

Alan Michel Claude Obled

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I am an **organic chemist** with research interests in the modification of natural products. Specifically, my research focuses on natural products with medicinal properties. As a CRITICAT CDT student, my projects involve conducting catalytic reactions, using homogenous catalysis and biocatalysis in order to obtain analogues of the target natural products, and then screening their bioactivities, particularly antibiotic properties against a variety of bacteria. My research endeavours on harnessing the power of Biosynthesis to produce complex and bio-active metabolites possessing orthogonal reactive handles that can then be diversified using the flexibility of Chemistry.

Employment Record

Visiting student in the Bonnet Group, Institute of Organic and Analytical Chemistry (ICOA), Université d'Orléans, France

February 2015 - July 2015: Developed *in silico* skills for drug design using molecular modelling software, cheminformatics tools and electronic data processing software

Visiting student in the Nolan Group, Chemistry department, University of St Andrews, UK

April 2014 - August 2014: Developed organometallic chemistry skills such as Gold catalysis and Palladium catalysed cross coupling reactions

Education

PhD student in Chemistry, supervisor Professor R. J. M. Goss, University of St Andrews, UK

September 2015 – Present

Generation of new Antibiotics Accessed Through Analogue Generation and Catalytic Diversification.

Also involved a six-month taught programme of lectures, workshops, training rotations and mini-project. Collaboration and placement with Professor Paul S. Freemont at Imperial College London.

Degree in Chemistry “Master Chimie des Molécules Bioactives” (equivalent to a MSc.), specialisation in synthesis, Université d'Orléans, France

September 2013 - September 2015

First year joint Organic Synthesis and Analytical Chemistry (Awarded September 2015 with a 2.2)

Degree in Chemistry “Licence Chimie & Applications” (equivalent to a BSc.), Université d'Orléans, France

September 2010 - September 2013

(Awarded September 2013 with a 2.1)

Skills and Knowledge

- Expertise in diverse organic synthesis such as Cross Coupling, Hydrofluorination, MOFs synthesis and Peptide coupling
- Expertise in spectroscopic and spectrometric characterisation: IR, MS, NMR, UV
- Experienced in purification: Chromatography column, GC, HPLC
- Experienced in the use of ChemDraw, MestReNova, KNIME, MOE, Microsoft Office
- Basic level of Linux: CentOs
- Organisation of the 2nd annual catalysis conference for March 2017 at the University of St Andrews

Research Presentations

- Poster, 2020 #RSCPoster Twitter Conference, **Twitter**, March 2020 – GenoChemetic Modification of Violacein
- Poster, 3rd International Conference on Natural Product Discovery and Development in the Genomic Era, **Wyndham San Diego Bayside Hotel**, January 2020 – GenoChemetic Modification of Violacein
- Speaker, CDT annual conference, **Heriot-Watt Univeristy**, Arpil 2019 – GenoChemetic modification of violacein
- Speaker, 4th annual final year PostGrad Symposium, **University of St Andrews**, December 2018 – GenoChemetic modification of violacein
- Speaker, CDT annual conference, **The Univeristy of Edinburgh**, April 2018 – Studies towards modifying microbial natural products
- Poster, CDT annual conference, **Univeristy of St Andrews**, March 2017 – Chemical and biosynthetic approaches to making analogues of antibiotics
- Speaker, CDT annual conference, **Univeristy of St Andrews**, March 2016 – Synthesis and potential applications of pyrazole-based MOFs

Funding Awarded

2015 - 2019 CRITICAT CDT programme in St Andrews

Four-year PhD scholarship

Public engagements

- 5th October 2019 Explorathon'19, The Periodic Table: A fun fusion of science, art, music and history, **The Byre Theatre, St Andrews**
- 27th September 2019 Science day with St Monans Primary School, **The Byre Theatre, St Andrews**
- 5th November 2018 Cell Block Science, **HMYOI Polmont, Brightons**
- 28th September 2018 Science day with Leuchars Primary School, **The Byre Theatre, St Andrews**
- 3rd August 2018 Cell Block Science, **HMP Perth, Perth**
- 28th May 2018 Science day, **St Andrews Nursery, St Andrews**
- 13th March 2018 Science day, **Westfield Family Nurture Centre, Cupar**
- 29th September 2017 Science day with Crail Primary School, **The Byre Theatre, St Andrews**
- 10th December 2016 Dundee Science Festival, **Dundee Science Centre, Dundee**
- 10th November 2016 Dundee Science Festival, **Ardler Complex, Dundee**

Publications

1. [Pd(NHC)(μ -Cl)Cl]₂: Versatile and Highly Reactive Complexes for Cross-Coupling Reactions that Avoid Formation of Inactive Pd(I) Off-Cycle Products
T. Zhou, S. Ma, F. Nahra, **A. M. C. Obled**, A. Poater, L. Cavallo, C. S. J. Cazin, S. P. Nolan, M. Szostak
iScience, **2020**, 23, 101377.
Submitted in May 2020 and published online in July 2020

2. Computational Analysis of Crystallization Additives for the Identification of New Allosteric Sites
J. Fogha, J. Diharce, **A. Obled**, S. Aci-Sèche, P. Bonnet
ACS Omega, **2020**, 5, 2114-2122.
Submitted in August 2019 and published online in February 2020
3. Hydrofluorination of Alkynes Catalysed by Gold Bifluorides
F. Nahra, S. R. Patrick, D. Bello, M. Brill, **A. Obled**, D. B. Cordes, A. M. Z. Slawin, D. O'Hagan, S. P. Nolan
ChemCatChem, **2015**, 7, 240-244.
Submitted in November 2014 and published online in November 2014

Preprint

1. A GenoChemetic strategy for derivatization of the violacein natural product scaffold
H.-E. Lai, **A. Obled**, S. M. Chee, R. M. Morgan, S. V. Sharma, S. J. Moore, K. M. Polizzi, R. J. M. Goss, P. S. Freemont
bioRxiv, **2019**
Submitted in January 2019