagnostic device. A. N. Baker, S.-J. Richards, C. S. Guy, T. R. Congdon, M. Hasan, A. J. Zwetsloot, A. Straube, M. Walker, S. Chessa, G. Pergolizzi, S. Dedola, R. A. Field, M.I. Gibson, *ACS Central Sci.*, 2020, 6, 2046-2052.

264. Glycans as Plant Defense Priming agents against Filamentous Pathogens. C. Chaliha, R. A. Field, E. Kalita, 2020, *Plant Defence: Biological Control*, pp 99-118, Eds. J.-M. Mérillon and K.G. Ramawat, Springer, 2020.

263. Modelling and optimization of factors influencing adsorptive performance of agrowaste-derived nanocellulose/iron oxide nanobiocomposites during remediation of arsenic contaminated groundwater. J. Baruah, C. Chaliha, E. Kalita, B. K. Nath, R. A. Field, and P. Deb, *Int. J. Biol. Macromol.*, 2020, 164, 53-65.

262. Theoretical and experimental approaches to understand the biosynthesis of starch granules in a physiological context. A. Raguin, B. Pfister, M. Rugen, R. A. Field, S. Zeeman, O. Ebenhoh, *Photosynthesis Research*, 2020, 145, 45-70.

261. Assessment of the kinetic and chemical competence of  $\beta$ -1,4- and  $\beta$ -1,3-glucan phosphorylases inform access to new-to-nature analogues of human milk oligosaccharides, R. Pal Singh, G. Pergolizzi, S. A. Nepogodiev, P. Andrade, S. Kuhaudomlarp, R. A. Field, *ChemBioChem*, 2020, 21, 1043-1049.

260. Characterisation of insoluble  $\alpha$ -1,3-/ $\alpha$ -1,6 mixed linkage glucan produced in addition to soluble  $\alpha$ -1,6-linked dextran by glucansucrase (DEX-N) from *Leuconostoc citreum* ABK-1. K. Wangpaiboon, N. Waiyaseesang, P. Panpetch, T. Charoenwongpaiboon, S. A. Nepogodiev, R. A. Field, R. Pichayangkura, *Int. J. Biol. Macromol.*, 2020, 152, 473-482.

259. Revisiting the language of glycoscience: readers, writers and erasers in carbohydrate biochemistry. S. Dedola, M. D. Rugen, R. J. Young, R. A. Field, *ChemBioChem*, 2020, 21, 423-427.

## **2019**

258. Exploring anomeric glycosylation with phosphoric acid: optimisation and scope for non-native substrates. L. Beswick, S. Ahmadipour, G.-J. Hofman, H. Wootton, E. Dimitriou, R. A. Field, B. Linclau, G. J. Miller, *Carbohydr. Res.*, 2019, 488, 107896.

257. A high-sensitivity stable isotope label LCMS assay for the determination of  $\beta$ -L-ODAP. P. M.

- F. Emmrich, M. Rejzek, L. Hill, P. Brett, A. Edwards, A. Sarkar, R. A. Field, C. Martin, T. Wang, *BMC Plant Biol.*, 2019, 19, article 19.
256. Fluorescence imaging of a potential theranostic biomarker for mammary stem cells with peptide-functionalized fluorogenic 2D material. W.-T. Dou, L.-F. Liu, Y. Zang, G.-R. Chen, R. A. Field, T. D James, J. Li, X.-P. He, *Chem. Commun.*, 2019, 55, 13235-13238
255. Chemical and enzymatic synthesis of the alginate sugar nucleotide building block: GDP-D-mannuronic acid. L. Beswick, S. Ahmadipour, J. P. Dolan, M. Rejzek, R. A. Field, G. J. Miller, *Carbohydr. Res.*, 2019, 485, 107819.
254. The structure of GH149  $\beta$ -1,3-glucan phosphorylase reveals a new surface oligosaccharide binding site and additional domains that are absent from the disaccharide-specific GH94 glucose- $\beta$ -1,3-glucose phosphorylase. S. Kuhaudomlarp, C. E. M. Stevenson, D. M. Lawson, R. A. Field, *Proteins: Structure, Function and Bioinformatics*, 2019, 87, 885-892.
253. Preparation of cross-linked enzyme aggregates (CLEAs) of an inulosucrase mutant for the enzymatic synthesis of inulin-type fructooligosaccharides. T. Charoenwongpaiboon, R. Pichyangkura, R. A. Field, M. H. Prousoontorn, *Catalysts*, 2019, 9, 641.
252. Temperature-dependent nanoparticle formation of Inulin synthesized by *Lactobacillus reuteri* 121 inulosucrase and its complex formation with quercetin and fisetin. T. Charoenwongpaiboon, K. Wangpaiboon, P. Panpetch, R. A Field, J. E. Barclay, R. Pichyangkura, K. Kuttiyawong, *Carbohydr. Polym.*, 2019, 223, 115044.
251. The protosteryl and dammarenyl cation dichotomy in polycyclic triterpene biosynthesis revisited: has this 'rule' finally been broken? M. J Stephenson, R. A. Field, A. Osbourn, *Natural Products Reports*, 2019, 36, 1044-1052.
250. Self-Assembled 2D Glycoclusters for Targeted Delivery of Theranostic Agents to Triple-Negative Breast Cancer Cells. X.-L. Hu, Q. Cai, J. Gao, R. A. Field, G.-R. Chen, N. Jia, Y. Zang, J. Li, X.-P. He, *ACS Applied Materials and Interfaces*, 2019, 11, 22181-22187.
249. Chemoenzymatic synthesis of C6-modified sugar-nucleotides to probe the GDP-D-mannose dehydrogenase from *Pseudomonas aeruginosa*. S. Ahmadipour, G. Pergolizzi, M. Rejzek, R. A. Field, G. J. Miller, 2019, *Org. Lett.*, 2019, 21, 4415-4419.
248. NDP- $\beta$ -L-rhamnose biosynthesis across the algal taxonomic groups: an evolutionary perspective. B. A. Wagstaff, M. Rejzek, S. Kuhaudomlarp, L. Hill, I. Mascia, S. A. Nepogodiev, R. A. Field, *J. Biol. Chem.*, 2019, 294, 9172-9185.
247. Modified properties of alternan polymers arising from deletion of SH3-like motifs in *Leuconostoc citreum* ABK-1 alternansucrase. K. Wangpaiboon, C. Pitakchatwong, P. Panpetch, T. Charoenwongpaiboon, R. A. Field, R. Pichyangkura, *Carbohydr. Polym.*, 2019, 220, 103-109.
246. Unravelling the subtleties of the specificity of  $\beta$ -1,3-glucan-utilising phosphorylases: GH94 vs GH 149 vs GHyyy. S. Kuhaudomlarp, G. Pergolizzi, N. Patron, B. Henrissat, R. A. Field, *J. Biol. Chem.*, 2019, 294, 6483-6493.
245. Structural and functional analysis of GH138 enzymes targeting double substitutions in the complex pectin rhamnogalacturonan II. A. Labourel, A. Baslé, J. Munoz, D. Ndeh, S. A. Nepogodiev, R. A. Field, H. Gilbert, A. Cartmell, *J. Biol. Chem.*, 2019, 294, 7711-7721.
244. Rational re-design of *Lactobacillus reuteri* 121 inulosucrase for product chain length control. T. Charoenwongpaiboon, M. Klaewkla, S. Chunsrivirota, R. A. Field, R. Pichyangkura, M. H. Prousoontorn, *RSC Advances*, 2019, 9, 14957-14965.

243. Self-assembled thin-layer glycomaterials with a proper shell thickness for targeted and activatable cell imaging. C. Zhang, G. Wang, H.-H. Han, X.-L. Hu, R. A. Field, G.-R. Chen, J. Li, B. Ye, X.-P. He, Y. Zang, *Frontiers in Chemistry*, 2019, 7, Article 294 doi: 10.3389/fchem.2019.00294.

242. Alogliptin alleviates liver fibrosis via suppression of activated hepatic stellate cells. H. Zhang, D. Sun, G. Wang, S. Cui, M. Su, Q. Tan, R. A. Field, Y. Zhou, J. Li, Y. Zang, *Biochem. Biophys. Res. Commun*, 2019, 511, 387-393.

241. Comparison of the Levansucrase from the Epiphyte *Erwinia tasmaniensis* vs its homologue from the phytopathogen *Erwinia amylovora*. I. Polsinelli, R. Caliandro, M. Salomone-Stagni, N. Demitri, M. Rejzek, R. A. Field, S. Benini, *Int. J. Biol. Macromol.*, 2019, 127, 496-501.

240. Unravelling the relaxed specificity of laminaribiose phosphorylase from *Paenibacillus* sp. strain YM-1 towards donor substrate glucose/mannose-1-phosphate using X-ray crystallography and STD NMR spectroscopy, S. Kuhadomlarp, S. Walpole, C. E. M. Stevenson, S. A. Nepogodiev, D. M. Lawson, J. Angulo, R. A. Field, *ChemBioChem*, 2019, 20, 181-192.

239. Serine-rich repeat Protein adhesins from *Lactobacillus reuteri* display strain specific glycosylation profiles. D. Latousakis, R. Nepravishta, M. Rejzek, U. Wegmann, G. Le Gall, D. Kavanaugh, I. J. Colquhoun, S. Frese, D. A. Mackenzie, J. Walter, J. Angulo, R. A. Field, N. Juge, *Glycobiology*, 2019, 29, 45-58.

## **2018**

238. Analysis of plant arabinosyltransferases provides insights into disease resistance and glycosyltransferase sugar donor substrate specificity. T. Louveau, A. Orme, H. Pfalzgraf, M. J. Stephenson, R. E. Melton, G. Saalbach, A. M. Hemmings, A. Leveau, M. Rejzek, R.J. Vickerstaff, T. Langdon, R. A. Field, A. E. Osbourn, *Plant Cell*, 2018, 30, 3038-3057.

237. Cluster glycosides and heteroglycoclusters presented in alternative arrangements. A. S Figueredo, L. O. B. Zamoner, M. Rejzek, R. A. Field, I. Carvalho, *Tetrahedron Lett.*, 2018, 59, 4405-4409.

236. A chemical genetic screen reveals that iminosugar inhibitors of plant glucosylceramide synthase inhibit root growth in *Arabidopsis* and cereals. M. D. Rugen, M. Vernet, L. Hantouti, A. Soenens, V. M. E. Andriotis, M. Rejzek, P. Brett, R. J. B. H. N. van den Berg, J. M. F. G. Aerts, H. S. Overkleeft, R. A. Field, *Sci. Rep.*, 2018, 8, Article number: 16421

235. Cloning of the full length isoamylase3 gene from cassava *Manihot esculenta* Crantz 'KU50' and its heterologous expression in *E. coli*. P. Panpetch, R. A. Field, T. Limpaseni, *Plant Physiol. Biochem.*, 2018, 132, 281-286.

234. Identification of *de novo* KDN biosynthesis in the toxic haptophyte, *Prymnesium parvum*, and implications for widespread sialic acid biosynthesis amongst microalgae. B. A. Wagstaff, M. Rejzek, R. A. Field, *J. Biol. Chem.*, 2018, 293, 16277-16290.

233. CuAAC click chemistry for the enhanced detection of novel alkyne-based natural product toxins. E. S. Hems, B. A. Wagstaff, G. Saalbach, R. A. Field, *Chem. Commun.*, 2018, 54, 1223-1227.

232. Glycan modulators of plant defense against filamentous pathogens. C. Chaliha, M. D Rugen, R. A. Field, E. Kalita, *Frontiers Microbiol.*, 2018, 9, 928.

231. On the kinetic mechanism of acetyl transfer catalysed by *Mycobacterium tuberculosis* GlmU. P. D. Craggs, S. Mouilleron, M. Rejzek, C. de Chiara, R. J. Young, R. A. Field, A. Argyrou, L. P. S. de Carvalho, *Biochemistry*, 2018, 57, 3387-3401.

230. Structural and biochemical characterization of SrlD from the fire blight disease pathogen *Erwinia amylovora*: the first crystal structure of a sorbitol-6-phosphate 2-dehydrogenase at 1.84 Å resolution reveals its unique features. M. Salomone-Stagni, J. D. Bartho, E. Kalita, M. Rejzek, R. A. Field, D. Bellini, M. A. Walsh, S. Benini, *J. Struct. Biol.*, 2018, 203, 109-119.
229. High-throughput *in vitro* screening for inhibitors of cereal  $\alpha$ -glucosidase. M. D. Rugen, M. Rejzek, H. Naested, B. Svensson, R. A. Field, *Methods in Molecular Biology – Plant Chemical Genomics*, 2018, 1795, 101-115 Chapter 9. ISBN:978-1-4939-7873-1.
228.  $\alpha$ -1,3/6-Linked glucan produced by *Leuconostoc citreum* ABK-1 alternansucrase possesses nanoparticle- and film-forming properties, K. Wangpaiboon, P. Padungros, S. Nakapong, T. Charoenwongpaiboon, M. Rejzek, R. A. Field, R. Pichyangkura, *Sci. Rep.*, 2018, 8, 8340.
227. Synthesis of glyceryl glycosides related to A-type prymnesin toxins. E. S. Hems, S. A. Nepogodiev, M. Rejzek, R. A. Field, *Carbohydr. Res.*, 2018, 463, 14-23.
226. Co-expression of isoamylase genes from cassava *Manihot esculenta* Crantz 'KU50' tubers confirms the requirement for heteromeric complex formation for enzyme activity. P. Panpetch, R. A. Field, T. Limpaseni, *Plant Mol. Biol.*, 2018, 96, 417-427.
225. Insights into toxic *Prymnesium parvum* blooms: the role of sugars and algal viruses. B. A. Wagstaff, E. Hems, M. Rejzek, J. Pratscher, E. Brooks, S. Kuhaudomlarp, E. C. O'Neill, M. I. Donaldson, S. Lane, J. Currie, A. Hindes, G. Malin, J. C. Murrell, R. A. Field, *Biochem. Soc. Trans.*, 2018, 46, 413-421.
224. Identification of *Euglena gracilis*  $\beta$ -1,3-glucan phosphorylase and establishment of a new glycosyl hydrolase family GH 149. S. Kuhaudomlarp, N. J. Patron, B. Henrissat, M. Rejzek, G. Saalbach, R. A. Field, *J. Biol. Chem.*, 2018, 293, 2865-2876.
223. Targeted photodynamic therapy of breast cancer cells using lactose-phthalocyanine functionalized gold nanoparticles, P. Garcia Calavia, I. Chambrier, M. J. Cook, A. H Haines, R. A. Field, D. A. Russell, *J. Coll. Int. Sci.*, 2018, 512, 249-259.
- 2017**
222. Exploring the glycans of *Euglena gracilis*. E. C. O'Neill, S. Kuhaudomlarp, M. Rejzek, J. U. Fangel, K. Alagesan, D. Kolarich, W. G. T. Willats, R. A. Field, *Biology*, 2017, 6, 45 doi:[10.3390/biology6040045](https://doi.org/10.3390/biology6040045).
221. Structural characterisation of the capsular polysaccharide expressed by *Burkholderia thailandensis* strain E555 :: *wbil* (pKnock-KmR) and assessment of the significance of the 2-O-acetyl group in immune protection. M. Bayliss, M. I. Donaldson, S. A. Nepogodiev, G. Pergolizzi, A. E. Scott, N. J. Harmer, R. A. Field, J. L. Prior, *Carbohydr. Res.*, 2017, 452, 17-24.
220. Sugar nucleotide profiling, M. Rejzek, L. Hill, E. S. Hems, S. Kuhaudomlarp, B. A. Wagstaff, R. A. Field, *Methods in Enzymology – Chemical glycobiology*, 2017, 597, 209-239.
219. Glycan phosphorylases in multi-enzyme synthetic processes. G. Pergolizzi, S. Kuhaudomlarp, E. Kalita, R. A. Field, *Protein and Peptide Lett.*, 2017, 24, 696-709.
218. Cellodextrin phosphorylase from *Ruminiclostridium thermocellum*: X-ray crystal structure and substrate specificity analysis. E. C. O'Neill, G. Pergolizzi, C. E. M. Stevenson, D. M. Lawson, S. A. Nepogodiev, R. A. Field, *Carbohydr. Res.*, 2017, 451, 118-132.
217. Membrane-enclosed multi-enzyme (MEME) synthesis of 2,7-anhydro-sialic acid derivatives. M. Monestier, D. Latousakis, A. Bell, S. Tribolo, L. E. Tailford, I. Colquhoun, G. Le Gall, H. Yu, X. Chen, M. Rejzek, S. Dedola, R. A. Field, N. Juge, *Carbohydr. Res.*, 2017, 451, 110-117.

216. Glucose-1-phosphate uridylyltransferases from *Erwinia amylovora*: a key factor in the Fire Blight plant disease with a potential use in biotechnology. M. Toccafondi, M. Rejzek, F. Musiani, B. A. Wagstaff, J. Wuerges, M. Cianci, R. A. Field, S. Benini, *Biochim. Biophys. Acta - Proteins and Proteomics*, 2017, 1865, 1348-1357.
215. Intramolecular *trans*-sialidase. N. Juge, M. M. Monestier, R. A. Field, Publication number: WO/2017/134466. Application number: PCT/GB2017/050291 Publication date: 10 Aug 2017.
214. Identification and evolution of a plant cell wall specific glycoprotein glycosyltransferase, ExAD. S. R. Moeller, X. Yi, S. M. Velásquez, S. Gille, P. L. M. Hansen, C. P. Poulsen, C. E. Olsen, H. H. Wandall, H. Clausen, M. Rejzek, R. A. Field, M. Pauly, J. M Estevez, J. Harholt, P. Ulvskov, B. L. Petersen, *Sci. Rep.*, 2017, 7, 45341. doi: 10.1038/srep45341.
213. Small molecule probes of plant glycopolymer metabolism, M. D. Rugen, V. M. E. Andriotis, R. A. Field, *Chemistry, Molecular Sciences and Chemical Engineering*, Elsevier, 2017, doi.org/10.1016/B978-0-12-409547-2.12657-5.
212. Complex pectin metabolism by gut bacteria reveals novel catalytic functions. D. Ndeh, A. Rogowski, A. Cartmell, A. S. Luis, A. Baslé, J. Gray, I. Venditto, J. Briggs, X. Zhang, N. Terrapon, F. Buffetto, S. A. Nepogodiev, R. A. Field, M. A. O'Neill, B. Urbanowicz, G. J. Davies, D. W. Abbott, M.-C. Ralet, E. C. Martens, B. Henrissat, H. J. Gilbert, *Nature*, 2017, 544, 65-70.
211. Isolation and characterization of a double stranded DNA megavirus infecting the toxin-producing haptophyte, *Prymnesium parvum*. B. A. Wagstaff, I. C. Vladu, J. E. Barclay, D. C. Schroeder, G. Malin, R. A. Field, *Viruses*, 2017, 9, article 40 doi:10.3390/v9030040.
210. Fluorescent mannosides serve as acceptor substrates for glycosyltransferase and sugar-1-phosphate transferase activities in *Euglena gracilis* membranes. I. Ivanova, S. A. Nepogodiev, G. Saalbach, E. C. O'Neill, M. D. Urbaniak, M. A. J. Ferguson, S. S. Gurcha, G. S. Besra, R. A. Field, *Carbohydr. Res.*, 2017, 438, 26-38.
209. Contemporary glycoconjugation chemistry. G. Pergolizzi, S. Dedola, R. A. Field, *Specialist Periodical Reports - Carbohydrate Chemistry*, 2017, 42, 1-46.
- 2016**
208. Detection of mSiglec-E, expressed on the surface of Chinese hamster ovary cells, using sialic acid functionalised gold nanoparticles. C. L. Schofield, M. J. Marin, M. Rejzek, P. R. Crocker, R. A. Field, D. A. Russell, *Analyst*, 2016, 141, 5799-5809.
207. Cell wall degradation is required for normal starch mobilisation in barley endosperm. V. M. E. Andriotis, M. Rejzek, E. Barclay, M. D. Rugen, R. A. Field, A. M. Smith, *Sci. Rep.*, 2016, 6, 33215.
206. The impact of aminopyrene trisulfonate (APTS) label in acceptor glycan substrates for profiling plant pectin  $\beta$ -galactosyltransferase activities. S. Goetz, M. Rejzek, S. A. Nepogodiev, R. A. Field, *Carbohydr. Res.*, 2016, 433, 97-105.
205. Low inhibitory potency of the canonical galectin carbohydrate binding site by modified citrus pectins and plant 1,4- $\beta$ -D-galactomannan. J. Stegmayr, A. Lepur, B. Kahl-Knutson, M. Aguilar Moncayo, A. A. Klyosov, R. A. Field, S. Oredsson, U. J. Nilsson, H. Leffler, *J. Biol. Chem.*, 2016, 291, 13318-13334.
204. Gene Discovery for Synthetic Biology: Exploring the Novel Natural Product Biosynthetic Capacity of Eukaryotic Microalgae. E. C. O'Neill, G. Saalbach, R. A. Field, *Methods in Enzymology*, 2016, 576, 99-120.

203. CuAAC click chemistry with *N*-propargyl 1,5-dideoxy-1,5-imino-D-gulitol and *N*-propargyl 1,6-dideoxy-1,6-imino-D-mannitol provides access to triazole-linked piperidine and azepane pseudo-disaccharide iminosugars displaying glycosidase inhibitory properties. L. O. B. Zamoner, V. Aragão-Leoneti, S. P. Mantoani, M. Rugen, S. A. Nepogodiev, R. A. Field, I. Carvalho, *Carbohydr. Res.*, 2016, 429, 29-37.

202. Carbohydrate CuAAC click chemistry for therapy and diagnosis. X.-P. He, Y. Zang, J. Li, R. A. Field, G.-R. Chen, *Carbohydr. Res.*, 2016, 429, 1-22.

201. The Maltase Involved in Starch Metabolism in Barley Endosperm Is Encoded by a Single Gene. V. M. E. Andriotis, G. Saalbach, R. Waugh, R. A. Field, A. M. Smith, *PLoS One*, 2016, 11, e0151642.

200. Iminosugar inhibitors of carbohydrate active enzymes underpinning cereal grain germination and cell wall metabolism. V. M. E. Andriotis, M. Rejzek, M. D. Rugen, B. Svensson, A. M. Smith, R. A. Field, *Biochem. Soc. Trans.*, 2016, 44, 159-165.

## **2015**

199. Vaccines based on hepatitis b core antigens. M. A. Whelan and R. A. Field. Publication number: WO 2015124919 A1. Application number: Publication date: 27 Aug 2015.

198. Structural Dissection of the Maltodextrin Disproportionation Cycle of the *Arabidopsis* Plastidial Enzyme DPE1. E. C. O'Neill, C. E. M. Stevenson, K. Tantanarat, D. Latousakis, M. I. Donaldson, M. Rejzek, S. A. Nepogodiev, T. Limpaseni, R. A. Field, D. M. Lawson, *J. Biol. Chem.*, 2015, 290, 29834-29853.

197. Differential Toll-like receptor signalling of *Burkholderia pseudomallei* lipopolysaccharide in murine and human models, T. A. F. Weehuizen, J. L. Prior, T. W. van der Vaart, S. A. Ngugi, S. A. Nepogodiev, R. A. Field, L. M. Kager, C. van't Veer, A. F. de Vos, T. van der Poll, W. J. Wiersinga, *PLoS One*, 2015, 10, e0145397.

196. Euglena in time: evolution, control of central metabolic processes and multi-domain proteins in carbohydrate and natural product biochemistry. E. C. O'Neill, R. A. Field, *Perspectives in Science*, 2015, 6, 84-93.

195. Underpinning starch biology with *in vitro* studies on carbohydrate active enzymes and biosynthetic glycomaterials, E. C. O'Neill, R. A. Field, *Frontiers in Bioengineering and Biotechnology*, 2015, 3, 136 doi:10.3389/fbioe.2015.00136

194. The transcriptome of *Euglena gracilis* reveals unexpected metabolic capabilities for carbohydrate and natural product biochemistry. E. C. O'Neill, M. Trick, L. Hill, M. Rejzek, R. G. Dusi, C. J. Hamilton, P. V. Zimba, B. Henrissat, R. A. Field, *Molecular Biosystems*, 2015, 11, 2808-2820.

193. Standards for Plant Synthetic Biology: A Common Syntax for Exchange of DNA. Patron, N.; Orzaez, D.; Marillonnet, S.; Warzecha, H.; Matthewman, C.; Youles, M.; Raitskin, O.; Leveau, A.; Farre-Martinez, G.; Rogers, C.; Smith, A.; Hibberd, J.; Webb, A.; Locke, J.; Schornack, S.; Ajioka, J.; Baulcombe, D.; Zipfel, C.; Kamoun, S.; Jones, J.; Kuhn, H.; Robatzek, S.; Van Esse, H. P.; Oldroyd, G.; Sanders, D.; Martin, C.; Field, R.; O'Connor, S.; Fox, S.; Wulff, B.; Miller, B.; Breakspear, A.; Radhakrishnan, G.; Delaux, P.-M.; Loque, D.; Granell, A.; Tissier, A.; Shih, P.; Brutnell, T.; Quick, P.; Rischer, H.; Fraser, P.; Aharoni, A.; Raines, C.; South, P.; Ané, J.-M.; Hamberger, B.; Langdale, J.; Stougaard, J.; Bouwmeester, H.; Udvardi, M.; Murray, J.; Ntoulakakis, V.; Schafer, P.; Denby, K.; Edwards, K.; Osbourn, A.; Haseloff, J., *New Phytologist*, 2015, 208, 13-19.

192. Analysis of Surface Binding Sites (SBS) within GH62, GH13 and GH77. C. Wilkens, D. Cockburn, S. Andersen, B. O. Petersen, C. Ruzanski, R. A. Field, O. Hindsgaul, H. Nakai, B. McCleary, A. M. Smith, M. Abou Hachem, B. Svensson, *J. Appl. Glycosci.*, 2015, 62, 87-93.

191. Crystal structure of a novel two domain GH78 family  $\alpha$ -rhamnosidase from *Klebsiella oxytoca* with rhamnose bound. E. C. O'Neill, C. E. M. Stevenson, M. J. Paterson, M. Rejzek, A.-L. Chauvin, D. M. Lawson, R. A. Field, *Proteins: Structure, Function and Bioinformatics*, 2015, 83, 1742-1749.

190. Click chemistry oligomerisation of azido-alkyne-functionalized galactose accesses linear triazole-linked oligomers and macrocycles that inhibit *Trypanosoma cruzi* invasion of macrophages. V. L. Campo, I. Ivanova, I. Carvalho, C. Duque Lopes, S. Schenkman, Z. A. Carneiro, G. Saalbach, J. Santana da Silva, S. A. Nepogodiev, R. A. Field, *Tetrahedron*, 2015, 71, 7344-7353.

189. Base-modified NAD and AMP derivatives and their activity against bacterial DNA ligases. G. Pergolizzi, M. M. D. Cominetti, J. N. Butt, R. A. Field, R. Bowater, G. K. Wagner, *Org. Biomol. Chem.*, 2015, 13, 6380-6398.

188. Enzymatic synthesis of nucleobase-modified UDP-sugars: scope and limitations. B. A. Wagstaff, M. Rejzek, T. Pesnot, L. M. Tedaldi, L. Caputi, E. C. O'Neill, S. Benini, G. K. Wagner, R. A. Field, *Carbohydr. Res.*, 2015, 404, 17-25.

187. Glycoside synthesis with phosphorylases. E. C. O'Neill and R. A. Field, *Carbohydr. Res.*, 2015, 403, 23-37.

186. Glyconanoparticles for colorimetric bioassays. M. J. Marín, C. L. Schofield, R. A. Field, D. A. Russell, *Analyst*, 2015, 140, 59-70.

## 2014

185. Analysis of surface binding sites (SBS) in carbohydrate active enzymes with focus on glycoside hydrolase families 13 and 77 - A mini-review. D. Cockburn, C. Wilkens, C. Ruzanski, S. Anderson, J. W. Nielsen, A. M. Smith, R. A. Field, M. Millemoes, M. Abou Hachem, B. Svensson, *Biologia*, 2014, 69, 705-712.

184. Cloning and expression of 4- $\alpha$ -glucanotransferase genes from *Manihot esculenta* Crantz and *Arabidopsis thaliana* and their production of cycloamyloses. K. Tantanarat, E. C. O'Neill, M. Rejzek, R. A. Field, T. Limpaseni, *Process Biochemistry*, 2014, 49, 84-89.

183. Discrimination of epimeric glycans and glycopeptides using ion-mobility mass spectrometry: towards a comprehensive carbohydrate sequencing strategy. P. Both, A. P. Green, C. Gray, R. Šardžík, J. Voglmeir, C. Fontana, M. Austeri, M. Rejzek, D. Richardson, R. A. Field, G. Widmalm, S. L. Flitsch, C. E. Eyers, *Nature Chemistry*, 2014, 6, 65-74.

182. Sugar-coated sensor chip and nanoparticle surfaces for the *in vitro* enzymatic synthesis of starch-like materials. E. C. O'Neill, A. Rashid, C. E. M. Stevenson, A.-C. Hetru, A. P. Gunning, M. Rejzek, S. A. Nepogodiev, S. Bornemann, D. M. Lawson, R. A. Field, *Chem. Sci.*, 2014, 5, 341-350.

## 2013

181. Biomolecular characterization of the levansucrase of *Erwinia amylovora*, the causal pathogen of fire blight. L. Caputi, S. A. Nepogodiev, M. Malnoy, M. Rejzek, R. A. Field, S. Benini, *J. Agric. Food Chem.*, 2013, 61, 12265 - 12273.

180. A simple bacterial glucanotransferase can complement *Arabidopsis* mutants defective in cytosolic maltose metabolism. C. Ruzanski, J. Smirnova, M. Rejzek, D. Cockburn, H. L. Pedersen, M. Pike, W. G. T. Willats, B. Svensson, M. Steup, A. M. Smith, R. A. Field, *J. Biol. Chem.*, 2013, 288, 28581-28598.

179. Glyconanoparticles for the plasmonic detection and discrimination between human and avian influenza virus. M. J. Marín, A. Rashid, M. Rejzek, S. A. Fairhurst, S. A. Wharton, S. Martin, J. W. McCauley, T. Wileman, R. A. Field, D. A. Russell, *Org. Biomol. Chem.*, 2013, 11, 7101-7107.



178. A one-pot enzymatic approach to the O-fluoroglucoside of N-methylantranilate. L. Caputi, M. Rejzek, T. Louveau, E. C. O'Neill, L. Hill, A. Osbourn, R. A. Field, *Bioorg. Med. Chem.*, 2013, 21, 4762-4767.
177. Blocking bacterial defences, E. C. O'Neill, R. A. Field, *Nature Chemistry*, 2013, 5, 642-643.
176. United Kingdom Patent Application No. 1313201.4. Applicant: University Of East Anglia. Title: Virus Detection. M. J. Marín, A. Rashid, M. Rejzek, R. A. Field, D. A. Russell. July 2013.
175. *Trans*-sialidase activity stimulates G protein regulation of *eat-me* signal for entry into epithelial cells. C. E. Butler, T. M. U. de Carvalho, E. C. Grisard, R. A. Field, K. M. Tyler, *Traffic*, 2013, 14, 853-869.
174. Flux Through Trehalose Synthase Flows from Trehalose to the Alpha Anomer of Maltose in Mycobacteria. F. Miah, H. Koliwer-Brandl, M. Rejzek, R. A. Field, R. Kalscheuer, S. Bornemann, *Chem. Biol.*, 2013, 20, 487-493.
173. Application of a novel microtitre plate-based assay for the discovery of novel inhibitors of DNA gyrase and DNA topoisomerase VI. J. A Taylor, L. A. Mitchenall, M. Rejzek, R. A. Field; A. Maxwell, *PLoS One*, 2013, 8, e58010.
172. Glycosyltransferases from oat (*Avena*) implicated in the acylation of avenacins. A. Owatworakit, B. Townsend, T. Louveau, H. Jenner, M. Rejzek, R. K. Hughes, G. Saalbach, X. Qi, S. Bakht, A. D. Roy, S. T. Mugford, R. J. M. Goss, R. A. Field, A. Osbourn, *J. Biol. Chem.*, 2013, 288, 3696-3704.
171. Allosteric Competitive Inhibitors of the Glucose-1-Phosphate Thymidyltransferase (RmlA) from *Pseudomonas aeruginosa*. M. S. Alphey, L. Pirrie, L. S. Torrie, W. A. Boulkeroua, M. Gardiner, A. Sarkar, M. Maringer, W. Oehlmann, R. Brenk, M. S. Scherman, M. McNeil, M. Rejzek, R. A. Field, M. Singh, D. Gray, N. J. Westwood, J. H. Naismith, *ACS Chem. Biol.*, 2013, 8, 387-396.

## **2012**

170. Versatile oligosaccharide microarrays for plant glycobiology and cell wall research. H. Petersen, J. Fangel, B. McCleary, C. Ruzanski, M. Rydahl, M.-C. Ralet, V. Farkas, L. von Schantz, S. Marcus, M. Andersen, R. Field, M. Ohlin, P. Knox, M. Clausen, W. Willats, *J. Biol. Chem.*, 2012, 287, 39429-39438.
169. 'TamiGold': Phospha-Oseltamivir-Stabilised Gold Nanoparticles as Basis for Influenza Therapeutics and Diagnostics Targeting the Neuraminidase (instead of the Hemagglutinin). M. Stanley, N. Cattle, J. McCauley, S. R. Martin, A. Rashid, R. A. Field, B. Carbain, H. Streicher, *MedChemComm*, 2012, 3, 1373-1376.
168. An expedient enzymatic route to isomeric 2-, 3- and 6-monodeoxy-monofluoro-maltose derivatives. K. Tantanarat, M. Rejzek, E. O'Neill, C. Ruzanski, L. Hill, S. A. Fairhurst, T. Limpaseni, R. A. Field, *Carbohydr. Res.*, 2012, 358, 12-18.
167. Phenotypic screens with model organisms. G. N. Wheeler, R. A. Field, M. L. Tomlinson, in: *Chemical Genomics*. H. Fu Ed. Cambridge University Press, 2012.

## **2011**

166. Synthetic Glycans, Glycoarrays and Glyconanoparticles to Investigate Host Infection by *Trypanosoma cruzi*. R. A. Field, P. Andrade, V. L. Campo, I. Carvalho, B. Y. M. Collet, P. R. Crocker, M. Fais, R. Karamanska, B. Mukhopadhyay, S. A. Nepogodiev, A. Rashid, M. Rejzek, D. A. Russell, C. L. Schofield, R. M. van Well, in *Petite and Sweet: Glyco-Nanotechnology as a Bridge to New Medicines*; Huang, X., Barchi, J.; ACS Symposium Series; American Chemical Society: Washington, DC, 2011, chapter 9, 143-159.

165. Structure of *Streptomyces coelicolor* maltosyltransferase GlgE: A homologue of a genetically validated anti-tuberculosis target. K. Syson, C. E. M. Stevenson, M. Rejzek, S. A. Fairhurst, A. Nair, C. J. Bruton, R. A. Field, K. F. Chater, D. M. Lawson, S. Bornemann, *J. Biol. Chem.*, 2011, 286, 38298-38310.
164. Glycobiology - challenging reaction equilibria. R. A. Field, *Nature Chem. Biol.*, 2011, 7, 658-659.
163. Synthesis of apiose-containing oligosaccharide fragments of side chain A and B of rhamnogalacturonan II and apiogalacturonan. S. A. Nepogodiev, M. Fais, D. L. Hughes and R. A. Field, *Org. Biomol. Chem.*, 2011, 9, 6670-6684.
162. Surface plasmon resonance imaging of glycoarrays identifies novel carbohydrate-based ligands for potential ricin sensor development. M. Fais, R. Karamanska, S. Allman, S. A. Fairhurst, P. Innocenti, A. J. Fairbanks, T. J. Donohoe, B. G. Davis, D. A. Russell, R. A. Field, *Chem. Sci.*, 2011, 2, 1952-1959.
161. Glycoclusters presenting lactose on calix[4]arene cores display trypanocidal activity. E. Galante, C. Geraci, V. L. Campo, R. Sesti-Costa, P. M. M. Guedes, J. S. Silva, L. Hill, S. A. Nepogodiev, R. A. Field, *Tetrahedron*, 2011, 67, 2901-2912.
160. The saponins - polar isoprenoids with important and diverse biological activities. A. E. Osbourn, R. J. M. Goss, R. A. Field, *Nat. Prod. Rep.*, 2011, 28, 1261-1268.
159. Synthesis of fluorescently labelled rhamnosides: probes for the evaluation of rhamnogalacturonan II biosynthetic enzymes. E. Prifti, S. Goetz, S. A. Nepogodiev, R. A. Field, *Carbohydr. Res.*, 2011, 346, 1617-1621.
158. A versatile expression system for genome-wide screening of secreted and type 1 membrane proteins for glycan and protein interactions. D. M. E. Otto, M. A. Campanero-Rhodes, R. Karamanska, A. K. Powell, N. Bovin, J. E. Turnbull, R. A. Field, J. M. Blackburn, T. Feizi, P. R. Crocker, *Analytical Biochem.*, 2011, 411, 261-270.
157. The role of  $\alpha$ -glucosidase in germinating barley grains. D. Stanley, M. Rejzek, H. Naested, M. Smedley, S. Otero Pérez, B. Fahy, F. Thorpe, R. J. Nash, W. Harwood, B. Svensson, K. Denyer, R. A. Field, A. M. Smith, *Plant Physiol.*, 2011, 155, 932-943.
156. Probing the acceptor substrate binding site of *Trypanosoma cruzi* trans-sialidase with systematically modified substrates and glycoside libraries. J. A. Harrison, K. P. R. Kartha, E. J. L. Fournier, T. L. Lowary, C. Malet, U. J. Nilsson, O. Hindsgaul, S. Schenkman, J. H. Naismith, R. A. Field, *Org. Biomol. Chem.*, 2011, 9, 1653-1660.
155. Chemical genetics and cereal starch metabolism: structural basis of the non-covalent and covalent inhibition of barley  $\beta$ -amylase. M. Rejzek, C. E. Stevenson, A. M. Southard, D. Stanley, K. Denyer, A. M. Smith, M. J. Naldrett, D. M. Lawson, R. A. Field, *Mol. Biosyst.*, 2011, 7, 718-730.
154. Chemical strategies and tools for organic synthesis of pectic fragments. S. A. Nepogodiev, R. A. Field and I. Damager, in *Plant Polysaccharides, Biosynthesis and Bioengineering*, P. Ulskov Ed., *Annual Plant Reviews*, 2011, 41, 65-92.

## **2010**

153. Application of copper(I)-catalyzed azide-alkyne cycloaddition (CuAAC) "click chemistry" in carbohydrate drug and neoglycopolymer synthesis. V. Aragão-Leoneti, V. L. Campo, A. S. Gomes, R. A. Field, I. Carvalho, *Tetrahedron*, 2010, 66, 9475-9492.
152. Cyclooligomerisation of azido-alkyne-functionalised sugars: synthesis of 1,6-linked cyclic

*pseudo*-galactooligosaccharides and assesment of their sialylation by *Trypanosoma cruzi* *trans*-sialidase. V. L. Campo, I. Carvalho, C. H. T. P. Da Silva, S. Schenkman, L. Hill, S. A. Nepogodiev, R. A. Field, *Chem. Sci.*, 2010, 1, 507-514.

151. Synthesis and anti-HIV activity of triterpene 3-O-galactopyranosides, analogs of glycyrrhizic acid. L. A. Baltina, Jr., L. A. Baltina, R. M. Kondratenko, O. A. Plyasunova, S. A. Nepogodiev, R. A. Field, *Chemistry of Natural Compounds*, 2010, 46, 576-582.

150. Synthesis of a '*manno*-Gb<sub>3</sub>' analogue as a potential Shiga toxin/Verotoxin inhibitor. K. P. R. Kartha, S. W. Homans, R. A. Field, *Trends Carb. Res.*, 2010, 2, 14-19.

149. Synthesis of  $\alpha$ - and  $\beta$ -D-glucopyranosyl triazoles by CuAAC "click chemistry": reactant tolerance, reaction rate, product structure and glucosidase inhibitory properties. S. Dedola, D. L. Hughes, S. A. Nepogodiev, M. Rejzek, R. A. Field, *Carbohydr. Res.*, 2010, 345, 1123-1134.

148. "Click chemistry" synthesis of a library of 1,2,3-triazole-substituted galactose derivatives and their evaluation against *Trypanosoma cruzi* and its cell surface *trans*-sialidase. I. Carvalho, P. Andrade, V. L. Campo, P. M. M. Guedes, R. Sesti-Costa, J. S. Silva, S. Schenkman, S. Dedola, L. Hill, M. Rejzek, S. A. Nepogodiev, R. A. Field, *Bioorg. Med. Chem.*, 2010, 18, 2412-2427.

147. Peracetylated  $\alpha$ -D-glucopyranosyl fluoride and peracetylated  $\alpha$ -maltosyl fluoride. S. Dedola, D. L. Hughes, R. A. Field, *Acta Cryst.*, 2010, C66, o124-o127.

146. Detection of enzyme-catalyzed polysaccharide synthesis on surfaces. C. Cle, C. Martin, R. A. Field, P. Kuzmic, S. Bornemann, *Biocat. Biotrans.*, 2010, 28, 64-71.

## **2009**

145. Synthesis of starch fragments. S. A. Nepogodiev, R. A. Field, in *Progress in the synthesis of complex carbohydrate chains of plant and microbial polysaccharides*. N. Nifantiev Ed., Transworld Research Network, 37/661 (2), Fort P.O., Trivandrum-695 023, Kerala, India. ISBN: 978-81-7895-424-0. 2009, Chapter 6, pp 155-180.

144. Synthesis of oligosaccharide fragments of pectic polysaccharides. S. A. Nepogodiev, I. Damager, R. A. Field, in *Progress in the synthesis of complex carbohydrate chains of plant and microbial polysaccharides*. N. Nifantiev Ed., Transworld Research Network, 37/661 (2), Fort P.O., Trivandrum-695 023, Kerala, India. ISBN: 978-81-7895-424-0. 2009, Chapter 2, pp33-60.

143. Lectin and carbohydrate microarrays: New high through-put methods for glycoprotein, carbohydrate-binding protein and carbohydrate-active enzyme analysis. M. Fais, R. Karamanska, D. A. Russell, R. A. Field, *J. Cereal Sci.*, 2009, 50, 306-311.

142. Synthesis of a tetrasaccharide related to the repeating unit of the O antigen from *Escherichia coli* K-12. B. Roy, R. A. Field, B. Mukhopadhyay, *Carbohydr. Res.*, 2009, 344, 2311-2316

141. A simple method of synthesis of triterpene glycosides similar to glycyrrhizic acid and their hepatoprotective activity *in vitro*. L. R. Mikhailova, L. A. Baltina Jr., L. A. Baltina, R. M. Kondratenko, S. A. Nepogodiev, R. A. Field, O. Kunert, M. Ch. Yin, *Russ. J. Bioorg. Chem.*, 2009, 35, 619-627.

140. A survey of chemical methods for sugar-nucleotide synthesis. G. K. Wagner, T. Pesnot, R. A. Field, *Nat. Prod. Rep.*, 2009, 26, 1172-1194.

139. Carbohydrate signalling molecules. R. A. Field in *Plant-derived natural products: Synthesis, function and application*, A. E. Osbourn and V. Lanzotti Eds, Springer, 2009.

138. Synthesis of prospective disaccharide ligands for *Escherichia coli* O157 verotoxin. C. Bernlind, S. W. Homans, R. A. Field, *Tetrahedron Lett.*, *50<sup>th</sup> Anniversary issue*, 2009, 50, 3397-3399.

137. A sugar aminoacid for the development of multivalent ligands for *Escherichia coli* 0157 verotoxin. D. Gibson, S. W. Homans, R. A. Field, *Tetrahedron-Asymmetry*, *George Fleet special issue*, 2009, 20, 730-732.
136. Characterization of WbpB, WbpE, and WbpD, and reconstitution of a pathway for the biosynthesis of UDP-2,3-diacetamido-2,3-dideoxy-D-mannuronic acid in *Pseudomonas aeruginosa*. E. L. Westman, D. J. McNally, A. Charchoglyan, D. Brewer, R. A. Field, J. S. Lam, *J. Biol. Chem.*, 2009, 284, 11854-11862
135. Chemical genomics identifies compounds affecting *Xenopus laevis* pigment cell development. M. L. Tomlinson, M. Fidock, M. Rejzek, R. A. Field, G. N. Wheeler, *Mol. BioSyst.*, 2009, 5, 376-384.
134. Chemical synthesis of uridine 5'-diphospho 2,3-diacetamido-2,3-dideoxy-D-glucuronic acid (UDP- $\alpha$ -D-Glc-2,3-diNAcA), a key intermediate in cell surface O antigen polysaccharide biosynthesis in the human respiratory pathogens *Bordetella pertussis* and *Pseudomonas aeruginosa*. M. Rejzek, V. Sri Kannathasan, C. Wing, A. Preston, E. L. Westman, J. S. Lam, J. H. Naismith, D. J. Maskell, R. A. Field, *Org. Biomol. Chem.*, 2009, 7, 1203-1210.
133. Sugar nucleotide recognition by *Klebsiella pneumoniae* UDP-galactopyranose mutase: fluorinated substrates, kinetics and equilibria. J. C. Errey, M. C. Mann, S. A. Fairhurst, L. Hill, M. R. McNeil, J. H. Naismith, J. M. Percy, C. Whitfield, R. A. Field, *Org. Biomol. Chem.*, 2009, 7, 1009-1016.
132. Developing an asymmetric, stereodivergent route to selected 6-deoxy-6-fluoro-hexoses. A. Caravano, R. A. Field, J. M. Percy, G. Rinaudo, R. Roig, K. Singh, *Org. Biomol. Chem.*, 2009, 7, 996-1008.
131. A chemical genetic approach identifies matrix metalloproteinases as playing an essential and specific role in *Xenopus* melanophore migration. M. L. Tomlinson, P. Guan, R. J. Morris, M. Fidock, M. Rejzek, R. A. Field and G. N. Wheeler, *Chemistry & Biology*, 2009, 16, 93-104.
130. Bacterial detection using carbohydrate-functionalised CdS quantum dots: A model study exploiting *E. coli* recognition of mannosides. B. Mukhopadhyay, M. B. Martins, R. Karamanska, D. A. Russell, R. A. Field, *Tetrahedron Lett.*, 2009, 50, 886-889.

## **2008**

129. Biofuels and the plant cell wall: Opportunities and challenges for synthetic carbohydrate chemistry. R. A. Field, Carbohydrate Newsletter of the Association of Carbohydrate Chemists & Technologists (India), Dec 2008.
128. Detection of transglucosidase-catalyzed polysaccharide synthesis on a surface in real-time using surface plasmon resonance spectroscopy. C. Clé, A. P. Gunning, K. Syson, L. Bowater, R. A. Field, S. Bornemann, *J. Am. Chem. Soc.*, 2008, 130, 15234-15235.
127. Biosynthesis of a rare di-N-acetylated sugar in the lipopolysaccharide of both *Pseudomonas aeruginosa* and *Bordetella pertussis* occurs via an identical scheme despite different gene clusters. E. L. Westman, A. Preston, R. A. Field, J. S. Lam, *J. Bacteriol.*, 2008, 190, 6060-6069.
126. Synthesis of mucin glycans from the protozoan parasite *Trypanosoma cruzi*. R. M. van Well, B. Y. M. Collet, R. A. Field, *Synlett*, 2008, J. E. Baldwin special issue, 2175-2177.
125. Iodine-mediated glycosylation *en route* to mucin-related glyco-aminoacids and glycopeptides, T. S. Kärkkäinen, K. P. R. Kartha, D. MacMillan and R. A. Field, *Carbohydr. Res.*, 2008, 343, 1830-1834.

124. 2,3,4,6-Tetra-O-acetyl- $\alpha$ -D-glucopyranosyl azide. S. Dedola, S. A. Nepogodiev, D. L. Hughes, R. A. Field, *Acta Cryst. C*, 2008, C64, o445-o446.
123. A versatile gold surface approach for fabrication and interrogation of glycoarrays. Z. -L. Zhi, N. Laurent, A. K. Powell, R. manska, M. Fais, J. Voglmeir, A. Wright, J. M. Blackburn, P. R. Crocker, D. A. Russell, S. L. Flitsch, R. A. Field, J. E. Turnbull, *ChemBioChem*, 2008, 9, 1568-1575.
122. Tyl1a, a TDP-6-deoxy-D-xylo-4-hexulose 3,4-isomerase from *Streptomyces fradiae*, appears to operate via an RmlC-like sugar epimerase mechanism. M. Tello, M. Rejzek, B. Wilkinson, D. M. Lawson, R. A. Field, *ChemBioChem*, 2008, 9, 1295-1302. Selected for front cover artwork.
121. Colorimetric detection of *Ricinus communis* agglutinin 120 using optimally presented carbohydrate stabilised gold nanoparticles. C. L. Schofield, B. Mukhopadhyay, S. M. Hardy, M. B. McDonnell, R. A. Field, D. A. Russell, *Analyst*, 2008, 133, 626-634.
120. R. A. Field, Chapter 4d: Selenoglycosides in *Handbook of Chemical Glycosylation. Advances in Stereoselectivity and Therapeutic relevance*, Ed. A. V. Demchenko, Wiley-VCH. 2008.
119. Surface plasmon resonance imaging for real time, label-free analysis of protein interactions with carbohydrate microarrays. R. Karamanska, J. Clarke, O. Blixt, J. I. MacRae, J. Q. Zhang, P. R. Crocker, N. Laurent, A. Wright, S. L. Flitsch, D. A. Russell, R. A. Field, *Glycoconj. J.*, 2008, 25, 69-74.
118. Indirect approach to C-3 branched 1,2-*cis*-glycofuranosides: synthesis of aceric acid glycoside analogues. M. T. de Oliveira, D. L. Hughes, S. A. Nepogodiev, R. A. Field, *Carbohydr. Res.*, 2008, 343, 211-220.
- 2007**
117. Predicting protein function from structure - the roles of short chain dehydrogenase/reductase enzymes in *Bordetella* O antigen biosynthesis. J. D. King, N. J. Harmer, A. Preston, C. Palmer, M. Rejzek, R. A. Field, T. L. Blundell, D. J. Maskell, *J. Mol. Biol.*, 2007, 374, 749-63.
116. Chemoenzymatic synthesis with distinct *Pasteurella* heparosan synthases: monodisperse polymers and unnatural structures. A. E. Sismey-Ragatz, D. E. Green, M. Rejzek, R. A. Field, P. L. DeAngelis, *J. Biol. Chem.*, 2007, 282, 28321-28327.
115. Method for the detection of ricin. D. A. Russell, R. A. Field, C. L. Schofield and A. H. Haines, UK patent application PCT GB0711953.0.
114. Chemical and chemoenzymatic synthesis of glycosyl-amino acids and glycopeptides related to *Trypanosoma cruzi* mucins. V. L. Campo, I. Carvalho, S. Allman, B. G. Davis, R. A. Field, *Org. Biomol. Chem.*, 2007, 5, 2645-2657. Selected by the RSC as a 'Hot Article'. Featured in *Chemistry World*, 2007, 4, C67.
113. Identification and biochemical characterization of two novel UDP-2,3-diacetamido-2,3-dideoxy- $\alpha$ -D-glucuronic acid 2-epimerases from respiratory pathogens. E. L. Westman, D. J. McNally, M. Rejzek, W. L. Miller, R. A. Field, A. G. Preston, J. -R. Brisson, J. S. Lam, *Biochem. J.*, 2007, 405, 123-130.
112. Recent applications of the Cu<sup>I</sup>-catalysed Huisgen azide-alkyne 1,3-dipolar cycloaddition reaction in carbohydrate chemistry. S. Dedola, S. A. Nepogodiev, R. A. Field. *Org. Biomol. Chem.*, 2007, 5, 1006-1017.
111. New mercaptopyrazolo[3,4-d]pyrimidine derivatives as anti-mycobacterial agents. L. Ballell, R. J. Young, G. A. C. Chung, R. A. Field, *Bioorg. Med. Chem. Lett.*, 2007, 17, 1736-1740.

110. Glyconanoparticles for the colorimetric detection of cholera toxin. C. L. Schofield, R. A. Field, D. A. Russell, *Analytical Chem.*, 2007, 79, 1356-1361.

109. Emerging glycomics technologies. J. E. Turnbull, R. A. Field, *Nature Chem. Biol.*, 2007, 3, 74-77.

108. Synthesis of triazole-linked *pseudo*-starch fragments. S. A. Nepogodiev, S. Dedola, L. Marmuse, M. T. de Oliveira, R. A. Field, *Carbohydr. Res.*, 2007, 342, 529-540.

107. Direct oxidation of sugar-nucleotides to the corresponding uronic acids: TEMPO and platinum-based procedures. M. Rejzek, B. Mukhopadhyay, C. Q. Wenzel, J. S. Lam, R. A. Field, *Carbohydr. Res.*, 2007, 342, 460-466.

106. Plant cell wall glycans: chemical synthesis of the branched sugar aceric acid. S. A. Nepogodiev, N. A. Jones, R. A. Field, *ACS Symp. Ser., Contemporary Carbohydrate Chemistry*, 2007, 980, 34-49.

105. RmlC, a C3' and C5' carbohydrate epimerase, appears to operate via an intermediate with an unusual twist boat conformation. C. Dong, L. L. Major, V. Srikanthasani, J. C. Errey, D. Philp, M. Asuncion, M. -F. Giraud, J. S. Lam, M. Graninger, P. Messner, M. R. McNeil, R. A. Field, C. Whitfield, J. H. Naismith, *J. Mol. Biol.*, 2007, 365, 146-159.

## **2006**

104. Expression and initial characterization of Wbbl, a putative D-Galf: $\alpha$ -D-Glc  $\beta$ -1,6-galactofuranosyltransferase from *Escherichia coli* K-12. C. Wing, J. C. Errey, B. Mukhopadhyay, J. S. Blanchard, R. A. Field, *Org. Biomol. Chem.*, 2006, 4, 3945-3950.

103. Silver and gold glyconanoparticles for colorimetric bioassays. C. L. Schofield, A. H. Haines, R. A. Field, D. A. Russell, *Langmuir*, 2006, 22, 6707 -6711.

102. Contrasting reactivity of thioglucoside and selenoglucoside donors towards promoters: implications for glycosylation stereocontrol. R. M. van Well, T. S. Kärkkäinen, K. P. R. Kartha, R. A. Field, *Carbohydr. Res.*, 2006, 341, 1391-1397.

101. Convergent synthesis of a trisaccharide as its 2-(trimethylsilyl)ethyl glycoside related to the flavonoid triglycoside from *Gymnema sylvestre*. B. Mukhopadhyay, R. A. Field, *Carbohydr. Res.*, 2006, 341, 1697-1701.

100. Direct synthesis of chiral aziridines from *N*-*tert*-butyl-sulfinylketimines. D. Morton, D. Pearson, R. A. Field, R. A. Stockman, *Chem. Commun.*, 2006, 1833–1835.

99. The 1.5 Å resolution crystal structure of NovW: a 4-keto-6-deoxy sugar epimerase from the novobiocin biosynthetic gene cluster of *Streptomyces spheroides*. P. Jakimowicz, M. Tello, C. L. Freel Meyers, C. T. Walsh, M. J. Buttner, R. A. Field, D. M. Lawson, *Proteins: Structure, Function and Bioinformatics*, 2006, 63, 261-265.

98. Characterisation of *Streptomyces spheroides* NovW and revision of its functional assignment. to a dTDP-6-deoxy-D-xylo-4-hexulose 3-epimerase, M. Tello, P. Jakimowicz, J. C. Errey, C. L. Freel Meyers, C. T. Walsh, M. J. Buttner, D M. Lawson, R. A. Field, *Chem. Commun.*, 2006, 1079-1081.

## **2005**

97. From solution phase to 'on-column' glycosylation: trichloroacetimidate-based glycosylation promoted by perchloric acid-silica. B. Mukhopadhyay, S. V. Maurer, N. Rudolph, R. M. van Well, D. A. Russell, R. A. Field, *J. Org. Chem.*, 2005, 70, 9059-9062.

96. Synthesis of the branched-chain sugar aceric acid: a unique component of the pectic polysaccharide rhamnogalacturonan II. N. A. Jones, S. A. Nepogodiev, C. J. McDonald, D. L. Hughes, R. A. Field, *J. Org. Chem.*, 2005, 70, 8556-8559.
95. Glycosylation with *in situ* separation: carbohydrate chemistry on a tlc plate. B. Mukhopadhyay, P. Cura, K. P. R. Kartha, C. H. Botting, R. A. Field, *Org. Biomol. Chem.*, 2005, 3, 3468-3470.
94. *Xenopus* as a model organism in developmental chemical genetic screens. M. L. Tomlinson, R. A. Field, G. N. Wheeler, *Molecular Biosystems*, 2005, 1, 223-228. Selected by the RSC as a 'Hot Article'. Featured in *Chemistry World*, 2005, 2 (October), 16.
93. Efficient synthesis of lycotetraose, the tetrasaccharide constituent of the plant defence glycoalkaloid  $\alpha$ -tomatine. N. A. Jones, S. A. Nepogodiev, R. A. Field, *Org. Biomol. Chem.*, 2005, 3, 3201-3206. Selected by the RSC as a 'Hot Article'. Artwork forms the Front Cover of the *OBC* issue (issue 17; 7 September). Featured in *Chemistry World*, 2005, 2 (September), 19.
92. Iodine promoted glycosylation with glycosyl iodides:  $\alpha$ -glycoside synthesis. R. M. van Well, K. P. R. Kartha, R. A. Field, *J. Carbohydr. Chem.*, 2005, 24, 463-474.
91. Glycosylation reactions with 'disarmed' thioglycoside donors promoted by *N*-iodosuccinimide and HClO<sub>4</sub>-silica. B. Mukhopadhyay, B. Collet, R. A. Field, *Tetrahedron. Lett.*, 2005, 46, 5923-5925.
90. Probing the specificity of macrolide glycosyltransferases: *in vitro* remodelling of a polyketide antibiotic creates active bacterial uptake and enhances potency. M. Yang, M. R. Proctor, D. N. Bolam, J. C. Errey, R. A. Field, H. J. Gilbert, B. G. Davis, *J. Am. Chem. Soc.*, 2005, 127, 9336-9337.
89. Thioctic acid amides: convenient tethers for achieving low non-specific protein binding to carbohydrates presented on gold surfaces. R. Karamanska, B. Mukhopadhyay, D. A. Russell R. A. Field, *Chem. Commun*, 2005, 3334-3336.
88. "Click chemistry" *en route* to pseudo-starch. L. Marmuse, S. A. Nepogodiev, R. A. Field, *Org. Biomol. Chem.*, 2005, 3, 2225-2227. **Selected by the RSC as a 'Hot Article'. Featured in *Chemistry World*, 2005, 2 (July), 26.**
87. New small molecule anti-mycobacterials. L. Ballell, R. A. Field, K. Duncan, R. J. Young, *Antimicrob. Agents. Chemother.*, 2005, 49, 2153-2163.
86. Facile one-pot synthesis of acetylated sugars and glycosides, acetal protected per-*O*-acetylated *O*-glycosides and thioglycosides employing perchloric acid immobilised on silica. B. Mukhopadhyay, D. A. Russell, R. A. Field, *Carbohydr. Res.*, 2005, 340, 1075-1080.
85. Synthesis and evaluation of mimetics of UDP and UDP- $\alpha$ -D-galactose, dTDP and dTDP- $\alpha$ -D-glucose with monosaccharides replacing the key pyrophosphate unit. L. Ballell, R. J. Young, R. A. Field, *Org. Biomol. Chem.*, 2005, 3, 1109-1115.
84. Exploiting an aromatic aglycone as a reporter of glycosylation stereochemistry in the synthesis of 1,6-linked maltooligosaccharides. L. Marmuse, S. A. Nepogodiev, R. A. Field, *Tetrahedron Asymmetry*, 2005, 16, 477-485.
83. Synthesis of a 2,3,4-triglycosylated rhamnoside fragment of rhamnogalacturonan-II side chain A using a late stage oxidation approach. A. Chauvin, S. A. Nepogodiev, R. A. Field, *J. Org. Chem.*, 2005, 70, 960-966.

## **2004**

82. Iodine monobromide - update. R. A. Field and B. Mukhopadhyay in *Encyclopedia of Reagents in Organic Synthesis*, L. Paquette, P. Fuchs, D. Crich and P. Wipf Eds., John Wiley and Sons Ltd,

2004.

81. Streamlined synthesis of per-*O*-acetylated sugars, glycosyl iodides or thioglycosides from unprotected reducing sugars. B. Mukhopadhyay, K. P. R. Kartha, D. A. Russell, R. A. Field, *J. Org. Chem.*, 2004, 69, 7758-7760.

80. Flexible enzymatic and chemoenzymatic approaches to a broad range of uridine-diphospho-sugars. J. C. Errey, B. Mukhopadhyay, K. P. R. Kartha, R. A. Field, *Chem. Commun.*, 2004, 2796-2797.

79. Enzymatic liberation of lycotetraose from the *Solanum* glycoalkaloid  $\alpha$ -tomatine. K. Woods, C. J. Hamilton, R. A. Field, *Carbohydr. Res.*, 2004, 339, 2325–2328.

78. The position of a key tyrosine in dTDP-4-keto-6-deoxy-D-glucose-5-epimerase (EvaD) alters the substrate profile for this RmlC-like enzyme. A. B. Merkel, L. L. Major, J. C. Errey, M. D. Burkart, R. A. Field, C. T. Walsh, J. H. Naismith, *J. Biol. Chem.*, 2004, 279, 32684–32691.

77. A convenient synthesis of chiral nonracemic aziridines. D. Morton, R. A. Field, D. Pearson, R. A. Stockman, *Org. Lett.*, 2004, 6, 2377-2380.

76. Synthesis of L-arabinose-containing fragments of the oat root saponin Avenacin A-1. B. Mukhopadhyay, R. A. Field, *Carbohydr. Res.*, 2004, 339, 1285-1291.

75. Practical de-*O*-acylation reactions promoted by molecular sieves. K. P. R. Kartha, B. Mukhopadhyay, R. A. Field, *Carbohydr. Res.*, 2004, 339, 729-732.

74. Rationalising the effect of reducing agent on the oxazaborolidine-mediated asymmetric reduction of *N*-substituted imines. E. H. M. Kirton, G. Tughan, R. E. Morris, R. A. Field, *Tetrahedron Lett.*, 2004, 45, 853-855.

73. Synthesis of an apiose-containing disaccharide fragment of rhamnogalacturonan-II and some analogues. A-L. Chauvin, S. A. Nepogodiev, R. A. Field, *Carbohydr. Res.*, 2004, 339, 21-27.

### 2003

72. Corey-Chaykovsky reaction of chiral sulfinyl imines: a convenient procedure for formation of chiral aziridines. D. Morton, D. Pearson, R.A. Field, R.A. Stockman, *Synlett.*, 2003, 1985-1988.

71. Observations on iodine-promoted  $\beta$ -mannosylation. S.J. Marsh, K. P. R. Kartha, R.A. Field. *Synlett*, 2003, 1376-1379.

70. The structural basis of the mechanism of bacterial sugar-nucleotide modifying enzymes. R.A. Field, J.H. Naismith, *Biochemistry*, 2003, 42, 7637-7647.

69. A simple one-pot method for the synthesis of partially protected mono- and disaccharide building blocks using an orthoesterification-benzylation-orthoester rearrangement approach. B. Mukhopadhyay, R.A. Field, *Carbohydr. Res.*, 2003, 338, 2149-2152.

68. C.J. Hamilton and R.A. Field, Royal Society of Chemistry Specialist Periodical Reports. Carbohydrate Chemistry. Volume 34. Chapter 20. Enzymes in Carbohydrate Chemistry

67. R.A. Field, Royal Society of Chemistry Specialist Periodical Reports. Carbohydrate Chemistry. Volume 34. Chapter 1. General Aspects.

66. Preparation, X-ray structure and reactivity of a stable glycosyl iodide. J. Bickley, J.A. Cottrell, R.A. Field, D.L. Hughes, K.P.R. Kartha, F. Scheinmann, A.V. Stachulski, *Chem. Commun.*, 2003, 1266-1267.



65. Synthesis and activation of carbohydrate donors: thioglycosides and sulfoxides. K.P.R. Kartha and R.A. Field in *Best Synthetic Methods: Carbohydrates*. pp 121-145 Ed. H.M.I. Osborn. 2003, Elsevier Science Ltd, Amsterdam.

64. Practical synthesis of 2-acetamido-3,4,6-tri-O-acetyl-2-deoxy- $\beta$ -D-glucosides of Fmoc-serine and Fmoc-threonine. I. Carvalho, S.L. Scheuerl, K.P.R. Kartha, R.A. Field, *Carbohydr. Res.*, 2003, 338, 1039-1043.

## **2002**

63. R.A. Field, Royal Society of Chemistry Specialist Periodical Reports. Carbohydrate Chemistry. Volume 33. Chapter 21. NMR Spectroscopy and Conformational Features. Royal Society of Chemistry, 2002.

62. Observations on chemical and enzymatic approaches to  $\alpha$ -2,3-sialylated octyl  $\beta$ -lactoside. W.B. Turnbull, J.A. Harrison, K.P.R. Kartha, S. Schenkman and R.A. Field, *Tetrahedron*, 2002, 58, 3207-3216.

## **2001**

61. Iodine and its Interhalogen Compounds: Versatile Reagents in Carbohydrate Chemistry XIII. General Activation of 'Armed' Glycosyl Donors. K.P.R. Kartha, T.S. Kärkkäinen, S.J. Marsh and R.A. Field, *Synlett*, 2001, 260-262.

60. Hydrolase and Sialyltransferase Activities of *Trypanosoma cruzi* trans-Sialidase Towards NeuAc- $\alpha$ -2,3-Gal- $\beta$ -O-PNP. J.A. Harrison, K.P.R. Kartha, W.B. Turnbull, S.L. Scheuerl, J.H. Naismith, S. Schenkman and R.A. Field, *Bioorg. Med. Chem. Lett.*, 2001, 11, 141-144.

59. Stereospecific synthesis of 5-phospho- $\alpha$ -D-arabinosyl-C-phosphonophosphate (pACpp): a stable analogue of the putative mycobacterial cell wall biosynthetic intermediate 5-phospho-D-arabinosyl pyrophosphate (pApp). P. McGurk, G.X. Chang, T.L. Lowary, M. McNeil and R.A. Field, *Tetrahedron Lett*, 2001, 42, 2231-2234.

58. Iodine and its Interhalogen Compounds: Versatile Reagents in Carbohydrate Chemistry XIV. Glycosylated Amino Acid Synthesis. K.P.R. Kartha, L. Ballell, J. Bilke, M. McNeil and R.A. Field, *J. Chem. Soc., Perkin Trans 1*, 2001, 770-772.

57. R.A. Field, Specialist Periodical Reports. Carbohydrate Chemistry. Volume 32. Chapter 21. NMR Spectroscopy and Conformational Features. Royal Society of Chemistry, 2001.

56. R.A. Field, Specialist Periodical Reports. Carbohydrate Chemistry. Volume 32. Chapter 22. Other Physical Methods. Royal Society of Chemistry, 2001.

55. R.A. Field, Specialist Periodical Reports. Carbohydrate Chemistry. Volume 32. Chapter 23. Separatory and Analytical Methods. Royal Society of Chemistry, 2001.

54. Synthetic mannosides act as acceptors for mycobacterial 1-6 mannosyltransferase, J.R. Brown, R.A. Field, A. Barker, M. Guy, R. Grewal, K-H. Khoo, P.J. Brennan, G.S. Besra and D. Chatterjee, *Bioorg. Med. Chem.*, 2001, 9, 815-824.

53. Over-expression, purification, crystallization and data collection on the *Bordetella pertussis* wlbD gene product, a putative UDP-GlcNAc 2'-epimerase. V. Sri Kannathasan, A.G. Staines, C.J. Dong, R.A. Field, A.G. Preston, D.J. Maskell and J.H. Naismith, *Acta Cryst.*, 2001, D57, 1310-1312.

## **2000**

52. Iodine, a Versatile Reagent in Carbohydrate Chemistry: Activation of Thioglycosides and Glycosyl Sulfoxides. K.P.R. Kartha, M. Aloui, P. Cura, S.J. Marsh and R.A. Field, *Advances in Sulfur*

*Chemistry Volume 2*, 2000, C.M. Rayner Ed., JAI Press, US, 37-56.

51. Observations on the Activation of Methyl Thioglycosides with Iodine, Iodine Monobromide and Iodine Monochloride. K.P.R. Kartha, P. Cura, M. Aloui, S.K. Readman, T.J. Rutherford and R.A. Field, *Tetrahedron Asymm.*, 2000, 11, 581-593.

50. RmlC, The Third Enzyme of the dTDP-L-Rhamnose Pathway, is a New Class of Epimerase. M-F. Giraud, G.A. Leonard, R.A. Field, C. Bernlind and J.H. Naismith, *Nature Struct. Biol.*, 2000, 7, 398-402.

49. Thio-oligosaccharides of Sialic acid - Synthesis of an  $\alpha(2-3)$  Sialyl Galactoside via a Gulofuranose / Gulopyranose Approach. W.B. Turnbull and R.A. Field, *J. Chem. Soc., Perkin Trans. 1*, 2000, 1859-1866.

48. Iodine and its Interhalogen Compounds: Versatile Reagents in Carbohydrate Chemistry XII. Tuning Promoter Reactivity for Thioglycoside Activation. P. Cura, M. Aloui, K.P.R. Kartha and R.A. Field, *Synlett.*, 2000, 1279-1280.

### **1999**

47. *N*-Substituted Analogues of *S*-Nitroso-*N*-acetyl-D,L-Penicillamine: Chemical Stability and Prolonged Nitric Oxide Mediated Vasodilation in Isolated Rat Femoral Arteries. I.L. Megson, S. Morton, I.R. Greig, F.A. Mazzei, R.A. Field, A.R. Butler, G. Caron, A. Gasco, R. Fruttero and D.J. Webb, *British J. Pharmacol.*, 1999, 129, 639-648.

46. Adaptation of an NMR Signal Suppression Pulse Sequence for the Selective Removal of Benzylic Methylene Signals of Benzyl Ether-Protected Carbohydrates. T.J. Rutherford, K.P.R. Kartha, S.K. Readman, P. Cura and R.A. Field, *Tetrahedron Lett.*, 1999, 40, 2025-2028.

45. Iodine and its Interhalogen Compounds: Versatile Reagents in Carbohydrate Chemistry IX. A Mild and Selective Deprotection of *tert*-Butyldimethylsilyl (TBDMS) Ethers in the Presence of Various Protecting Groups Using Iodine Monobromide. K.P.R. Kartha and R.A. Field, *SYNLETT*, 1999, 311-312.

44. Stable Isotope Assisted Transferred NOE Studies on  $^{13}\text{C}$ -Enriched Sialyl Lewis x Bound in Solution and Bound to E-Selectin. R. Harris, G.R. Kiddle, R.A. Field, B. Ernst, J.L. Magnani and S.W. Homans, *J. Am. Chem. Soc.*, 1999, 121, 2546-2551.

43. Man  $\alpha 1-2$  Man $\alpha$ OMe - Concanavalin A Complex Reveals a Balance of Forces Involved in Carbohydrate Recognition. D.N. Mootoo, B. Cannan, R.A. Field and J.H. Naismith, *Glycobiology*, 1999, 9, 539-545.

42. The GPI Biosynthetic Pathway as a Therapeutic Target for African Sleeping Sickness. M.A.J. Ferguson, J.S. Brimacombe, J.R. Brown, A. Crossman, A. Dix, R.A. Field, M.L.S. Güther, K.G. Milne, D.K. Sharma and T.K. Smith, *Biochim. Biophys. Acta*, 1999, 1455, 327-340.

### **1998**

41. New Conformational Constraints in Isotopically  $^{13}\text{C}$ -Enriched Oligosaccharides. M.J. Milton, R. Harris, M.A. Probert, R.A. Field and S.W. Homans, *Glycobiology*, 1998, 8, 147-153.

40. Iodine and its Interhalogen Compounds : Versatile Reagents in Carbohydrate Chemistry V. Synthesis of 1,2-*trans*-Linked 1-Thioglycosides From Per-*O*-Acetylated Glycoses. K.P.R. Kartha and R.A. Field, *J. Carbohydr. Chem.*, 1998, 17, 693-702.

39. Methyl 2-*O*- $\alpha$ -D-Galactopyranosyl- $\alpha$ -D-mannopyranoside - Coffee Bean  $\alpha$ -Galactosidase Sensitivity of a Synthetic Fragment of a *Trypanosoma brucei* GPI Anchor. J.R. Brown, K.P.R. Kartha,

M.A.J. Ferguson and R.A. Field, *Carbohydr. Lett.*, 1998, 3, 97-100.

38. Chemical Synthesis of  $^{13}\text{C}$ -Labelled Ganglioside Gb<sub>3</sub> Trisaccharide from [U- $^{13}\text{C}$ ]-D-Glucose. H. Shimizu, J.M. Brown, S.W. Homans and R.A. Field, *Tetrahedron*, 1998, 54, 9489-9506.

37. Probing Carbohydrate-Protein Interactions by High-Resolution NMR Spectroscopy. S.W. Homans, R.A. Field, M.J. Milton, M.A. Probert and J.M. Richardson, *Adv. Exp. Med. Biol.*, 1998, 435, 29-38.

36. Synthetic GPI Anchor Fragments as Substrates for *Trypanosoma brucei*  $\alpha$ -Galactosyltransferases. J.R. Brown, T.K. Smith, M.A.J. Ferguson and R.A. Field, *Bioorg. Med. Chem. Lett.*, 1998, 8, 2051-2054.

35. Solution Structure of the Complex Between the B-Subunit Homopentamer of Verotoxin VT-1 from *E. coli* and the Trisaccharide Moiety of Globotriaosylceramide. H. Shimizu, R.A. Field, S.W. Homans and A. Donohue-Rolfe, *Biochemistry*, 1998, 37, 11078-11082.

34. Iodine and its Interhalogen Compounds: Versatile Reagents in Carbohydrate Chemistry VIII. A Simple, Practical Method for the Preparation of Glycosyl Iodides From Per-O-Acetyl or Other Derivatives of Carbohydrates. K.P.R. Kartha and R.A. Field, *Carbohydr. Lett.*, 1998, 3, 179-186.

33. Synthesis of  $^{13}\text{C}$ -Labelled Methyl  $\alpha$ -D-Mannopyranosyl(1-2)- $\alpha$ -D-Mannopyranoside from [U- $^{13}\text{C}$ ]-D-Glucose. A.K. Misra, J.M. Brown, S.W. Homans and R.A. Field, *Carbohydr. Lett.*, 1998, 3, 217-222.

### **1997**

32. Structure of a Glycoconjugate in Solution and in Complex with an Antibody Fv Fragment. D.G. Low, M.A. Probert, G. Embleton, K. Sheshadri, R.A. Field, S.W. Homans, J. Windust and P.J. Davis. *Glycobiology*, 1997, 7, 373-381.

31. Synthetic Mannosides as Potential Substrates for the GPI Biosynthetic Pathway in *Trypanosoma brucei*. J.R. Brown, M.L.S. Güther, R.A. Field and M.A.J. Ferguson, *Glycobiology*, 1997, 7, 549-558.

30. An Examination of Some Derivatives of S-Nitroso-1-thiosugars as Vasodilators. A.R. Butler, R.A. Field, I.R. Greig, F.W. Flitney, S.K. Bisland, F. Khan and J.J.F. Belch, *Nitric Oxide: Biology and Chemistry*, 1997, 1, 211-217.

29. The Development of a High Through-put Spectrophotometric Assay to Monitor *Trypanosoma cruzi* trans-Sialidase. J.A. Harrison, K.P.R. Kartha, S.L. Smith, J.H. Naismith, S. Schenkman and R.A. Field, *Biochem. Soc. Trans.*, 1997, 25, 424S.

28. On the Role of Manganese Cation in the Mechanism of  $\alpha$ -1,3-Fucosyltransferase. S.L. Smith, C.A. Compston, M.M. Palcic, M.J. Bamford, C.J. Britten and R.A. Field, *Biochem. Soc. Trans.*, 1997, 25, S630.

27. Chemoenzymatic Synthesis of GM<sub>3</sub>, Lewis x and Sialyl Lewis x Oligosaccharides in  $^{13}\text{C}$ -Enriched Form. M.A. Probert, M.J. Milton, R. Harris, S. Schenkman, J.M. Brown, S.W. Homans and R.A. Field, *Tetrahedron Lett.*, 1997, 38, 5861-5864.

26. Iodine: A Versatile Reagent in Carbohydrate Chemistry IV. Per-O-Acylation, Regioselective Acylation and Acetolysis. K.P.R. Kartha and R.A. Field, *Tetrahedron*, 1997, 53, 11753-11766.

25. Glycosylation Chemistry Promoted by Iodine Monobromide: Efficient Synthesis of Glycosyl

Bromides from Thioglycosides and O-Glycosides from Glycosyl Bromides. K.P.R. Kartha and R.A. Field, *Tetrahedron Lett.*, 1997, 38, 8233-8237.

### 1996

24. Structural Basis of Trimannoside Recognition by Concanavalin A. J.H. Naismith and R.A. Field, *J. Biol. Chem.*, 1996, 271, 972-976.

23. Purification and Initial Characterization of Proline 4-Hydroxylase from *Streptomyces griseoviridus* P8648; a 2-Oxoacid, Ferrous Dependent Dioxygenase Involved in Etamycin Biosynthesis. C.C. Lawrence, W.J. Sobey, R.A. Field, J.E. Baldwin and C.J. Schofield, *Biochem. J.*, 1996, 383, 185-191.

22. Iodine: A Versatile Reagent in Carbohydrate Chemistry II. Efficient Chemoselective Activation of Thioglycosides. K.P.R. Kartha, M. Aloui and R.A. Field, *Tetrahedron Lett.*, 1996, 37, 5175-5178.

21. Iodine : A Versatile Reagent in Carbohydrate Chemistry III. Efficient Activation of Glycosyl Halides in Combination with DDQ. K.P.R. Kartha, M. Aloui and R.A. Field, *Tetrahedron Lett.*, 1996, 37, 8807-8810.

### 1995

20. Hydrophobic Glycosides of N-Acetylglucosamine Can Act as Primers of Polyglucosamine Synthesis and Can Affect Glycolipid Synthesis *in vivo*. D.C.A. Neville, R.A. Field and M.A.J. Ferguson, *Biochem. J.*, 1995, 307, 791-797.

19. Benzyl 2-Acetamido-4-azido-3-O-benzoyl-6-O-(*tert*-butyldiphenylsilyl)-2,4-dideoxy- $\beta$ -D-glucopyranoside. J.C. Barnes and R.A. Field, *Acta Cryst.*, 1995, C51, 1018-1020.

18. The Hydrophobic Mannoside Man- $\alpha$ -1,6-Man- $\alpha$ -S-(CH<sub>2</sub>)<sub>7</sub>CH<sub>3</sub> Acts as an Acceptor for the UDP-Gal:GPI Anchor  $\alpha$ -1,3-Galactosyl transferase of *Trypanosoma brucei*. S. Pingel, R.A. Field, M. Dushenko, M.L.S. Güther and M.A.J. Ferguson, *Biochem. J.*, 1995, 309, 877-882.

17. Synthesis and <sup>1</sup>H NMR Characterization of the Six Isomeric Mono-O-Sulfates of 8-Methoxycarbonyloct-1-yl O- $\beta$ -D-Galactopyranosyl-(1,4)-2-acetamido-2-deoxy- $\beta$ -D-glucopyranoside. R.A. Field, A. Otter, W. Fu and O. Hindsgaul, *Carbohydr. Res.*, 1995, 276, 347-363.

### 1994

16. Acceptor Analogues as Potential Inhibitors of Bovine  $\beta$ -1,4-Galactosyl Transferase. R.A. Field, D.C.A. Neville, R.W. Smith and M.A.J. Ferguson, *Bioorg. Med. Chem. Lett.*, 1994, 4, 391-394.

15. Partial Purification and Characterization of the GlcNAc-PI De-N-acetylase of Glycosyl-phosphatidylinositol Anchor Biosynthesis in African Trypanosomes. K.G. Milne, R.A. Field, W.J. Masterson, S. Cottaz, J.S. Brimacombe and M.A.J. Ferguson, *J. Biol. Chem.*, 1994, 269, 16403-16408.

14. Glycosyl-phosphatidylinositol Molecules of the Parasite and the Host. M.A.J. Ferguson, J.S. Brimacombe, S. Cottaz, R.A. Field, M.L.S. Güther, S.W. Homans, M.J. McConville, A. Mehlert, K.G. Milne, J.E. Ralton, Y.A. Roy, P. Schneider and N. Zitzmann, *Parasitology*, 1994, 108, S45-S54.

13. Substrate Specificity of Proline 4-Hydroxylase: Chemical and Enzymatic Synthesis of 2S,3R,4S-Epoxyproline. J.E. Baldwin, R.A. Field, C.C. Lawrence, V. Lee, J.K. Robinson and C.J. Schofield, *Tetrahedron Lett.*, 1994, 35, 4649-4652.

### 1993

12. Exchange of Valine 2-H in the Biosynthesis of  $\delta$ -(L- $\alpha$ -Aminoadipoyl)-L-cysteinyl-D-valine. J.E. Baldwin, M.F. Byford, R.A. Field, C.-Y. Xiaou, W.J. Sobey and C.J. Schofield, *Tetrahedron*, 1993, 49, 3221-3226.

11. Isolation and Partial Characterization of ACV Synthetase from *Cephalosporium acremonium* and *Streptomyces clavuligerus*. J.E. Baldwin, J.W. Bird, R.A. Field, N.M. O'Callaghan, C.J. Schofield and A.C. Willis, in *50 Years of Penicillin Application: History and Trends*, Public Ltd., Berlin, 1993.

10. The Mechanism of Inhibition of Glycosylphosphatidylinositol Anchor Biosynthesis in *Trypanosoma brucei* by Mannosamine. J.E. Ralton, K.G. Milne, M.L.S. Güther, R.A. Field and M.A.J. Ferguson, *J. Biol. Chem.*, 1993, 268, 24183-24189.

9. Biosynthesis of Glycosyl-Phosphatidylinositol Protein Anchors in African Trypanosomes. K.G. Milne, R.A. Field, and M.A.J. Ferguson, in *New Developments in Lipid-Protein Interactions and Receptor Function*, NATO/FEBS ASI Proceedings, 1993.

8. Proline 4-Hydroxylase: Stereochemical Course of the Reaction. J.E. Baldwin, R.A. Field, C.C. Lawrence, K.D. Merritt and C.J. Schofield, *Tetrahedron Lett.*, 1993, 34, 7489-7492.

### 1992

7. Studies on the Exchange of Valine-Oxygen During the Biosynthesis of  $\delta$ -(L- $\alpha$ -Amino adipoyl)-L-cysteinyl-D-valine. J.E. Baldwin, R.M. Adlington, J.W. Bird, R.A. Field, N.M. O'Callaghan and C.J. Schofield, *Tetrahedron*, 1992, 48, 1099-1108.

### 1991

6. Histidines, Histamines, and Imidazoles as Glycosidase Inhibitors. R.A. Field, A.H. Haines, E.J.T. Chrystal and M.C. Luszniak, *Biochem. J.*, 1991, 274, 885-889.

5. ACV Synthetase from *Cephalosporium acremonium* and *Streptomyces clavuligerus*. Evidence for the Presence of Phosphopantothenate. J.E. Baldwin, J.W. Bird, R.A. Field, N.M. O'Callaghan, C.J. Schofield and A.C. Willis, *J. Antibiot.*, 1991, 44, 241-248.

4. Exchange of Valine-Oxygen During the Biosynthesis of  $\delta$ -(L- $\alpha$ -Amino adipoyl)-L-cysteinyl-D-valine. J.E. Baldwin, R.A. Field and C.J. Schofield, *J. Chem. Soc., Chem. Commun.*, 1991, 1531-1532.

3. The Interaction of Anhydroalditols with Sweet Almond  $\beta$ -Glucosidase and *Escherichia coli*  $\beta$ -Galactosidase: Implications for the Design of Potent Glycosidase Inhibitors. R.A. Field, A.H. Haines and E.J.T. Chrystal, *Bioorg. Med. Chem. Lett.*, 1991, 1, 667-672.

### 1990

2. Purification and Partial Characterization of ACV Synthetase from *Cephalosporium acremonium* and *Streptomyces clavuligerus*. J.E. Baldwin, J.W. Bird, R.A. Field, N.M. O'Callaghan, C.J. Schofield and A.C. Willis, *J. Antibiot.*, 1990, 43, 1055-1507.

### 1987

1. A Comparison by Magnetic Circular Dichroism of Compound X and Compound II of Horseradish Peroxidase. N. Foote, P.M.A. Gadsby, R.A. Field, C. Greenwood and A.J. Thomson, *FEBS Lett.*, 1987, 214, 347-350.