

## Rebecca Jane Miriam Goss

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Date of Birth: 2<sup>nd</sup> February 1976. Nationality: British

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I am a **bioorganic chemist/chemical biologist** with research interests in the biosynthesis of **natural products at the chemical and genetic level**. Specifically, my research focuses on natural products with important medicinal properties and in understanding how biosynthetically intriguing motifs within these compounds are assembled. From this vantage point we harness individual enzymes as convenient tools for organic synthesis, and employ a combination of synthetic chemistry and synthetic biology to harness entire biosynthetic pathways in order to enable expeditious access to libraries of medicinally relevant compounds. These libraries may be used to gain a greater understanding as to how the drug acts at the molecular level within the cell.

I am establishing a **national and international reputation** presenting numerous invited research seminars across the world including Brazil, Capetown, Delhi, Kyoto, Denver and, Boston, in addition to invited seminars at numerous European departments and companies.

### AWARDS AND HONOURS

2003 Royal Society Dorothy Hodgkin Fellowship (~10 awarded each year across UK science)

2007 awarded the 2006 RSC Meldola Medal (awarded to the most promising UK chemist under the age of 32) in particular I was “distinguished for excellent contributions at the interface of organic chemistry and molecular biology”

2011 Thieme Chemistry Journal Award

2011 JSP award to participate at the Burgenstock Stereochemistry meeting

2011 Selected as the UK’s under 40 Organic Chemistry delegate for EuChem’s Young Investigators Workshop

2013 Natural Product Report Emerging Researcher Lectureship

2014 ERC consolidator award

### Employment Record

#### **Royal Society BP Dorothy Hodgkin Fellowship**

“Combinatorial and Directed Biosynthesis to Create Novel Halogenated “Natural” Products”

October 2003-2007

#### **Readership in Biomolecular/Organic Chemistry, University of St Andrews**

September 2012 – present

#### **Readership in Organic Chemistry, University of East Anglia**

January 2012 – September 2012

#### **Senior Lectureship, School of Chemistry, University of East Anglia**

December 2010 – January 2012

#### **Lectureship, School of Chemistry, University of East Anglia**

July 2005-2010 (**Maternity break 2008**)

#### **Lectureship, School of Biological and Chemical Sciences, University of Exeter**

October 2003-June 2005 (Closure of Chemistry in Exeter)

**One Year Teaching Fellowship, School of Chemistry, University of Nottingham**

October 2002-September 2003

**Post Doctoral Research Associate, Department of Biochemistry, University of Cambridge, Professors J. Staunton (FRS) and P. F. Leadlay (FRS)**

November 2000-September 2002

**Education****PhD, University of Durham, Professor D. O'Hagan**

October 1997-October 2000 (Awarded June 2001)

*Various studies including investigations into the stereochemical course of the fluorination event in the biosynthesis of fluoroacetate. Involved a short period at Paris XI.***Degree Chemistry BSc Hons., Hatfield College, University of Durham**

First year joint Biology and Chemistry (Awarded June 1997)

**External Profile****Research Lectures**Invited Speaker, Oxford/Cambridge Synthesis meeting **Cambridge** June 2015Invited Speaker, Dublin Symposium, **Dublin** December 2014Invited Speaker, Chemical Ecology, **Jena** December 2014Invited speaker, Natural Products **Capetown**, September 2014Invited Seminar Speaker, UCT **Capetown**, September 2014Invited Speaker, ERAIB, **Dresden**, September 2014Invited Speaker, Bluegenics, **Rekjavic**, September 2014Invited speaker, GRC Biocatalysis, Bryant University, **Smithfield USA** July 2014Invited speaker, International ELRIG, **Telford**, March 2014Speaker, Perkin Meeting, Heriot Watt, **Edinburgh**, December 2013Keynote speaker, and RSC NPRaward lecture, CIFARP, Ribiero de Preto, **Brazil**, November 2013Invited speaker, (declined) International Symposium on antibacterial research of the DFG, **Bonn**, November 2013Invited speaker, Biofilm Workshop, **Dublin**, November 2013Speaker, VAAM Workshop, Biology of Bacteria Producing Natural Products, **Frankfurt**, September 2013Invited speaker, **Yale**, September 2013Plenary speaker invitation (declined) Hetrocyclic and Astex, **Cambridge**, September 2013Invited speaker, Transatlantic Frontiers of Organic Chemistry, Kloster, Seeon, **Germany**, August 2013Invited speaker, Joint JCS and RSC Symposium on Chemical Biology, **Kyoto**, Japan, March, 2013Invited speaker, SGM Annual meeting, **Manchester**, March 2013 – (requested representation by senior PDRA)Invited speaker, **GSK Stevenage**, November, 2012Invited speaker, New Frontiers in Natural Product Chemistry, **Nottingham**, September, 2012

Invited speaker, CHINA, September, 2012 (withdrawn, due to moving to St Andrews)

Invited speaker, Bacterial natural products workshop Novartis, **Basel**, September 2012 – (requested representation by senior PDRA)Keynote speaker, the 2012 International Congress on Natural Products Research, **New York**, August, 2012Invited speaker, Gordon Research Conference on Natural Products, **New Hampshire**, July, 2012Invited speaker, **ETH Zurich**, July, 2012Invited speaker, **Institute of Chemical Research of Catalonia, ICIQ**, June, 2012Keynote speaker, Synthetic Biology to Dial-a-Molecule, **GSK, Stevenage**, May, 2012Keynote speaker, European Symposium on BioOrganic Chemistry, **Gregynog** May, 2012Invited speaker, **Dresden**, May 2012Invited speaker, David O'Hagan's Fluorine award symposium, ACS, **San Diego**, March, 2012

Invited speaker, **Minnesota Centre for Drug Design**, March 2012  
Invited speaker, **Nebraska Medical Centre**, March 2012  
Invited speaker, **Michigan**, March 2012  
Invited speaker, **Leeds**, February 2012  
Speaker, Zing Natural Products, Lanzarote, February 2012  
Invited speaker, **Gröningen**, January 2012  
Invited speaker, **St Andrews**, Scotland, November, 2011  
Invited lecture, Institute for Technical Biochemistry, **Stuttgart**, October, 2011  
Invited speaker, **Munster**, October 2011  
Speaker, Gregynog Young Organic Chemists meeting, **Gregynog**, October 2011  
Speaker, ESF/EMBO Synthetic Biology, **St Felieu**, Spain, October 2011  
Invited speaker, **Syngenta**, Jealotts Hill, UK, September 2011  
Invited speaker, Texas South Western, **Dallas**, September 2011  
Invited speaker, ACS Fall Meeting, BIOL: **Pfizer symposium**, **Denver**, August 2011  
Invited speaker, Synthetic Biology Symposium, Imperial, **London** July 2011  
Selected as UK <40year old Organic Chemistry representative, EUCHEMS, **Crete**, July 2011  
Invited speaker, Department of Chemistry, University of **Geneva**, July 2011  
Short Talk, NADD 2011, **Naples**, June 2011  
Invited Lecture, **Novartis, Basel**, May 2011  
Short talk **Bürgenstock**, May 2011  
Invited speaker, Department of Chemistry, University of **Cardiff**, April 2011  
Invited speaker, Annual Meeting of the Chemical Society of **Japan**, Chemical Biology Symposium, March 2011, *cancelled*  
Invited speaker, RSC Heterocyclic Symposium, Imperial, **London**, January 2011  
Invited speaker, Department of Chemistry, **EPFL**, December 2010  
ESF, Industrial Microbiology, Bielefield, **Germany**, November 2010  
Invited speaker, Department of Chemistry, University College **London**, October 2010  
Selected speaker, Natural Products, **Italy**, September 2010  
Nominated for ACS Fall Meeting-Pre tenure Organic symposium, **Boston**, August 2010 (16/64 nominees invited)

Invited speaker, Department of Chemistry, University of **Warwick**, June 2010  
Invited speaker, Department of Chemistry, University of **Bristol**, June 2010  
Invited speaker, Department of Biological and Chemical Sciences Seminar, **QMUL**, March 2010  
Invited speaker, International Natural products Meeting, **Brazil**, November 2009  
Invited speaker, Young Organic Chemists Symposium, Imperial, **London**, April 2009  
Invited speaker, Zing Natural Products, **Antigua**, March 2009  
Invited speaker, York Mini Symposium on Natural Products, **York**, December 2008  
Invited speaker/consultant, GSK Young Academics Symposium, **GSK, Stevenage**, October 2008  
Invited speaker, Department of Chemistry, **Oxford**, June 2008  
Selected speaker, Natural Products **Italy**, May 2008  
**Bürgenstock**, International Stereochemical Meeting, April 2008 (poster)  
Invited speaker, Zing Natural Products **Antigua**, February 2008  
Keynote speaker, RSC Natural Product Symposium, University of Nottingham, **Nottingham**, October 2007  
Invited speaker, Department of Chemistry, **Edinburgh**, May 2007  
Young Organic Chemists Workshop, **Gregynog**, October 2007  
RSC, Biosynthesis, **Firbush**, September, 2007  
RSC "Directing Biosynthesis" International Meeting, Robinson College, **Cambridge**, September 2006  
Plenary Lecture, Society of General Microbiology, National Meeting **Dublin**, August 2006  
IUPAC "Biodiversity and Natural Products" International Meeting, **Kyoto**, August 2006  
Invited speaker, Department of Chemistry University of **Cape town**, February 2006  
Invited speaker, Department of Chemical Engineering, **Bath**, November 2005

Invited speaker, Microbes in **Norwich** National Meeting, 2005

Invited speaker, Department of Chemistry **Liverpool**, 2005

RSC, Nucleic Acids **Firbush**, 2005

Invited speaker, SouthWest Regional Organic Meeting **Bristol**, 2005

IUPAC “Biodiversity and Natural Products” International Meeting, **New Delhi**, February 2004

Invited speaker, Department of Chemistry University of **Leeds**, 2004

Invited speaker, Department of Molecular Biology, University of **Gothenburg, Sweden**, 2004

### **External Examiner**

8 Masters thesis (University of Bristol 2, University of Durham 1, Southampton University 1, University of Cambridge 1, University of Sussex 1, UCD 1, Birmingham 1)

8 PhD thesis (University of Warwick, University of Manchester, University of Bristol x 2, University of Queensland, University of Cambridge x 4, University College Dublin)

### **Royal Society Involvement**

My sponsorship by the Royal Society provided me with the opportunity to become involved with a variety of schemes and initiatives. The Royal Society have set up a funding programme to facilitate collaboration between UK and Tanzanian scientists. With a small team of other UK scientists I joined the Vice President of the Royal Society and the RS international grant officers in a fact finding visit to Tanzania in order to help the Royal Society to set up a custom made funding programme. This visit was also very useful on a personal level as it provided me with links to Tanzanian Natural Product Chemists who isolate active components from traditional medicines. I have subsequently organised an run a workshop for UK and Tanzanian scientists to present and discuss their research.

### **Royal Society of Chemistry Involvement**

CBF now CBiF: I have served on the executive committee of the **RSC Chemical Biology Forum (CBF)** now renamed as the Chemistry Biology interface Forum CBiF. CBiF seeks to advise government on policy, influence funding bodies, and has recently commissioned a report to assess the state of science at the interface between Chemistry and Biology in the UK. Additionally, the CBiF seeks to promote scientific research at the chemistry biology interface through by the provision of multi-stakeholder workshops and a Biennial Conference that bridge the interest of member RSC groups and complementary societies such as the Biochemical Society and the Society of General Microbiology.

Organic Division (Formerly Perkin) I have just completed a term of service for the RSC Organic Division Executive. I have assisted in initiating a new annual South and East (London, Cambridge, East Anglia- and Pharma and Biotech in this region) Organic Symposium. *I am also leading the organisation for a large three stranded International Natural Product Meeting for 2013.*

BOG: I have recently completed a period of 6 years’ service as secretary to the RSC Bioorganic Chemistry group. The Bioorganic group have a large and developing portfolio of postgraduate, national and international conferences that seek to meet the needs of the interests group’s members. Additional activities with BOG have included my involvement on the organising committee for an international meeting on “Directing Biosynthesis” (Cambridge 2006), the RSC annual Bioorganic Postgraduate meeting (Bath 2008), Chemistry of the Cell 3 (UCL 2008), and organising part of the IUPAC meeting (Glasgow 2009). I have also organised UK lecture tours for Professor John Vederas, University of Alberta (2008), Professor Sarah O’Connor, MIT (2007), and Professor Tobias Ritter, Harvard (2010)

### **Editorial Boards and Peer Review of Various Papers and Grant Applications Including:-**

Member of the Advisory Editorial Board for RSC Chemical Communications

Member of the Advisory Editorial Board for RSC Natural Product Reports

*Journal articles:* Nature Reviews, Biochemistry, Metabolic Engineering, Organic and Biomolecular Chemistry, Chemical Communications, ChemBioChem and Chemical Science.

*Grant applications:* Royal Society, BBSRC, EPSRC, Leverhulme, National Research Foundation South Africa, International Foundation for Science-Portugal (IFS), Chem-Them Netherlands (NWO) and The Marsden Fund,

### **Society Membership**

Royal Society of Chemistry

American Chemical Society

Biochemical Society

Society for General Microbiology

Higher Education Academy

### **Funding Awarded**

2014-2019	ERC consolidater award	~ Euro 200K	PI
2014-2017	FP7 ERA Industrial Biotechnology: Biochemistry and Applications of Halogenases	£442.5K	CoI
2013-2017	GSK Case Award	~£90K	PI
2013-2014	Impact Acceleration Award	£21K	PI
2012-2016	EU Integrating Marine Biotechnology (Werner Mueller)		
	(Ranked 1 <sup>st</sup> /74 passing threshold – )	~ Euro 375K / Euro6M	CoI
2012-2015	Syngenta Case Award	~£90K	PI
2012	Biochemical Society studentship	~1.6K	PI
2011-2014	BBSRC (ranked 4 <sup>th</sup> /~120 at panel)	£350K	PI
2011-2013	Marie Curie IIF	Euro 210K	PI
2011-2014	BBSRC (ranked 1 <sup>st</sup> /~100 at panel)	£387K	PI
2010-2014	MRC CASE award/Aquapharm	£90.06K	PI
2010	Nuffield Summer Studentship	£1.4K	PI
2010-2011	BigC	£50.893	CoI
2009-2011	Leverhulme F/00204/AO	£111.5K	PI
2009-2012	MRC Millstein in collaboration with Dr Matt Hutchins (UEA)	£394.32K	CoI
2009-2015	INTERREG UEA, Southampton, Caen, Rouen	£1183.174K	CoI
2008	Royal Society Tanzania Network Grant	£10K	PI
2008	Nuffield Summer Studentship	£1.4K	PI
2007-2010	BBSRC BB/E008984/1	£259.424K	PI
2007-2010	EPSRC EP/E000894/1	£55.948K	PI
2007-2009	Leverhulme F/00204/AF	£93.898K	PI
2003-2007	Royal Society Dorothy Hodgkin Fellowship	£145.240K	PI
2003-2007	EPSRC/Biotica CASE	£70K	PI
2006	SGM Summer Studentship	£1.68K	PI
2005	Nuffield Summer Studentship	£1.3K	PI
2004	Pfizer Summer Studentship	£1.8K	PI
2004	SGM Summer Studentship	£1.68K	PI

### **Current Research Group**

#### *Postdoctoral Research Associates*

Dr Sabine Gruschow, past PDRA experience: Prof. David Sherman, Minnesota/Michigan, USA

Ph.D. supervisor: Prof. Dudley Williams, Cambridge, UK

Dr Tania Barberi Ph.D. University of Bologna

Dr Amany Ragab Ph.D. supervisor: Dr Rebecca Goss, UEA, UK Undergraduate: Tanta, Egypt

Dr Sunil Sharma Ph.D. supervisor: Dr Sean Bew

Dr Michael Corr

Dr Cristina Pubil

Dr Maoluo Gan

Dr Antoine Abou Fayad Ph.D. supervisor: Dr Rebecca Goss, Undergraduate University of Beirut

Three PDRA and two PhD positions for my laboratory are pending advertising

#### *PhD. Students*

Ms Emma Bogosyan Undergraduate UEA, UK  
 Mr Kevin Mahoney Undergraduate: Belfast  
 Mr Duncan Smith Undergraduate: UEA  
 Ms Danai Gkotsi Undergraduate: Aberdeen  
 Ms Frida Michailidou Undergraduate: Thessaloniki, Greece, then Lyon

Mr Nickiwe Cairns Undergraduate: Durham, UK  
 Mr Joseph Zarins Tutt Undergraduate: UEA  
 Mr Antoine Abou Fayad Undergraduate: Balamand, Lebanon

#### *Graduated PhD. Students*

Dr Antoine Abou Fayad 2014 Undergraduate: Beirut, Lebanon, Employed as PDRA in Goss group  
 Dr Simon Lanceron 2010 Undergraduate: Marseille, France, Employed at Eli Lilly  
 Dr Emma Rackham 2011 Undergraduate: Aston, Birmingham, Employed within by Chirotech, Cambridge  
 Dr Phillip Newill 2011 Undergraduate: Bangor, UK  
 Dr Funsho Obasanjo 2012 Undergraduate: UCL, UK, Employed in Nigerian government research institute  
 Dr Mike Winn 2012 Undergraduate: UEA, Employed as PDRA in Dublin  
 Dr Amany Ragab 2012 Undergraduate: Tanta Egypt, subsequently employed as research group leader and lecturer in Tanta prior to returning to rejoin my research group for a sabbatical as a PDRA  
 Mr Dan Tromans 2013 Undergraduate: Swansea, UK employed as a tutor then as a lecturer and programme leader for Science and Engineering at Kaplan International College

#### *Previous Postdoctoral Workers*

Dr Hong Gao Employed as a PDRA in Edinburgh  
 Dr Andreas Tsoligkas (Joint project with Dr Mark Simmons, Birmingham Chemical Engineering) Employed at Johnson Matthey Catalysts  
 Dr Abhijeet DebRoy Employed as a senior scientist at Evotec, Thane (near Mumbai)  
 Dr Joanne Foulkes Employed as a lecturer at Liverpool John Moore's

### **Teaching Experience**

I am passionate about the communication of science both to students and the general public, and have sought to be involved in teaching and outreach since the beginning of my PhD (1997). My dedication to teaching has resulted in several nominations, by students, for "excellence in teaching" awards. I have attended several workshops to examine ways in which to improve teaching and in 2005 I became a member of the Higher Education Academy. Specific details of my teaching experience are provided below:-

#### Lecture Courses:

***Natural Products and their Biosynthesis*** (to 3<sup>rd</sup> year, 4<sup>th</sup> year undergraduates and masters students at Nottingham, Exeter and UEA). These courses which I have been responsible for coordinating focus on the chemistry enzymology and genetics of natural product biosynthesis. The current course that I am coordinating includes focus on the total synthesis and biosynthesis of medicinally important natural products, and guest lectures from

scientists working in Pharma and Biotech in this area. I have been in charge of examining this course through coursework and formal written examinations.

**Organic Colour Chemistry- chemistry and society** (to 4<sup>th</sup> year and 5<sup>th</sup> year undergraduates and masters students at St Andrews)

**Drug Development** (a course taught alongside scientists from pharmaceutical companies and biotechs to 3<sup>rd</sup> year and 4<sup>th</sup> year undergraduates). I have had responsibility for coordinating this course, inviting scientists from Pharma and Biotech, and setting and examining questions relating to the material that they delivered.

**Medicinal Chemistry** – (to 2<sup>nd</sup> /3<sup>rd</sup> year undergraduates, UEA)

This course is challenging and stimulating to teach as the cohort of ~60-80 students is always very mixed. Students enrolled on Biology as well as Chemistry degree programmes take this course and I take particular care to make sure that the material presented is presented at the correct level and of interest to both cohorts. Through this course the students are first introduced to concepts of chemical biology.

**Introduction to Organic Chemistry** (to 1<sup>st</sup> year undergraduates at UEA and Exeter, and now St Andrews)

I have previously taught 10 lectures on carbonyl chemistry and organometallics as part of this year long course.

This year I will teach spectroscopy. The cohort of ~ 110 students is again very mixed and I am careful to engage students from all backgrounds by including relevant examples in my teaching. I endeavour to maintain a very interactive atmosphere even in larger classes by continually asking questions and challenging the students to think about the material that I am presenting.

**Introduction to Organic Chemistry** direct entry course (to 2<sup>nd</sup> year undergraduates at St Andrews)

Demonstrating:

1st year organic laboratory classes (Nottingham, St Andrews). ~ 60-120 students

2<sup>nd</sup> year organic laboratory classes (UEA) ~ 80 students

3<sup>rd</sup> year organic classes (Nottingham) ~ 60 students

3<sup>rd</sup> year research laboratory practical on the use of enzymes in synthesis

3<sup>rd</sup>/4<sup>th</sup> year research based projects- to date I have supervised ~20 undergraduate lab based projects, and 4 Masters research projects..

Tutorials and Workshops: 1<sup>st</sup> year, 2<sup>nd</sup> year, 3<sup>rd</sup> year organic (groups of 3-16 students, Cambridge, Nottingham, Exeter, UEA and St Andrews). To ensure that these sessions are highly interactive and a fun learning experience, I challenge the students and regularly introduce competitions.

## **Administrative Experience/Postgraduate Teaching**

Research Group Management:

I am leader of a research group currently comprised of two final year project students, 6 PhD students, 7 post-docs; a further 2 PDRA's and 3 PhDs remain to be recruited. Informal meetings are held daily with group members to discuss progress on individual projects. Weekly formal group meetings are used to widen the group's perspective on chemical biology, biological and biosynthetic chemistry. These meetings complement the departmental problem and paper classes that I helped to establish. My leadership style is tailored to each individual within my group supplying ideas, enthusiasm, feedback and rewards and encouraging self-development and initiative.

Norwich Research Park Streptomyces Symposium

I initiated a new one day symposium with a colleague in Biology for microbiologists, molecular biologists and chemists working on streptomycetes at UEA and the John Innes Centre. We aim to hold this multidisciplinary symposium twice a year.

School Ethics Representative (University of Exeter)  
Academic Misconduct Officer (St Andrews)

School Colloquia Co-ordinator (University of Exeter):

This involved organising and coordinating weekly colloquia for the whole school. Inviting and timetabling the visits of guest speakers in all sections of chemistry.

Postgraduate Symposium Co-ordinator (University of Exeter):

I initiated a new one day postgraduate symposium with judged talks and posters. I obtained funding for prizes and a drinks reception from industry.

Coordinator for Biocatalysis Taught Component for Criticat Doctoral Training Centre (University of St Andrews)

Coordinating St Andrews Teaching Contribution in Biocatalysis to The IbioIC industrial Biotechnology training programe

I am strongly involved in service to the Scientific Community have significant additional administrative experience from my involvement in various RSC committees including the **RSC Chemical Biology Interface Forum** (to which I was elected), as **Secretary to the BioOrganic Group** (to which I was invited) and as an **Executive Member of RSC Organic Division** ( to which I was invited).

### **Schools Outreach**

I am passionate about inspiring the next generation of potential scientists. To this end I have been involved in a number of activities including:-

Schools Demonstration Lecture Tour: I arranged and delivered a series of eight demonstration lectures to secondary school children in the Isle of Man. The lectures combined concepts in Physics, Chemistry and Biology and were designed to convey how important science is to life at every level. Schools on the Isle of Man have little interaction with universities. Having enjoyed financial support from the Manx government through my degree and PhD, I am keen to repay this support through continued interaction with secondary schools on the Island.

BBC: I have recently been interviewed by the BBC for a programme to complement the new GCSE science curriculum and to inspire students to consider studying chemistry and biology at a more advanced level.

### **PUBLICATIONS SINCE EMBARKING ON MY INDEPENDENT CAREER**

\* Denotes corresponding author

A number of projects within my research group, as well as through collaboration, are now reaching maturity and numerous manuscripts are currently in preparation, several for leading multidisciplinary science journals. I list here only the accepted and submitted manuscripts:-

1. Filipins: the first antifungal “weed killers” identified from bacteria isolated from the trap-ant, H. Gao, S. Gruschow, M. Hutchings, D. Yu, and R. J. M. Goss\* *RSC Adv.*, **2014**, 4, 57267 – 57270
2. A radical finding *Nature Chemical Biology News&Views*,  
R. J. M. Goss,\* and S. Gruschow, *Nature Chemical Biology News&Views*, **2014**, 10, 878–9.



3. Mechanism of Action of the Uridyl Peptide Antibiotics: An Unexpected Link to a Protein-Protein Interaction Site in Translocase MraY  
Rodolis M. T., Mihalyi A., Ducho C., Gust B., Goss R. J. M., Van Lanen S., and Bugg T. D. H\*, *ChemComm* **2014**, *in press*
4. SOS Halogenases book chapter  
Gruschow S, Smith D, Gkotski D., Goss R. J. M. Goss,\* *Science of Synthesis*, **2014**, *in Press*
5. Simple and scale-able access to 7-halotryptophans, including L-7-iodotryptophan, through a one-pot biotransformation  
D. Smith, S. Ballet, B. U. Maes, T. Willemse and R. J. M. Goss,\* *Orglett* **2014**, 16, 10 2622-2625
6. Access to High Value Natural and Unnatural Products through Hyphenating Chemical Synthesis and Biosynthesis  
D. Smith, E. Bogosyan, K. Mahoney and R. J. M. Goss,\* *Synthesis*, **2014**, 46, 2122-2132.
7. Analysis and Optimisation of the Physiology of Engineered Biofilms for Biotransformations  
J. T. Leech, I. Vizcaino-Caston, T. Barberi, R. J. M. Goss, M. Simmons, T. W. Overton  
*New Biotechnology*, **2014**, 31, S86
8. Edited Book: Natural Products: Discourse, Diversity and Design  
A. E. Osbourn, G. Carter, and R. J. M. Goss,  
Wiley-Blackwell, **2014**, ISBN: 978-1-118-29806-0
9. Optimisation of engineered Escherichia coli biofilms for enzymatic biosynthesis of L-halotryptophans  
S. Perni, L. Hackett, R. J. M. Goss, M. J. Simmons and T. W. Overton\*  
*AMB Express*, **2013**, doi: 10.1016/j.cbpa.2013.01.018.
10. Scope and potential of halogenases in biosynthetic applications  
D. R. Smith, S. Gruschow, R. J. M. Goss  
*Curr. Opin. Chem., Biol.*, **2013**, 17, 276-283
11. 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. DebRoy, S. T. Mugford, R. J. M. Goss, R. A. Field, A. Osbourn  
*J. Biol. Chem.*, **2013**, 288, 3696-3704.
12. Isolating antifungals from fungus-growing ant symbionts using genome guided chemistry  
Ryan F. Sepke, S. Gruschow, R. J. M. Goss, and M. I. Hutchings\*  
*Meth. Enzymol.*, **2012**, 517, 47-70
13. Crystallization and preliminary X-ray analysis of Pac17 from the pacidamycin biosynthetic cluster of *Streptomyces coeruleorubidus*  
Daniel R. Tromans, Clare E. M. Stevenson, Rebecca J. M. Goss and David M. Lawson\*  
*Acta Crystallographica Section F.*, **2012**, 68, 971-974
14. The Generation of “unNatural” Products, Combined Synthetic and Biosynthetic Approaches to Making Natural Product Analogues: Synthetic Biology Meets Synthetic Chemistry  
R. J. M. Goss,\* S. Shankar, and A. Abou Fayad,  
*Nat. Prod. Rep.*, **2012**, 29, 870-889
15. Engineered Biofilms: a new Generation of Immobilised Biocatalysts  
M. Winn, J. M. Foulkes, S. Peroni, M. H. Simmons,\* T. W. Overton,\* and R. J. M. Goss\* *Catal. Sci. and Technol.*, **2012**, 2, 1544–1547,

16. Characterisation of Spin Coated Engineered Escherichia coli Biofilms using Atomic Force Microscopy A.N. Tsoligkas, J. Bowen, M. Winn, R. J. M. Goss, T. W. Overton, M. J. H. Simmons\*,  
*Colloids Surf. B: Biointerfaces*, **2012**, 89:152-60.
17. Biogenesis of the Unique Nucleoside of the Uridyl Peptide Antibiotics: Pacidamycin  
A. E. Ragab, S. Grüşchow, R. J. M. Goss\*,  
*J. Am. Chem. Soc.*, **2011**, 133, 15288-91.
18. Diversity in natural product families is governed by more than enzyme promiscuity alone: establishing control of the pacidamycin portfolio  
S. Grüşchow, E. Rackham, R. J. M. Goss\*,  
*Chem. Sci.* **2011**, 2, 2182-2186  
*Highlighted in Chemistry World* <http://www.rsc.org/chemistryworld/News/2011/August/11081101.asp>  
*Highlight in C&EN News 89(34), August 22, 2011*  
*RSC selected highlight of "cutting edge chemistry in 2011"*  
<http://www.rsc.org/chemistryworld/News/2011/December/chemistry-articles-most-exciting-events-2011.asp>
19. A single *Streptomyces* mutualist makes multiple antifungals: a weedkiller cocktail used by the fungus farming ant *Acromyrmex octospinosus*,  
R. F. Seipke, J. Barke, C. Brearley, L. Hill, D. W. Yu, R. J. M. Goss, M. I. Hutchings\*,  
*PLoS ONE*, **2011**, 8, e22028
20. Pacidamycin, Cluster Identification and Heterologous Expression  
E. Rackham, S. Grushow, R. J. M. Goss\*,  
*Bioeng. Bugs*, **2011**, 2, 218-21.
21. Engineering Biofilms for Biocatalysis  
A.N. Tsoligkas, M. Winn, J. Bowen, T. W. Overton, M. J. H. Simmons\*, R. J. M. Goss\*,  
*ChemBioChem*, **2011**, 12, 1391-1395
22. Highlights from the 46<sup>th</sup> EUCHEM Conference on Stereochemistry, Burgenstock, Switzerland, May 2011  
E. Tate and R. J. M. Goss  
Commissioned review for *Chem. Commun.*, **2011**, 47, 10869-73
23. Saponins, Biogenesis and Medicinal Properties  
A. E. Osbourn\*, R. A. Field, M. O'Connell, R. J. M. Goss,  
*Nat. Prod. Rep.*, **2011**, 28, 1261-8.
24. The total synthesis of chloptosin: A potent inducer of apoptosis in human pancreatic adenocarcinoma cell lines  
A. J. Oelke, F. Antonietti, L. Bertone, D. J. France, R. J. M. Goss, T. Hofmann, S. Knauer, S. J. Moss, P. C. Skelton, R. M. Turner, G. Wuitschik, and S. V. Ley\*,  
*Chemistry - A European Journal*, **2011**, 17, 4183-94.
25. Gene expression enabling synthetic diversification of unnatural products: chemogenetic generation pacidamycin analogs  
A. Deb Roy, S. Grüşchow, N. Cairns, R. J. M. Goss\*,  
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