

Immunology News

November 2023 | ISSN 1356-5559

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Welcome to the last *Immunology News* of 2023.

I hope you are all as excited as I am to receive this new edition of the BSI membership magazine – this time with even more interesting content and featuring must-read pieces written by our wonderful members. I'm particularly happy to get the chance to showcase some of the work that has been made possible through various BSI grants.

Firstly, on page 20 you'll be able to hear from Dr Simone Webb about her experience learning new computational techniques in a lab placement in New York, with support from a BSI Career Enhancing Grant. Following on, our grant scheme designed to promote equity, diversity and inclusion (EDI) work, helped fund the Edinburgh Immunology EDI Summer School. Turn to

page 24 to read about this fantastic event to provide university students in their final years of study with not only increased knowledge, but also a better sense of belonging. In this edition, we also have an excellent piece highlighting the power of effective engagement. Make sure you check page 27 to discover how a captivating comic book, with funding from our Communication and Engagement grant scheme, empowered primary school children in Uganda to actively participate in conversations around COVID-19 and vaccinations.

I'm always looking for ideas of articles on areas that matter to you, and contributors to bring those issues to the front of people's minds, so please do get in touch!

Teresa Prados
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VIEW FROM ... THE BSI PRESIDENT



My first year as BSI President has flown by! During this time, I have been working closely with the BSI Trustees, committees, our membership and BSI staff team to advance the Society's mission. I am proud of the steps we have taken together to continue supporting our community and to raise the impact of immunology on health.

Our Regional & Affinity Groups have run a full programme of activities with a huge amount of enthusiasm, dedication and expertise. They really are the lifeblood of the Society and are invaluable to connect immunologists within local communities and around specific areas in the field. One highlight for me is the recently launched BSI Teaching Affinity Group as an important forum for immunology educators.

A core part of the BSI mission is the invaluable careers support we offer our members, which takes many forms, including a wide array of grants, essential training courses and much-needed recognition of achievements in the sector. This year, we continued to award an outstanding number of grants for varied

'A core part of the BSI mission is the invaluable careers support we offer our members, which takes many forms, including a wide array of grants, essential training courses and much-needed recognition of achievements in the sector.'

'Your substantial efforts transforming immunology do not go unnoticed and we must keep supporting each other as a strong community.'

career development opportunities through our flexible Career Enhancing Grants and for help with travel costs to conferences, initiatives around public engagement and diversity and inclusion, and more. We also celebrated remarkable individuals and teams shaping the future of immunology with eleven winners being announced in the first BSI Immunology Awards.

All of this wouldn't be possible without the income we get from our publishing portfolio and our income diversification activities. Our journals have been growing thanks to the expertise and insight of the Editors-in-Chief and Editorial Boards and the important support from our members submitting their work and sharing the exciting research published. With big milestones in indexing journeys for our newer Open Access journals *Immunotherapy Advances* and *Discovery Immunology* (such as the Directory of Open Access Journals and PubMed Central), and our established journal *Clinical & Experimental Immunology* showing a robust number of papers, downloads and citations, it is as important as ever that we continue to consolidate their positions as key publications in the field.

With 2023 nearly ending, I want to take this opportunity to thank all of our wonderful members and immunology community – you continue to inspire me with your hard work and dedication driving scientific discovery and making a positive impact on health. I also want to share a message of encouragement for the future.

Your substantial efforts transforming immunology do not go unnoticed and we must keep supporting each other as a strong community. Looking forward, we need immunology to maintain its position as an important field, both by retaining the budget from funding boards with a strong number of applications and by recognising the quality work of our fellow immunologists when reviewing it. The BSI Congress and the BSI Clinical Immunology Professional Network (BSI-CIPN) Conference are in the next few days in Belfast, and this is our chance to come together, renew our enthusiasm and support, and keep developing fruitful collaborations.

Next year is going to be full of fantastic BSI work elevating the profile of immunology and boosting careers. I am passionate about supporting career progression across the full range of immunology, and I am excited about the potential of the BSI-CIPN to strengthen the support provided to clinical immunology. The BSI are also providing amazing training opportunities for immunologists to develop skills and confidence, for example in bioinformatics with our highly rated courses with the Glasgow Bioinformatic Core, and through our Patient and Public Involvement (PPI) training.

These are just a few highlights, with many more from the past year in our Annual Review, and many more activities planned for 2024. Please take a look and join me in reminiscing on all the wonderful work the BSI and our members have carried out, and in looking forward to a new year full of scientific discoveries, connections across all sectors of immunology and invaluable moments with other members of our friendly community along the way. If you are coming to Belfast, do come and talk to me at the BSI stand and share your ideas for how the BSI can best support you at our Annual General Meeting.

Tracy Hussell

President,
British Society for Immunology
Email: president@immunology.org

VIEW FROM ... THE CHIEF EXECUTIVE

This is always a particularly exciting issue of *Immunology News* as it is landing with you all just before we embark on a week of awesome immunology discussions at BSI Congress! The team have been working their socks off to pull together what I am convinced will be our best Congress yet – there is so much happening that week and we can't wait to welcome you to Belfast. Huge thanks – not just to the team – but also to our Congress Committee and Mark Coles, BSI Congress Secretary, for their efforts over the last 18 months. Turn to page 6 to find out more about what's going on.

During that week we are also holding the inaugural BSI-Clinical Immunology Professional Network (BSI-CIPN) conference! You'll remember that the BSI-CIPN was established after our merger with the charity UK Primary Immunodeficiency Network (UKPIN) and the conference will be a perfect opportunity to bring together key players in the clinical immunology speciality to discuss clinical matters and hear about the latest research findings. Day two of this conference is being run in conjunction with day one of BSI Congress which will bring together all delegates, enabling us to cover the full spectrum, from basic to translational to clinical research.

We also have plenty of fantastic articles



highlighting some of our recent work, including the report we published on immunogenicity (Note: MSD fully funded and attended the roundtable meeting. The final report was fully funded by MSD and was fact checked for accuracy and balance only). Do check out p18 to hear from Dr Ulrike Buchwald and Dr Andrew Tran on why this immunogenicity research is so important for pandemic preparedness and to better protect those who are immunocompromised.

The article on p22 discusses another exciting initiative we are supporting in the immune-ageing field: the CARINA Network. You can find out about how it's driving forward collaborative research in the field as well as providing a fantastic platform for early career researchers to play a leading role in the future of

immune-ageing research. We have some exciting plans going forward so get in touch if you'd like to be a part of this.

There are also a number of other pieces highlighting several projects being led by our members with support from BSI grants, with exciting work around career development, public engagement and equality, diversity and inclusion (EDI) – please do have a read and get inspired by everything that our members are achieving!

And of course, we are incredibly grateful to our corporate members who are showcased in this issue. Their support enables us to deliver programmes and activities for our members and the immunology sector. I want to encourage all of you to take a look and familiarise yourself with those companies that are engaging with us and are vital for us to deliver on our mission.

As always, if you have any questions, comments or suggestions, please do not hesitate to reach out to me. Looking forward to seeing many of you in Belfast!

Doug Brown

Chief Executive,
British Society for Immunology
Email: d.brown@immunology.org

Annual General Meeting

17:30–18:00, Tuesday 5 December 2023
ICC Belfast, BSI Congress

All BSI members are invited to join us for our Annual General Meeting, which will be held at BSI Congress in Belfast. Come along to find out about the work of your Society, what activities we have carried out in the past year and what our plans are to support you and represent immunology in the UK. We encourage as many of you as possible to attend. If you have any queries, please contact us at bsi@immunology.org.



British Society for
immunology

SOCIETY NEWS

BSI Congress 2023

Monday 4 to Thursday 7 December, Belfast, UK

Our flagship event is returning next month! We are looking forward to welcoming many of you in Belfast, as well as those tuning in online. We have a fantastic four-day programme lined up packed full of cutting-edge immunology. There will be a mixture of parallel sessions, plenary talks, poster sessions and many important opportunities to network and make new connections!

Scientific highlights**Bright Sparks in Immunology, PhD and Postdoc**

12:30 – 16:00, Monday 4 December

Keynote presentation

We are delighted that Dr **Ronald Germain** from the National Institute of Allergy and Infectious Diseases, National Institutes of Health, USA, will be presenting 'Visualizing immunity – insights from multiplex dynamic and static tissue-scale imaging' at BSI Congress.

Dr Germain has made key contributions to understanding MHC class II molecule structure and, more recently, his laboratory has explored the immune system using dynamic and static in situ microscopic methods that his laboratory helped pioneer.

18:00 – 19:00, Monday 4 December

Human genetic variation and variability of vaccine responses

Plenary session featuring Prof **Susan Hopkins**, Prof **Julian Knight** and Prof **Alex Richter**

09:00 – 10:30, Tuesday 5 December

Predicting antiviral host immunity in the context of inborn errors

Plenary session featuring Prof **Dusan Bogunovic** and Prof **Sophie Hambleton**

16:30 – 17:30, Tuesday 5 December

Immune communications between tissue sites

Plenary session featuring Dr **Richard Locksley**, Prof **Gwen Randolph** and Prof **Jessica Strid**

09:00 – 10:30, Wednesday 6 December

Big data and informatics to bedside

Plenary session featuring Prof **Muzlifah Haniffa** and Prof **Ken Smith**

16:30 – 17:30, Wednesday 6 December

Immune cells and microenvironments across the life course

Plenary session featuring Prof **Chris Buckley**, Prof **Linde Meyaard** and Prof **Mark Wilson**

09:00 – 10:30, Thursday 7 December

Obesity, malnutrition, immunity and inflammation

Plenary session featuring Prof **Nancie MacIver** and Dr **James Thaventhiran**

16:30 – 17:30, Thursday 7 December

**BSI AGM – have your say!**

17:30–18:00, Tuesday 5 December

We would like to encourage all BSI members to join us at our 2023 Annual General Meeting. This is your opportunity to find out more about the work of your Society and what we are doing to support our members and represent immunology in the UK.





Make the most of your Congress experience

- ✓ **Get inspired at Bright Sparks** – make sure you arrive in time for our Bright Sparks session at 12:30 on Monday 4 December, which highlights the best work from early career researchers. Be ready for innovative science, creative presentations and friendly competition for prizes.
- ✓ **Network** – BSI Congress is the perfect opportunity to interact with others in your field who you wouldn't normally get a chance to meet. Why not make a point of talking to someone new each day?
- ✓ **Preparation is key** – review the programme before BSI Congress starts and prioritise attending the sessions which are most interesting and relevant to you. Download the BSI Congress app to check the programme on the go and add sessions to your calendar.
- ✓ **Don't miss the poster sessions** – poster sessions are an opportunity to mingle and make new connections while exploring excellent immunology research.
- ✓ **Get your stamp** – in our 'Passport for Prizes' competition – make sure you visit each exhibition stand to be entered into a prize draw!
- ✓ **Dance the night away** or enjoy some quiet networking at the Congress Party!



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Additional sessions

The BSI is hosting a number of additional sessions in which you can increase your knowledge on a range of topics that can boost your career and widen your horizons.

BSI Regional & Affinity Groups

Our Groups are a key part of the BSI community and have organised a number of exciting scientific sessions. Turn to page 36 to find out more about the topics and speakers – representatives from the Groups will be available after the sessions if you want to find out more about their activities and get involved!

Research culture: driving positive change

Explore how our immunology community can work together to drive change, discuss the roles of individuals, employers and funders in this area, and hear ideas for how we can take steps to build a positive research culture.

Meet BSI Trustees, Committee members and Editors-in-Chief

Join us at the BSI stand (number 27) to meet current Trustees and Committee members as well as the Editors-in-Chief of our official journals.

Enhancing teaching excellence

Hear about some innovative approaches to immunology teaching from our two winners of the BSI Teaching Excellence Award, Dr Sophie Rutschmann and Prof Tom Wilkinson.

Immunology funding opportunities: meet the funders

Take part in this interactive session to gain insight and understanding into the funding opportunities offered by some of the key funders in immunology and pick up tips and insight into what funders are looking for from proposals.

Satellite symposia

There are also multiple satellite symposia supported by our industry sponsors, including:

- **Cytek Biosciences**
- **NanoString Technologies Europe Limited**
- **Thermo Fisher Scientific**

We encourage you to attend these interesting sessions. More details on the BSI Congress website and the programme booklet.



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Joint sessions

CARINA Network and BSI Immunosenescence Affinity Group session

Inflamm-ageing and immunosenescence: understanding age-associated immunological decline (Organised by BSI Immunosenescence Affinity Group)

Tuesday 5 December, 11:00 – 12:45

BSI and Singaporean Society for Immunology (SgSI) joint session

Advances in cancer immunotherapy

Wednesday 6 December, 14:15 – 16:00

British Society of Medical Mycology (BSMM) supported session

Recent developments in anti-fungal immunity

Wednesday 6 December, 14:15 – 16:00

International Cytokine and Interferon Society (ICIS) supported session

Immune modulation by the TGF superfamily (Organised by BSI Inflammation Affinity Group and BSI Greater Manchester Immunology Group)

Thursday 7 December, 11:00 – 12:45



BSI Congress for all

Ensuring that BSI Congress is accessible to everyone is extremely important to us. We're pleased to offer the BSI Carers' Grant to support the cost of attendees' care arrangements while attending the conference and a BSI Congress travel grant. We're also offering onsite crèche facilities for delegates wishing to bring their children. A multi-faith prayer room and quiet rooms will be available for delegates that wish to make use of these facilities. Please head to <https://bit.ly/3srSIWQ> for full details on all the facilities available at the conference.



Exhibitors and sponsors

The generous contributions of our corporate sponsors enable us to offer our community another BSI Congress to remember. We're immensely grateful for their invaluable support and we'd like to encourage all our delegates to explore the exhibition hall and tap into the expertise of our wonderful exhibitors who can answer questions and share with you the latest innovations and technological advances.



Connect with us

Make sure you're following **@bsicongress** to stay updated and include the official conference hashtag **#BSI23** in your posts to connect with other attendees.

Stop by the BSI stand (number 27) in the exhibition centre to say hello – we'd love to see you!

 Download the Congress app - search for 'BSI Congress'

Stay in touch

Follow our other accounts to keep up with our activities and stay connected with your fellow BSI members:

-  @britsocimm
-  @britsocimm
-  @britsocimm
-  british-society-for-immunology

Any questions?

 www.bsicongress.com

If you have any questions, please email congress@immunology.org.

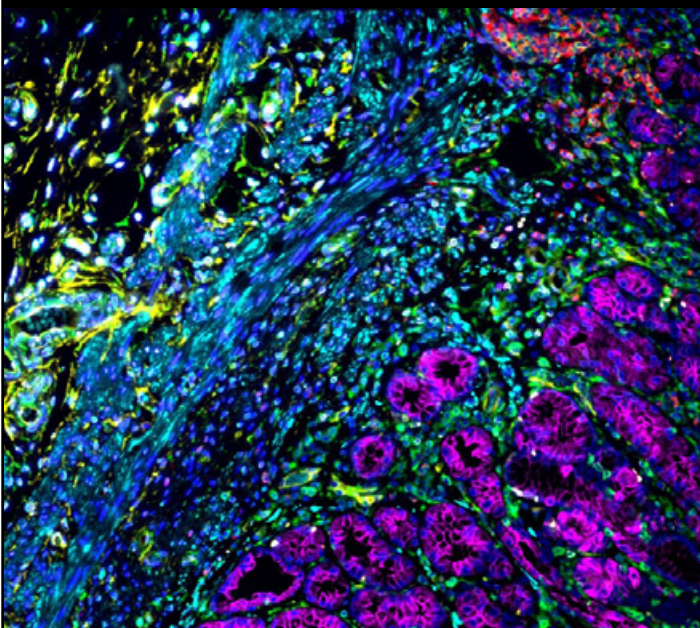


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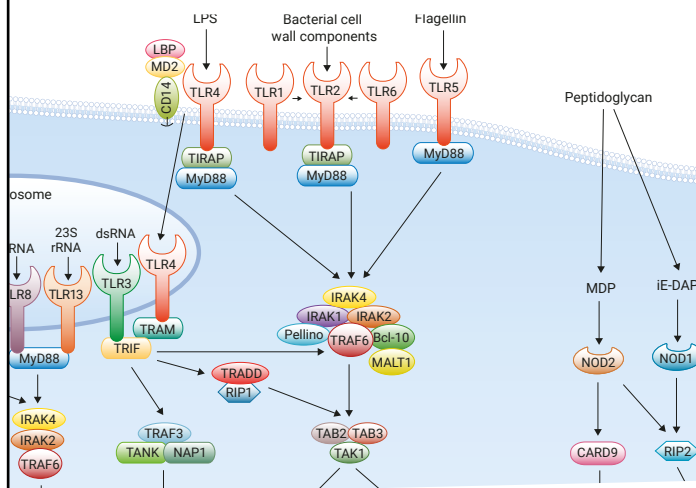


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SOCIETY NEWS

BSI-CIPN Conference 2023

Monday 4 and Tuesday 5 December, Belfast, UK

The official meeting of the British Society for Immunology's Clinical Immunology Professional Network (BSI-CIPN) is just around the corner! This is a must-attend conference for consultants, trainees, nurses, pharmacists and scientists involved in the healthcare of patients with immune-mediated diseases.

The event will address the latest thinking around key medical, scientific, educational and management issues relevant to all those working in the field, while providing the opportunity to hear from leading experts and to network with colleagues and peers.

**Great Debate**

'Clinical immunologists are the best people to research inherited immunodeficiency'

Presented by: Claire Booth (Professor of Gene Therapy and Paediatric Immunology, UCL Great Ormond Street Hospital Institute of Child Health) and **David C Thomas** (Professor of Renal Medicine, University of Cambridge)
Chaired by: Austen Worth

In this light-hearted 'fireside chat', Professors Booth and Thomas will explore whether research in clinical immunology is best done by the specialists – should nephrologists and other interlopers keep out of it? They will discuss some of the major advances in the field and how they were made.



British Society for Immunology

CIPN

Clinical Immunology Professional Network

OVERVIEW**MONDAY 4 DECEMBER****09:00 Plenary talks**

Fiona Pearce, NIHR Advanced Fellow & Clinical Associate Professor, University of Nottingham
Nicholas Rider, Chair, Division of Clinical Informatics, Associate Professor of Pediatrics Allergy-Immunology, Liberty University
Ross Sadler, Consultant Clinical Scientist, Department of Immunology, Churchill Hospital, Oxford University Hospitals NHS Foundation Trust

11:00 Grand Round

Immune deficiency and severe atypical infection

11:30 Great Debate

'Clinical immunologists are the best people to research inherited immunodeficiency'

13:45 BSI-CIPN update

14:15 Educational sessions

- Genome analysis
- Single-cell RNA sequencing

14:45 Parallel sessions

- Immunodeficiency
- Diagnostics

17:30 BSI Congress opening ceremony and keynote

19:00 BSI Congress welcome reception, exhibition and posters

20:00 BSI-CIPN Conference networking dinner

TUESDAY 5 DECEMBER**09:00 BSI-CIPN Conference and BSI Congress joint plenary**

Human genetic variation and variability of vaccine responses

11:00 Parallel sessions

- Innate immune activation in autoimmunity and inflammatory diseases (joint session with BSI Congress)
- Nursing session

12:45 BioCryst satellite symposium

14:15 Afternoon parallel sessions

- Gene editing the immune system (joint session with BSI Congress)
- Allergy session: penicillin de-labelling and food immunotherapy – presented by the British Society for Allergy and Clinical Immunology (BSACI)

16:30 BSI-CIPN Conference and BSI Congress joint plenary

Predicting antiviral host immunity in the context of inborn errors

17:30 BSI AGM

Thank you

We especially thank the many sponsors and exhibitors who are supporting the BSI-CIPN conference and encourage you to visit their stands and attend the satellite symposium.

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About the BSI-CIPN

The BSI-CIPN is an integrated and impactful professional network within the BSI for individuals working within clinical immunology. The network was established as a result of the merger between the BSI and the UK Primary Immunodeficiency Network (UKPIN), which was completed in early 2023.

The BSI-CIPN strengthens the voice of clinical immunology in policy and public arenas, as well as promoting best practice through dedicated events, training, clinical guidelines and more. Membership of the network is open to clinical immunologists, healthcare scientists, allergists, pharmacists, immunology specialist nurses and others working in the clinical immunology space, with applications subject to approval from the BSI-CIPN Steering Group.

To find out more about the BSI-CIPN's activities and how to join, visit www.immunology.org/cipn.



CPD and education

The BSI-CIPN Programme Committee has worked hard to put together a stimulating agenda including educational sessions relevant to your day-to-day work. We are delighted that the conference has been approved by the Royal College of Pathologists for 11 Continuing Professional Development (CPD) credits, which means you can enhance your CPD profile while learning about best practices in the field.



Connect with us

Make sure you're following [@BSI_CIPN](https://twitter.com/BSI_CIPN) on Twitter/X to stay updated and include the official conference hashtag [#BSICIPN23](https://twitter.com/BSI_CIPN) in your posts to connect with other attendees.

Any questions?

Visit the BSI-CIPN Conference website to explore the full programme and register: <https://bit.ly/BSICIPN23>.

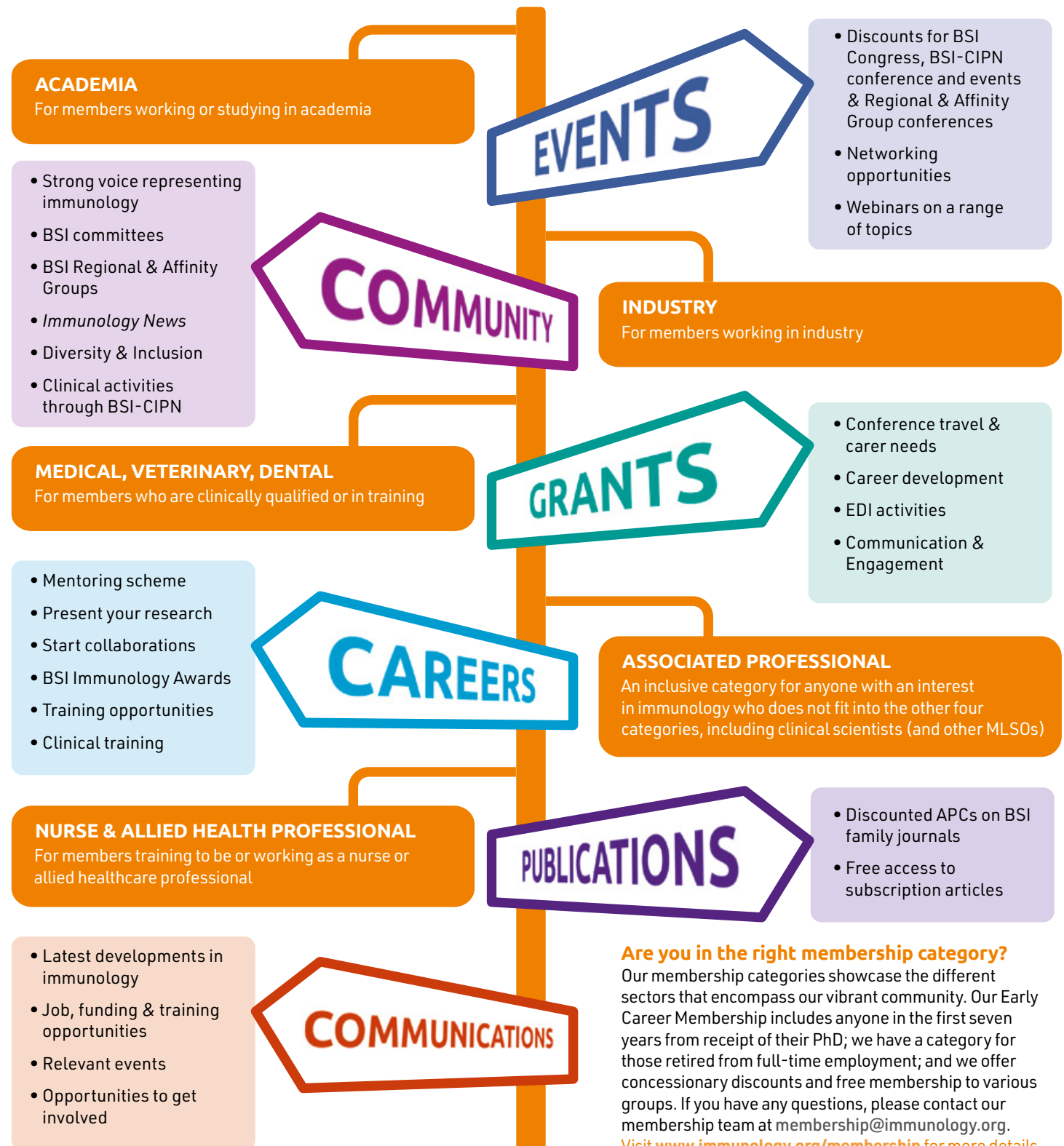
Find out more about the network and how to join on the BSI-CIPN homepage: www.immunology.org/cipn.

If you have any questions, please email cipn@immunology.org.

SOCIETY NEWS

Your BSI member benefits

To continue supporting our diverse and ever-growing community, we revamped our membership categories. We have five categories grouping some of the most common areas in which our members work and, for each of them, we will continue to provide tailored benefits for each career stage. Here, we showcase the sectors that form part of our immunology community, alongside some of the numerous benefits to support the ambitions and careers of our members.



SOCIETY NEWS

Contribute to your Society's journals!

The BSI Family of journals, *Clinical & Experimental Immunology*, *Immunotherapy Advances* and *Discovery Immunology*, are key journals for all immunologists. We'd like to invite all our members to explore the journals and encourage you to consider contributing to them. The income generated from our journals provides major financial support for all the BSI's activities so, by submitting your work, you're supporting your Society. As a BSI member, you can benefit from reduced Open Access fees to publish your work.

**Clinical & Experimental Immunology**

The journal of translational immunology

Editor-in-Chief: Professor Leonie Taams, King's College London**Since 1966** | Impact factor: **4.600**Time to first decision: **23 days**Yearly usage: **630,000 downloads**

Hybrid journal

Scope: immunologically significant studies that have the potential to transform our understanding of the immunopathology of human disease and/or change clinical practice.

Highlighted content – all CEI content is free to access for BSI members:

- Review Series: Unconventional T cells in health and disease
bit.ly/CEI-Unconventional-Tcells
- Special Issue: Human B cells
bit.ly/CEI-human-Bcells
- Review Series: Inborn errors of immunity: The Goldilocks effect
bit.ly/CEI-Goldilocks-effect

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**Immunotherapy Advances**

Spanning the translational pipeline for immunotherapy

Editor-in-Chief: Professor Tim Elliott, University of OxfordTime to first decision: **39 days**Yearly usage: **57,000 downloads****Launched in 2020**

Fully open access

Scope: immunotherapeutic interventions for the benefit of human and animal health and their mechanism of action in all disease areas.

Highlighted content

- Editors' Choice collection
bit.ly/ITA2022EditorsChoice
- Special Collection: Immune-related adverse events in cancer immunotherapy
bit.ly/ITA_adverse_events
- Special Collection: Adoptive cellular therapies
bit.ly/ITAccl_therapy

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**Discovery Immunology**

Covering new discoveries in cellular and molecular immunology

Editor-in-Chief: Professor Simon Milling, University of GlasgowTime to first decision: **39 days**Yearly usage: **10,000 downloads****Launched in 2022**

Fully open access

Scope: fundamental aspects of cellular and molecular immunology that provide mechanistic insights into human and animal immune responses.

Highlighted content

- First anniversary editorial bit.ly/497319t
- Must-read collection bit.ly/DSI_MustRead
- Latest issue academic.oup.com/discovimmunology/issue

Explore the open calls for papers and submit your article to be part of the first Special Collections in *Discovery Immunology*: bit.ly/DSIcallforpapers

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How do you transform immune cells into therapies?

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SOCIETY NEWS

Reflections on my journey as Industry Representative

Now that my time as Industry Representative on the BSI Member Representative Forum has come to an end, I have the full realisation of how enriching and enlightening this experience has been.

I have had the chance to meet and work with passionate, knowledgeable and open-minded immunologists coming from different areas (including clinic, academia, industry) and being at different stages of their career. This has really widened my view of the immunology sector, making me more aware of the common and diverse challenges faced by immunologists working in different environments and across their careers. The BSI is doing incredible work supporting and connecting all immunologists, and the public and patients too. As part of the Member Representative Forum during the peculiar COVID-19 pandemic time, I could see firsthand and contribute to the work the BSI was doing

to influence policy decision-makers, the public and the scientific network in the UK, especially around vaccination. It has been great to see how the BSI's impact goes beyond the pure scientific arena.

I felt very fortunate to represent industry as, with the advent of an increasing number of therapies targeting the immune system and the fast advancement of cell therapies, academic and industry immunology are more interlinked than in the past. There is an urgent need in translating key immunological discoveries into therapies, and it is only by working together that boundaries can be pushed effectively. I personally have expanded my network and have been exposed to interesting



conversations that will continue in the future.

In terms of activities, I particularly enjoyed the opportunity to join the Parliamentary Links Day 2023. Held in the Houses of Parliament and linking parliamentarians and policymakers to the scientific community, it was really something out of the ordinary for me, and a useful insight into what the plans for science and economic development are in the UK for the upcoming years, especially in a post-Brexit scenario.

I also enjoyed the recent discussions and training we had at the Member Representative Forum around equity, diversity and inclusion, which are key elements towards a fairer and more inclusive immunology community. Again, this is something that I will take with me well after my time on this important BSI committee.

In summary, it has been a very positive learning experience from all points of view, and I would recommend my colleagues in industry to stand for a position on the BSI Member Representative Forum when elections time comes!

Dr Federica Villanova

Technical Support and Training Manager, Miltenyi Biotec



The BSI team at Parliamentary Links Day 2023. L-R: Jasmine Catmull (BSI Marketing & Communications Officer), Dr Edoardo Prediletto (Early Career Representative), Dr Federica Villanova (Industry Representative), Matthew Gibbard (BSI Policy & Public Affairs Manager) and Dr Doug Brown (BSI CEO).

BSI Annual Review 2022–23

The BSI is pleased to publish our Annual Review, showcasing our activities and achievements over the last year. We are proud of the great progress made over the past 12 months, both in terms of the support and activities that we provide for our members and our work engaging with the wider world to ensure that immunology is centre stage.

2022 ended with record attendance at BSI Congress, with over 1,700 immunologists coming together to disseminate the latest research findings! Throughout the year we continued to boost our members' careers through various grants and training, including our bioinformatics programme and the

tailored financial support of our Career Enhancing Grants. Other activity highlights include the consolidation of our journals as key publications in the field, achieving new indexing milestones, and recognising outstanding individuals and teams at the inaugural BSI Immunology Awards.

None of these achievements would be possible without the support of our members, who volunteer in a myriad of ways to support the ongoing work of the BSI. We're incredibly grateful to you all for your help and support throughout the year.

You can download the full Annual Review from our website at www.immunology.org/annual-review to discover more about how the BSI has made a difference for

immunology over the last year. Print copies will also be available on the Society's stand at Congress, so do pop along to pick up a copy and talk to us about how you can get involved with our work. You can also request a print copy from membership@immunology.org.



SOCIETY NEWS

BSI Member Representative Forum: here to represent you

Our most recent Member Representative Forum meeting took place in person and opened with a warm welcome to our newest Member Representatives: Dr Anna Andrusaite, Early Career Representative; Jhanna Kryukova, PhD Representative; and Chloe Pyle, Industry Representative.

Discussions kicked off with some excellent suggestions for the BSI training offering and how we could continue to offer valuable courses to our membership. Members discussed different target audiences for immunology training courses – including nurses, midwives, and pharmacists – and how training could benefit such groups.

Next, Forum members provided their views on how the Society could better connect and support underrepresented communities within immunology through proposed new networks. Members offered their valuable insights on this area, suggesting how a new initiative could be best implemented, what it could be called, potential alternatives and more. This was

followed by a conversation about the challenges that are impacting the research grant pipeline. Individuals shared their thoughts and concerns, as well as their ideas for the BSI to help in this area and for immunology to maintain a strong and crucial research budget.

Discussions then moved to BSI Congress with a particular focus on the structure and timings of the poster sessions. Members shared innovative formats and excellent suggestions to ensure the sessions are as beneficial as possible to all Congress attendees.

Finally, the BSI team provided updates on recent and significant BSI activities championing immunology and supporting our community.

If you would like to raise any issues for your Member Representative Forum to discuss at an upcoming meeting, please contact your relevant representative – you can find a list on our website at www.immunology.org/forum. Alternatively, you can email our Director of External Affairs, Jennie Evans, at j.evans@immunology.org, who can pass on the message.

Over the next year, a number of positions will become available on our Member Representative Forum and our other committees. We want to encourage you to consider standing for a vacancy:

- PhD Representative
- Early Career Representative
- Clinical Representative
- Northern Ireland Representative
- Education & Careers Secretary

Find out more about the upcoming vacancies below.

Make a difference for immunology!

The British Society for Immunology is run for its members and by its members. Over the next year, we have a number of vacancies that will become available on our committees.

Society members who are willing to stand for election and contribute their knowledge, expertise and experience as part of our committees are vital to ensure that we are doing all we can to support our members and the field of immunology as a whole. This is a fantastic opportunity for you to get involved in the work of the Society and to make a real difference to immunology in the UK. We would like to actively encourage nominations from members from all backgrounds, career grades and locations around the UK.

Keep an eye out on the BSI website www.immunology.org for more details in the new year, and make sure you've signed up to receive our communications.

Vacancies

In the new year, we will put out a call for nominations for the following positions:

These positions are selected by membership elections to be held in late spring:

BOARD OF TRUSTEES AND SECRETARIES

- Early Career Trustee
- Clinical Research Secretary

SECRETARIES

- Education & Careers Secretary
- Groups Secretary
- Congress Secretary

MEMBER REPRESENTATIVE FORUM

- PhD Representative
- Early Career Representative
- Clinical Representative
- Northern Ireland Representative

BSI-CIPN STEERING GROUP

- Two members

CONGRESS COMMITTEE

- Four general members who are selected by an inhouse panel to complement the existing expertise on the committee.



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How cross-sector collaboration can unlock the scientific potential of immunogenicity



Disclaimer: MSD fully funded and attended the roundtable meeting. The report 'Measuring vaccine-induced immunogenicity: Leveraging a COVID-19 legacy for improved public health', was fully funded by MSD and was fact checked for accuracy and balance only.

In this article, Dr Ulrike Buchwald (MSD Research Laboratories) and Andrew Tran (MSD UK) reflect on the findings of the 'Measuring vaccine-induced immunogenicity: Leveraging a COVID-19 legacy for improved public health' policy report, published by the BSI.¹ Hear their thoughts on the report's key findings and recommendations on the necessary steps to keep building momentum below.

The roundtable on 'Measuring vaccine-induced immunogenicity: Leveraging a COVID-19 legacy for improved public health' was an initiative that brought together experts in vaccinology and immunology, policymakers, regulators and industry to discuss how to build upon learnings from the COVID-19 pandemic, with a focus on how to unlock immunogenicity measurements as a key tool to improving the vaccine development pipeline. The subsequent report sets out recommendations to guide research and policy agendas which will ultimately benefit populations and strengthen our pandemic preparedness.

There are three broad conclusions from the report that will be essential in preparing the public for future pandemics:

- The importance of cross-sector collaboration
- Prioritising further immunogenicity research
- Protecting people who are immunocompromised/immunosuppressed

Continuing to drive progress in these areas will help to ensure that the UK is best prepared to respond rapidly and robustly to infectious threats and protect those who are most vulnerable in our population.

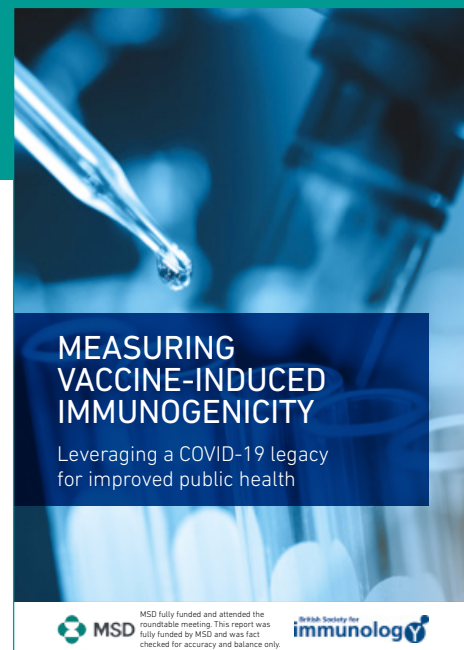
The report recommends that continued immunogenicity research should be recognised as a central component of the UK's pandemic preparedness plans.

Cross-sector collaboration

Lessons learned from the COVID-19 pandemic laid bare the importance of close and effective collaboration between stakeholders across public and private sectors to ensure successful vaccine development. The precedent set during the pandemic was of unparalleled magnitude, but various barriers to collaboration remain. Cross-pollination of perspectives and expertise will lead the way to a better understanding of the unique challenges and needs that each group of stakeholders may face.

Importantly, **there needs to be clarity around who holds a particular remit, and where best practice already exists.**

The report emphasises that an important next step to achieve this is producing a centralised map of the UK's academic innovation and capacity and developing a virtual biobank of samples stored in UK laboratories. Improving coordination this way would enable industry to better identify areas for focused resource investment and research efforts. One of the core UK Health



Security Agency (UKHSA) priorities is to invest in efficient and long-lasting data and technology infrastructure to develop pathogen genomics and surveillance capabilities.²

The remarkable ability of the UK's vaccinology community to rapidly translate and adopt clinical research remains fresh in our minds, with the work of research consortia during the pandemic, including the UK Coronavirus Immunology Consortium (UK-CIC) as a stellar example. However, collaborative spaces of this kind can only operate effectively with strong support and leadership from the government, who must oversee the establishment of a centralised portal and formal routes for knowledge transfer. The potential benefits of greater data transparency are huge, and would help to aid collaboration between stakeholders in this area.

Prioritising further immunogenicity research

Moving forward, the expert panel recognised immunogenicity research should be a central part of the UK's pandemic preparedness plans. Bolstering the understanding of the ways that immune responses to infection and vaccination are best measured will support decision-makers in evaluating the effectiveness and

'The report recommends that continued immunogenicity research should be recognised as a central component of the UK's pandemic preparedness plans.'

'A crucial next step towards furthering knowledge in this area is increasing the inclusion of people who are immunocompromised or immunosuppressed in clinical trials to better understand vaccine-induced immunogenicity in these groups, and provide clinicians with the evidence needed for clinical decision-making.'

value of vaccines to society.

One example of this is the panel's recommendation **to ensure that immunogenicity assays are considered alongside clinical outcome measures in licensing evaluations for vaccines.** Assays provide an essential tool for regulatory agencies to evaluate the safety, efficacy and quality of vaccines for licensure, and for policymakers to estimate the impact of a vaccine on individuals and public health. As specific immune responses to infection and vaccination vary between pathogens, measuring immunogenicity in standardised and scalable assays can be difficult. Given this, driving forward our research in this area can provide future benefits in informing post-marketing surveillance studies and our ability to monitor different demographics.

Another key focus area of the panel's report is mucosal immunity – the immunological response that forms in the body's mucous membranes in response to exposure to and infection with microbes. Mucosal immune responses harbour vast promise for further research into vaccines that can prevent onward transmission and reduce the public health burden of infections, especially respiratory infections. With lessons from the pandemic in mind, the panel encourages to **direct research towards a better understanding of mucosal immune responses and develop methods to better evaluate vaccines for their potential to provide sterilising immunity and indirect protection to the community.**

Protecting people with weakened immune systems

One of the report's key focuses is around ensuring how to prioritise protection of the most vulnerable groups in the population, including those who are immunocompromised. There are many heterogeneous conditions that can lead to or be associated with a compromised immune system and immune responses. Therefore, the number of patients living with a specific condition is often small, which can limit our understanding of the potential impact on the course of infection and/or the response to vaccination. At-risk groups are also commonly underrepresented in vaccine licensing studies. **A crucial next step towards furthering knowledge in this area is increasing the inclusion of people who are immunocompromised or immunosuppressed in clinical trials** to better understand vaccine-induced immunogenicity in these groups, and provide clinicians with the evidence needed for clinical decision-making.

To generate the required participant numbers, the panel outlines the need for more large-scale studies. An example of this is the 2023 OCTAVE study to determine vaccine immunogenicity in these groups.³ Funded by the Medical Research Council and with advocacy from the BSI, the OCTAVE trial studied post-SARS-CoV-2 vaccination immune responses in patients who are immunocompromised, with

findings reporting a low or undetectable immune response for many of these patient groups.³ While the study further highlighted the urgent need for focused research in this area, its data crucially helped to inform changes to recommendations for people who are immunocompromised or immunosuppressed to ensure they received a prevention programme tailored to their specific needs.

Collaboration is key for the future of immunogenicity research

Irrespective of the specific focus, each of the report's recommendations are underpinned by one overarching theme: the need to nurture collaboration and draw on the different areas of expertise in vaccinology, immunology, policymaking, regulatory authorities and industry to drive solutions. Key questions and challenges still exist within the field of immunogenicity, but the potential that could be harnessed is vast.

At MSD, we are continuing to work with experts from all these different sectors, who share our vision and passion towards driving progress in the field of immunology and vaccinology. It is our vision to continue to work together to build upon the foundation of excellence laid throughout the COVID-19 pandemic and ensure that long-term benefits can be delivered to those who need it most in society.

Dr Ulrike Buchwald, Section Head Pneumococcal Vaccines in Global Clinical Development, MSD Research Laboratories
Andrew Tran, Senior Medical Manager for Pneumococcal Vaccines, MSD UK

Date of Prep: September 2023 | GB-NON-07855

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How are the foundations of the human immune system laid down?

Learning new computational techniques in New York

In this article, BSI member Dr Simone Webb shares her experience conducting a lab placement in the Memorial Sloan Kettering Cancer Centre in New York, USA, in summer 2023 with the support of a BSI Career Enhancing Grant.

Poised for challenge

Our immune system is an evolutionarily conserved network of cells that are crucial to protect us from infection. Immune cells first emerge in early embryonic development, though our understanding of their migration, communication and differentiation into mature and functional components of the immune system is incomplete. Single-cell genomics technologies now allow us to access molecular profiles of tissues, including gene and protein signatures, at unprecedented cellular resolution.

I completed my PhD research with Professor Muzlifah Haniffa at Newcastle University, who is a clinician scientist, co-lead of the Human Cell Atlas Developmental bionetwork and Academy Medical Sciences Fellow. The Human Cell Atlas is an international consortium which aims to map all single cells in the human body across all ages and in health and disease. Much of my PhD research focused on developmental immunology, where I analysed single cells from precious prenatal tissues using tissue

biobanks such as the Human Developmental Biology Resource. This work revealed a prenatal immune system poised for challenge, with implications in the therapeutic use of immune stem cells and to regenerative medicine.

Expanding the technical toolkit

My postdoctoral research builds on my background in exploring the foundations of the immune system, and now expands into all bodily systems present in early embryogenesis. We are interested in expanding the technical toolkit used in this project, since we are now able to assess single cells using epigenomic modalities, in addition to the RNA and protein epitope data my previous research has focused on. This began my journey into learning single-cell multiomic data analysis, and better appreciation of the biological questions we might be able to answer when assessing chromatin accessibility data.

With the support of a BSI Career Enhancing Grant, I was able to complete a three-week



placement at Professor Dana Pe'er's lab at Memorial Sloan Kettering Cancer Centre in New York. Dana is a pioneer in computational and systems biology, and Howard Hughes Medical Institute Investigator. Dana's lab regularly develops new algorithms and computational tools for single-cell data analysis, and places challenging and clinically relevant biological questions at the core of their research. Especially relevant for my research project, Dana's team have innovated to overcome the issue of sparsity in single-cell chromatin accessibility data through use of a metacell inference algorithm.

Multiomic data analysis pipelines are still being carved out, and some issues such as sparsity have not yet been resolved to the extent of significant community endorsement. It was therefore exciting that while discussing research projects during a virtual call with Muzlifah and Dana, Dana kindly extended the offer of hosting me for a lab placement. This BSI grant was advertised a few short weeks later, and both Muzz and Dana were extremely supportive in putting the application together.

Computational techniques in New York

I arrived in New York in mid-June, and as I was only able to visit for three weeks, we decided to select a high-quality subset of our Haniffa lab embryo data to trial run through the Pe'er lab's general multiome analysis

'Having access to this welcoming and engaged computational team meant my deeper understanding of each analysis step was massively accelerated through daily face-to-face discussions of pitfalls, recommended tweaks to the workflow, and pointers to additional resources.'

pipeline. Although this process could have been completed remotely, having access to this welcoming and engaged computational team meant my deeper understanding of each analysis step was massively accelerated through daily face-to-face discussions of pitfalls, recommended tweaks to the workflow, and pointers to additional resources. Crucially, I achieved a much greater understanding of how their current multiome analysis approach fits into the wider single-cell multiome analysis tool ecosystem, and how I might adapt this approach for my future purposes.

In addition to the practical analysis steps learnt during this lab placement, there was also a lot to be learnt by being in this different research environment. Having worked within the Haniffa Lab for both my PhD and postdoc, I was keen to see how time in a majority-computational research environment might differ, and what I could take away from this experience in terms of coding and general research practices. I enjoyed the time I was able to use to reflect on my coding during this placement, which was partly due to my physically being away from the daily responsibilities of my team, but also due to being around coders day in and day out. I also found it interesting to meet and learn of the work of the Single Cell Analytics Innovation Laboratory team at MSK, who sat right alongside Dana's team, many of whom helped me daily, and gave me an appreciation for the different mechanisms

'The BSI Career Enhancing Grant allowed me to visit and learn from a world-leading computational biology group and begin to develop key analytical skills in the field of single-cell multiomic analysis.'

through which a computational research team can be supported. This made me consider the role of the parallel teams we have in my home institutes (Newcastle University and Sanger Institute), and the shared values that make these innovative facilities work well.

These new perspectives on protected coding/research time, and mechanisms for lab support gave me a lot of food for thought regarding future research and fellowship applications, which I brought back to my PI and wider team, and which formed the basis of a very interesting reflective team discussion.

Reflections

The BSI Career Enhancing Grant allowed me to visit and learn from a world-leading computational biology group and begin to develop key analytical skills in the field of single-cell multiomic analysis. I would like to thank Professor Dana Pe'er for allowing me to join her research team over the summer and

encouraging me to build bridges to make the most out of my short time. Thanks to the wider Pe'er lab for being so welcoming, instructive, and open to sharing their expertise and experiences. I would also like to thank my PI Professor Muzlifah Haniffa for allowing me to focus this time on skills training with no condition, and to the British Society for Immunology for funding this lab visit, which has been invaluable for increasing the impact and scope of my postdoctoral project.

It is an exciting time to work on developmental and human immunology, and the opportunity to train in one of the most exciting analysis tools out there was one which I am very grateful for, and which I am sure will elevate the impact of my future work.

Dr Simone Webb,
University of Newcastle and Sanger Institute



Professor Dana Pe'er's lab having a team meal during Dr Simone Webb's placement.

The CARINA Network: Immunity for life

The CARINA (CATalyst Reducing ImmuNe Ageing) Network is a collaborative initiative that unites researchers interested in the study of the immune system across the life course. Supported by funding from the Medical Research Council (MRC) and the Biotechnology and Biological Sciences Research Council (BBSRC), CARINA fosters cooperation among researchers from diverse fields and career levels. The BSI has a leading role in supporting the network through project delivery, event planning and communications. Through our involvement in CARINA, we aim to enable a sector-wide transformation in our approach to ageing research by creating an inclusive, collaborative space that will be able to address the key research questions in immune ageing in the years to come. In this article, Ben Wilcock, BSI Research Programme Manager, discusses the network's aims, impact so far and future work.

Why was CARINA created?

As we age, every component of our immune system changes. Distinct cells and organs react differently to threats, and the effectiveness of these responses varies based on an individual's age. Research indicates that immunity tends to decline as we get older, making it more challenging to mount a robust defence against infections. As a result, older people are at a higher risk of experiencing severe outcomes when encountering pathogens for the first time, a phenomenon that was accentuated during the COVID-19 pandemic.

With a progressively ageing population, gaining a deeper understanding of how the immune system changes as we get older could open new avenues for promoting better health and longevity. The CARINA Network aims to accomplish this by fostering collaboration among researchers and experts specialising in a diverse range of fields related to ageing, including medical, immunology, nutrition, industry and the charitable sector.

The main aims of the CARINA Network are to:

- Build a collaborative community of researchers and experts from many different sectors
- Map the key research questions surrounding immune ageing
- Investigate and address these questions through an interdisciplinary approach

Who is involved?

CARINA currently has over 90 members, a quarter of whom are early career

researchers (ECRs). Together, these researchers are sharing their knowledge, skills and experience to create a holistic and collaborative approach to researching the ageing immune system.

The Management Group of CARINA, led by Professor Arne Akbar, former BSI President, directs the Network by identifying new research strategies and ensuring that novel approaches to ageing research are being facilitated through collaboration and knowledge exchange.

CARINA Network Management Group



Professor Arne Akbar



Professor Deborah Dunn-Walters



Professor Janet Lord



Dr Ed Chambers



Professor Neil Mabbott



Dr Ross Breckenridge



"The CARINA Network facilitates large-scale collaboration between researchers from multiple disciplines who, for the first time, are working together to identify and better understand patterns and commonalities in the immunology of ageing. I am proud to lead this network, and the support of the BSI ensures that CARINA is milestone-driven, inclusive and effective in providing opportunities to develop innovative new research."

Professor Arne Akbar,
Principal Investigator, Network Director,
and Chair of the CARINA Network
Management Group

Join the network!

We are looking for new members from a wide range of disciplines and career stages to join the network. If you're a PhD student, postdoc or PI interested in immune-ageing research, please do get in touch to join the network by emailing CARINA@immunology.org.

The Management Group is supported by a diverse advisory board, chaired by Dr Lorna Chernajovsky, with representatives from industry, the charity sector, and public and patient contributors.

Our Early Career Forum is at the heart of the Network's activities and meets regularly for spotlight talks and development discussions. In addition, ECRs have been able to access free bioinformatics training through the Network. CARINA has also successfully brought members together to formulate innovative and collaborative grant proposals focusing on developing biomarkers for immune frailty.

We have held two in-person conferences, which have allowed our community to come together with a particular focus on facilitating cross-sector collaborations and gaining a shared consensus from network members of the key research questions within immune ageing and the resources needed to facilitate these.

Immune frailty

In early discussions, the CARINA Network's Management Group explored ways to focus its activity, given its members' diverse research interests. Frailty in the context of the ageing immune system emerged as an underexplored concept that could significantly contribute to poor health in old age. The NHS defines frailty as reduced resilience, preventing recovery after challenges. In the immune system of ageing adults, this could involve infections or tissue injuries; however, the current operational assessment relies primarily on physical characteristics and neglects the role of the immune system, limiting our understanding of the biological factors



CARINA Network meeting in Birmingham, July 2023

driving frailty. Despite being a common part of getting older, frailty is usually measured using broad clinical factors such as weak strength, low energy, and weight loss without an obvious cause. This can oversimplify the various factors involved and makes it hard to understand why people become frail and how we can best help them. By identifying the common factors that lead to frailty as people age, we can discover new ways to support older populations in living healthier lives for a longer time.

Recent mice studies have demonstrated that inducing ageing in T cells alone can lead to a frail state, suggesting that immune ageing may play a substantial role in frailty. As a result, the Management Group agreed that refining definitions, understanding, and practical methods for assessing immune frailty would be the Network's most impactful focus.

Future plans

Going forward, we plan to build on our collaborative work around immune frailty, both exploring possible funding opportunities and raising awareness of the importance of the topic within public

and policy forums. We also have a focus on building networks and collaborations with industry, with an in-person focused meeting planned for the new year. Finally, we aim to further increase our support of ECRs through offering enhanced training on topics such as grant writing and public involvement in research and offering sandpit funding opportunities.

CARINA, together with the BSI Immunosenescence Affinity Group, is supporting a parallel session at this year's BSI Congress in Belfast. We hope you will join us at the 'Inflamm-ageing and immunosenescence: understanding age-associated immunological decline' session at 11:00-12:45 on Tuesday 5 December.

Ben Wilcock,

BSI Research Programme Manager

Find out more

To find out more please visit the website at www.immunology.org/carina.

Follow us @CARINAnetwork

With thanks to the funders of the CARINA Network



'The CARINA Network aims to accomplish this by fostering collaboration among researchers and experts specialising in a diverse range of fields related to ageing, including medical, immunology, nutrition, industry and the charitable sector.'

Edinburgh Immunology EDI Summer School

The Edinburgh Immunology EDI Summer School was designed to better prepare university students for their final years of study by increasing their understanding of immunology and their sense of belonging. With funding from a BSI Equality, Diversity & Inclusion activity grant, this unique event took place at the start of September. Here, the organisers, Dr Jason Mooney, Dr Alan Hayes and Dr Patricia Castro, discuss what their goals were, how they made it happen, and reflect on the highlights and future lessons.



Students at the Edinburgh Immunology EDI Summer School.

Attending university can be a wonderful experience, allowing students to embrace the unknown. It is a time to discover new and exciting ideas, as well as weed out topics that we dislike. However, for most students, it is accompanied by stress and anxiety, because, let's be honest, navigating undergraduate school is difficult. Students often balance responsibilities at home with their studies. Some may have lost their support network as they move away from home, others might need to balance a part-time job. On top of this, there is the omnipresent dread of wondering 'what am I going to do after?'. If we ask ourselves 'How did I fall into STEM, and particularly immunology?' I'm sure each one of us will come to a different answer. Did it choose you? (Was there a sorting hat?) Did you pick a course because you liked the tutor?

Regardless of the answer, knowledge is the foundation we use to navigate our careers. For students, it shouldn't be any different.

Every interaction, positive and negative, shapes the student experience helping them make informed decisions about their future. Students may not always be aware of what opportunities await them, and it's often those who know where to look that can easily navigate through the storm. Therefore, equity in choosing a career in immunology requires space for every student to gain the knowledge and skills necessary, as well as to make connections, talk to people and be aware of what opportunities are out there. Stumbling from class to class and subject to subject may have worked for some of us, but to truly

improve equality, diversity and inclusion (EDI) in immunology, we must make a concerted effort to share our knowledge and experience with the next generation.

Diversity and success in academia

The diversity of the student body continues to increase year on year. Factors such as ethnicity and socioeconomic background can have a large impact on students' achievement. Recent reports have shown that students from Black, Asian and minority ethnic groups leave university with lower grades than their white peers.¹ Students from deprived areas are also less likely to obtain a first or 2:1 than their peers.²

Other factors such as sexual orientation, disability and other protected characteristics can have a negative impact if students do not feel comfortable and welcomed in the teaching environment. However, students who develop a sense of belonging and build effective relationships with other students and academic staff are more likely to succeed and achieve better outcomes.^{3,4}

Therefore, we wanted to create an event that not only has EDI at its heart, but that provides students the ability to develop their skill set, enhance their understanding of immunology and increase their sense of belonging, ultimately better preparing them for their final years of study.

"It was very informative, allowed me to understand more about where my degree could take me and how to achieve this."

"I enjoyed speaking to former honour students as it's given me a better idea of what next year will be."

"Lectures were incredible, the organisers were enthusiastic and helpful."

Creating an enhanced student experience

In Scotland, the summer of the second to third year is when students choose their honours subject, often presenting a challenging transition. Our goal was to create a weeklong summer school that showcased immunology, while also helping students to develop core skills and graduate attributes that will be important in their final two years. Following the EDI session at the 2022 BSI Congress in Liverpool, Dr Jason Mooney and Professor Gary Entrican talked about the new BSI Diversity & Inclusion Framework (www.immunology.org/diversity-and-inclusion-framework), and how we could make a tangible impact on our student body. Shortly after, Dr Alan Hayes, Dr Patricia Castro and Dr Mooney discussed ways to implement the framework locally to enhance the student experience, and the idea for the summer school was born.

First, we focused on providing a safe and welcoming space for students. We decided to hold the event in September, avoiding the need for students to travel to campus in the middle of their summer break. Interest was high, with 73 applicants leading to 30 students attending. For those unable to attend, sessions were recorded and made available online.

A programme to foster growth

To facilitate student learning, we designed a varied programme aimed at developing key graduate attributes, providing a peek into the immune system, an opportunity to develop skills and a space to build a community between the staff and students. The key sessions and their goals are highlighted in the table.

While the programme was devised to focus on student support and fostering growth within the undergraduate community, we decided that giving staff members opportunities for career development was equally important. Early career researchers (ECRs), much like our students, can often find it hard to source opportunities to develop

their repertoire of skills. As postdocs, we often struggled to find opportunities for lecturing and tutoring, so we wanted to provide ECRs with the chance to participate in these types of activities, learn and practise new skills. Therefore, design and delivery of each session was handed over to researchers across the university, allowing us to not only empower the students, but the ECRs who drive forward our understanding of immunology.

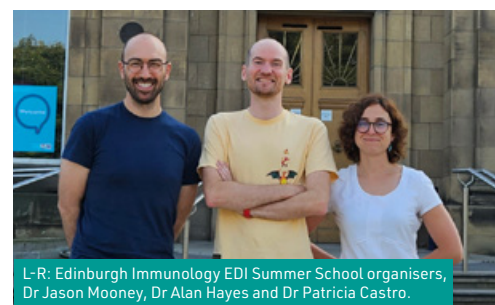
Listening to students

To gauge impact, students filled out surveys before and after the event. Overall, most students found the sessions Useful or Very useful and felt much more comfortable about a variety of skills after the event. We were pleased to see that the three topics with which students felt less comfortable before the school, Careers within your discipline, Applying for studentships/jobs, and Emailing academic members of staff, showed a remarkable improvement after the sessions. Unexpectedly, lab math which we anticipated to be very useful, given our experience supervising Honours students during their projects in the lab (C1V1 = C2V2!), was rated as the least useful, with some students reporting no improvement in math skills. However, devil's advocate, maybe maths at 10am was a poor choice? Regardless, we plan to use this feedback to change the way the session is delivered, to make sure it better prepares our students going forward.

Despite this, we are extremely pleased with the outcomes from the summer school. The students praised the efforts put into designing and delivering the sessions, while highlighting the benefit of the programme to their studies. We feel we have managed to empower students and to boost their confidence to begin carving out a career path.

Lessons going forward

Designing and delivering the summer school has been a great journey and we have learned many lessons along the way. For instance, we would advertise the event prior to the summer break in an attempt to widen participation.



L-R: Edinburgh Immunology EDI Summer School organisers, Dr Jason Mooney, Dr Alan Hayes and Dr Patricia Castro.

Further, we opted for a random allocation of spaces to limit the number attendees due to space and budget constraints. The demographics of participants who did attend was diverse, despite no selection method at recruitment. Going forward however, we would like to increase capacity to allow everyone who applies to join. If this is not possible, we plan to refine our selection process to ensure we are meeting our goals of enhancing learning and attainment for underrepresented populations. Lastly, we would also like to gain more input from students when designing the schedule and as such, we will invite former attendees to help shape subsequent years' activities. This will allow for a constant evolution of the programme and ensure it truly helps to promote EDI and immunology at the University of Edinburgh, while continuing to help prepare students for their final years at university and beyond.

Dr Jason Mooney, Dr Alan Hayes & Dr Patricia Castro

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| Session | Goal |
|---------------------------------------|---|
| Lectures | Develop core immunology knowledge |
| Practicals | Develop core laboratory skills (Dissection, pipetting, microscopy and using python for analysis) |
| Lab math | Improve math skills required in the lab (dilutions and concentrations) |
| Engaging with literature | Develop skills to search and read scientific literature effectively |
| Roundtable with recent undergraduates | Give students the opportunity to ask questions about third and fourth year to recent graduates and receive advice |
| Careers symposium | Highlight the diversity of careers in immunology |
| Research studentships | Provide information on funding, timelines, and ways to apply for summer internships |

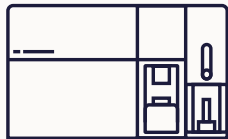
BSI Equality, Diversity & Inclusion activity grants

This grant scheme is designed to help organisations and individuals fund activities and events that promote diversity and inclusion across the immunology community and the wider biomedical sciences. The next round will be in springtime 2024. You can find out more here: www.immunology.org/BSI-EDI-grant.

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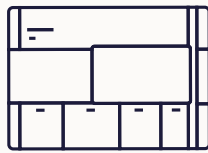
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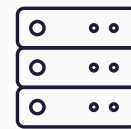
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Time and date:

December 15, 2023, 9 am (UTC+1)

Presenters:

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- Christopher Sundling, PhD - Karolinska Institutet
- Jens Gertow, PhD - Mabtech



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Empowering the younger generation to actively participate in disease prevention

We recently supported a project to engage with primary school children in Uganda around COVID-19 and vaccination through a captivating comic book, with funding from our BSI Communication and Engagement Grant scheme. Here, the organisers, Dr Gwokyalya Anna Maria and Dr Nakityo Innocent, share how they designed the project, its impact and lessons for the future.



Children are often overlooked in health education because it is assumed that in the young mind there are certain concepts that are way too complex for its understanding. We however found this notion to be untrue as we embarked on our project. This project's aim was to increase knowledge and awareness on COVID-19 and its prevention, with emphasis on vaccination, among Ugandan children at primary school level of education (ages 6 to 12). The tool utilised in this education series was a comic book that we authored, titled *The Mugishas' COVID-19 Tale*, a book with captivating illustrations and a message designed to entertain and educate the young mind.

In partnership with Makerere University Johns Hopkins University (MU-JHU) Research Collaboration, we were blessed to win the BSI Communication and Engagement Grant. This enabled us to execute this education project in five selected primary schools in Uganda, namely: Mbuya Primary School, Makerere Primary School, Namugongo Boys' School, Lohana Academy and Nakasero Primary School. Each of these schools has on average 900–1,500 pupils from P1 to P7. Each class was divided into two to three streams with each comprising 30–50 students. In order to have more effective sessions we chose one stream per class. Before the children read the book, we used a simple questionnaire to have a more objective picture of what the children already knew. It was evident that children knew a lot about COVID-19 and how to prevent it, but very little about why.

Understanding 'why'

We used this information to guide our sessions so that, in addition to the reinforcement of what they knew, we also helped them understand why. A stellar decision we made was giving each of the participants a chance to read. We got to appreciate the uniqueness of each child and the power of inclusivity. Some of the children exhibited a high level of confidence, word articulation and story interpretation.

The sessions were interactive but some of the discussions that really caught the children's interest were about the COVID-19 vaccines. Children shared mind-provoking myths and concerns about the COVID-19 vaccine that definitely required factual explanations. Some of them had questions about the eligibility criteria for vaccination of children while others expressed their fear for side effects of the vaccine that they had heard about. The children could agree that there was more to learn from the sessions than merely reading the book.

Inspiring children

The exercise led to a tremendous increase in knowledge (49.2%) among the participants on various aspects regarding COVID-19, such as the mode of transmission, symptoms, prevention of spread and most importantly, COVID-19 vaccination. With the application of this knowledge, the participants can ably protect themselves and their neighbours from contracting COVID-19, knowing that they too are a possible risk group.

One of the most important parts of every read-aloud session was understanding the essence of the story. In the book, we tried to paint a picture of children being the centre of change in the fight against the pandemic within a familiar community. This inspired the children to do the same in their communities.

Agents of positive change

We learned that children, just like adults, are an important part of the community that require attention and that they too can be agents of positive change in their respective communities and so, they should never be left out when it comes to community activities. They should be engaged in a way unique to them that is also captivating.

We also appreciated that comic writing is a highly effective health education avenue for children, not only regarding COVID-19, but also other health issues of public health concern.

Thank you

Our heartfelt gratitude goes out to:

- The British Society for Immunology for providing the much-needed financial support for the success of this project.
- MU-JHU for partnering with us and the mentorship throughout the project.
- The team for persevering through it all until the end.

Dr Gwokyalya Anna Maria, Uganda Martyrs' Hospital, Lubaga, Kampala, Uganda
Dr Nakityo Innocent, St. Francis Hospital Nsambya, Kampala, Uganda

FUTURE FOCUS

Building skills and confidence in bioinformatics

Bioinformatics is becoming ubiquitous to life sciences and is now a potent driver of scientific development. Bioinformatic tools are increasingly used to complement wet-lab research in immunology but effective and affordable courses in this area are few and far between, which is why we're offering low-cost, highly rated training in this area, in collaboration with the Glasgow Bioinformatic Core. Here you can discover the courses in the programme and key dates.

Designed for wet-lab scientists

In 2022, we started offering a new training programme, in collaboration with the Glasgow Bioinformatic Core, to equip wet-lab immunologists, biologists and other life scientists with the skills and confidence to perform their own bioinformatic data analysis.

The programme was designed by John J. Cole, Manager of the Glasgow Bioinformatic Core, specifically for wet-lab scientists keen to learn R and bioinformatics to advance their career, who have either little or no experience in bioinformatics or want to build skills for future omic experiments; for example, as part of a specific project or to understand omics in current literature. John's background as a wet-lab biologist and decades of experience as a bioinformatician and lecturer perfectly positions him to provide the practical skills and confidence needed.



Raising the impact of your research with omics

This highly rated online training programme provides essential skills for current and future generations of researchers who want to do some omics and raise the impact for their research.

The courses are delivered by John and his team of seasoned demonstrators.

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- Sought-after skills that will expand your career prospects – add it to your CV!
- Confidence to carry out bioinformatic data processing and analysis of your own or public datasets
- Lessons on making beautiful plots using R (e.g. PCA, heatmap, violin, MA, volcano, pathway analysis, etc.)

Dates for your diary

COMING SOON:

Omic data analysis and visualisation using R – entry-level course covering the foundations of bioinformatics, R-coding and omic data visualisation. Starting on:

- 11 December 2023
- 18 March 2024

LATER IN 2024:

- **April:** Clinical data, omic signatures and workflows
- **May, September & December:** Omic data analysis and visualisation using R
- **July:** Genomics, epigenomics and transcriptomics using Linux
- **October:** Single cell and spatial omics

Make sure you watch the BSI website and social media channels for more details!

Picking the right course for you

This training programme has several courses, depending on need and experience, starting with an essential course for complete beginners to set the foundations and building on those skills to help you on specific experiments. For example, allowing for specialisation into advanced topics such as single-cell RNA-sequencing. For more information and to sign up, please visit www.immunology.org/training/bioinformatics-training.

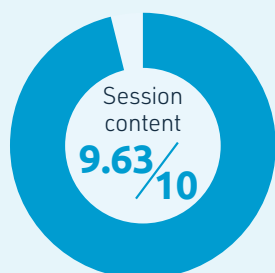
Glasgow Bioinformatic Core

The programme has been developed and is delivered by the Glasgow Bioinformatic Core and is being offered by the British Society for Immunology.

The course has had over 600 attendees since 2020, with 93% of participants thinking the session length and pace was 'about right', after 258 reviews.

Course:

'Omic data analysis and visualisation using R'



Confidence in exploring omic datasets:

Before course:
27.1%

After course:
75.4%

Congratulations

This is the section of the magazine where we celebrate the achievements of our members. Our congratulations to all who are mentioned here.

BSI Communication & Engagement Grants

The BSI is delighted to fund the following projects in the most recent round of our Communication & Engagement Grants.

Dr Emanuela Pelosi, from University Hospital Southampton NHS Foundation Trust, has had the project 'Ensuring patient/public input in a transplant patient immunology study' funded to establish a Patient and Public Involvement (PPI) group to create opportunity for people with lived experience to shape their study design and communication methods to patients, donors and the wider public.

Prof Adrian Liston, from the University of Cambridge, has been awarded funding for the project 'Sensory Science: Outreach to



the blind and low-vision community', which aims to make biosciences more accessible to people who are visually impaired. An outreach event will be developed with an artist to help researchers convey the meaning of their research through interactive artwork.



ISI Annual Award for Immunology

Each year the Irish Society for Immunology (ISI) presents their Annual Award for Immunology to an outstanding Irish immunologist in recognition of their major contribution to the understanding of immunology and health improvement. Many congratulations to BSI Trustee **Prof Teresa Lambe OBE** for receiving this award in recognition of her contributions to research and education.

BSI West of Scotland Immunology Group prizes

Congratulations to BSI members **Patrick Shearer** and **Dr Sarwah Al-Khalidi** for being awarded a poster prize at the BSI West of Scotland Immunology Group's Annual Showcase with Delphine Parrott memorial lecture. This event welcomed two fantastic speakers, Dr Niwa Ali, and Prof Doreen Cantrell who delivered the memorial lecture.

BSI Immunology Undergraduate Prizes

Congratulations to the winners of our 2023 undergraduate prizes which recognise excellence in the study of immunology at undergraduate level, and encourage outstanding students to pursue further postgraduate study, or a career in immunology. Each prize winner will be awarded a certificate, £100, and a year of free membership with the British Society for Immunology.

New appointment at the Kennedy Institute of Rheumatology

Warm congratulations to BSI member **Dr Fränze Progatzy** who has joined the Kennedy Institute of Rheumatology as a new Principal Investigator and group leader in tissue biology, establishing her research group to study how glial cells in the nervous system of the gut and the lungs maintain healthy organs and drive responses to infection and injury. Dr Progatzy will collaborate with other Kennedy research groups studying cell-cell interactions and molecular mechanisms underlying inflammation to understand the role of glial cells in health and disease.

European Research Council (ERC) Starting Grant

Congratulations to BSI member **Dr Carlos Minutti** on being awarded an ERC Starting Grant. Dr Minutti's work is one of three groundbreaking projects chosen from Portugal in the realm of Life Sciences, securing a total funding of over €5m.

Swedish Society for Immunology (SWIMM) grants

Congratulations to **Dr Nimitha Rose Mathew** from University of Gothenburg, Davide Angeletti group, who has been awarded a travel grant from SWIMM to attend the BSI Congress 2023 in the UK to present her work on tissue-resident memory CD4 T cells. We look forward to her joining us in Belfast!

Congratulations to BSI member **Sara E Turcinov** from the Karolinska Institutet, Vivi Malmstrom group, who has been awarded a SWIMM travel grant to attend the American College of Rheumatology Convergence in the USA to present her work on autoreactive T cells in rheumatoid arthritis.

 We would love to hear from you about your achievements. Have you or a colleague recently received grant funding, passed your PhD viva or accepted a new appointment? If so, let us know by emailing media@immunology.org.

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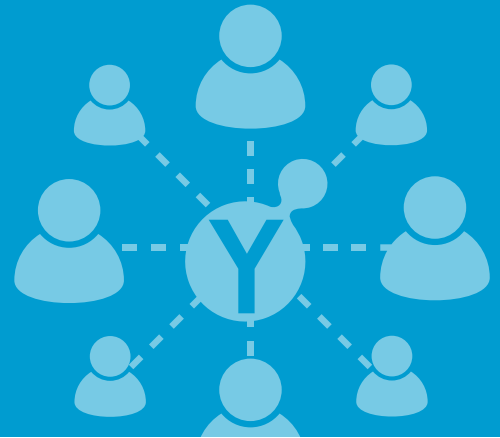
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We wish you all our readers a very
Festive Season
and happy new year!



BSI Regional and Affinity Groups at Congress 2023:

Find the right group for you

Our Regional & Affinity Groups provide a fantastic opportunity for members to get involved and make the most of their BSI membership. Our Groups have helped to organise some of the parallel sessions taking place at BSI Congress 2023 and they are very much looking forward to seeing you there. There will be a wide array of exciting sessions for you to join and explore which Groups are the best fit for you. More details at www.bsicongress.com.

Tuesday 5 December

Inflamm-aging and immunosenescence: understanding age-associated immunological decline

11:00 – 12:45
BSI Immunosenescence Affinity Group and supported by the CARINA Network

The group says...

"We are delighted to support the immune ageing session organised by the CARINA Network. They have put together an exciting programme that will look at the influence of ageing on different areas of the immune system from immune metabolism through to vaccine efficacy. We hope the session will inspire discussion."

Innate immune activation in autoimmune and inflammatory diseases

11:00 – 12:45

BSI Ulster Immunology Group

The group says...

"Don't miss this innate immunity-focused session featuring exciting new science from PhD students, postdocs and PIs. These talks will highlight the function of neutrophils as key drivers of immune-mediated inflammatory disease and the importance of mitochondrial regulation of pattern recognition receptor signalling."

Undiscovered functions of B cells

11:00 – 12:45; 14:15 – 16:00

BSI Greater Manchester Immunology Group and BSI London Immunology Group

The group says...

"In this dedicated, double-length parallel session, we are excited to bring you the latest findings highlighting the pivotal role B cells play in health and disease. The session will showcase the diverse functions of B cells, from the conventional (antibody production) to the unconventional (antigen presentation and immune regulation), with talks from both international and local leaders in the B cell community. We hope it will be a fantastic discussion forum for all B cell enthusiasts."

Tissue-specific immune cell niches

11:00 – 12:45; 14:15 – 16:00

BSI London Immunology Group

Gene editing the immune system

14:15 – 16:00

BSI Immunology North-East Group

The group says...

"Gene editing is a rapidly advancing technology with many potential clinical and laboratory research applications. The focus of this session will be on how gene editing can be applied to immunological settings, looking at novel applications for research, immunotherapies and beyond."

Immunology of climate-sensitive infectious diseases

14:15 – 16:00

BSI Bristol Immunology Group

Wednesday 6 December

Innate immunity at the cancer interface

11:00 – 12:45; 14:15 – 16:00

BSI Tumour Immunology Group

The group says...

"In cancer, it's not all about T cells; innate immunity from intracellular and cellular sources actively participates in cancer progression. This session will highlight new discoveries in this area."

Technical advances in immunometabolism

11:00 – 12:45

BSI Immunometabolism Affinity Group

Fibrosis and the immune system

14:15 – 16:00

BSI Ulster Immunology Group

Mechanoimmunology – sensing mechanoenvironment by immune cells

11:00 – 12:45

BSI Oxford Immunology Group

T cell-mediated responses against infections and vaccines

11:00 – 12:45; 14:15 – 16:00

BSI London Immunology Group

The group says...

"This is a double-length session that intends to showcase the exciting developments in our understanding of T cell-mediated responses in the context of infection and vaccines. The session is broad in the representation of immunologists at different stages of their careers, and the scope of application of research findings."

Thursday 7 December

Immune modulation by the TGF superfamily

11:00 – 12:45

BSI Inflammation Affinity Group and BSI Greater Manchester Immunology Group

Supported by the International Cytokine & Interferon Society (ICIS)

New frontiers in neuroimmunology

11:00 – 12:45; 14:15 – 16:00

BSI Neuroimmunology Group, BSI Greater Manchester Immunology Group, BSI Wessex Immunology Group and BSI London Immunology Group

Co-evolution of viruses and the immune system

14:15 – 16:00

BSI South Wales Immunology Group

Is there a universality in mechanisms of immune memory from lymphocytes to stromal cells?

14:15 – 16:00

BSI West of Scotland Immunology Group

Mast cells in development, health and disease

14:15 – 16:00

BSI London Immunology Group and BSI Inflammation Affinity Group



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Immune Update

The BSI journals

A round-up of new research published in the British Society for Immunology's official journals written by ECR board members of *Clinical & Experimental Immunology*. Members can access these journals free of charge at www.immunology.org/journals and benefit from discounted publication fees.

Discovery Immunology

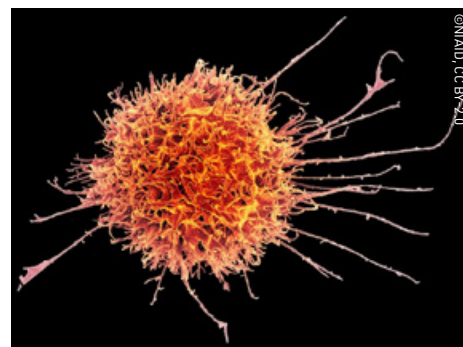
CD56^{bright} NK cells preferentially kill proliferating CD4⁺ T cells

NK cells are mostly known for their tumour recognition capacity and importance in viral immunity. Their role as T cell modulators has become of interest at both basic and clinical levels. In humans, these cells co-express CD16 and CD56; two further subsets are a CD56^{dim} population that comprises most NK cells in the blood and CD56^{bright} cells located preferentially in tissues.

In this study, Lee *et al.*, share three essential pieces of information. First, a comprehensive guide of experimental considerations for NK analysis, an invaluable asset for those studying these cells. Second, they demonstrate that only the CD56^{bright} subset proliferates in the presence of IL-2. Third, using a simple but elegant

experiment, they show that CD56^{bright} cells kill conventional and regulatory proliferating CD4⁺ T cells more efficiently than CD56^{dim} cells.

These observations emphasise the importance of analysing each NK subset independently and raise questions like, is each NK subset using different cytotoxic mechanisms? Which molecules in proliferating CD4⁺ lymphocytes turn them into CD56^{bright} targets? Within which immunological contexts is this regulation occurring? Finally, it is worth continually reviewing the scope of existing and future immunotherapies, as we continue to understand NK cell biology.



Summary by Dr Eda Patricia Tenorio Z., Universidad Nacional Autónoma de México, Mexico

Lee *et al.* 2023 *Discovery Immunology* **11** kyad012 <https://doi.org/10.1093/discim/kyad012>

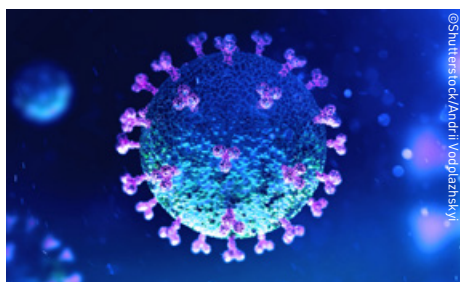
Clinical & Experimental Immunology

Early B-cell response in SARS-CoV-2 naïve individuals

Lundgren *et al.* studied the plasmablasts phenotype and antibody production in SARS-CoV-2 naïve individuals.

Typically, when the immune system encounters a new antigen, the first type of antibody produced is IgM, followed by switched isotypes like IgG and IgA. However, in naïve COVID-19 patients, spike-specific class-switched antibodies can be detected in the blood concurrently with or even before IgM.

The authors suggest that pre-existing memory B cells, developed in response to other endemic beta-coronaviruses, play a role in initiating this rapid antibody response.



These memory B cells give rise to an early wave of plasmablasts, which can migrate to mucosal sites and the bone marrow, producing switched antibodies against the

Wuhan strain and subsequent variants of concern. As patients recover, their antibody production shifts towards a more specific response against SARS-CoV-2, away from other beta-coronaviruses.

These results shed light on the early B-cell response in individuals with no prior exposure to COVID-19.

Summary by Dr Eva Piano Mortari, Bambino Gesù Children's Hospital, Italy
Lundgren *et al.* 2023 *Clinical & Experimental Immunology* **213** 173-189
<https://doi.org/10.1093/cei/uxad044>

Immunotherapy Advances

A systems approach evaluating SARS-CoV-2 mutations on CD8⁺ T cell responses

Viruses such as SARS-CoV-2 can evade the adaptive immune system via mutations that alter T and B cell epitopes. It is important to understand and predict which mutations are immune evasive and to inform novel vaccine design and public health decisions.

Buckley *et al.* took a computational approach to predict how mutations in SARS-CoV-2 impact both binding to HLA-I molecules and T cell recognition. They curated a dataset

of functional CD8 T cell responses over 1,000 SARS-CoV-2 peptides towards the ancestral Wuhan strain. To assess whether viral mutations would escape T cell immunity, they trained a neural network on known immunogenic T cell epitopes. Using these *in silico* models, they examined all existing and theoretical viral mutations, enabling them to predict potential future mutations which may be most detrimental to existing T cell immunity.

This work provides a benchmark for computational approaches in examining T cell immunity and is applicable to other areas such as T cell recognition of cancer.

Summary by Dr Malcolm Sim, University of Oxford, UK
Buckley *et al.* 2023 *Immunotherapy Advances* **3** ltad005 <https://doi.org/10.1093/immadv/ltad005>

Around the journals

A summary of some of the latest papers from the world of immunology.

Control of nutrient uptake by IRF4 orchestrates innate immune memory

Natural killer (NK) cells play a crucial role in the antiviral response, being activated by a multitude of signals, such as NK cell receptor stimulation or proinflammatory cytokines. Yet the integration of these signals remains largely unknown.

In this article, Santosa *et al.* show that interferon regulatory factor 4 (IRF4) is responsible for coordinating NK cell response during mouse cytomegalovirus (MCMV) infection. IRFs are regulated by type I, II and III interferons. IRF4 regulates a transcriptional programme associated with NK cell survival and differentiation occurring early after MCMV infection, while

IRF4 loss results in an inability of NK cells to uptake nutrients, such as iron, required for cell survival and development of NK cell memory.

The authors claim that the role of IRF4 in promoting effector and memory differentiation of NK cells is shared by effector CD8⁺ T cells, suggesting a common mechanism of cytotoxic lymphocyte responses.

Summary by Dr Marzena Lenart, Jagiellonian University, Poland
Santosa *et al.* 2023 *Nature Immunology* **24** 1685–1697



Does SCID newborn screening increase survival after HSCT?



Severe combined immunodeficiency (SCID) is an inborn error of immunity with a diverse genetic background, characterised by defects in the development and function of T cells, B cells, and in some cases NK cells. SCID is usually fatal within the first 1–2 years of life unless an immune-restoring treatment like haematopoietic stem cell transplantation (HSCT) is introduced to the patient.

Thakar *et al.* analysed the transplantation data of 902 children with confirmed SCID at 34 centres in the USA and Canada, from 1982 to 2018. They found that active infection, an age of 3.5 months or older at HSCT, Black or African-American race, and certain SCID genotypes were factors associated with lower survival rates.

Interestingly, SCID patients identified by newborn screening through T cell receptor excision circle measurement represented a better 5-year overall survival (92.5%) compared with SCID patients diagnosed by a family history or clinical manifestations.

They concluded that an earlier age of diagnosis and transplantation can positively influence the HSCT outcome, which could be optimised by newborn screening.

Summary by Dr Mahnaz Jamee, Leiden University Medical Center, Netherlands
Thakar *et al.* 2023 *Lancet* **402** 129–140

Spatial organisation of follicular dendritic cells in immune responses

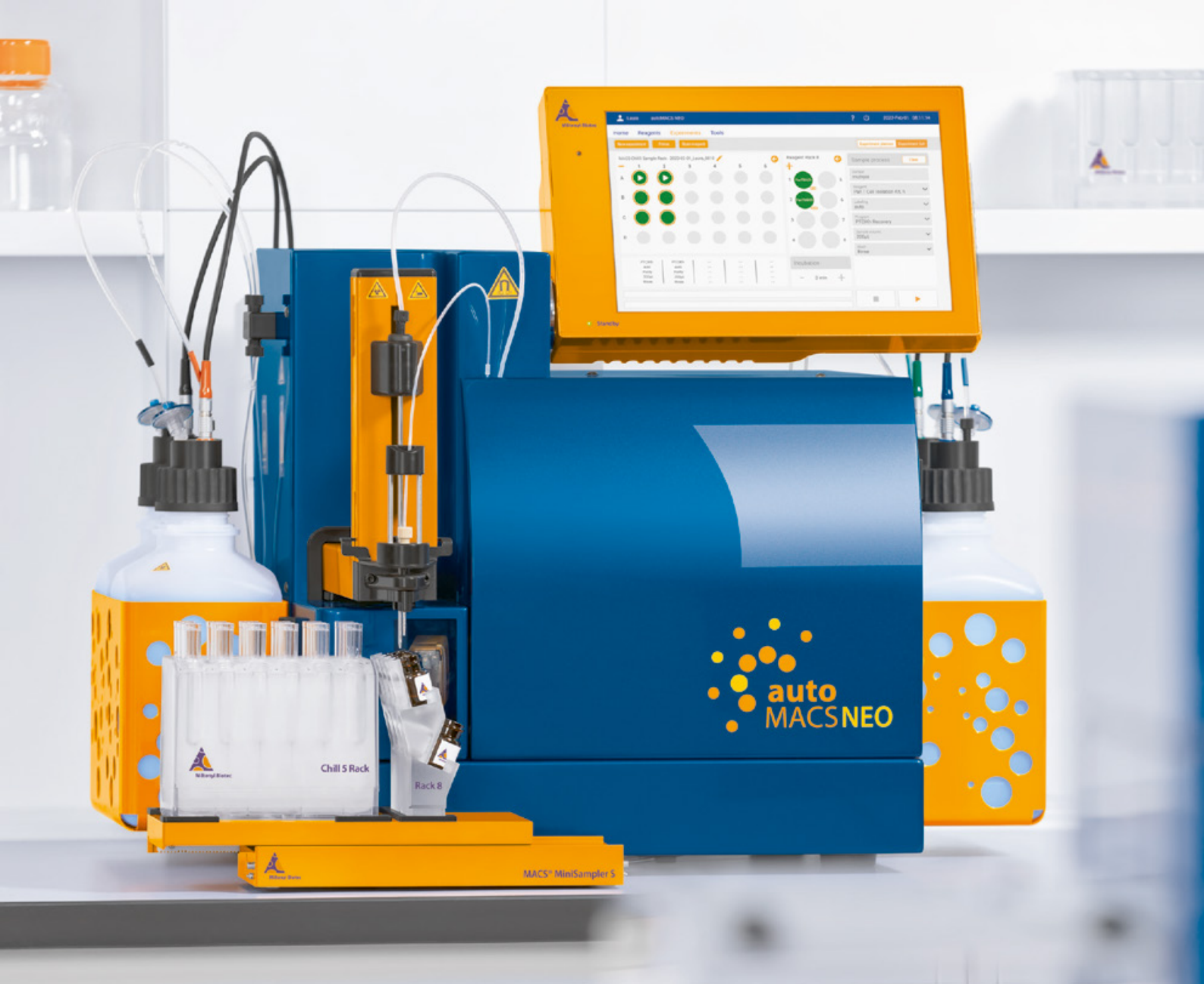
Recent studies have shed light on the pivotal role played by the spatial arrangement of the follicular dendritic cell (FDC) network in influencing the germinal centre response.

In one study, by Silva-Cayetano *et al.*, ageing was explored as a factor impacting the humoral immune response. The study revealed that ageing T follicular helper cells possess an intrinsic CXCR4-mediated bias towards the dark zone, resulting in limited expansion of the FDC network and subsequently reduced germinal centre response.

In another significant revelation, Martinez-Riano *et al.* found that FDCs positioned centrally exhibit heightened retention of immune complexes compared with their peripherally located counterparts and are correlated with the expression of complement receptor 2. Interestingly, while T cells are instrumental in promoting FDC expansion, as also shown in the prior study, they do not appear to play a role in early antigen retention.

These findings underscore the critical role of FDC network organisation and T cells in shaping germinal centre responses, thereby advancing our comprehension of immunisation, infection and cancer responses over time.

Summary by Dr Theo van den Broek, University Medical Center Utrecht, Netherlands
Silva-Cayetano *et al.* 2023 *Nature Immunology* **24** 1124–1137
Martinez-Riano *et al.* 2023 *Nature Immunology* **24** 1281–1294



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