Third Glycosciences Ireland Meeting

August 31st-September 1st 2010, Health Sciences Building, University College Dublin

Hosted by Prof. Pauline Rudd and Prof. Lokesh Joshi

GlycoScience Ireland was launched in April, 2008 by the growing number of scientists working in the glycoscience field in Ireland (http://www.GlycoScienceIreland.ie). This organization was established to encourage inter-disciplinary collaboration between Irish glycoscientists, biologists, chemists, engineers, information scientists and clinicians, interested in exploring novel glycoscience approaches to a variety of research questions. Glycoscience Ireland also provides a forum for communication and interaction between Irish glycoscientists and industry representatives in Ireland and further afield with the aim of assisting the translation of glycoscience discoveries into commercial realities.

The first meeting of Glycoscience Ireland was a great success with over 150 participants from academic research organisations, biopharmaceutical and food industries in Ireland and overseas and representatives of the major funding agencies in Ireland. The 2nd Annual meeting was equally successful. This year, the meeting was mainly focused on Glycoimmunology, and attendees included representatives from the major Irish funding agencies, Irish academic institutions, Irish and multinational Biopharmaceutical and Biotechnology industries, and a distinguished panel of speakers from the US and Europe. 115 delegates from Europe, the United States and Asia convened for 2 days in the Health Science Building, University College Dublin to discuss a variety of topics in the field of Glycosciences.

The meeting comprised 4 presentation sessions (Glycoimmunology, Young Glycoscientists, Glycans in Host-Pathogen Interactions and Glycobiology-the Industrial point of view) and poster session. Posters were also displayed during lunch and coffee breaks, allowing interactions.

Two nights of accommodation and flights were provided for all speakers and three prizes for the best posters were also offered. A conference dinner was organized in Johnny Fox's Pub.

Finally, an information booklet was created for the meeting and included in the welcome pack for the attendees. Several academic institutions and companies kindly supported this meeting, including:

Academic institutions:

ESF, IRCSET (through Euroglycoforum), NUI Galway, NCBES (National Center for Biomedical Engineering Science), NCSR (National Center for Sensor Research), NIBRT (National Institute for Bioprocessing Research and Training), UCD (University College Dublin)

Companies:

Agilent, BioImages, BioUEtikon, Dionex, GE Healthcare, Grace Davidson, Mason Technologies, VWR-Pall, Waters

The support of the European Science Foundation was acknowledged by including its logo in:

-Conference Bag (design attached at the end of this report)

-Name Badges

-Conference Program (attached with this report in a .pdf format)

-Conference Signs

SCIENTIFIC CONTENTS AND DISCUSSIONS AT THE MEETING

A) Oral presentations:

Presentations were given by 13 speakers. Summary of some representative talks are given below:

Glycoimmunology

Professor Jeffrey V. Ravetch (Laboratory of Molecular Genetics and Immunology, The Rockefeller University, New York, USA)

Immunomodulation by sialylated IgG

Dr. Ravetch dissected in a very interesting talk the the cellular and molecular mechanisms that govern the generation of antibody specificity and the translation of that specificity into cellular responses. By identifying the genetic components that cause immune system cells to respond to specific antibodies, Dr. Ravetch interest is to gain a better understanding of how a functioning immune system protects organisms from invaders, and how a dysfunctional immune system attacks the body's own tissues.

Dr. Ravetch explained how Fc receptors (or FcRs) for immunoglobulin G (IgG) are responsible for maintaining peripheral tolerance; animals without inhibitory FcRs develop spontaneous autoimmunity and autoimmune disease. Conversely, a deficiency of activation FcRs results in a protective effect, in which mice susceptible to autoimmune disease fail to develop it. But loss of activation receptors does not alter the development of autoantibody and immune complex deposition. Rather, Dr. Ravetch has found that these potentially pathogenic complexes are unable to trigger effector cell responses and are therefore benign. His lab is now investigating the precise cellular pathways engaged by activation receptors via autoantibodies by generating cell-type specific targeted gene disruptions of the relevant activation receptors and by identifying the downstream effector molecules responsible for the observed pathology. He presented recent work from the Ravetch lab showing that a sugar attached to IgG antibodies confers their protective ability; they are now working on creating a synthetic therapy that is rich in these sugar-linked antibodies.

Glycans in Host-Pathogen Interactions

1) **Anthony P. Moran** (Laboratory of Molecular Biochemistry, Department of Microbiology, School of Natural Sciences and National Centre for Biomedical Engineering Science, National University of Ireland, Galway, Ireland.)

Catch me if you can: Lewis antigen mimicry by the gastroduodenal bacterium *Helicobacter pylori* and immune recognition

Dr Moran gave a really interesting insight on the glycobiology of *Helicobacter pylori.* This microorganism is a prevalent gastroduodenal pathogen of humans, infecting 50% of the world's population, causing gastritis and peptic ulceration, and leading to development of gastric cancer. It has been suggested as a useful model for examining the mechanisms involved in chronic bacterial infection, of which glycosylation plays an important role. Previously, it has been shown that this Gram-negative bacterium expresses host Lewis (Le) and related human blood group antigens in the O-chains of the surface lipoglycan, lipopolysaccharide (LPS). Additionally, *H. pylori* produces O-chains composed of a poly-(*N*-acetyl-β-lactosamine) chain decorated with multiple lateral α-L-fucose residues forming internal Le^x units with terminal Le^x or Le^y units predominantly (>80%), or, in some strains, with additional glucose or galactose residues. Furthermore, antigenic mosaicism occurs since Le^a, Le^b, Le^c, sialyl-Le^x and H-1 antigen, as well as blood groups A and B, are expressed in some strains.

The genetic determination of the Le antigen biosynthetic pathways in *H. pylori* has been studied, and despite striking functional similarlity, low sequence homology occurs between the bacterial and mammalian α(1,3/4)- and α(1,2)-fucosyltransferases (FucTs). Factors affecting Le antigen expression in *H. pylori*, that can influence the biological impact of this molecular mimicry, include regulation of FucT genes through slipped-strand mispairing, the activity and expression levels of the functional enzymes, the preferences of the expressed enzyme for distinctive acceptor molecules, and the availability of activated sugar intermediates. Also, in recent studies by Dr Moran's group, it has been demonstrated that environmental pH and iron availability influence LPS and Le antigen expression. Moreover, Dr Moran proposed a novel interplay between outer membrane protein and O-chain expression, and thus Le antigen expression in *H. pylori.*

Fucosylation and Lewis antigens on *H. pylori* can be considered to have multiple biological effects on pathogenesis and disease outcome. This molecular mimicry has been shown in animal models and clinical studies to play a role in *H. pylori* gastric colonization and the bacterial expression of polymeric Le^x has been implicated in adhesion to the gastric epithelium. Nevertheless, Le antigen expression can undergo adaptation to the secretor status of the host as previously demonstrated in clinical studies, and Dr Moran presented their latest results in rhesus monkeys, suggesting evasion of humoral immunity. Furthermore, the type of Le antigen expressed influences the inflammatory response and T-cell polarization, which is noteworthy, since the modulation of the Th1/Th2-cell response is particularly central to the development of *H. pylori* chronic infection.

Despite this modulation of the immune response in established infection, innate immune recognition plays a pivotal role in controlling initial colonization of the gastric mucosa.

Dr Moran presented work from his lab showing that levels of surfactant protein D (SP-D), a member of the collectin family which recognizes LPS O-chains, are significantly increased in *H. pylori*-associated gastritis compared to normal human gastric mucosa. Functioning as a C-type lectin, SP-D binds *H. pylori* resulting in bacterial aggregation and immobilization, thus aiding eventual phagocytosis and clearance. As recognition of *H. pylori* by SP-D is affected by the extent of O-chain fucosylation, phase variation of glycosylation genes influences binding, and escape variants occur within the bacterial population thereby countering this immune recognition mechanism. They also demonstrated that immune recognition of glycosylation and molecular mimicry can, in part, influence both the establishment and the prolongation of *H. pylori* infection.

2) **Irma van Die** (Department of Molecular Cell Biology and Immunology, VU University Medical Center, Van der Boechorststraat 7, 1081 BT Amsterdam, The Netherlands)

Parasite glycans as targets for serodiagnosis and vaccination strategies

Infection by parasitic helminths, such as nematodes (roundworms) and trematodes (bloodflukes), are a major cause of worldwide suffering and death. Helminth infections are also a major problem in livestock production and welfare and cause serious economic losses. Many helminths are zoonotic, and can be transmitted from wild or domestic animals to humans, indicating the need for surveillance of animals in order to prevent human infections acquired by for example eating meat from infected animals, or from soil contaminated with animal faeces. There are currently no vaccines that prevent helminth infections, and diagnosis of parasitic disease is difficult and typically involves conventional parasitological assays, such as faeces examination, or serodiagnostics using crude helminth extracts.

Most helminth infections are chronic and persistent, despite the fact that the host elicits potent anti-pathogen immune responses. Interestingly, helminths display immunoregulatory properties that suppress the host immune response and protect them from being destroyed. Such immunoregulatory properties may be exploited to suppress inflammation in chronic inflammatory diseases, such as Crohn's disease, which are increasing in the Western world.

Parasitic helminths express a large array of glycoconjugates on their surface and in excretory and secretory products. It is well known that helminth glycoconjugates contribute to the development of both humoral and cellular immune responses in infection. In the host, dendritic cells (DCs) detect foreign pathogens and trigger the onset of adaptive immune responses. DCs recognize invading pathogens via receptors, such as C-type lectins, which recognize pathogen-associated glycans, and Toll-like receptors (TLRs).

Dr Van Die presented data which allows an increase in the understanding of the role of helminth glycans in the immunogenicity and immunoregulatory properties of the parasitic worms, and exploitation of specific glycans in vaccination strategies, sero-diagnosis, or inflammatory autoimmune disease. She showed extremely interesting results demonstrating the potential of glycan array technology to identify antigenic glycan molecules of different helminths. The potential and limitations of the application of these glycan antigens in vaccination and serodiagnostic strategies were also discussed.

Glycobiology-The Industry point of view

Dr Ronan Kelly, National Institute for Bioprocessing Research and Training, University College Dublin/ Eli-Lilly

Original title (as in the Conference Program): **'Time-dependent variation of IgG N-glycan composition from CHO cells: elucidating the bottlenecks'.**

Final title: **"Optimizing the impact of antibody therapeutics through targeted glycosylation"**

Dr Kelly's research in the National Institute for Bioprocessing, Research and Training is focused on the regulation of key enzymes in the glycoprotein biosynthetic pathway of the IgG N-glycan at various time points in both shake flask and batch-fed reactor systems and how these enzymes affect the composition of the IgG Fc N-glycan. This is a main point of interest for Eli-Lilly as a biopharmaceutical company, as the composition of the oligosaccharides attached to the conserved N-glycosylation site in the CH2 domain of the IgG Fc region has a profound effect on the effector functions (as determined by IgG-Fcγ receptor and IgG-C1q interaction studies).

Relative composition of N-glycans sampled at various time points from CHO cells supernatants (IgG N-glycans are extracted, labeled and run on NP-HPLC) have strongly indicated that there is a significant drop in galactose content of the IgG1 N-glycan toward the later stages of the CHO cell culture. Further work is required to identify the factors responsible i.e. activated sugar levels, enzymes activity or enzyme expression levels. In a parallel sampling scheme, IgG1 from CHO cell pellets were also extracted and analysed. However, Dr Kelly showed results that demonstrated how composition of the N-glycans in the pellet consisted primarily of high mannose structures (M8,M9), indicative of the bottleneck effect of the quality control glycan processing in the Endoplasmic Reticulum (ER) of the IgG glycoprotein (and also the trafficking of the glycoprotein to the Golgi apparatus for further processing of the N-glycan). The project is progressing further by isolation and characterization of the glycosidase enzymes and chaperones which may alleviate the bottleneck in the ER.

B) Posters:

The list of posters presented at the meeting are listed below:

1) "Histo-Blood Group Antigens role in host-pathogen interaction: potential applications in the field of Glycoarrays."

Paola Grassi (a), Stuart M Haslam (a), Mark Sutton Smith (a), Kristina Nyström (b), Jacques Le Pendu (b), Stephane Marchandeau (c) and Anne Dell (a)

(a) Division of Molecular Biosciences, Faculty of Natural Sciences, Imperial College London, South Kensington Campus, London, UK.
(b) INSERM U892, Nantes University, Nantes, France.
(c)ONCFS, Nantes, France.

2) "Simultaneous HPLC analysis of glycans labelled with aniline, 2-aminobenzamide and 2-aminoacridone"

Ana Knežević1, *, Jonathan Bones2, *, Stjepan Krešimir Kračun3, Olga Gornik1, Pauline M. Rudd2 and Gordan Lauc1,4

1 University of Zagreb, Faculty of Pharmacy and Biochemistry, Department of Biochemistry and Molecular Biology, Zagreb, Croatia
2 NIBRT Dublin-Oxford Glycobiology Laboratory, National Institute for Bioprocessing Research and Training, Conway Institute, University College Dublin, Ireland

3Copenhagen Center for Glycomics, Department of Cellular and Molecular Medicine, University of Copenhagen, Blegdamsvej 3b, DK-2200, Copenhagen N, Denmark
4Genos Ltd, Glyciobiology Division, Planinska 1, Zagreb, Croatia

3) "High-Throughput HPLC based N-Glycan analysis of Human Plasma from the Orkney Complex Disease Study to Investigate the Effect of Age, Gender, Smoking and Medication."

Barbara Adamczyk1 and Jayesh J. Kattla1, Radka Saldova1, Jennifer Huffman3, Jodie L. Abrahams1, Matthew P. Campbell1, Sarah H. Wild2, Alan Wright3, Harry Campbell2, James F. Wilson2, Pauline M. Rudd1

1 NIBRT Dublin-Oxford Glycobiology Laboratory, NIBRT - National Institute for Bioprocessing Research & Training, Conway Institute, University College Dublin, Belfield, Dublin 4, Ireland
2 Centre for Population Health Sciences, University of Edinburgh, Teviot Place, Edinburgh, EH8 9AG, Scotland
3 MRC Human Genetics Unit, Institute of Genetics and Molecular Medicine, Western General Hospital, Crewe Road, Edinburgh EH4 2XU, United Kingdom

4) "PODOCYTES & DIABETES: an in vitro glycobiology study"

Alessandra Ravida' (1), Marjur Kreivi (1), Luca Musante (1), William O'Regan (1), Ilkka Miinalainen (1), Majank Saraswat (1), Barry Byrne (1), Moin A. Saleem (2), Harry Hothofer (1).

(1) Centre for BioAnalytical Sciences, Dublin City University, Republic of Ireland
(2) Academic and Children's Renal Unit, University of Bristol, United Kingdom

5) "The Investigation of a GalNAc Binding Protein from *Bacillus thuringiensis* as a tool for Glycoanalysis"

Norah Cassidy, Brendan O'Connor, Paul Clarke, Roisin Thompson & Michael O'Connell

Irish Separation Science Cluster, National Centre for Sensor Research, School of Biotechnology, Dublin City University , Ireland

6) "Expanding the Glycoanalytical Toolbox- Modification Of Prokaryotic glycolytic Enzymes to Generate Novel Carbohydrate Binding Proteins for Glycoprotein analysis"

Amy Harrington, Roisin Thompson, Brendan O'Connor & Paul Clarke

Irish Separation Science Cluster, National Centre for Sensor Research, Dublin City University, Ireland.

7) "Fabrication of a gold modified polymer monolith in a pipette tip for lectin affinity extraction of selected glycoproteins"

Hassan Alwael1, Damian Connolly1, Paul Clarke1, Roisin Thompson1,Brendan O'Connor1, Brendan Twamley2 and Brett Paull1
1Irish Separation Science Cluster, National Centre for Sensor Research, Dublin City University, Dublin, Ireland.
2School of Chemical Sciences, Dublin City University, Dublin, Ireland.

8) "A novel botanical drug IND02- Dose dependent Immune modulation and influence on sialic acid receptors"

Ekambaranellore Prakash

Institute of Toxicology, College of Medicine and Angiogenesis Research Center, National Taiwan University Hospital, Taipei, TAIWAN

9) "Synthesis of capsular polysaccharide structures of *Cryptococcus neoformans*"

Rebecca Ulc*1, Lina Rydner2, Stefan Oscarson*1

1Centre for Synthesis and Chemical Biology, School of Chemistry and Chemical Biology, University College Dublin, Belfield, Dublin 4, Ireland
2Department of Organic Chemistry, Arrhenius Laboratory,
Stockholm University, S-106 91 Stockholm, Sweden

10) "Synthesis of a Novel Mannosylated Glycolipid to explore the potential role of Gl-X in Lipomannan Biosynthesis"

Roisin O Flaherty (1) and Spencer J. Williams (2)

(1)National University of Ireland, Maynooth, Ireland.
(2) University of Melbourne, Bio21 Institute.

11) "The Synthesis of O-Serine Glucosamine Derivatives in the Synthesis of Immunomodulators and Kinase Inhibitors"

Carol Buggy and Trinidad Velasco-Torrijos

National University if Ireland, Maynooth, Co. Kildare, Ireland

12) "Towards the Development of Antitubercular Drugs: Synthesis of Analogues of Mycothiol"

Brian Higgins &Stefan Oscarson

UCD School of Chemistry & Chemical Biology; Irish Research Council for Science Engineering and Technology (IRCSET).

13) "Understanding the settlement of *Balanus amphitrite* through the characterisation of glycans involved in gregariousness."

Helen E Pagett, Gary S Caldwell and Anthony S Clare

School of Marine Science and Technology, Biofouling Group, Newcastle University, United Kingdom.

For this year's conference, BioImages Ltd kindly agreed to donate poster prizes, described below:

1st Prize: A training course on Multivariate data analysis.

2nd Prize: A 1-year licence for Unscrambler X (see www.camo.no). It is a multivariate software for data analysis in all areas including spectroscopic fields, and helps in Design of Experiment, PCA modelling, and univariate statistics. It can also be used for on-line modelling of bioprocesses to aid PAT.

3rd Prize: A book on Multivariate data analysis.

The judges evaluated the posters during the "coffee and poster presentation" session, on 31st of August.

Poster prizes were allocated as follows:

1) Helen Pagett, Newcastle University. h.e.pagett@newcastle.ac.uk

2) Jonathan Lane, Teagasc. Jonathan.Lane@teagasc.ie

3) Ana Knezevic, University of Zagreb. ana.knezevic@pharma.hr

A certificate with the corresponding prizes was sent after the conference.

ASESSMENT OF THE RESULTS AND IMPACT OF THE EVENT ON THE FUTURE DIRECTION OF THE FIELD

In this third Glycosciences Ireland meeting, the scope of the participants was very broad, with the attendance of 115 delegates from all over Europe, but also from Asia and the United States. The schedule consisted of 20 minute presentations (apart from the Plenary lecture on session 1, which was extended to 40 minutes), each followed by 10 min of questions/discussion time.

Coffee breaks and lunch were provided in the atrium of the Health Science Building, in order to maximize interactions between attendees and with sponsors. As a result, interesting discussions between attendees gave a good insight on the future directions of the area.

We believe this meeting has been very successful in connecting different labs working in Glycoimmunology, and also reinforced the connections with the different companies interested in the field of GlycoSciences. Accelrys (San Diego, CA,USA) initiated a fruitful collaboration with Dr Pauline Rudd (NIBRT, Dublin) and also expressed their interest in the work of other speakers. Dr Celso Reis (IPATIMUP, Portugal) initiated collaborations with Dr Colm Reid (UCD, Dublin) and also with Dr Pauline Rudd (NIBRT, Dublin), and a number of other groups are hoping to form collaborative efforts on the following months.

FEEDBACK FROM A NUMBER OF PARTICIPANTS FROM THE MEETING

From: Gerlach, Jared [jared.gerlach@nuigalway.ie] Sent: Thu 02/09/2010 12:15
To: Karina Marino; Barbara Keegan
Cc:
Subject: RE: Glycoscience Ireland meeting- poster session
Attachments:

Karina and Barbara,

I just wanted to say thank you again for all of your work on the conference. You did a great job!

Cheers,

Jared Gerlach, PhD
Postdoctoral Researcher
Glycoscience Group at the National Centre for Biomedical Engineering Science (NCBES)
National University of Ireland Galway (NUIG)
Ireland

Tel:+353 91 49 2090
Email: jared.gerlach@nuigalway.ie

You replied on 03/09/2010 13:04.

From: Kilcoyne, Michelle [michelle.kilcoyne@nuigalway.ie] Sent: Thu 02/09/2010 12:18
To: Karina Marino; Pauline Rudd
Cc:
Subject: Thank you!
Attachments:

Dear Pauline and Karina,

Just a quick note to say thank you so much for the fantastic organisation and hospitality of the 3rd Glycoscience Ireland. The programme was great, the pacing superb and I think no-one will ever forget Johnny Fox's!

Best wishes,
Michelle

Michelle Kilcoyne, PhD
Postdoctoral Fellow
Glycoscience Group
National University of Ireland Galway
Ireland

Tel.: +353 91 49 5885/ +353 91 49 2090
Email: Michelle.Kilcoyne@nuigalway.ie

From: Ghislain Opdenakker [Ghislain.Opdenakker@rega.kuleuven.be] Sent: Thu 02/09/2010 11:12
To: Radka Saldova; Barbara Keegan; Karina Marino; Pauline Rudd
Cc:
Subject: RE: results - glycan analysis II
Attachments:

Dear Friends,
A short word to thank you all for hosting me in Dublin. You organized meticulously an excellent meeting and you are a wonderful group of enthusiastic scientists. Keep up the excellent work!
Sincerely yours,
Ghislain

Professor Ghislain Opdenakker, MD, PhD
Head of the Department of Microbiology and Immunology
Catholic University of Leuven
Rega Institute for Medical Research
Minderbroedersstraat 10
B-3000 Leuven Belgium

Phone: 0032 (0)16 33 73 41

GLYCOSCIENCES IRELAND MEETING- BAG DESIGN:

3rd GlycoScience Ireland Meeting

Health Sciences Building- University College Dublin

August 31st –September 1st 2010

PROGRAMME

Day 1	**Tuesday, August 31st**
08.15 - 09.00	**Coffee & Registration**
09.00 - 10.00	Welcome & Introductions **Professor Pauline Rudd -** NIBRT, University College Dublin **Dr Maurice Treacy -** Chief Executive Officer, NIBRT **Dr Marion Boland -** Science Foundation Ireland **Mr. Michael O'Sullivan** - UCD Conway Institute of Biomedical and Biomolecular Research. **Session 1:** GlycoImmunology
10.00 - 10.45	**Plenary Lecture: Professor Ghislain Opdenakker** Rega Institute, University of Leuven, Belgium **'From molecular biology to glycobiology:** **A crescendo that needs therapies'**
10.45 - 11.15	**Coffee**
11.15 - 11.45	**Dr Liam O'Mahony** Swiss Institute of Allergy and Asthma Research, University of Zürich, Davos, Switzerland. **'C-type lectin receptors and dendritic cells –** **molecular basis for innate signalling'**
11.45 - 12.15	**Professor Jeffrey V. Ravetch** Laboratory of Molecular Genetics and Immunology, The Rockefeller University, New York, USA. **'Immunomodulation by sialylated IgG'**
12.15 - 13.15	**Lunch**

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PROGRAMME

Day 1 cont., **Tuesday, August 31st**

Session 2: Young Scientists in Glycosciences

Chairperson: Dr Marguerite Clyne

13.15 - 13.45 **Dr Ray Amith**
UCD Conway Institute, University College Dublin
'Neu1 Sialidase: A Master Switch for Receptor Activation?'

13.45 - 14.15 **Dr Satish Kalme**
National University of Ireland, Galway
'Generation of glycan-targeted oligonucleotide aptamers'

14.15 - 14.45 **Dr Radka Saldova-Fahey**
NIBRT, University College Dublin
'Glycosylation changes in cancer'

14.45 - 16.00 **Poster Session & Coffee**

17.45 - 18.00 **Transport Collection from the Radisson Hotel for Dinner**

18:05 - 18:15 **Transport Collection from the Stillorgan Park Hotel for dinner**

19:00 - Late! **Dinner**

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POSTER SESSION

1) *"Histo-Blood Group Antigens role in host-pathogen interaction: potential applications in the field of Glycoarrays."*

Paola Grassi [(a)], Stuart M Haslam [(a)], Mark Sutton Smith [(a)], Kristina Nyström [(b)], Jacques Le Pendu [(b)], Stephane Marchandeau [(c)] and Anne Dell [(a)]

[(a)] Division of Molecular Biosciences, Faculty of Natural Sciences, Imperial College London, South Kensington Campus, London, UK.
[(b)] INSERM U892, Nantes University, Nantes, France.
[(c)]ONCFS, Nantes, France.

2) *"Simultaneous HPLC analysis of glycans labelled with aniline,2-aminobenzamide and 2-aminoacridone"*

Ana Knežević[1, *], Jonathan Bones[2, *], Stjepan Krešimir Kračun[3], Olga Gornik[1], Pauline M. Rudd[2] and Gordan Lauc[1,4]

[1] University of Zagreb, Faculty of Pharmacy and Biochemistry, Department of Biochemistry and Molecular Biology, Zagreb, Croatia
[2] NIBRT Dublin-Oxford Glycobiology Laboratory, National Institute for Bioprocessing Research and Training, Conway Institute, University College Dublin, Ireland
[3]Copenhagen Center for Glycomics, Department of Cellular and Molecular Medicine, University of Copenhagen, Blegdamsvej 3b, DK-2200, Copenhagen N, Denmark
[4]Genos Ltd, Glyciobiology Division, Planinska 1, Zagreb, Croatia

3) ***"****High-Throughput HPLC based N-Glycan analysis of Human Plasma from the Orkney Complex Disease Study to Investigate the Effect of Age, Gender, Smoking and Medication."*

Barbara Adamczyk[1] and Jayesh J. Kattla[1], Radka Saldova[1], Jennifer Huffman[3], Jodie L. Abrahams[1], Matthew P. Campbell[1], Sarah H. Wild[2], Alan Wright[3], Harry Campbell[2], James F. Wilson[2], Pauline M. Rudd[1]

[1] NIBRT Dublin-Oxford Glycobiology Laboratory, NIBRT - National Institute for Bioprocessing Research & Training, Conway Institute, University College Dublin, Belfield, Dublin 4, Ireland
[2] Centre for Population Health Sciences, University of Edinburgh, Teviot Place, Edinburgh, EH8 9AG, Scotland
[3] MRC Human Genetics Unit, Institute of Genetics and Molecular Medicine, Western General Hospital, Crewe Road, Edinburgh EH4 2XU, United Kingdom

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POSTER SESSION

4) *"PODOCYTES & DIABETES: an in vitro glycobiology study"*

Alessandra Ravida' (1), Marjur Kreivi (1), Luca Musante (1), William O'Regan (1), Ilkka Miinalainen (1), Majank Saraswat (1), Barry Byrne (1), Moin A. Saleem (2), Harry Hothofer (1).

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(2) Academic and Children's Renal Unit, University of Bristol, United Kingdom

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Norah Cassidy, Brendan O'Connor, Paul Clarke, Roisin Thompson & Michael O'Connell

Irish Separation Science Cluster, National Centre for Sensor Research, School of Biotechnology, Dublin City University , Ireland

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Amy Harrington, Roisin Thompson**,** Brendan O'Connor & Paul Clarke

Irish Separation Science Cluster, National Centre for Sensor Research, Dublin City University, Ireland.

7) *"Fabrication of a gold modified polymer monolith in a pipette tip for lectin affinity extraction of selected glycoproteins"*

Hassan Alwael[1], Damian Connolly[1], Paul Clarke[1], Roisin Thompson[1],Brendan O'Connor[1], Brendan Twamley[2] and Brett Paull[1]

[1]Irish Separation Science Cluster, National Centre for Sensor Research, Dublin City University, Dublin, Ireland.
[2]School of Chemical Sciences, Dublin City University, Dublin, Ireland.

8) *"A novel botanical drug IND02- Dose dependent Immune modulation and influence on sialic acid receptors"*

Ekambaranellore Prakash

Institute of Toxicology, College of Medicine and Angiogenesis Research Center, National Taiwan University Hospital, Taipei, TAIWAN

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POSTER SESSION

9) *"Synthesis of capsular polysaccharide structures of Cryptococcus neoformans"*

Rebecca Ulc[*1], Lina Rydner[2], Stefan Oscarson[*1]

[1]Centre for Synthesis and Chemical Biology, School of Chemistry and Chemical Biology, University College Dublin, Belfield, Dublin 4, Ireland
[2]Department of Organic Chemistry, Arrhenius Laboratory,
Stockholm University, S-106 91 Stockholm, Sweden

10) *"Synthesis of a Novel Mannosylated Glycolipid to explore the potential role of GI-X in Lipomannan Biosynthesis"*

Roisin O Flaherty (1) and Spencer J. Williams (2)

(1)National University of Ireland, Maynooth, Ireland.
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Carol Buggy and Trinidad Velasco-Torrijos

National University if Ireland, Maynooth, Co. Kildare, Ireland

12) *"Towards the Development of Antitubercular Drugs: Synthesis of Analogues of Mycothiol"*

Brian Higgins &Stefan Oscarson

UCD School of Chemistry & Chemical Biology; Irish Research Council for Science Engineering and Technology (IRCSET).

13) *Understanding the settlement of* ***Balanus amphitrite*** *through the characterisation of glycans involved in gregariousness.*

Helen E Pagett.

School of Marine Science and Technology, Biofouling Group, Newcastle University, United Kingdom.

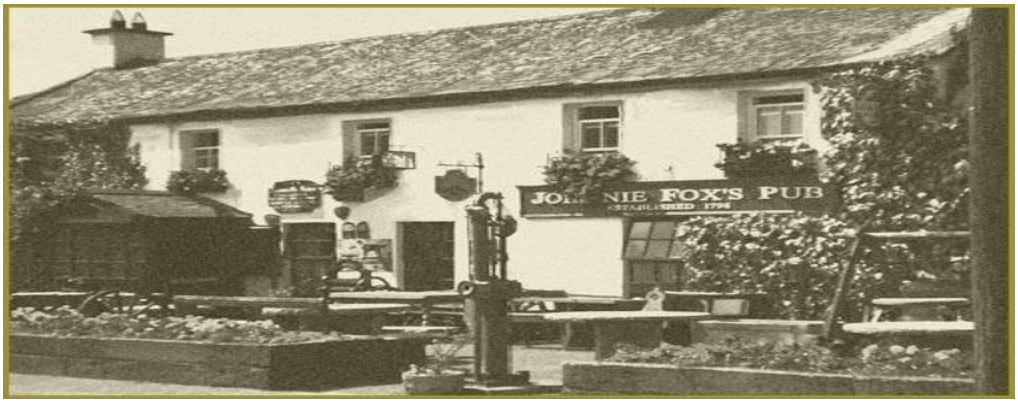
3rd GlycoScience Ireland Meeting- Dinner Venue

Johnnie Fox's Pub

Established in 1798, Johnnie Fox's is one of the oldest pubs in Ireland. Renowned for being the highest pub in the country, we are nestled in the peaceful township of Glencullen and surrounded by the beautiful scenery and serenity of the Dublin Mountains. Johnnie Fox's Pub is situated approximately 25-35 minutes drive from Dublin City centre.

The History

The area itself is steeped in history with "The Colonel's House" in Glencullen (listed as a hideaway) for Michael Collins in the history books, with monoliths galore and even a "Giant's Grave" on the scenic walks around the area. The famous Daniel O'Connell (the great Irish Liberator) was a regular patron of Johnnie Fox's when he lived here in Glencullen. In 1823 Daniel O'Connell gave his blessing to one Christy Fitzsimons to marry his daughter, and the family have lived through generations in Glencullen to this day. In the early 1950's programmes of Irish music and story telling were recorded for radio on Sunday nights in Johnnie Fox's and broadcast to the nation from this elevated site. In the 1960's Johnnie Fox's Pub was famous for the session - An Séisiún - travelling musicians would gather to play and trade songs with local people - a tradition which prevails to this present day with the music and song still emanating from the famous location, song and banter is always vibrating through the air.



Johnnie Fox's Pub was originally a small holding farm, the pub of today holds many aspects of the farm with dining areas named as "The Pig House" for example, also one can still see where the animals were housed in "The Haggart" area with it's small private rooms set off to the sides surrounding the court yard area. In those days a person would "arrange" to meet at Johnnie Fox's and sit and talk around the fire, exchange tales and news and current affairs and sip a pint or three in the process. Not much has changed, we are just a little busier now with a few more staff than family members serving our guests, but the theory is still the same in the practice!

3rd GlycoScience Ireland Meeting- Dinner Venue

The 'Hooley'

The "**Johnnie Fox's Hooley Experience**" is famous throughout Ireland and abroad for its originality and unique atmosphere that cannot be found anywhere else. Our guests are invited to a four-course meal where they can savour our various award winning seafood dishes as well as our general cuisine.

The meal is followed by a live Irish music session where our top acts play Irish music, ranging from traditional and folk to ballads and sing along music.

The music session is followed by the Johnnie Fox's famous Irish dancers, who provide a spectacular performance. The entire evening comes to an end with another live music session performed by our regular acts.

Without a doubt the "Johnnie Fox's Hooley Experience" is one that is not to be missed and a fantastic night is guaranteed for all our guests.

Tá súil ag Glioceolaíochta Éire go mbeidh oíche iontach againn
(GlycoScience Ireland hopes that you all had a wonderful night)

3rd GlycoScience Ireland Meeting

Health Sciences Building-University College Dublin

August 31st –September 1st 2010

PROGRAMME

Day 2 **Wednesday, September 1st**

Session 3: Glycans in Host-Pathogen Interactions
Chairperson: Professor Lokesh Joshi

09.00 - 09.30 **Professor Robert J. Woods**
National University of Ireland, Galway
University of Georgia, Complex Carbohydrate Research Center, USA
"Characterizing Antibody Specificity: Leveraging Glycan Array Data and Computational Simulations"

09.30 - 10.00 **Professor Anthony Moran**
National University of Ireland, Galway
Catch me if you can: 'Lewis antigen mimicry by the gastroduodenal bacterium *Helicobacter pylori* and immune recognition'

10.00 - 10.30 **Dr Celso Reis**
Institute of Molecular Pathology and Immunology (IPATIMUP), University of Porto, Portugal.
'Glycans in *Helicobacter pylori* adhesion and gastric cancer'

10.30 - 11.10 **Coffee**

11.10 - 11.40 **Dr Irma Van Die**
VU University Medical Center, Van den Boechorststraat 7, 1081 BT Amsterdam, The Netherlands.
'**Parasite glycans as targets for serodiagnosis and vaccination strategies'**

3rd GlycoScience Ireland Meeting

Health Sciences Building- University College Dublin

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PROGRAMME

Day 2 cont., **Wednesday, September 1st**

Session 4: Glycobiology – The Industry Point of View

Chairperson: Dr Gavin Davey

11.40 - 12.10 **Dr Rudolph Grimm**
Agilent
'Advanced glycan analysis using HPLC-Chip/MS'

12.10 - 12.40 **Dr Steve Taylor**
Waters Chromatography
Northern European Biopharmaceutical Specialist
'Glycan profiling using a UPLC/FLR/MS Platform'

12.40 - 13.10 **Dr Ronan Kelly**
NIBRT, University College Dublin/ Eli-Lilly
'Time-dependent variation of IgG N-glycan composition from CHO cells: elucidating the bottlenecks'.

Company Introductions

13.10 - 13.15 Mr Gerard O'Donovan – **Pall Life Sciences**
13.15 - 13.20 Ms. Joanne Rice – **GE Healthcare**

13.30 Meeting Adjourned

13.30 **Lunch**