



**COST Action:** CM1102

**Date:** 9-11 April 2015,

**Location:** Bangor, Wales/UK

**Organisers:** Martina Lahmann (COST)/Claire Doherty (IBCARB)

**Purpose:**

The training school was targeted towards MSc, PhD students and postdocs (ESRs) and intended to give an overview of various aspects related to synthesis and analysis of 'multiglyconanoconjugates'. The training school was designed to provide a platform for young scientist to communicate their current research and to interact with each other. To facilitate this, all ESRs were given the opportunity to present a poster and either a short communication or a challenging PechaKucha presentation. The poster presentations were spread out over the 3 day meeting and linked to 'food activities' to generate as much interactions as possible. Core material was delivered through a number of traditional lectures given by experts in the field including an industrial speaker. All speakers were asked to provide a take home message from their training unit including their contact details all to be included into the programme booklet. The training school was run jointly with the BBSRC sponsored IBCarb network and the RSC.

**Participants:**

The training school attracted 50 young researchers. Seven participants had to withdraw with short notice due to visa issues and force majeure (strike), however, 43 young scientist from 11 different countries that are part of the COST action (not taking into account the origin of the participant which would increase the number of countries) joined the workshops. 5 additional participants from different parts of the UK received training. 12 Trainers and one industrial representative were involved in the presentations. The 8 COST financed trainers came from 7 different countries including Turkey and the Czech Republic.



Image 1: Most participants.

### **General:**

The training school was run over three days and was held in Bangor Universities' meeting place (Reichel). The meeting started in the late afternoon on day 1 and finished by lunchtime on the third day to enable the majority of participants to include their travel into the time frame. In Reichel we used two rooms, one was the prime lecture hall while the second was used for all other activities (dinner, lunches, coffee breaks, posters and industrial partner exhibition space). This arrangement produced a relaxed atmosphere and allowed us to optimise the interaction between the participants/trainees and trainers. The trainers were selected not only for their academic excellence but also to present our trainees with a wide range of role models. Thus, the majority of our speakers were still in their early/mid stage of their career, e.g. one of our key note speakers was still a PhD student. We further tried to achieve a gender balance 6 (originally 7) out of 13 experienced speakers were female and also include the speakers from countries that have an evolving expertise in carbohydrate chemistry. All trainees were encouraged to make their participation in the training school as active as possible. Almost every trainee produced a poster (we had to make a couple of exceptions for IP reasons). 20 ESRs were selected by the scientific committee (Bruce Turnbull, Martina Lahmann) to give a brief communication. This gave a wonderful mix of presentations by young scientists, ranging from undergraduate students to quite experienced postdoctoral researchers. All brief communications entered automatically the competition for the RSC/Buchanan award. Professor Grant Buchanan died in 2012 was very much engaged with all aspects of carbohydrate chemistry, as researcher, teacher, supervisor, editor, but also as UK representative for the International Carbohydrate Organisation and as President of the European Carbohydrate Organisation. The RSC/Buchanan award is awarded for the best oral presentation by an early stage researcher at an SC carbohydrate group meeting. In addition, all other trainees were given a slot to present their research poster in a very challenging 2 min PechaKucha presentation. The prize for the best flash presentation – a copy of "Carbohydrate Chemistry" Oxford Chemistry Primer by Benjamin G. Davis and Antony J. Fairbanks – has been sponsored by the IBCarb.

### **Day 1:**

The first day started with a welcome coffee and a simultaneous informal poster session. The main event was the 2015 RSC/Dextra Award lecture by Matthew Gibson. This award is presented to a scientist in the early/mid stage of their career for excellent work in carbohydrate chemistry awarded by the Royal Society of Chemistry. Matthew's gave an excellent lecture and hit the core of our COST action with his take-home-message: Glyconanoparticles – The (polymer!) coating is crucial and low specificity does not limit application. Not much older than many of the trainees, Matthew's achievements and his inspiring way to convey carbohydrate chemistry to the audience may have inspired many of the young researchers. The evening was concluded with a dinner with great social interactions between all participants.



Image 2. Terry Turnbull (r.) presents Matthew Gibson (l.) with the Dextra Award.

## Day 2:

The morning started with a set of one plenary lecture and three brief lectures. Jeroen Codeen (NL) focussed on the challenges in glycosylation chemistry and how conformational analysis could help to overcome some of those. Martin Fascione (UK) introduced the trainees to the possibilities and difficulties in adapting an automatized system for glycosylation chemistry. The next two speakers (Trinidad Velasco-Torrijos, IE, and Mustafa O. Guler, TR) introduced the trainees to the use of glycolipids and glycopeptides as nanostructures for various materials. This session was concluded by a presentation of the IBCarb as a UK-wide carbohydrate network (Claire Doherty, UK), providing our trainees with another example of fruitful collaboration and networking in the area of carbohydrate chemistry. A coffee break, allowed all participants to briefly refresh their minds about the posters before we started the ten 2 min PechaKucha presentations. For some of the trainees, this activity was the first time to present their research in public. All trainees did an excellent job and the outcome was twofold; all participants learned more about the presenters' posters, and the trainees got trained in how to prepare and present in a concise manner. The following poster session was linked with an extended buffet lunch which led to numerous lively discussions.



Image 3. During one of the poster sessions.

The afternoon was primarily devoted to the brief communications (Buchanan competition), where all participants got an excellent overview of the research conducted by the ESRs within our COST-action. Three training units broke the brief communication sessions. Cristina Nativi (IT) discussed in her keynote lecture synthetic aspects of glycosides and glycosylated multivalent structures, while Carmen Galan (UK) used the plenary lecture to introduce the synthesis and use of novel oligosaccharide-tools for various applications. In her lecture she presented both synthetic and chemoenzymatic methods. This linked to the keynote lecture given by Vladimir Kren (CZ) who showed the trainees how to use glycosidases in carbohydrate chemistry.

After the last training unit, everyone gathered for a walk and sightseeing tour from the conference centre through the university town of Bangor up to Bangor Mountain (St Deiniol Golf Club). Here all participants were welcomed by the local golf pro and put into an unexpected but quite exciting learning situation before we concluded the day with a social dinner at the club pub.



Image 4. Carmen Galan giving her plenary lecture. Participants gathering for the walk and trying to put in the wind.

Day 3:

The final day started with a plenary lecture by Claire Eyers (UK) on the exiting uses of mass spectrometry for the analysis of complex carbohydrates and their binding partners. Aturo López-Guzmán (AT) continued on the analytical theme of this day by presenting a strategy fo *in-vivo* and *in-vitro* surface display of functional epitopes. The final keynote lecture was presented by a trainer from the industry which gave an intresting inside of carbohydrate chemistry outside the research lab. After having listening to all training units everyone was encourage to take the opportunity to come together at the poster boards to have a final scientific chat, exchange e-mail addresses and keep on networking. Last but not least, the happy winners of the flash presentations and the Buchanan award were announced before the training school was closed.



Image 5. The Buchanan award, the best flash presentation, at Conwy Castel.

A couple of ESRs used the beautiful afternoon to explore the area (North Wales, Conwy Castle) together with the student helpers from Bangor Universities – a last networking activity!





## **COST CM 1102/IBCarb Spring Training School**

**“Synthesis for nano- & glyco-sciences”**

**Programme  
9<sup>th</sup> – 11<sup>th</sup> April 2015**



**PRIFYSGOL  
BANGOR  
UNIVERSITY**

<b>9.4.2015</b>	<b>Thursday</b>	16.00-18.00	Registration/Coffee/hanging posters/exhibition
		18.00	Welcome/Dextra Award
		18.20 – 19.00	<b>Dextra Award lecture</b> (Matthew Gibson/UK)
		<b>19.30 -21.30</b>	<b>Dinner</b>
<b>10.4.2014</b>	<b>Friday</b>	8.55-9.00	Good morning everyone!
		9.00-9.40	<b>Plenary Lecture 1</b> (Jeroen Codee/NL)
		9.40-10.00	<b>Keynote 1</b> (Martin Fascione/UK)
		10.00-10.20	<b>Keynote 2</b> (Trinidad Velasco-Torrijos/IE)
		10.20-10.40	<b>Keynote 3</b> (Mustafa Guler/TR)
		10.45-11.00	<b>IBCarb presentation</b> (Claire Doherty/UK)
		<b>11.00-11.15</b>	<b>Coffee break (runs into poster session)</b>
		11.15-11.45	<b>Flash presentations</b> (ESR)
		11.45-13.00	<b>Poster session 1/exhibition</b>
		<b>13.00-14.00</b>	<b>Buffet Lunch/exhibition</b>
		14.00-14.20	<b>Keynote 4</b> (Cristina Nativi/IT)
		14.20-15.20	<b>Brief communications 1</b> (Buchanan competition/ESR)
		<b>15.20-15.40</b>	<b>Coffee</b>
		15.40-16.00	<b>Keynote 5</b> (Vladimír Křen/CZ)
		16.00-17.00	<b>Brief communications 2</b> (Buchanan competition/ESR)
		17.00-17.40	<b>Plenary Lecture 2</b> (Carmen Galan/UK)
		<b>(18.30) 19.00-21.00</b>	<b>Buffet Dinner + activity, St Deiniol</b>
<b>11.4.2014</b>	<b>Saturday</b>	8.45-9.00	Good morning and welcome back
		9.00-9.40	<b>Plenary Lecture 3</b> (Claire Eysers/UK)
		9.40-10.00	<b>Key note 6</b> (Arturo López-Guzmán/AT)
		10.00-10.20	<b>Key note 7</b> (Carbosynth/UK)
		10.20-10.50	<b>Poster session 2/exhibition/Coffee</b>
		10.50-11.00	Buchanan Prize/Goodbye
		<b>11.00-11.30</b>	<b>Small lunch</b>

COST CORE GROUP MEETING ca 11.00-13.00

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Welcome to the Training School and to Bangor University!

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We hope you will enjoy your time with us, maybe you will make some new connections and hopefully take new ideas home with you.

This booklet is intended to give you guidance on the training school program. If you have any further questions, do not hesitate to ask at the registration desk.

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*Arrival etc.*

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*Posters:* The posters should be set up on arrival (Thursday) using the Velcro provided. Please don't use any other material. Please take your poster down during the small lunch on Saturday to allow the maximum 'hang-time'!

*Presentations:* Please give your presentation on a USB stick on arrival to a person on the registration desk. A quick view is possible in the break prior to your presentation.

*Reichel conference centre:* Reichel Building, Ffriddoedd Site, Bangor, Gwynedd, LL57 2TR, +44 (0)1248 38 8088, [conferences@bangor.ac.uk](mailto:conferences@bangor.ac.uk)

*Accommodation:*

- The Management Centre, College Road, Bangor, Gwynedd LL57 2DG, +44 (0)1248 365 900, [info@themanagementcentre.co.uk](mailto:info@themanagementcentre.co.uk)
- Eryl Mor, 2 Upper Garth Road, Bangor, Gwynedd LL57 2SR, +44 (0)1248 353789

*Emergency:* 999 or 112 – For less urgent issues, please contact me +44 (0)785 39 69 785 (Martina)

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**Friday Buffet Dinner**

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**Bangor St Deiniol, Pen Y Bryn, Bangor, Gwynedd, LL57 1PX,  
+44 (0)1248 353098 (please wear comfy clothes and shoes, some minor physical activities)**

There will be an option to get transport to and from St Deiniol on Friday. A 16-seater-couch will collect passengers at 18.00 from the Management Centre, Bangor and return there around 21.30. The couch will go each route twice if required.

Depending on the weather we will walk together for a little sightseeing tour from the Management Centre or the Eryl Mor (2 groups) to the club (either via Bangor mountain or along the High Street). For the mountain walk, please wear proper shoes. No high heels, please (like in the lab)!



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*Prizes and Awards*

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*Dextra Carbohydrate Award 2015*

The Dextra medal is sponsored by the Dextra Laboratories and was founded in 1970. It is presented to a scientist in the early/mid stage of their career for excellent work in carbohydrate chemistry that has largely been conducted in the UK and awarded by the Royal Society of Chemistry. The 2015 RSC/Dextra Award went to Matthew Gibson.

*Buchanan Memorial Prize*

Professor Grant Buchanan died in 2012 at the age of 85. During his life time he was very much engaged with all aspects of carbohydrate chemistry, as researcher, teacher, supervisor, editor, but also as UK representative for the International Carbohydrate Organisation and as President of the European Carbohydrate Organisation. The RSC/Buchanan award is awarded for the best oral presentation by an early stage researcher at an SC carbohydrate group meeting.

*Flash presentations*

The prize for the best flash presentation – a copy of "Carbohydrate Chemistry" Oxford Chemistry Primer by Benjamin G. Davis and Antony J. Fairbanks – has been sponsored by the IBCarb.

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*The 'Trainers'*

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On the following pages you will find some information about the 'trainers' – we asked them to produce a mini CV and also to point out what is they think is your take home message from their talk.

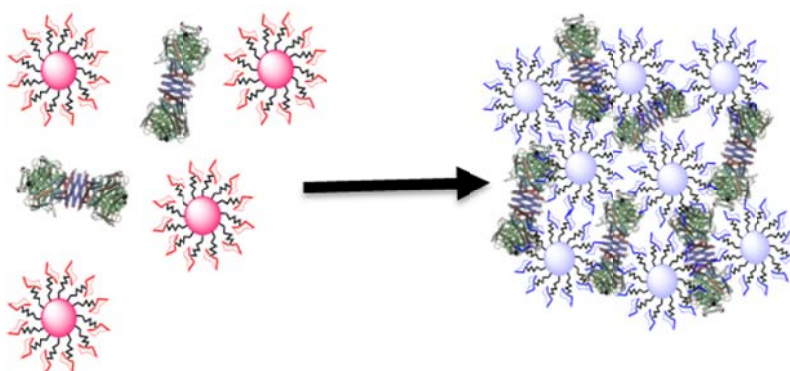
**Matthew Gibson (RSc/Dextra Award 2015)**

**Mini-CV:** Matt Gibson is an assistant professor in the Department of Chemistry at the University of Warwick, UK. He obtained his Degree and PhD (with Prof N Cameron) from Durham University in 2003 and 2007, respectively and was then a PDRA with Prof HA Klok at EPFL Switzerland until starting at Warwick in December 2009. Matt has authored > 50 publications and 2 book chapters as well as filing several patents on his Group's research. In recent years Matt has been awarded the RSC MacroGroup UK Young Researchers Medal and an RSC Emerging Technology prize. His research interests are focused on the application of macromolecular and carbohydrate chemistry to address healthcare issues. This includes the synthesis of cryopreservation using antifreeze glycoprotein mimics, glyconanoscience and the development of new biosensors.

<http://www.warwick.ac.uk/go/gibsongroup> | @LabGibson | m.i.gibson@warwick.ac.uk

**Key aspect:** Glyconanoparticles – The (polymer!) coating is crucial and low specificity does not limit application.

*Matthew's take-home message for this workshop:*



Colourmetric detection of lectins (or pathogens) by gold nanoparticle SPR

## Jeroen Codee

**Mini-CV:** Jeroen Codee is associate professor Bio-organic Chemistry at Leiden University. He obtained his PhD degree in 2004 from Leiden University and after a post-doctoral period at the ETH Zurich with Peter Seeberger returned to Leiden to head the carbohydrate division of the Bio-Organic Synthesis Department. Jeroen has co-authored over 85 publications, 7 book chapters. His research interests include bio-organic chemistry, with a focus on glycochemistry and glycobiology ranging from fundamental organic synthesis to vaccine/drug development and the development glycobiology tools. Prime research subjects are complex oligosaccharide synthesis and the development of fully automated solid phase synthesis techniques for oligosaccharides and glycoconjugates.

<http://biosyn.lic.leidenuniv.nl> and <http://lic.leidenuniv.nl/spotlight/jeroen-codee>.

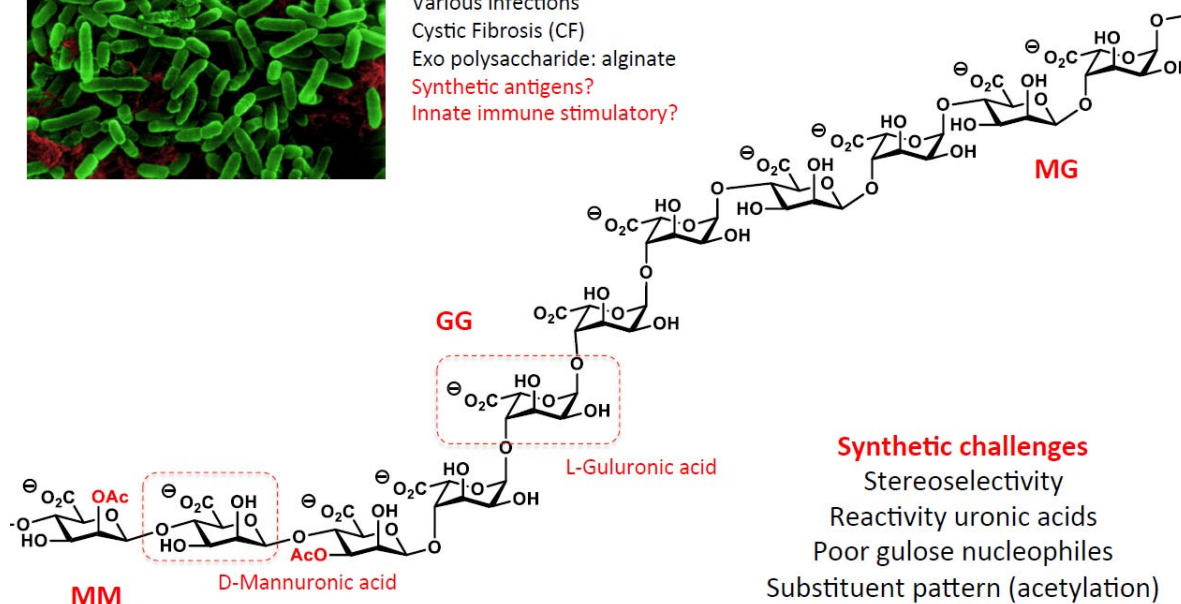
*Jeroen's take-home message for this workshop:*



### Alginate



*Pseudomonas aeruginosa*  
Gram negative bacterium  
Various infections  
Cystic Fibrosis (CF)  
Exo polysaccharide: alginate  
**Synthetic antigens?**  
**Innate immune stimulatory?**

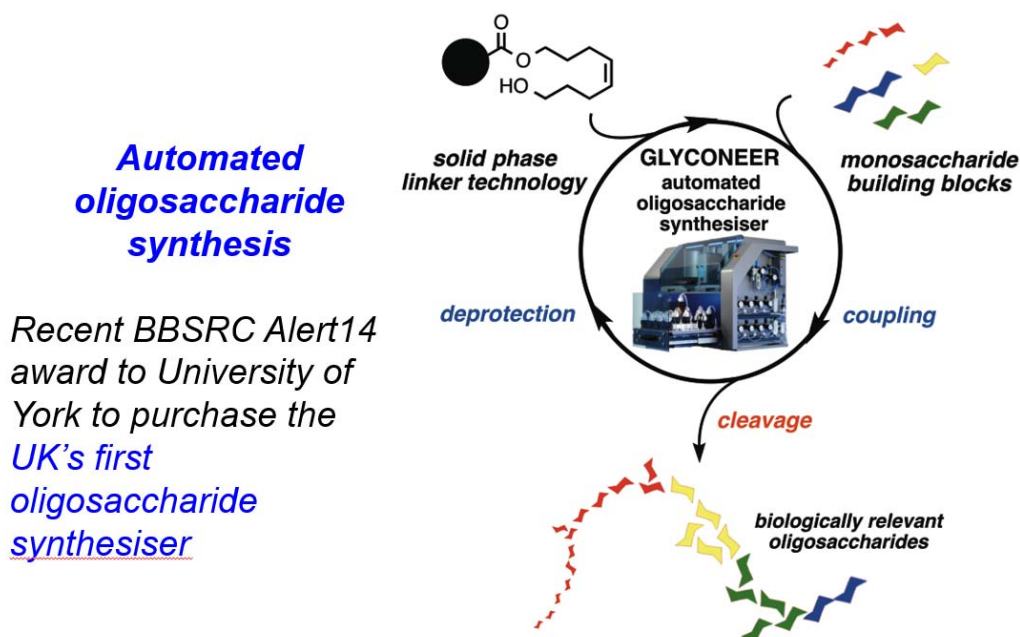


Camoodonico et al. Inf. Immun. 2011

## Martin Fascione

**Mini-CV:** Martin Fascione received his Ph.D. from the University of Leeds in 2009, working under the tutelage of W. Bruce Turnbull on the stereoselective synthesis of 1,2-cis-glycosides. Following a Marie Curie Fellowship with Steve Withers, FRS, in Vancouver, and Gideon Davies, FRS, FMedSci, at the University of York, UK (2012-2014), he took up a lectureship in the York Structural Biology Laboratory in Aug 2014.

*Martin's take-home message for this workshop:*



## Trinidad Velasco-Torrijos

**Mini-CV:** Lecturer in Pharmaceutical Chemistry, Maynooth University, Ireland (present-2007)  
Postdoctoral Researcher-Marie Curie Fellow, University College Dublin, Ireland (2004-2006)  
Postdoctoral Researcher, Ghent University, Belgium (2002-2003)  
Ph.D University of Bristol, United Kingdom (1999-2002)  
BSc Organic Chemistry, Universidad Autonoma de Madrid, Spain

*Trinidad's take home-message is as follows:*

**Key aspect:** *Synthetic Glycolipids: Biological relevance and applications as Soft Materials*

**Abstract:** This lecture will focus on synthetic glycolipids: the biomedical relevance of this class of glycoconjugates will be highlighted describing their potential as immunomodulators, with specific examples such as KRN7000 and Lipid A analogues. In addition, the application of synthetic glycolipids to generate new soft materials, such as supramolecular gels, will be discussed.

**Mustafa O. Guler**

**Mini-CV:** Prof. Guler received B.S. degree in chemistry from Bogazici University, Turkey, M.S. degree in chemistry and biochemistry from Worcester Polytechnic Institute, and Ph.D. degree in chemistry from Northwestern University in the U.S.A. Prof. Guler pursued postdoctoral studies at the School of Medicine at Northwestern University. He is experienced in materials chemistry, biomaterials and applications of nanotechnology in medicine, alternative energy and functional materials. Since 2008, he has been working at Bilkent University, Institute of Materials Science and Nanotechnology, Biomimetic Materials Laboratory for developing new functional materials for medicine and alternative energy.

**Key aspect:** synthesis of glyconanoparticles

*Mustafa's take home-message is as follows:*

## **Self-Assembled Glycopeptide Nanostructures for Functional Materials**

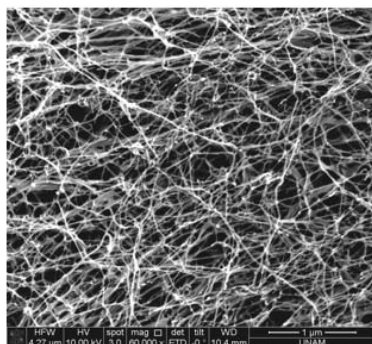
Mustafa O. Guler

*Bilkent University, Ankara, Turkey*

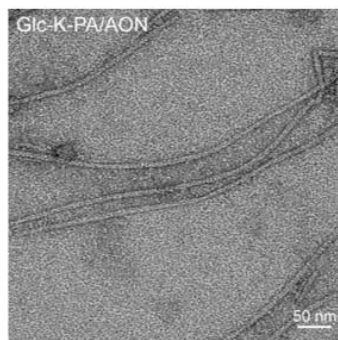
Glycopeptide amphiphile molecules can be synthesized to self-assemble into different nanostructures.

Three-dimensional network formed by glycopeptide nanofibers resembles glycosylated extracellular matrix structural proteins for regenerative medicine applications.

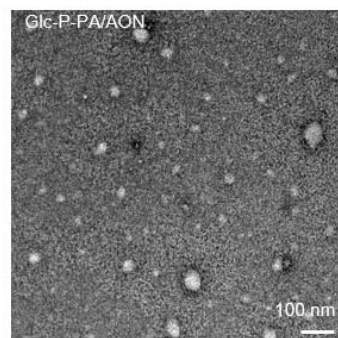
The nanostructures can be utilized for drug delivery applications.



SEM image of Glc-K-PA/E-PA nanofiber network



TEM image of Glc-K-PA/AON nanofibers



TEM image of Glc-P-PA/AON nanospheres

**Claire Doherty (IBCarb Network Manager)**

IBCarb – Glycoscience tools for Biotechnology & Bioenergy is a BBSRC funded Network in Biotechnology and Bioenergy. IBCarb will support innovative academia-industry research collaborations to advance UK glycoscience and enable the translation of academic expertise to industrial glycobiotechnology. We host and support networking events and have funding available to for academic industry partnerships (Proof of Concept funding – up to £100K and Business Interaction Vouchers - £5K each).

IBCarb activities are organised into 5 sub-themes as follows:

- 1. Tools** – the development and commercialisation of biocatalytic, synthetic biology and analytical tools to support industrial biotechnology processes.
- 2. Renewables** – bioconversion and bioengineering of carbohydrates into chemicals, materials and energy.
- 3. Food** – improved extraction and synthetic biology approaches to sweeteners
- 4. Health** – a range of applications from biopharmaceutical production, glycobiomarker identification, diagnostics, antibiotic production using industrial biotechnology and synthetic biology approaches

Visit [www.ibcarb.com](http://www.ibcarb.com) to find out more and join!

- 5. Societal Impact** – education and training to realise the full potential of glycoscience.



**Cristina Nativi**

**Mini-CV:** Doctorate Degree in Chemistry, University of Florence, Italy

Post-doc at the University of Lausanne, Switzerland

Post-doc at the University of Montreal, Canada

Since 2005- Full Professor, University of Florence, Italy

Main fields of research: Carbohydrate chemistry, Sulfur chemistry, Molecular Recognition of Carbohydrate, Stereoselective Synthesis and Glycosyl-containing inhibitors of Matrix Metallo Proteinases (MMPs). Saccharidic immunostimulants and therapeutic vaccines. Bioactive multivalent glycosides.

**Key aspect:** synthesis of glycosides and glycosylated multivalent structures

*Cristina's take home-message is as follows:*

### Synthesis of Saccharidic Immunostimulants

Powerful inverse electron-demand Diels-Alder reactions have been used to synthesize versatile glycosides.

The mimetics of two tumor antigens have been prepared and used to decorate multivalent architectures.

The ability of some of these architectures to elicit specific immune response in vivo have been investigated.


Vladimír Křen

**Mini-CV:** Head of Centre of Biocatalysis and Biotransformation, Institute of Microbiology, Czech Academy of Sciences, Prague, Czech Republic, kren@biomed.cas.cz;

<http://www.biomed.cas.cz/mbu/biotrans>

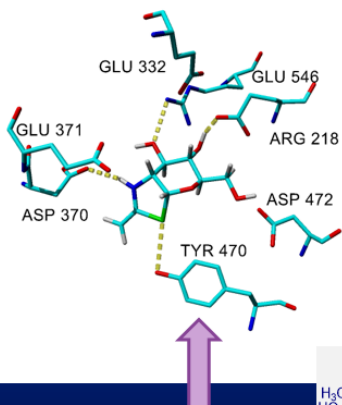
**Scientific orientation:** Secondary metabolites of fungi (*Aspergillus*, *Claviceps*); Immobilised microbial cells; Biotransformation of natural products by enzymes and microorganisms. Glycosidases and glycosyltransferases and their use for glycosylations, glycobiology. Flavonoids, antioxidants.

*Vladimír's take home-message is as follows:*



Synthesis of saccharides using glycosidases –  
Two success stories: Glycosynthase and diglycosidase  
Vladimír Křen  
Institute of Microbiology, Czech Academy of Sciences, Prague, Czech Republic

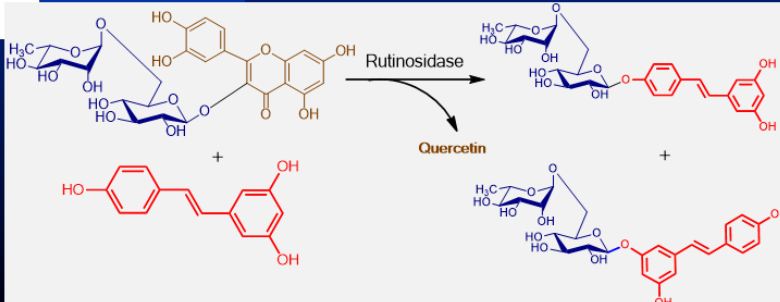
Transglycosidase from  
 $\beta$ -N-acetylhexosaminidase  
Synthesis of chitooligo-structures in high yield



Movie: Enzymatic glycosylation  
<https://www.youtube.com/watch?v=D6O6d1BD6gc>

Rutinosidase: glycosylation of phenolic acceptors  
in high yield

TfHex: Tyr470Phe  
Tyr470His  
Tyr470Asn  
Site-directed mutagenesis



## Carmen Galan

**Mini-CV:** M. Carmen Galan is currently an EPSRC Career Acceleration fellow and Senior Lecturer in the School of Chemistry at the University of Bristol. Prior to that she held a Royal Society Dorothy Hodgkin Fellowship (2008-2012), which followed a temporary lectureship in the same department. Carmen received her Ph.D. in Organic Chemistry from the Complex Carbohydrate Research Center at The University of Georgia, USA, under the supervision of Prof. Geert-Jan Boons. She then moved to California to pursue post-doctoral research with Prof. Chi-Huey Wong at The Scripps Research Institute. After that, she continued her post-doctoral training at M.I.T with Prof. Sarah O'Connor.

The Galan group is interested in the synthesis of novel oligosaccharide-tools using chemical and enzymatic approaches and their application in glycobiology research.

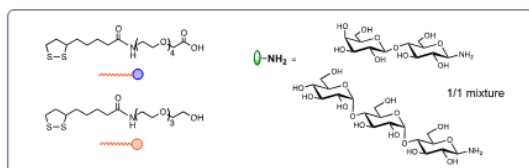
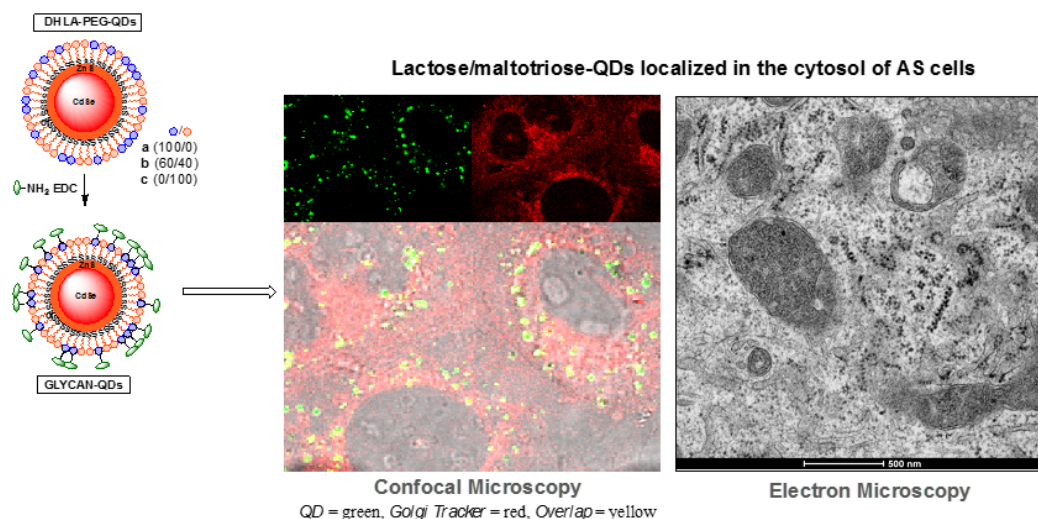
**Key aspect:** Preparation of novel glyco-tools for live cell labelling

*Carmen's take home-message is as follows:*

### Novel Fluorescent Glyco-tools for Live Cell Imaging

M. Carmen Galan

School of Chemistry, University of Bristol, UK



- Glycan coated PEGylated CdSe/ZnS QDs with varying carbohydrate type and surface densities can be used to study cellular uptake.
- We showed that sugar type has an effect on cellular uptake and intracellular localization, while carbohydrate surface density has an impact on uptake and toxicity.
- We also demonstrated that key glycan sequences can be used as a "Trojan Horse" to help internalize other moieties that would otherwise not be found within these cells.

Benito-Alifonso, Berry and Galan et. al. *Angew. Chem. Int. Ed.* 2014, 53, 810-814.

## Claire Eyers

**Mini-CV:** Claire E. Eyers is Professor of Biological Mass Spectrometry at the University of Liverpool (UoL). Having obtained a PhD (2002) in Biochemistry from the University of Dundee (Prof. Sir P. Cohen), she undertook postdoctoral studies at the University of Colorado, Boulder (Prof. N. Ahn) and then in the Michael Barber Centre for Mass Spectrometry, University of Manchester (Prof. S. Gaskell), where she became Acting Director (2009–2013). Whilst in Manchester, she also held a Royal Society Dorothy Hodgkin Fellowship (2007–2011). She has established expertise in the development of mass spectrometric (MS)-based methods, including ion mobility-MS, for the analysis of proteins and their modifications, and more recently, glycans.

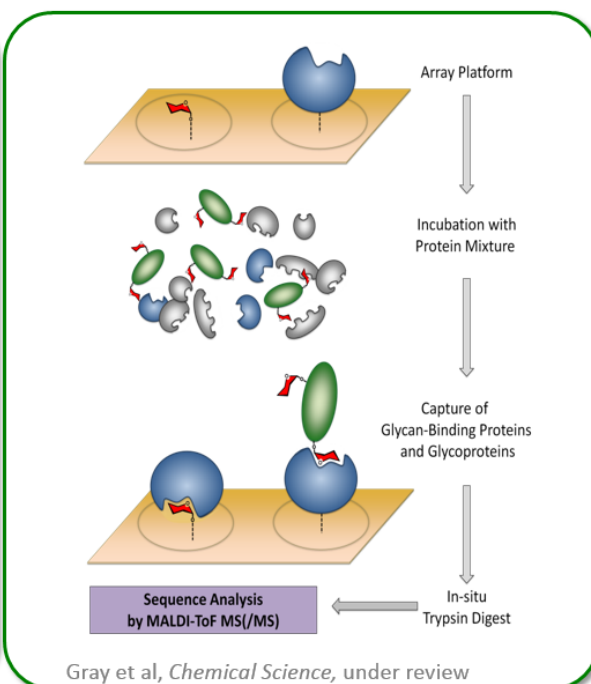
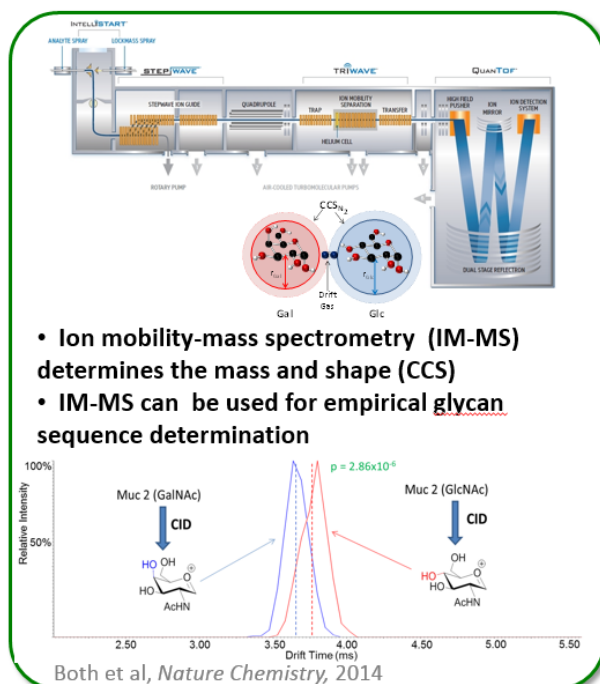
**Key aspect:** Sequence analysis of carbohydrates and their binding partners using (ion mobility) mass spectrometry

*Claire's take-home message for this workshop:*

## MASS SPECTROMETRIC ANALYSIS OF CARBOHYDRATES AND THEIR BINDING PARTNERS

Claire E. Eyers

Institute of Integrative Biology, University of Liverpool



**Arturo López-Guzmán**

**Mini-CV:** Arturo López-Guzmán received B.S. degree in Pharmaceutical Chemistry and Biology from the National Autonomous University of Mexico (UNAM), M.S. degree in Molecular Biotechnology from Lund University, Lund, Sweden, and is currently finishing his Ph.D. at the Department of Nanobiotechnology, *NanoGlycobiology* unit, University of Natural Resources and Life Sciences (BOKU), Vienna, Austria. He is experienced in self-assembling systems and in the design of protein biomaterials. Since 2011, he has been dedicated to bacterial glycosylation and structural biology for nanotechnological applications.

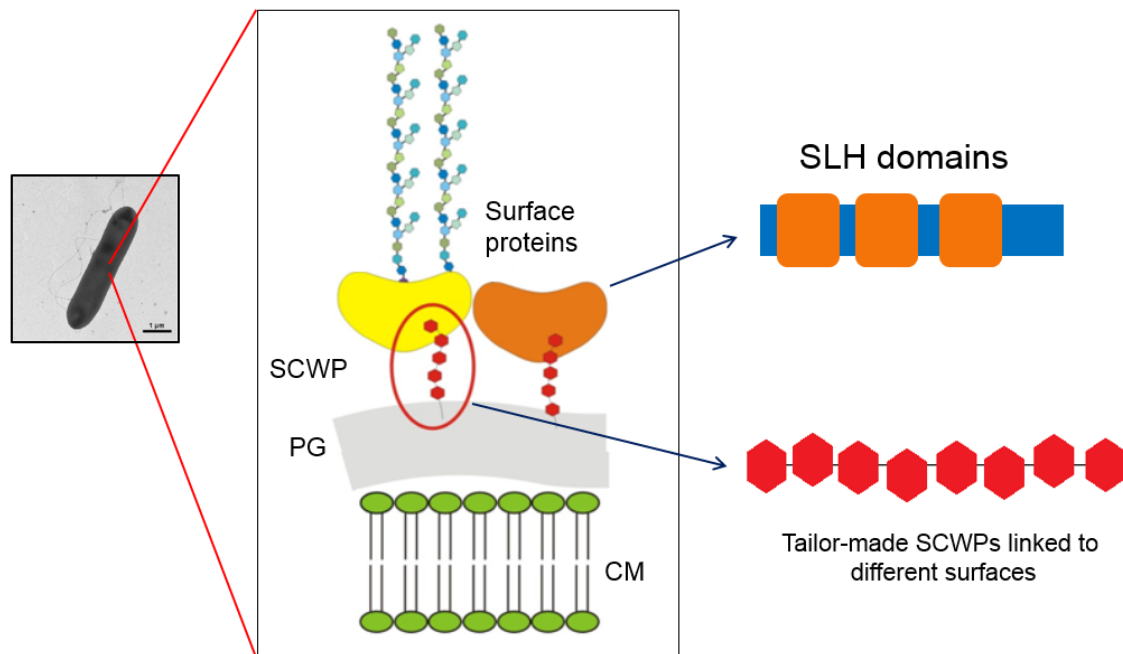
**Key aspect:** oligosaccharide synthesis/engineering and surface display of glycoconjugates

*Arturo's take-home message for this workshop:*

**Strategy for *in-vivo* or *in-vitro* surface display of functional epitopes**

Arturo López-Guzmán

University of Natural Resources and Life Sciences (BOKU), Vienna, Austria



Surface display of functional epitopes by protein and/or glycosylation engineering with relevant applications in medicine and biotechnology.  
Nanometer periodicity for surface display.

## Carbosynth

**Mini-CV:** Carbosynth offers over 4500 carbohydrates and nucleosides. This range includes monosaccharides, enzyme substrates, D- and L- sugars, oligosaccharides, detergents and nucleosides. Our catalogue offers quantities for R&D, but many are produced in bulk. For example 2-deoxy-D-glucose, IPTG, methyl- $\alpha$ -D-glucopyranoside, n-octyl- $\beta$ -D-glucopyranoside, 3,4,6-Tri-O-acetyl-D-galactal, gulonic acid-gamma-lactone, diacetone-D-mannose and 2-nitrophenyl- $\beta$ -D-galactopyranoside are produced in 10's-1000's of kilos.

**Key aspect:** <http://www.carbosynth.com/>

*Carbosynth's take-home message for this workshop: There is currently an open position (closing date 8/5/2015). More information <http://www.carbosynth.com/carbosynth/careers.nsf/careers>*

## Carbosynth

### All Products for Carbohydrates

View Products		ALL A B C D E F G H I J K L M N O P Q R S T U V W X Z	Next Page ➡
Product Name	CAS No		
<a href="#">Lac b(1-4)Lac-b-C10</a>			
<a href="#">LacDiNAc dimer ethylazide</a>			
<a href="#">D-Lactal</a>	65207-55-8		
<a href="#">DL-Lactic acid sodium salt</a>	72-17-3		
<a href="#">Lactitol anhydrous</a>	585-86-4		
<a href="#">Lactitol monohydrate</a>	81025-04-9		
<a href="#">Lactitol monohydrate - Eur Ph</a>	81025-04-9		
<a href="#">Lacto-N-biose</a>	50787-09-2,489-52-1		
<a href="#">Lacto-N-difucohexaose I</a>	16789-38-1		
<a href="#">Lacto-N-difucohexaose I-APD-HSA</a>			
<a href="#">Lacto-N-difucohexaose I-APD-KLH</a>			



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*Flash presentations (Friday)*

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**Pease remember you have exactly 2 min, NO questions! Your major aim is to advertise your poster!!!**

11.15	F1- Amelie Roux	Anomerization reaction using silylated protecting groups
	F2- Priya Bharate	Glycosylated nanoparticles and surfaces
	F4- Ben Martyn	Bio-orthogonal chemistry for diagnostics
	F5- José J Reina	Streptavidin-Biotinylated Glycodendrons: a new class of glycodendriproteins
	F6- Marjon Stel	Glycosylation of antibiotics using a glycosyl transferase with a broad substrate specificity
	F7- Silvia Varela Aramburu	Glyconanoparticles for surface studies
	F8- Dotsha Raheem	Mono-, di- and polysaccharides of Bluebells ( <i>Hyacinthoides non-scripta</i> ) and their seasonal variation
	F9- Rebecca Winsbury	Molecular address tags for vaccines
	F10- Sally Burr	Reacting in reverse: Acylation of chitosan by lipases

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*Buchanan Presentations 1 (Friday)*

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**Please remember you have 5 min incl questions!**

14.20	B1- Kathirvel Alagesan	Synthetic glycopeptides as unique tools for glycoproteomics
	B2- David Benito-Alifoso	Nano-tools for glycosciences
	B3- Caroline Biggs	Smart microarray platforms for understanding biochemical interactions
	B4- Sophia Böcker	LacDiNAc Conjugated BSA: a Neo-glycoprotein as Multivalent and Selective Ligand for Galectin-3
	B5- Marion Donnier-Maréchal	Synthesis of 3-C-glucosylated 5-amino-1,2,4-oxadiazoles and evaluation as glycogen phosphorylase inhibitors
14.50	B6- Federica Faroldi	New calixarenes functionalized with N-Acetyl-D-mannosamine for immunostimulation
	B7- Ross Goodyear	Synthesis of a fucosylated chondroitin sulfate library (joint)
	B8- Simone Hendrikse	Biofunctionalized supramolecular hydrogels for stem cell expansion
	B9- Marielle T Kenfack	Synthesis of 6-deoxy- $\beta$ -D-manno-heptosides <i>via</i> intramolecular aglycon delivery: towards a biodefense vaccine against melioidosis and glanders
	B10- Elif Kilic Iyilik	Phase separation between hyaluronic acid and chitosan

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*Buchanan Presentations 2 (Friday)*


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**Please remember you have 5 min incl questions!**

16.00	B11- Alice Paiotta	Cellulose nanocrystals (CNCs), novel tools for nanomedicine
	B12- Christian Pett	Evaluation of immune sera induced by a MUC1 gold nanoparticle antitumor vaccine candidate with MUC1 glycopeptide microarrays
	B13- Barbara Pokorny	Synthesis of <i>Acinetobacter</i> LPS inner core fragments as ligands for collectins
	B14- Jani Rahkila	Conformational studies on trivalent acetylated mannobiose clusters
	B15- Sarah-Jane Richards	Neutralisation and detection of bacteria and toxins
16.30	B16- Ruben Rosencrantz	Gradient glycopolymer brushes for mapping the optimal lectin binding environment
	B17- Gianluca Salerno	Synthesis of multivalent glycopeptide dendrimers as new antibiotic compounds
	B18- Özüm Şehnaz Calışkan	Glycopeptide nanofibers for cartilage regeneration
	B19- Alen Sevšek	Guanidinium modified iminosugars are potent glucosidase inhibitors with potential as pharmacological chaperones
	B20 Imke Sittel	Combinatorial Ionic Catch and release oligosaccharide synthesis (Combi ICROS)

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*Exhibitors*


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*Please do not forget to visit our two exhibitor desks:*

Phenomenex (present on Thursday and Friday)

Carbosynth (present from Thursday until Saturday)