Durham University

Engineering and Physical Sciences Research Council

Newcastle University

MoSMed CDT Newsletter

ISSUE 04

October 2021

MoSMed Molecular Sciences for Medicine

Notes from the Editors

Welcome to the first MoSMed Newsletter of the new 2021/22 academic year. Since our last issue, our CDT has been negotiating life and wellbeing during COVID, and as restrictions have relaxed further, we have had exciting opportunities to socialise in-person as a CDT. Recently, we have also welcomed our third cohort of Doctoral Researchers, as well as four new industrial partners to MoSMed. Our first and second cohorts have also been busy, with a huge congratulations to Alex, Arron and Rachael on their poster awards and success at securing placements. A new addition to this issue is the MoSMed Book and Film Club, featuring recommendations for all things reading, watching and listening with ED&I issues being the theme for this quarter. Finally, don't miss out on important news and updates, including key details about the upcoming MoSMed Annual Conference in December. Wishing everyone a safe and productive start to the new academic year!

Olivia Gittins, Abbey Butler, Selina McCarthy and Emma Worden

In this issue.

A Message from MoSMed CDT Director: Prof. Mike Waring

Year 3! Time passes quickly. As I write this, we are just getting ready for the induction event for our third cohort of PhD researchers and our first cohort are entering their third year – half way through – where did the time go? We extend a very warm welcome to our new students, and look forward to them getting settled in to PhD life.

Along with the rest of the country, our universities are making progress back to something that resembles normality – undergraduates are back on campus, more contact is possible and more staff are present on campus. Whilst most of us are still understandably cautious about the easing of restrictions, I'm sure we are all hopeful that these are steps in the right direction and that the next year will be closer to that which was intended for the CDT. We are delighted to be able to meet our new cohort in person for the annual CDT induction this month, and hopeful that we will be able to host our annual CDT Conference as planned in December.

Despite the restrictions, the last period has been a productive one for MoSMed and, as highlighted elsewhere in this newsletter, our researchers' work is starting to bear fruit. We highlight four publications that were made possible by the contributions of some of our students and represent the first four from the CDT. Congratulations to Arron and Alex, whose work has been recognised by prizes at external conferences and to Rachael who has been accepted onto the prestigious Alan Turing Institute Enrichment Scheme. It is great to see our researchers starting to make an impact in the wider world - a sign of things to come, I am sure.

Alongside the science, the CDT is a vehicle to social interaction, especially important during the pandemic. It was fantastic to be able to meet up in the park for social events over the summer and we are delighted to see our researchers engaged in social activities together. We hope to be able to have more social events in the coming months, although picnics in the park may be off the agenda until the spring.

Good luck to everyone for the academic year 2021-22, we hope it is both successful and enjoyable!

Welcome to our new Industrial Partners

Establishing close working relationships with our industrial partners is integral to our CDT. We are always looking at ways in which we can collaborate and involve our partners within our CDT Community. Often these partnerships take the form of funding for specific projects, or evolve into collaborative relationships to inform and influence our projects and activities. It is therefore with great pleasure that we welcome the following partners who have recently become involved with our CDT: Genentech, Novo Nordisk, ESRF and Bristol Myers Squibb!

Genentech
A Member of the Roche Group

novo nordisk®

ESRF
The European Synchrotron

Bristol Myers Squibb™

We look forward to working with all of our new industrial partners and welcome them to the MoSMed Community!

MoSMed
Molecular Sciences for Medicine

Our new Cohort 3 Doctoral Researchers!

Introducing our Durham Cohort!

Alex Brown – Master of Physics (Durham University)
Supervisor: Prof. Halim Kusumaatmaja

Tom Arrowsmith – MSc Drug Chemistry (Newcastle University)
Supervisor: Dr Tim Blower

Eleanor Taylor-Newman – MChem Pharmaceutical Chemistry with Year in Industry (University of Leicester)
Supervisor: Prof. Steven Cobb

Josh Rawlinson – MSci Medicinal Chemistry (UCL)
Supervisor: Prof. AnnMarie O'Donoghue

Davide Cazzola – MSc Drug Discovery and Translational Biology (University of Edinburgh)
Supervisor: Prof. Ehmke Pohl

Callum Johnson – Master of Chemistry (Durham University)
Supervisor: Dr Clare Mahon

Isabel Cormack – Master of Biology (Durham University)
Supervisor: Prof. Ehmke Pohl

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ESRF The European Synchrotron

Bristol Myers Squibb

Introducing our Newcastle Cohort!

Nikol Zografou Barredo – MPhil Chemistry (Newcastle University)
Supervisor: Dr Celine Cano

Tom Smith – MSci Natural Sciences (University of Cambridge)
Supervisor: Prof. Akane Kawamura

Victoria Burge – BSc Biochemistry (Newcastle University)
Supervisor: Dr Paula Salgado

Holly Walker – MChem Chemistry (University of York)
Supervisor: Prof. Mike Waring

Will Thompson – MSc Drug Discovery (University of Bath)
Supervisor: Dr Ian Hardcastle

Laura Sture – MRes Immunobiology (Newcastle University)
Supervisor: Prof. Simi Ali

Oliwia Rebacz – MSc Chemistry (Newcastle University)
Supervisor: Dr Chiara Maniaci

Erin Holley – BSc Cellular and Molecular Biology (Newcastle University)
Supervisor: Dr Neil Keegan

Emma Wadforth – MChem with Year in Industry (Newcastle University)
Supervisor: Prof. Akane Kamawara (Aligned Student)

Kallie Friston – MChem Chemistry with Medicinal Chemistry (with Industrial Training) (Newcastle University)
Supervisor: Dr Kate Madden (Aligned Student)

Jake Odger – MChem Chemistry (University of York)
Supervisor: Prof. Mike Waring (Aligned Student)

Pictured above: Our new Cohort 3 Doctoral Researchers at their induction event at Newcastle University which was followed by a meet and greet with some of our Cohort 1 and Cohort 2 members. We wish them all a fantastic start to their MoSMed PhD projects!

Profiles of our newest cohort and overviews to each of their projects will be available shortly on our website – watch this space!

MoSMed Molecular Sciences for Medicine

Interview with our funder: EPSRC

By Selina McCarthy – MoSMed CDT Manager (Newcastle University)

Dr Shiny Mathew

Portfolio Manager | Physical Sciences

Engineering and Physical Sciences Research Council (EPSRC)

1) Tell us a bit about yourself and the role that you do

I joined the EPSRC Physical Sciences theme in April this year. I am responsible for the Chemical Biology, Synthetic Coordination Chemistry and Synthetic Supramolecular Chemistry research areas. I am also the Physical Sciences contact for New Investigator Awards. Before going on my maternity leave last year, I worked with the EPSRC Digital Economy theme looking after the Content Creation and Consumption portfolio. I have a STEM background, and prior to joining EPSRC I completed my PhD in Chemistry at the EPSRC Doctoral Training Centre for Advanced Characterisation of Materials.

2) What does a typical work day look like for you?

Grants processing, interacting with the research community, prioritisation panel convening, managing remit queries across EPSRC themes and UKRI councils, help shape strategy…to name a few.

3) Why do you and the EPSRC think that CDTs are important to fund?

Realising the excellence in people with a focus on skills development is of prime importance to EPSRC. EPSRC funded CDTs are a great way to bring together diversity of disciplines and thinking, in order to build the next generation of trained engineers and scientists with the knowledge and skills set to tackle current and future challenges. CDTs also provide a support environment for students with its cohort-based approach, and provides several opportunities to interact and collaborate between teams and to establish lasting links with industry.

4) From a funder perspective, what would your top tips be for those looking to do a PhD in the future?

Signing up to do a PhD degree will enable you to expand your knowledge base, carry out high quality research and undergo world-class post graduate training in your chosen area of study. Continuing with a research career will help you to contribute to the scientific community which will have the scope of benefiting many areas of society and economy.

Guidance on EPSRC studentships can be found here: https://epsrc.ukri.org/skills/students/guidance-on-epsrc-studentships/.

Information for current EPSRC funded students can be found here: https://epsrc.ukri.org/skills/students/guidance-on-epsrc-studentships/guidance/

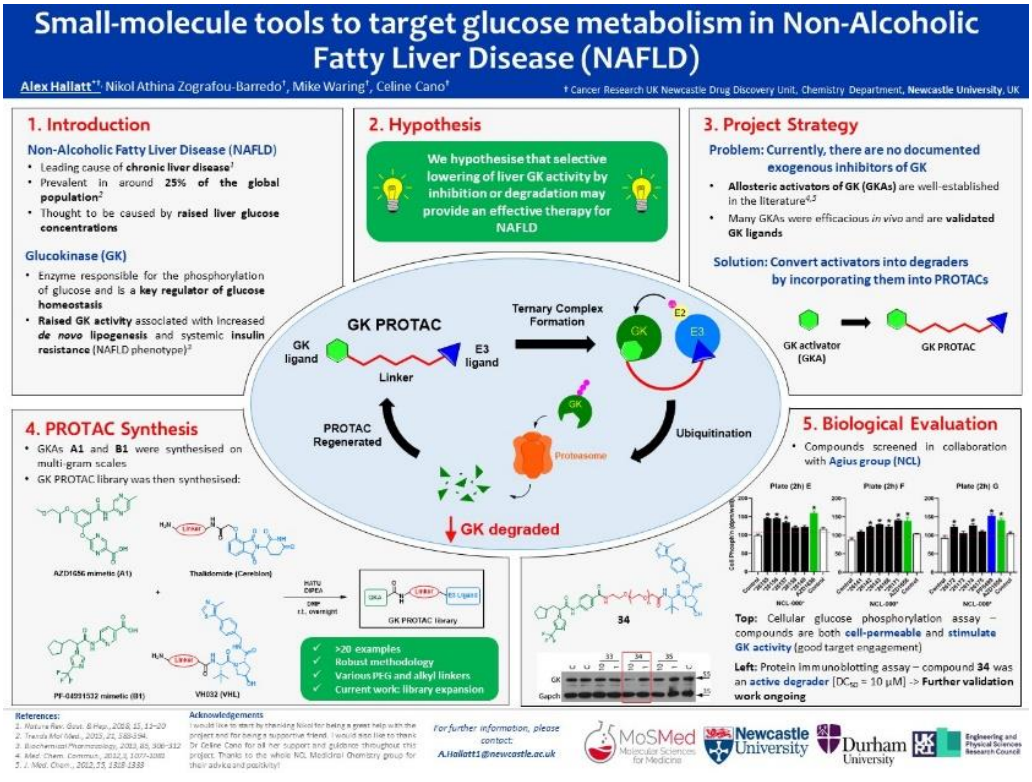
Alex Hallatt wins at RSC Postgraduate Symposium and SAgE Faculty Conference!

On 2nd July 2021, the Royal Society of Chemistry (RSC) Interest Group for Chemical Biology and Bioorganic Chemistry held its annual postgraduate symposium online. Designed to provide a platform for early career scientists to share their latest research, oral presentations and posters were welcomed from postgraduate researchers in the broad fields of bio-organic chemistry and chemical biology.

Our very own Alex Hallatt, a doctoral researcher from Cohort 1, presented his poster entitled 'Small-molecule tools to target glucose metabolism in Non-Alcoholic Fatty Liver Disease (NAFLD)'. His work was extremely well received by the judges, who proceeded to award him runner-up prize for Best Poster!

Just days later Alex presented his research at Newcastle University's Faculty of Science, Agriculture & Engineering (SAgE) annual Celebration of Research. The online, conference showcased postgraduates' research from across the Faculty, with research talks and posters available for viewing by Newcastle University staff, PG researchers and students throughout the week. This time, Alex presented a 15-minute research talk and proceeded to win a People's Choice award, voted for by peers and staff members across the Faculty.

***Quote from Alex**: "What an exciting couple of weeks it's been! I really enjoyed presenting my research externally for the first time as it gave me a great sense of pride in my work and it made me look at my own project from a fresh perspective. The discussions that were had has fuelled my motivation to keep going with fresh legs and may even lead to some future potential collaborations. I'd highly recommend to the rest of the MoSMed family to get out there and present your research whenever an opportunity arises!"*



MoSMed Molecular Sciences for Medicine

It's a win for Arron Bale at Diamond Light Source's S4SAS Annual Conference!

At the beginning of September 2021, one of our valued industrial partners Diamond Light Source hosted its Annual S4SAS Conference for users of Small Angle Scattering (SAS) online. This open invitation conference was attended by both established scientists and early stage researchers working within this field. As part of the Conference programme researchers were given the opportunity to present a poster related to their work within this specialist area.

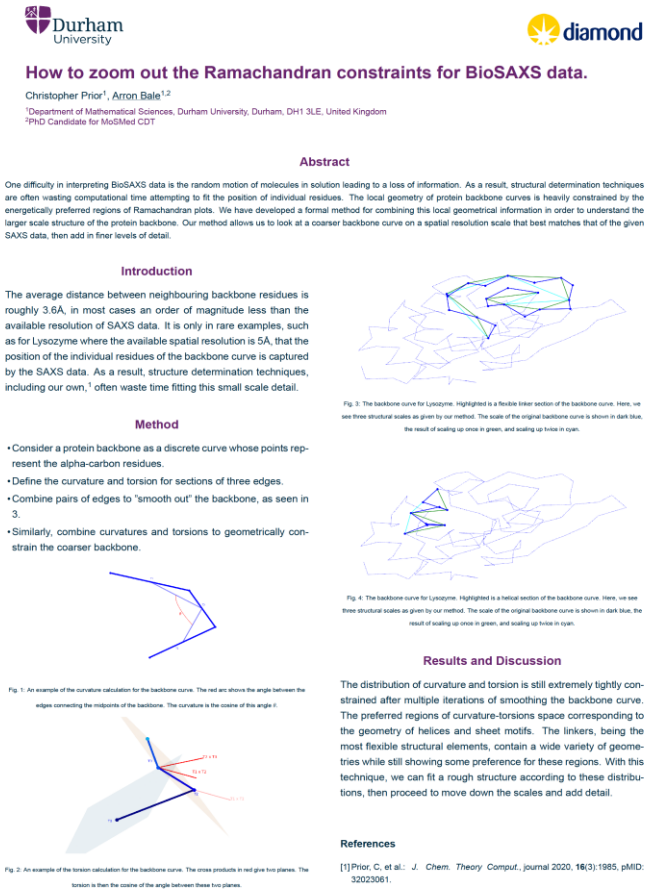
One of our own second year MoSMed Doctoral Researchers, Arron Bale who is funded by Diamond Light Source presented with great success his poster entitled "*How to zoom out the Ramachandran constraints for BioSAXS data*". As a result he was awarded one of the two prizes available which was the Biological Prize in the form of the book 'Biological Small Angle Scattering: Theory and Practice. Lattman, E. E., Grant, T. D., Snell, E. H'.'

Here, Arron explains a little more about the work he presented: *"The main idea of the talk was a new technique we've been working on to understand protein structures on a level of resolution that better matches that of the available SAXS data… the prize will be really helpful in me understanding the experimental methods behind where my data comes from for my model. At the minute for me, it's just a black box where a protein goes in and a squiggly line comes out that we need to fit to! The conference itself was great for the same reason really, to be able to see all different sides of the SAXS world, and to actually interact with people from Diamond as so far, due to Covid, I haven't had much chance".*

Arron's supervisor Dr Chris Prior commented: *"It's very exciting that the conference committee recognised the unique potential and clarity of presentation in Arron's poster. We are developing methods to help empower the structural biology community to further understand the nature of protein structures in their native environments, so it is great that they recognised this."*

Congratulations Arron from all at MoSMed on a fabulous achievement!

Please see the following link for the Diamond Light Source official announcement and further information regarding the Conference: https://www.diamond.ac.uk/Instruments/Soft-Condensed-Matter/small-angle/Events-and-Conferences.html



Durham University

diamond

How to zoom out the Ramachandran constraints for BioSAXS data.

Christopher Prior[1], Arron Bale[1,2]

[1]Department of Mathematical Sciences, Durham University, Durham, DH1 3LE, United Kingdom
[2]PhD Candidate for MoSMed CDT

Abstract

One difficulty in interpreting BioSAXS data is the random motion of molecules in solution leading to a loss of information. As a result, structural determination techniques are often wasting computational time attempting to fit the position of individual residues. The local geometry of protein backbone curves is heavily constrained by the energetically preferred regions of Ramachandran plots. We have developed a formal method for combining this local geometrical information in order to understand the larger scale structure of the protein backbone. Our method allows us to look at a coarser backbone curve on a spatial resolution scale that best matches that of the given SAXS data, then add in finer levels of detail.

Introduction

The average distance between neighbouring backbone residues is roughly 3.6Å, in most cases an order of magnitude less than the available resolution of SAXS data. It is only in rare examples, such as for Lysozyme where the available spatial resolution is 5Å, that the position of the individual residues of the backbone curve is captured by the SAXS data. As a result, structure determination techniques, including our own,[1] often waste time fitting this small scale detail.

Method

- Consider a protein backbone as a discrete curve whose points represent the alpha-carbon residues.
- Define the curvature and torsion for sections of three edges.
- Combine pairs of edges to "smooth out" the backbone, as seen in 3.
- Similarly, combine curvatures and torsions to geometrically constrain the coarser backbone.

Fig. 1: An example of the curvature calculation for the backbone curve. The red arc shows the angle between the edges connecting the midpoints of the backbone. The curvature is the cosine of this angle θ.

Fig. 2: An example of the torsion calculation for the backbone curve. The cross products in red give two planes. The torsion is then the cosine of the angle between these two planes.

Fig. 3: The backbone curve for Lysozyme. Highlighted is a flexible linker section of the backbone curve. Here, we see three structural scales as given by our method. The scale of the original backbone curve is shown in dark blue, the result of scaling up once in green, and scaling up twice in cyan.

Fig. 4: The backbone curve for Lysozyme. Highlighted is a helical section of the backbone curve. Here, we see three structural scales as given by our method. The scale of the original backbone curve is shown in dark blue, the result of scaling up once in green, and scaling up twice in cyan.

Results and Discussion

The distribution of curvature and torsion is still extremely tightly constrained after multiple iterations of smoothing the backbone curve. The preferred regions of curvature-torsions space corresponding to the geometry of helices and sheet motifs. The linkers, being the most flexible structural elements, contain a wide variety of geometries while still showing some preference for these regions. With this technique, we can fit a rough structure according to these distributions, then proceed to move down the scales and add detail.

References

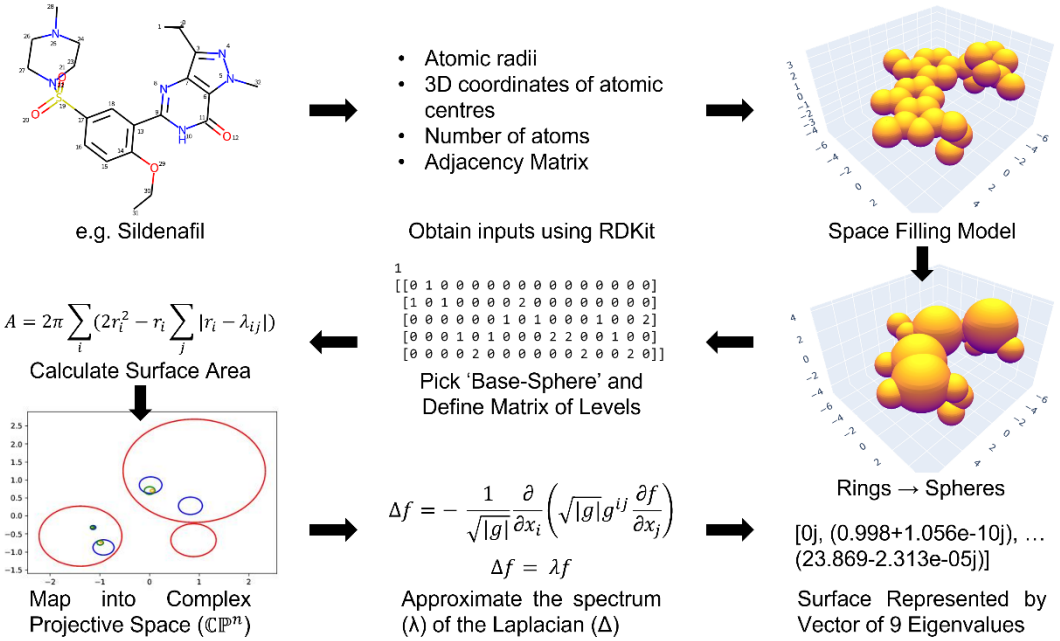
[1] Prior, C, et al.: *J. Chem. Theory Comput.*, journal 2020, **16**(3):1985, pMID: 32023061.

MoSMed Molecular Sciences for Medicine

Rachael Pirie accepted onto the Alan Turing Institute Enrichment Scheme!

Congratulations to Rachael Pirie, one of our Aligned Doctoral Researchers, who has been accepted for a 6-month placement on the Alan Turing Institute Enrichment Scheme. The Turing Enrichment Scheme gives Ph.D. students the opportunity to enrich their research and make new collaborations at the Turing Institute, while continuing their Ph.D. research.

Rachael's research concerns the development of novel 3D shape representations based on the molecular surface for ligand-based virtual screening applications. With this new opportunity, Rachael will be able to investigate the potential of these new representations as molecular descriptors in machine learning models. If successful, these models could substantially improve the speed and accuracy of the molecular design process.



Rachael kindly provided a brief summary of her project:

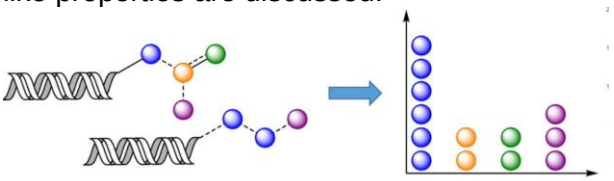
"The shape of molecules can be approximated by considering their surfaces. This is like describing an apple based on the shape of just its skin. We use the mathematical theory of Riemannian Geometry to describe the molecule's surface using 9 complex numbers. This short description makes it easy to compare how similar two molecules are. As similar molecules are likely to display similar biological activity, we can use this to predict potential new drugs."

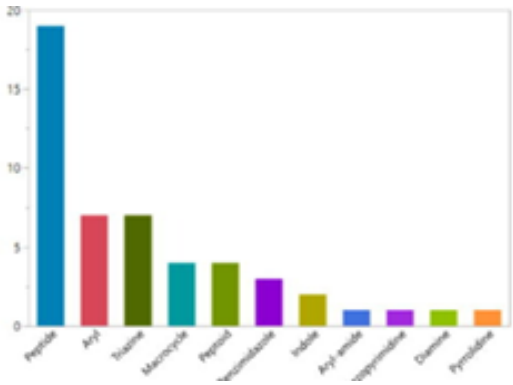
Recent Publications from MoSMed

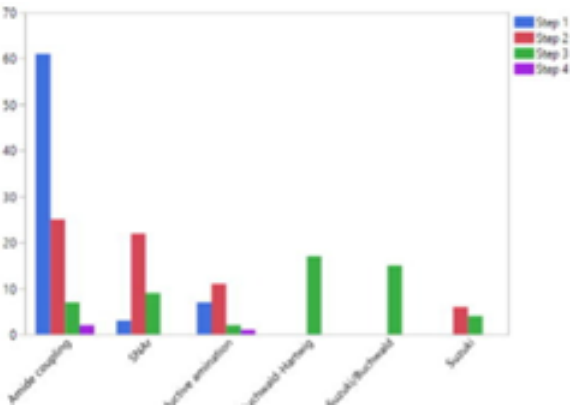
On the design of lead-like DNA-encoded chemical libraries.

Isaline F.S.F. Castan, Jessica S. Graham, Catherine L.A. Salvini, Harriet A. Stanway-Gordon, Michael J. Waring
https://doi.org/10.1016/j.bmc.2021.116273

DNA-encoded libraries (DELs) are becoming an established technology for finding ligands for protein targets. We have abstracted and analysed libraries from the literature to assess the synthesis strategy, selections of reactions and monomers and their propensity to reveal hits. DELs have led to hit compounds across a range of diverse protein classes. The range of reactions and monomers utilised has been relatively limited and the hits are often higher in molecular weight than might be considered ideal. Considerations for future library designs with reference to chemical diversity and lead-like properties are discussed.



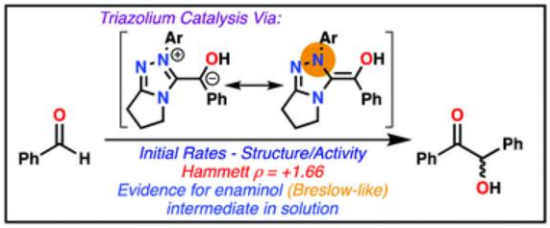




Kinetic and structure–activity studies of the triazolium ion-catalysed benzoin condensation.

Richard S. Massey, Jacob Murray, Christopher J. Collett, Jiayun Zhu, Andrew D. Smith and AnnMarie C. O'Donoghue
https://doi.org/10.1039/D0OB02207A

Steady-state kinetic and structure–activity studies of a series of six triazolium-ion pre-catalysts 2a–2f were investigated for the benzoin condensation. These data provide quantitative insight into the role of triazolium N-aryl substitution under synthetically relevant catalytic conditions in a polar solvent environment. Kinetic behaviour was significantly different to that previously reported for a related thiazolium-ion pre-catalyst 1, with the observed levelling of initial rate constants to vmax at high aldehyde concentrations for all triazolium catalysts. Values for vmax for 2a–2f increase with electron withdrawing N-aryl substituents, in agreement with reported optimal synthetic outcomes under catalytic conditions, and vary by 75-fold across the series. The levelling of rate constants supports a change in rate-limiting step and evidence supports the assignment of the Breslow-intermediate forming step to the plateau region. Correlation of vmax reaction data yielded a positive Hammett ρ-value (ρ = +1.66) supporting the build up of electron density adjacent to the triazolium N-Ar in the rate-limiting step favoured by electron withdrawing N-aryl substituents. At lower concentrations of aldehyde, both Breslow-intermediate and benzoin formation are partially rate-limiting.



Be featured in our next issue!

We want to promote all of the fantastic work being carried out by CDT Doctoral Researchers, academics and industrial partners. Email mosmed.cdt@ncl.ac.uk for more info!

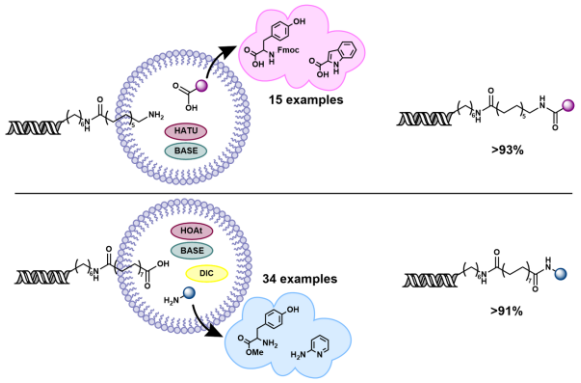
Highly efficient on-DNA amide couplings promoted by micelle forming surfactants for the synthesis of DNA encoded libraries.

James H. Hunter, Matthew J. Anderson, Isaline F. S. F. Castan, Jessica S. Graham, Catherine L. A. Salvini, Harriet A. Stanway-Gordon, James J. Crawford, Andrew Madin, Garry Pairaudeau and Michael J. Waring.
https://doi.org/10.1039/D1SC03007H

The methods developed here provide a highly efficient and generally applicable synthesis for on-DNA amide coupling. This will be of great utility in the preparation of high fidelity DELs, especially those based on peptides and drug-like small molecules.

The benefit of the application of micellar technology to DELs is demonstrated clearly by this work. The enhancement in both reaction conversion and product purity using micelle forming surfactants in DEL synthesis will be of significant benefit to the field. The combination of more hydrophobic linkers with micellar conditions demonstrates an additional improvement in reaction efficiency and provides evidence that reactions can be improved by increasing the affinity of DNA-linked substrates for hydrophobic micelles.

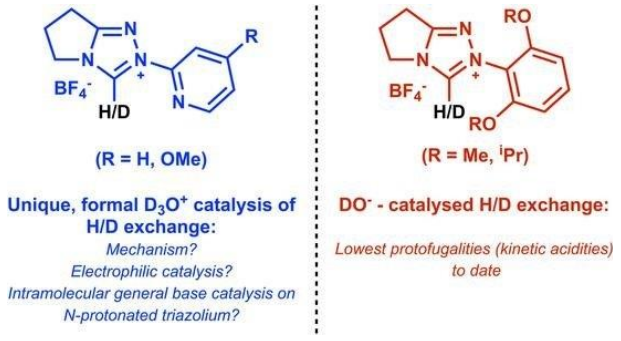
The ability to carry out efficient amide couplings, the most commonly used reaction in DEL synthesis and medicinal chemistry more generally, will lead to a large number of higher quality DELs with wide substrate scope. The development of an efficient method for N-to-C on-DNA coupling allows the synthesis of peptide-type libraries from simple amino esters, removing the need for Fmoc-protected amino acids that are required for C-to-N synthesis, thus greatly the accessible scope of this type of library.



Triazolium Salt Organocatalysis: Mechanistic Evaluation of Unusual Ortho-Substituent Effects on Deprotonation

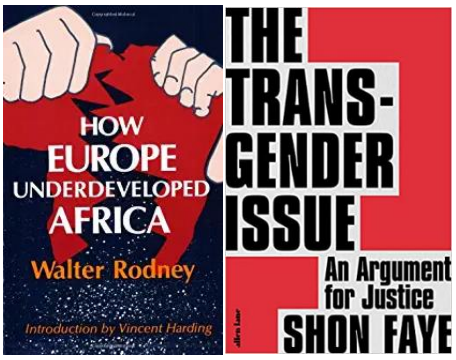
P. Quinn, M. S. Smith, J. Zhu, D. R. W. Hodgson and A. C, O'Donoghue.
https://doi.org/10.3390/catal11091055

Organocatalysis by N-heterocyclic carbenes is normally initiated by the deprotonation of precursor azolium ions to form active nucleophilic species. Substituent effects on deprotonation have an impact on catalytic efficiency and provide insight into general catalytic mechanisms by commonly used azolium systems. Using an NMR kinetic method for the analysis of *C*(3)-H/D exchange, we determined log k_{ex}–p*D* profiles for three *ortho*-substituted *N*-aryl triazolium salts, which enables a detailed analysis of *ortho*-substituent effects on deprotonation. This includes *N*-5-methoxypyrid-2-yl triazolium salt **7** and di-*ortho*-methoxy and di-*ortho*-*iso*propoxyphenyl triazolium salts **8** and **9**, and we acquired additional kinetic data to supplement our previously published analysis of *N*-pyrid-2-yl triazolium salt **6**. For 2-pyridyl triazoliums **6** and **7**, novel acid catalysis of *C*(3)-H/D exchange is observed under acidic conditions. These kinetic data were supplemented by DFT analyses of the conformational preferences of **6** upon *N*-protonation. A *C*(3) deprotonation mechanism involving intramolecular general base deprotonation by the pyridyl nitrogen of the N(1)-deuterated dicationic triazolium salt is most consistent with the data. We also report k_{DO} values (protofugalities) for deuteroxide-catalyzed exchange for **6**–**9**. The protofugalities for **8** and **9** are the lowest values to date in the *N*-aryl triazolium series.



MoSMed Book and Film Club

By Arron Bale – MoSMed Doctoral Researcher (Cohort 2) and ED&I Cohort Representative



Mangrove and Lover's Rock, Small Axe – Steve McQueen

Small Axe is an anthology film series, created by Steve McQueen (known for his award-winning film *12 Years a Slave*). Each film tells a different story based on the lives of immigrants from the West Indies living in London. I, myself, am still working through the series (three-fifths of the way there to be precise!) but I wanted to tell you about the first two episodes. They could not really be more different in terms of story and atmosphere, but were both beautiful in their own right.

The first, titled *Mangrove*, tells the story of the Mangrove restaurant in Notting Hill. The Mangrove restaurant was a community hub for the West Indian community in London and, therefore, was the target of an institutionally racist police force. The film then tells the story of the so-called Mangrove 9, who were wrongfully arrested during a peaceful protest against the constant raids and attacks on the Mangrove restaurant. My favourite aspect of this film was the depiction of Altheia Jones-LeCointe, a member of Mangrove 9 and a leading member of the British Black Panther Movement. I was not familiar with her story before this film but I look forward to reading more about her life and impact. I should also mention Jones-LeCointe was a physician and published research scientist so, if the film is not to your taste, then be sure to check out some of her papers!

The second instalment in the *Small Axe* anthology is *Lovers Rock*, which takes its name from a subgenre of reggae noted for its more romantic lyrical content and sound. This film is much more of a feel-good watch, centred on two people meeting at a house party. I particularly loved how the whole film spans just this one night yet is able to tell so many different stories. The soundtrack and the cinematography work perfectly together to pull out every emotion of a house party and make you feel like you were there that night. I could honestly talk about this film forever, it lasts just over an hour and is worth every minute, seriously, please watch this.

These recommendations were written in advance of an October release of the newsletter, but in a rare stroke of luck they have proved extremely relevant to October as it is Black History month. The *Small Axe* anthology is great as an educational tool for this month, especially given its UK focus. Episodes like *Lovers Rock* provide beautiful portrayals of pure Black joy without relying on tired tropes of profiting from the trauma of marginalised people.

Both instalments as well as the rest of the anthology can be found for free on BBC iPlayer.

How Europe Underdeveloped Africa – Walter Rodney

This, again, is something I have not yet finished but I am enjoying so much I had to mention. In this book *How Europe Underdeveloped Africa*, Rodney argues that African nations are not only just now "developing", but have in fact been deliberately "underdeveloped" by external forces, primarily Europe's colonial rule. In my opinion, this is analogous to the many conservation laws that we see in science, that is, the rate at which Europe developed coincided with the rate at which Europe underdeveloped Africa through the extraction and exploitation of people and resources. This work is so meticulously researched and well-presented that it falls into that that category of writing where you get that feeling everything argued is actually trivially true. The understanding gained from this book is just as relevant today, even outside the context of Africa. During the pandemic, UK food banks use grew by 33%—no prizes for guessing that there was a growth in wealth of UK billionaires in this time.

You can find a copy in Durham University's library and it is also available online at: https://www.versobooks.com/books/2785-how-europe-underdeveloped-africa

Beyond a Boundary - C. L. R. James

I thought I might as well continue the theme of talking about things I'm actually halfway through with this one, *Beyond a Boundary*. C.L.R. James was a Trinidadian Marxist historian, journalist, and intellectual, and a huge sports fan. This book is a memoir on cricket and details the sport's role in both Trinidad and England, touching on class, race, education, colonialism and so much more. As James himself puts it, "Cricket had plunged me into politics long before I was aware of it. When I did turn to politics, I did not have too much to learn." The way James writes about his favourite sport, treating it with as much respect as any art form, makes it a really enjoyable read for someone who has only very recently tried to get into cricket, so don't let that put you off. There is also a brief scene in *Mangrove* where James is depicted celebrating with Altheia Jones-LeCointe, which was a fun little "Hey it's that guy!" moment for me, and unintentionally ties together these recommendations nicely.

If this book interests you then I'm happy to lend you my copy, just drop me a message. Again, I have been fortunate that both recommendations work really well within the context of Black History month. If you're looking for any more reading in this area. please do get in touch.

<u>One to look out for:</u> The Transgender Issue - An Argument for Justice, Shon Faye

I am really pushing it here by including a book that I haven't read at all, mainly because it isn't out yet (at first time of writing, it is out now and I will soon have a copy to read and share!). In its typically dehumanising fashion, the culture war-driven media has stolen the lives of Trans people in Britain, reducing their existence to simply a topic in a toxic excuse for a debate.

In this book, Shon Faye shares her experiences as a transgender woman in a transphobic society, in doing so, attempting to reclaim the conversation surrounding Trans lives. This work will hopefully trigger better conversations around Trans life, one in which transgender people have the leading role. As Faye sees it, Trans liberation goes to the root of what our society is and what it could be. Everything I know about this book so far tells me it is a must read!

You can order a copy from any of your favourite book retailers, although if you want to support an independent bookshop (and receive a signed copy), take a look at: https://www.queerlit.co.uk/collections/signed-books/products/the-transgender-issue-an-argument-for-justice

MoSMed Socials!

Having spent so long confined to virtual meetings and socials we were thrilled to be able to arrange in-person, outdoor MoSMed socials, giving Cohorts 1 and 2 the opportunity to meet properly!

In June, MoSMed Doctoral reseachers met up at their respective institutions (in keeping with COVID-19 restrictions) to catch up with members of the MoSMed management board also in attendance. Despite having some bad luck with the great british weather, everyone was thrilled to be able to meet up once more.

We were all even more excited to organise a social for the whole CDT in July, this time in the way of another picnic in the park at Newcastle. Fingers crossed this will be the first of many more MoSMed socials from now on!

Pictured here: Top is the Durham Cohort at the Botanic Gardens. Middle is the Newcastle Cohort gathered for a picnic at Exhibition Park.

Pictured here: Bottom is CDT members from both institutions meeting up at Exhibition Park in Newcastle.

News and Updates

In-person cohort training returns!

We are thrilled that MoSMed training sessions can once again take place in-person, with some of Cohort 2 having recently attended a 'Science Communication to the Public' workshop given by Prof. Ehmke Pohl at Durham University.

Launch of the MoSMed Instagram

Courtesy of Catherine Salvini (Cohort 1) and Lydia Hallam (Cohort 2), MoSMed CDT now has an Instagram page! Here you will find updates on what our Doctoral Researchers get up to day-to-day, from lab work and training to socials and fun hobbies!

Be sure to follow us at @mosmed.cdt, along with our Twitter (@MosmedC), for regular updates about the CDT.

Upcoming Events

New Seminar Series!
Join us for our new seminar series organised by Chiara Maniaci, assisted by Siddique Amin. The first of these lectures will be on **28th October (3.30-4.30pm)** with Prof. Alessio Ciulli, from the University of Dundee, giving an overview about the modern approaches in target protein degradation and PROTACs.

Mini-MBA course
The Mini MBA course will be taking place between **Mon 8th – Fri 19th November** at Durham University. For Cohort 1, this will be a fantastic opportunity to take part in the mini-MBA course, organised by Durham University's Business School, which aims to equip PhD students with the knowledge to develop a range of relevant business and management skills specially focused within the science and technology sectors. Updates including workshop timings will be circulated in due course.

The 3rd Annual MoSMed Annual Conference – Wed 15th and Thurs 16th December!
We warmly invite you to join us for our next MoSMed Annual Conference, which will be held across Durham Chemistry Department and the historic Durham Castle over two days: 15th – 16th December 2021 (restrictions permitting). The Conference provides an opportunity for all MoSMed cohorts to introduce their project and share their current research findings, as well as hear about exciting new research from our invited external speakers from a variety of different areas of Science. Please contact mosmed.cdt@ncl.ac.uk for more information.

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