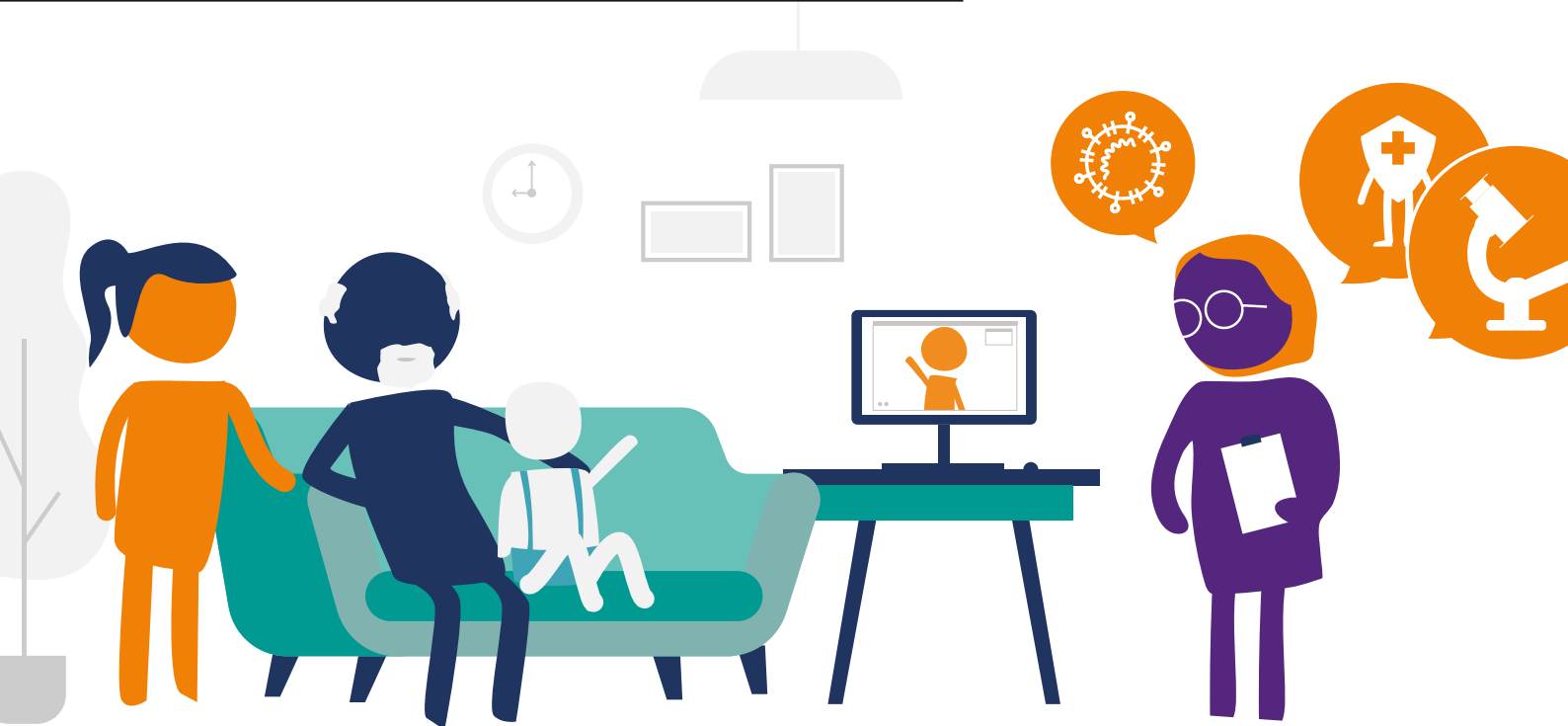


Immunology News

March 2021 | ISSN 1356-5559 (print)

Vaccine engagement:

our mission to increase
public understanding



**COVID-19
immunology report:**
what we know about immunity

Black In Immuno:
celebrating the
contributions of Black
immunologists

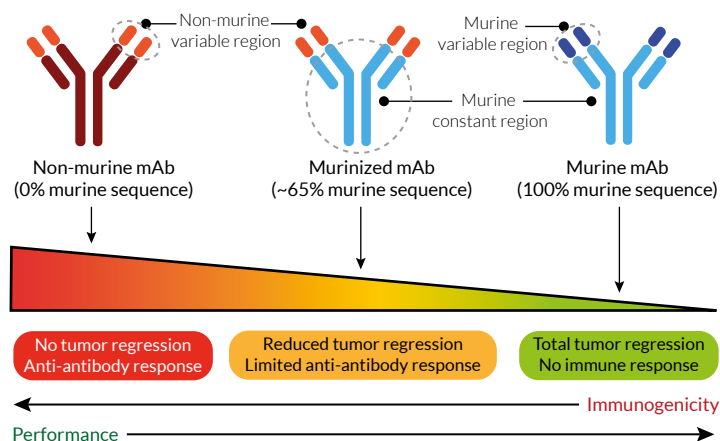
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feature:**
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clinical trials

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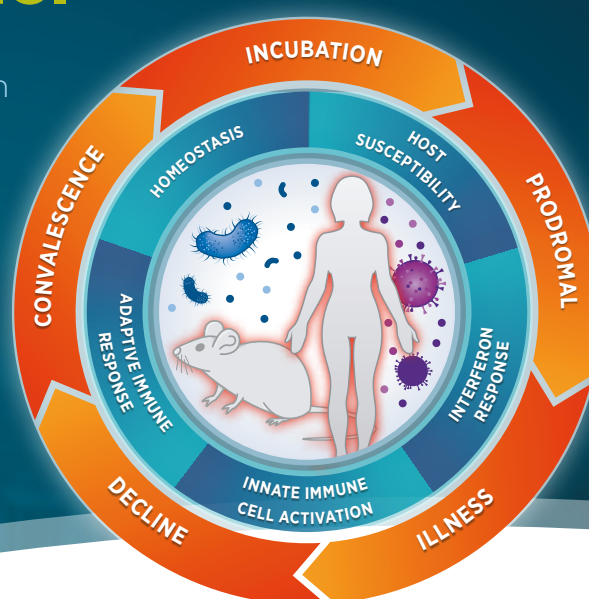
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Welcome to the first *Immunology News* edition of the year. In the past few months, we have been working tirelessly to raise the voice of our wonderful members in public discussions around COVID-19 vaccines. It is truly a once-in-a-lifetime opportunity to make a huge impact through the expert knowledge of the immunology community. We are incredibly proud of all our members for all your hard work and dedication during this difficult time – we couldn't do this without you!

The considerable length of this issue is testament to the huge number of activities we have been carrying out, through and for our members. A big highlight is our 'Vaccine engagement starts at home' initiative which, in a short space of time, has become

a leading force in the crowded arena of vaccine conversations. We continue to come from a place of collaboration when it comes to engaging with the public about the importance of vaccination. We have ramped up our efforts to give our members the tools, confidence and timely occasions to participate effectively in these dialogues on our #ExploreVaccines focused days.

We are genuinely inspired by all the time and effort you spend giving back to the community. Thank you!

Teresa Prados

t.prados@immunology.org



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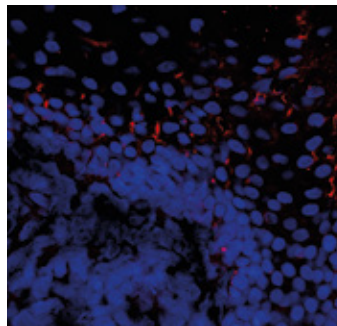
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VIEW FROM ... THE BSI PRESIDENT



2021 has begun with renewed hope as the COVID-19 vaccine rollout continues and more people receive their vaccinations each day. The immunology community took great strides last year to make this possible and I am immensely proud to be a part of it. However, the past few months have come with many challenges for all of us, and our work as immunologists fighting this pandemic is far from over. As BSI President, I would like to thank each and every one of you for your commendable resilience and remind you that the Society is here to support you every step of the way. We will continue to face new challenges but, when we come together as a strong community, we can become the driving force of positive change.

The Society has led the way in the public engagement and policy sphere around COVID-19. In a coordinated effort to increase public understanding of the importance of vaccinations for

COVID-19, the BSI's 'Vaccine engagement starts at home' initiative has built on the success of last year's Celebrate Vaccines campaign and is raising our expert voice as immunologists further and louder than before. This initiative aims to provide BSI members with the necessary support to engage with the public around vaccination, while also showcasing a range of ways in which we can all play our part. I urge you to find out more on the BSI website and join this vital mission to engage with your communities and help ensure good uptake of COVID-19 vaccines.

We have also interacted with all levels of the UK Government to make sure immunology is put firmly centre stage and appropriately recognised in policy discussions and public debates around COVID-19. In particular, we have received excellent feedback from MPs regarding the comprehensive factsheet we provided to answer questions and concerns about COVID-19 vaccines, which has been invaluable in engaging with their constituents.

Following four influential reports from our expert immunology and COVID-19 taskforce, the latest output rapidly reviews current research on immunology to SARS-CoV-2 induced by vaccination and natural infection. This work, led by BSI Trustee, Professor Deborah Dunn-Walters, has had an impact across the political spectrum. As well as being cited by the Chair of the House of Lords Science and Technology Committee on the floor of the House of Lords, it has also led to us increasing our sphere of influence and engaging with high-profile policymakers, including Lord Bethell, Parliamentary Under Secretary of State at the Department of Health and Social Care. You can read the full report on our website at www.immunology.org/coronavirus/immunology-and-covid-19.

As many of you will have seen, the Society's publishing portfolio will see

some changes in 2022. We have decided to focus on developing journals that are fully owned by the Society, meaning the BSI will no longer be affiliated with the Wiley-owned journal *Immunology*. I know that *Immunology* is held in great affection by many of our members, but this move will help secure our financial sustainability and ensure that the BSI can continue supporting future generations of immunologists. In addition, from next year, our relationship with Oxford University Press will be strengthened as our wholly owned journal, *Clinical & Experimental Immunology*, joins our Open Access journal *Immunotherapy Advances* in our partnership with this publisher. I hope you continue to support the BSI family of journals.

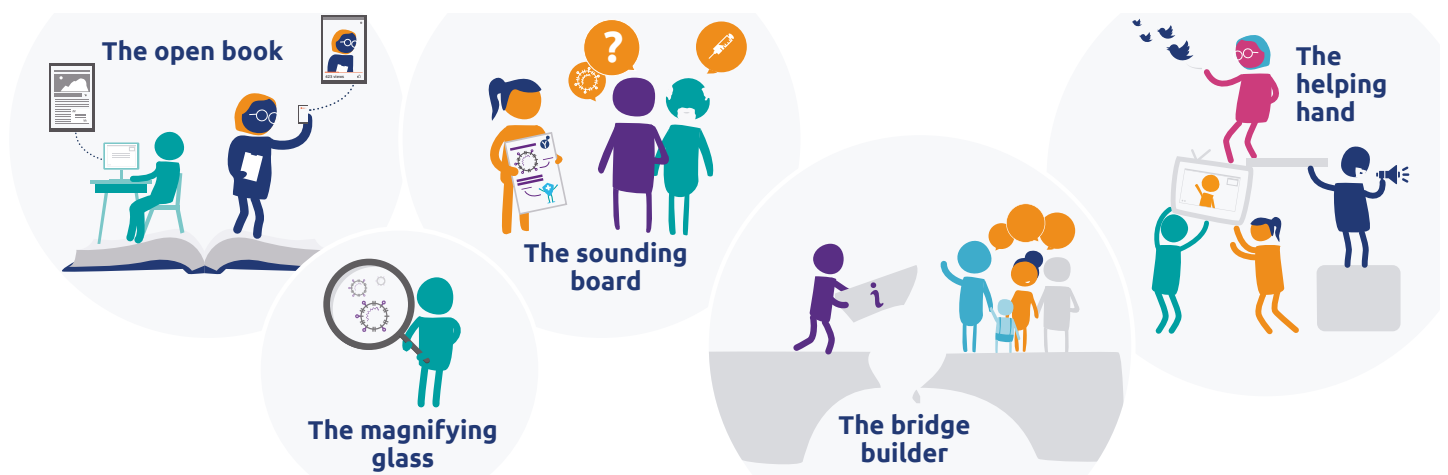
The BSI would not exist without you. As members, your voices shape the Society and, in turn, play an important role in delivering the future of immunology. The world has changed greatly since the pandemic started and at the BSI, we want our work to support the current needs of our members. We are in the process of developing our new strategy, which will start in July this year and run through until 2025. We have put together a short survey to gain insight into your challenges and opportunities to help determine the Society's course both during the pandemic and in a post-pandemic world. Please take a few minutes to complete it before it closes on Friday 9 April: bit.ly/BSISurveyMarch21.

Thank you again to all our members for your ongoing support. I hope to be able to meet you face-to-face soon.

With best wishes

Arne Akbar

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



VIEW FROM ... THE CHIEF EXECUTIVE



Welcome to the first issue of *Immunology News* of 2021! What an end to 2020 with our virtual conference (pages 6-7) – it was a fantastic event and we were so pleased to get such positive feedback from all of the delegates especially given it was our first major virtual event. Many thanks to all of the speakers, chairs, organisers and helpers, it really was a brilliant team effort that resulted in two days packed with fantastic science,

reaching over 800 delegates across the globe. And it didn't stop there, as we have had quite a start to 2021!

Never before has immunology been so prominent in the eyes of politicians, policymakers and the public, and we are so proud of how so many of you, as members of the BSI, have continued to step up to the challenge and play your part in the research, advocacy and/or public engagement on COVID-19 issues. It is such a tough time for so many, but science brings so much hope and is delivering us out of this pandemic. It is an honour to be able to work with you all through the BSI to have a meaningful impact on public health. In fact, we are extremely grateful to those of you who have helped develop and disseminate some exciting new resources on COVID-19 vaccination. More information can be found on pages 12–13. These resources have landed extremely well and we are working hard to ensure they get the widest reach possible to help the public as well as healthcare professionals. Please do take some time to have a look and share them with your networks wherever possible!

We are also making huge progress with the BSI's new journal, *Immunotherapy Advances*, with the launch of its first issue at the end of 2020. The journal has published a TrialsWatch series which looks into immunotherapy clinical trials in specific disease areas. It's such a

wonderful resource, I highly recommend it to you all (more on page 22). And many thanks to several of our BSI Affinity Groups for their help in compiling the series.

Our work around Equality, Diversity and Inclusion continues to be a top priority and it was an absolute pleasure to be able to support Black in Immuno week. Among a range of activities, we helped highlight the work and experiences of Black immunologists on our social networks – more information on this can be found on pages 24–25. Suffice to say this was a huge success and one we will look to continue in the future.

There is so much more to be found in this issue so please do have a read through. And if all of this inspires you to get involved with the BSI, why don't you have your say in the BSI committee elections? Voting opens on Tuesday 30 March. The new committee members will be announced on Tuesday 4 May, including positions on the Board, Forum and Congress Committee. More information can be found on page 8.

As always, we are here for all of you, so please do not hesitate to get in touch if you have a question, an observation, a great idea, or just want to chat! We'd love to hear from you. Stay safe.

Doug Brown

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

Vaccine engagement starts at home

British Society for
immunology



Raise your expert voice in **#VaccineConversations**

SOCIETY NEWS

Virtual conference highlights: connecting immunology

In December last year, immunologists from all around the world gathered virtually for our first two-day virtual scientific conference 'Connecting immunology in the time of COVID-19'. It was a unique experience, filled with a huge array of cutting-edge science, panel discussions and opportunities to exchange ideas and build collaborations in a safe environment.

We'd like to say a huge thank you to all our speakers, presenters, chairs, sponsors and delegates who helped to make the conference a success. Thank you too to our wonderful Congress Committee, and in particular our Congress Secretary, Professor Gary Entrican, for all their hard work and dedication in bringing together such an excellent line up of sessions and speakers. All abstracts from the conference are still available to read on the conference website (www.bsivirtualconference.com/programme_abstracts). In total, we welcomed over 780 attendees and connected with people from 31 different countries!

We were honoured to welcome Sir Patrick Vallance, the UK Government's Chief Scientific Advisor, to join the 'Immunology and COVID-19' plenary session which also featured a presentation from Professor Paul Moss and Dr John Grainger on behalf of the UK Coronavirus Immunology Consortium (UK-CIC). Speaking on the day that the Pfizer-BioNTech COVID-19 vaccine was approved for UK use, Sir Patrick reflected on his role of Chief Scientific Advisor during the pandemic and the huge advances that we have made in our understanding of the disease's biology, treatments and vaccines.



CONNECTING IMMUNOLOGY IN THE TIME OF COVID-19



Sir Patrick Vallance





Dinuka Ariyaratne @DinukaAri

Brilliant keynote from Prof. Iwasaki. @VirusesImmunity #BSIVirtual great info on immune responses to SARS-CoV2. Thanks for highlighting the impact of the pandemic on #WomenInSTEM & also the importance of studying gender differences in immune responses incl in cis/trans

2:36 pm - 2 Dec 2020 - Twitter Web App

Emily Stephenson @emilyxxx

Very pleased to have had the opportunity to present our #COVID-19 work at #BSIVirtual a fantastic conference with some great speakers, highlights include @VirusesImmunity @uksciencechief and the @UKCICstudy session!

Muzlifah Haniffa @Muzz_Haniffa - 1 Dec 2020
@emilyxxx in action at #BSIVirtual Bright Sparks
twitter.com/UKCICstudy/sta...

10:06 pm - 2 Dec 2020 - Twitter for iPhone

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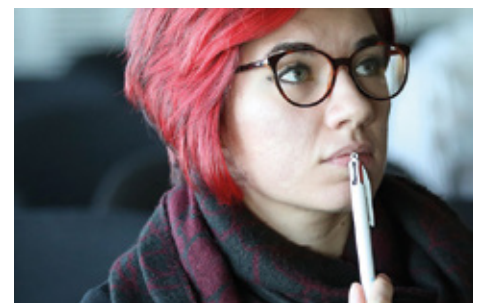
79 hours of inspiring sessions, lectures and workshops

40 exhibitors

Dr Lucy Garner @TheLucyGarner

Just presented by work at the virtual BSI conference. Very different experience presenting online, but really enjoyed it! Thanks @bsicongress for organising #BSIVirtual 😊

11:43 am - 1 Dec 2020 - Twitter for iPhone



Save the date!

BSI CONGRESS 2021
28 November – 1 December 2021
Edinburgh, UK

Plenary sessions on:

- Calling time on immunology
- Stromal immunology
- T cell exhaustion
- Immunometabolism
- Immunogenetics
- COVID-19 immunology

Follow #BSI21 for updates!

SOCIETY NEWS

BSI committees: make a real difference to immunology!

Elections for vacancies on the British Society for Immunology's committees open on Tuesday 30 March. Your elected representatives will make numerous decisions on your behalf about the BSI's priorities and activities. This is a fantastic opportunity for you to get involved in the work of your Society and make a real difference to immunology in the UK.

Our Trustees have the chance to make an active and dynamic contribution to the Society through their responsibility for setting and overseeing our strategy, governance and finances, and by working closely with our CEO and staff to support all our members. Forum is the Society's 'think-tank', charged with developing policy and overseeing other areas of activity for the Society such as careers, public engagement, media, policy and public affairs. The membership of Forum is designed to be representative of the Society's membership, including individuals from all career grades and immunology sectors. The primary focus of the Congress Committee is to plan and deliver our flagship event, BSI Congress. In particular, the committee works closely with the BSI events team to set the scientific programme and is involved in other activities to ensure the success of the conference.

Please check your emails and the BSI website for details on how to cast your vote. Voting will be open from Tuesday 30 March to Friday 23 April and full details on how to vote will be circulated to members shortly. The election results will be announced on the BSI website the following week.

Thank you to all the wonderful BSI members who nominated themselves for one of the positions available. We are always looking for committee members from all backgrounds, career grades and geographical locations and we were delighted to see nominations from across the spectrum of our membership. It is fantastic to see so many of you offering your your time, thoughts and energy to represent your fellow members. Your enthusiasm and a willingness to get involved is invaluable and plays a key role in formulating our activities and policies.



How can I have a say?

Your vote really does count. Your elected representatives will make numerous decisions on your behalf so engaging with the elections genuinely does make a difference.

You can only vote if you are a current member, so please ensure that your membership is up to date.*

"Our community consists of over 4,000 immunologists from 68 countries around the world from all backgrounds and career grades. I urge everyone to continue building this community by having a say and contributing to our strong voice, so we can represent immunology effectively at the highest levels."

Professor Arne Akbar,
BSI President

*Voting is open to all paid categories of membership. Please note, this excludes undergraduate members and low-income economy overseas members who do not have to pay a membership fee.

Vacancies

BOARD OF TRUSTEES

- **Treasurer** – Trustees make active and dynamic contributions to the Board, using their wide-ranging skills, knowledge and experience to ensure good governance and the development of strategy for the Society. The overall role of the Treasurer is to maintain an overview of the Society's affairs, ensure financial sustainability, and ensure that proper financial records and procedures are maintained.

Fiona Culley finishes her term of office as Trustee. This role is due to commence in mid-2021.

FORUM

The following positions will start in summer 2021.

- **Wales representative** – this position is open to any BSI members based in Wales. Ceri Fielding finishes her term of office this year.
- **Early-career representative** – this position is open to any BSI member who is up to three years into their postdoctoral (or equivalent) career. Laura Pallett finishes her term of office this year.

CONGRESS COMMITTEE

We have five vacancies on this committee for general members commencing January 2022. Positions on this committee don't go out for election but rather are selected by an in-house panel to complement the existing expertise on the committee.



Dates for your diary

Voting opens:

Tuesday 30 March 2021

Voting closes:

Friday 23 April 2021

Results announced:

Tuesday 4 May 2021



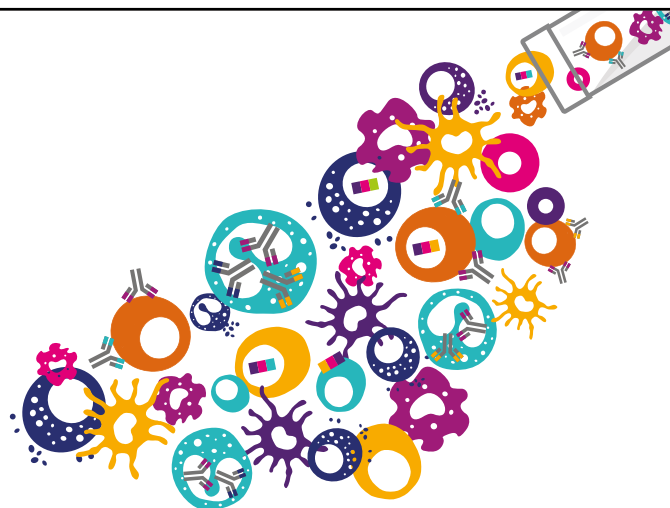
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SOCIETY NEWS

Connecting on Coronavirus

On the next two pages, we provide you with a brief update on what we've been doing over the past few months to support our members and to feed into public discussion around COVID-19. We also invite you to discover our Connect on Coronavirus hub (www.immunology.org/coronavirus) which features a range of resources to keep you informed on the latest developments and to support you in your career.

Policy focus

The BSI's policy work on COVID-19 has continued at pace. In February 2021, the BSI Immunology and COVID-19 Taskforce launched a new report, 'Immunity and COVID-19', which has been successful in creating opportunities and making impact for our policy work. Following the report, Lord Patel (Crossbench), Chair of the House of Lords Science and Technology Committee, raised the BSI's key recommendation that long-term, robust immune monitoring of vaccinated individuals is needed to determine which immune markers most reliably serve as correlates of protection, figure out how often booster vaccinations might be needed and inform the development of second-generation COVID-19 vaccines. Lord Patel also asked the Lords Health Minister, Lord Bethell of Romford (Con), to meet with the BSI to which he agreed. Lord Bethell, who serves as Parliamentary Under Secretary of State for Innovation at the Department for Health and Social Care, leads on the department's policies regarding COVID-19 treatment and vaccines, COVID's long-term health impacts, as well as the life sciences and research more broadly. He met with the BSI's President, Professor Arne Akbar, and Chief Executive, Dr Doug Brown, and we are following up several streams of work with him to make the case for the research that we know is needed. You can find out more about our policy report on 'Immunity and COVID-19' on pages 17-18 of this magazine.

The months since the last edition of *Immunology News* have seen the regulatory approval and successful rollout of COVID-19 vaccines in the UK, and understanding that many people would have questions regarding how they had been developed, how effective they were, and why social distancing rules would remain after vaccination; we sent all MPs a list of likely FAQs from their constituents with answers written by our Immunology and COVID-19 Taskforce. This was a big success with a lot of positive feedback from MPs and their staff who said they have proved invaluable in engaging with their

constituents on the vaccines (several have reproduced the FAQs on their websites) and opened up channels of communication which will be useful going forward.

Finally, we have worked hard to make sure that the voice of immunologists is heard clearly in the media. Ensuring that journalists can speak directly with immunologists to put the latest COVID-19 findings into context is one of our key roles. In recent months, spokespeople from the BSI have been quoted in many national and international news stories including BBC News, *Daily Mail*, *The Financial Times*, *The Sun*, *The Guardian* and *The Washington Post*.

Webinars

In 2020 we developed three webinar series to share the latest Coronavirus developments, develop your professional skills and connect you with the immunology community. This year we continue to expand our webinar offering in line with our mission to support our members, both in their career development and engaging with the public, but also going further in our work to help inform healthcare workers around COVID-19 vaccination.

Our new '**COVID-19 vaccine conversations**' series is aimed at BSI members and other researchers who wish to increase their skills and confidence to be positive ambassadors for COVID-19 vaccination. These webinars provide the tools needed to approach conversations about vaccines in a constructive way and generate productive interactions using expert immunology knowledge. In the first session, Sheena Cruickshank and Matt Morgan focused on effective ways of engaging with the public. The second session, on empowering our members to discover their path to effective public engagement, was delivered by a panel of speakers. Viki Male, Zania Stamataki, Mohammad Alhadj Ali and Danny Altmann shared their diverse experiences of engaging with the public and the range of impactful activities they have been carrying out.

We also delivered interactive webinars developed for healthcare workers.

'The immunology of COVID-19 vaccines'

series aims to increase healthcare workers' confidence in talking to the public about COVID-19 vaccines. In the first session, Emma Chambers and Brian Ferguson discussed their own experiences of engaging with the public and how to listen to and address concerns. Donald Palmer and Dammy Pinheiro ran the second session which was designed for healthcare workers from ethnic minority communities to provide a supportive forum to ask any questions around COVID-19 vaccination.

Following the success of our 2020 series, we launched a new series to highlight and promote alternative career paths for immunologists. '**Careers in immunology**' offers insights into different routes you can take using the foundations and transferable skills learnt studying immunology. The series will cover a range of career pathways including science policy, research funding and scientific publishing.

Finally, our Regional and Affinity Group webinars continue to showcase a wide range of topics and the recordings of our 'Connecting on Coronavirus' series are all available to watch.

Take a look at the events section on our website for upcoming sessions and head to www.immunology.org/events/bsi-events for all our recordings from previous webinars.

The BSI is working hard to represent and support the immunology community during this time. We hope that you've found our activities so far useful and we welcome feedback on our activities and any other areas you feel we should focus on.

The BSI coronavirus initiatives are supported by The Lorna and Yuti Chernajovsky Biomedical Research Foundation. Our thanks also go to our following Gold Corporate Members who are supporting our coronavirus work: 10X Genomics, Fluidigm, Miltenyi Biotec and NanoString.

SOCIETY NEWS

Collaborative Covid Immunology: A UK-CIC Conference

The UK Coronavirus Immunology Consortium (UK-CIC) is an unprecedented research initiative bringing together 20 UK centres for immunology research in a coordinated effort to answer key questions around the immune system's response to COVID-19. Funded by UK Research and Innovation (UKRI) and the National Institute for Health Research (NIHR) and supported by the British Society for Immunology, it began in Summer 2020, and it aims to deliver meaningful public health benefit within 12 months to increase our ability to control the COVID-19 pandemic.

On Wednesday 28 April and Thursday 29 April 2021, UK-CIC is running a two-day virtual scientific conference to offer BSI members, consortium collaborators and the wider immunology community a unique opportunity to gather virtually. 'Collaborative Covid Immunology' will allow immunologists to interact, exchange ideas, and hear from some of the world-class researchers working to understand the relationship between the immune system and SARS-CoV-2, as part of UK-CIC. The programme is available online, and includes speaker sessions on primary immunity, immunopathology, viral evolution and vaccinology, alongside opportunities to participate in focused discussions through the online conference platform.



COLLABORATIVE COVID IMMUNOLOGY

A UK-CIC Conference

The BSI exists to promote and support excellence in immunological research and clinical practice. Immunologists have been at the forefront of research efforts into COVID-19 and we couldn't be prouder of how our community has stepped up to this challenge. By working with UK-CIC, we aim to support UK immunology as a whole to collaborate at a national level to answer the big outstanding questions around how the immune system interacts with SARS-CoV-2, with a view to improving diagnosis and treatment as well as increasing our understanding of vaccines for COVID-19. Through supporting this inclusive approach across the immunology community, we will aim for a lasting positive legacy, creating a blueprint that could be exploited for future national collaborative efforts within immunology.

We would like to encourage BSI members to join the UK-CIC virtual conference to catch up on the latest COVID-19 immunology research!

Find out more:

For more information about the UK-CIC conference and to register: www.uk-cic.org/event.

Follow @UKCICstudy on Twitter to stay updated and join the conversation using #UKCICconference.

To learn more about the initiative, head to the UK-CIC website: www.uk-cic.org.

If you would like to keep up to date with the latest research and progress from UK-CIC, you can sign up to the UK-CIC e-newsletter: <https://bit.ly/3lDoL4p>.



COLLABORATIVE
COVID
IMMUNOLOGY

A UK-CIC Conference

28-29 April 2021

#UKCICconference

SOCIETY NEWS

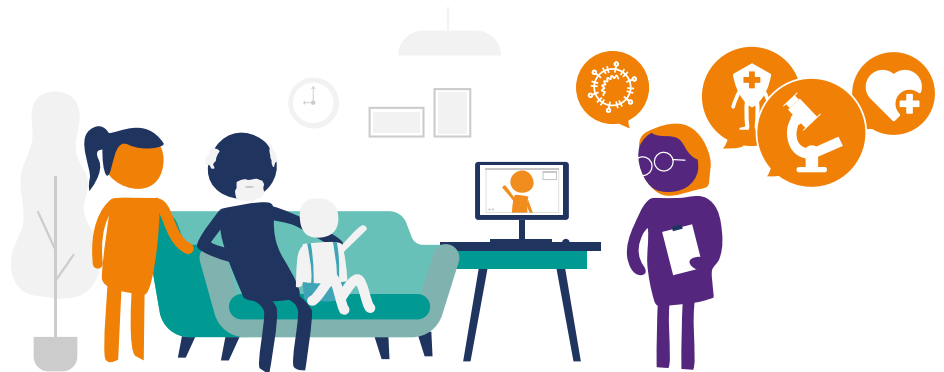
Vaccine engagement starts at home

We recently launched a public engagement campaign about COVID-19 vaccines to raise the expert voice of the immunology community in public discussions. The 'Vaccine engagement starts at home' initiative is based on providing our members with the necessary support to engage with the public around vaccination and become positive ambassadors. Here, we feature our useful resources, including our vaccination guide on COVID-19 vaccines for the public, highlight the informative Q&As we have been developing with our members and showcase some brilliant examples of public engagement activities from our members.

Helping you engage with the public around COVID-19 vaccines

BSI members and the wider research community are ideally placed to be expert sources of knowledge in public discussions about COVID-19 vaccination. But, getting started in these conversations can seem daunting. To help you get started, we have collated a variety of great resources from the BSI to support you in raising your voice. These resources are free for everyone and we encourage BSI members to use these materials as part of their public engagement activities. You can access all of our resources here: www.immunology.org/vaccine-engagement-starts-home.

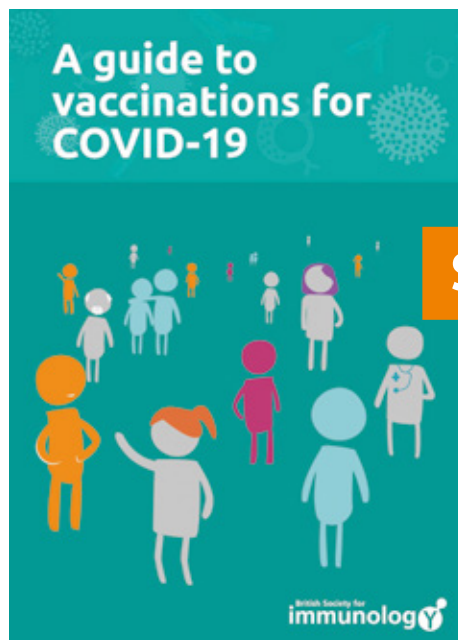
If you're looking for effective ways of engaging with the public, we recommend watching our webinar on COVID-19 vaccine conversations. Professor Sheena Cruickshank (University of Manchester) and Dr Matt Morgan (University Hospital of Wales) discuss their experiences of engaging with the public and answer questions on how to listen to and address people's concerns on vaccines, deal with uncertainty and have constructive



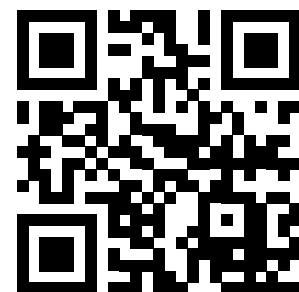
conversations about vaccination. Watch the live recording here: bit.ly/37ESXGI.

We have also put together some top tips for approaching these conversations to build your confidence to talk about vaccines for COVID-19 with a wide range of audiences in a context of public engagement e.g. during a science-festival-related activity, online engagement on social media, talking to family and friends and sharing information with communities. Read our top tips: bit.ly/2ZEhtMU.

At the British Society for Immunology, we aim to provide reliable, evidence-based information on COVID-19 vaccines and immunity to everyone who needs or wants it. Our new guide for the public explains how vaccines work and answers common questions and concerns and provides up-to-date information on the current approved COVID-19 vaccinations in the UK. For example, it looks into the ingredients of COVID-19 vaccines, how the vaccines have been developed so quickly without compromising safety, why two doses are needed and specific information about the vaccines currently approved in the UK. We'd like to encourage our members and the immunology community to download and share this guide. You can download the guide here: www.immunology.org/guide-covid19-vaccines.



Scan this QR code



BSI President, Professor Arne Akbar, said:

"The BSI is a community of 4,000 immunologists but we're also a community of 4,000 vaccine ambassadors. Ensuring good uptake of COVID-19 vaccines is going to be crucial in the coming months and, as immunologists, we can all play our part in having constructive conversations to increase public understanding of the importance of vaccination."

SOCIETY NEWS

Shining a spotlight on members who are speaking out about vaccines

Our 'Vaccine engagement starts...' series showcases examples of how BSI members are COVID-19 vaccine ambassadors. Our hope is that, through highlighting a range of the wonderful and impactful activities our members have been carrying out, others will be inspired to begin engaging with the public on vaccines.

There are many different ways to be a positive role model for vaccination. You can start with the people around you, like your family and friends, or reach out to wider communities. You might want to have conversations face-to-face or may be more comfortable in a virtual setting. Maybe you're looking to hone your writing skills or you fancy stepping out of your comfort zone and trying something new? Explore these case studies to find inspiration: bit.ly/3dFptMA.

Vaccine engagement starts...

...at the Swansea Science Festival

BSI South Wales Immunology Group members, Dr Becky Aicheler and Dr Simone Cuff, give their perspective of running a virtual #CelebrateVaccines session in a live interactive format at the Swansea Science Festival.

"I think it can be easy to take for granted the expertise we have as a scientist and I believe it's important that we communicate our understanding to the general public."

Dr Becky Aicheler

"The people involved in science engagement tend to genuinely like helping others. These are people that are nice to know and work with."

Dr Simone Cuff

... with a science communication blog

BSI member, Dr Daniel Patten shares what he learned from writing a comprehensive blog sorting fact from fiction and appearing in the local news and encourages other researchers to embark upon public engagement.

"Team up with other people around you to add more weight to what you're trying to say. It is quite scary to raise your head above the parapet and have the spotlight on you, but it's less daunting with someone else."

Dr Daniel Patten

...in your university networks

BSI member, Dr Natalie Riddell talks about the role of immunologists in public engagement and how she has been working with her local networks and the alumni community to build vaccine confidence in informative online sessions.

"You don't have to reach a huge number of people, but you can share your knowledge with friends, family and colleagues. At least it's a start!"

Dr Natalie Riddell

...on TikTok

BSI Forum Early Career Representative, Dr Faith Uwadiae, discusses her science communication journey and her learnings



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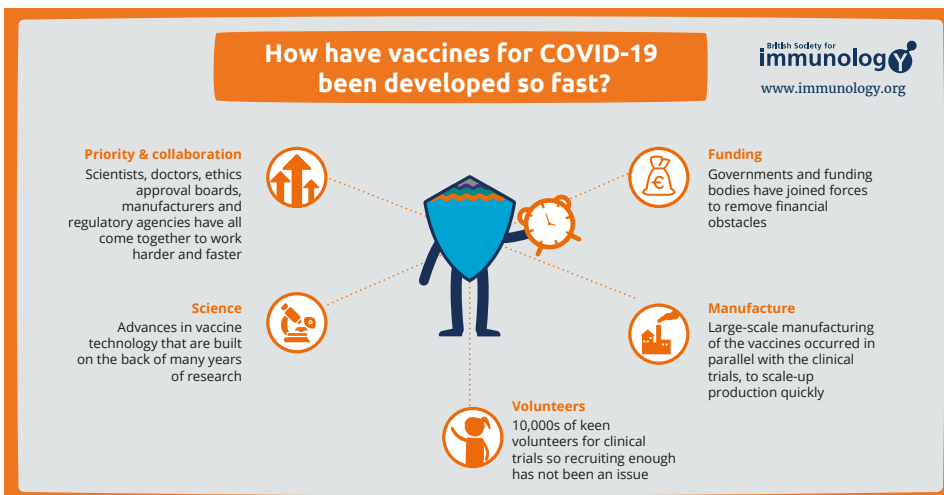
from sharing facts about COVID-19 vaccines through 60-second videos on TikTok.

"We should never underestimate what we can do with our background and knowledge – a small conversation can have such a big impact in people's lives."

Dr Faith Uwadiae

Calling on our members to become COVID-19 vaccine ambassadors

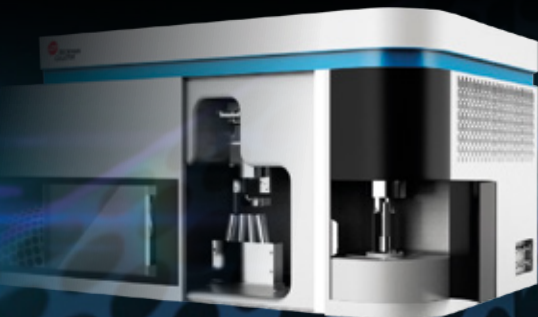
We're looking for a wide range of individuals from different backgrounds and all career levels to help us reach and engage diverse communities. We have set up a short survey to gather key details that will help us connect the right people to relevant activities in the future. The more people involved, the bigger an impact we can make. We would like to encourage you to consider taking part and join our mission to increase public understanding of the importance of vaccination. To be included in the volunteer COVID-19 vaccine ambassador database, please fill out the survey at www.surveymonkey.co.uk/r/C6LLT89.



Find out more:

Explore our public engagement campaign 'Vaccine engagement starts at home' here: www.immunology.org/vaccine-engagement-starts-home. We're always looking for members to help bring the expert immunology voice so if you'd like to get involved, don't hesitate to contact our Public Engagement Manager, Erika Aquino, at e.aquino@immunology.org.

SOMETHING IS COMING



EARLY 2021



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SOCIETY NEWS

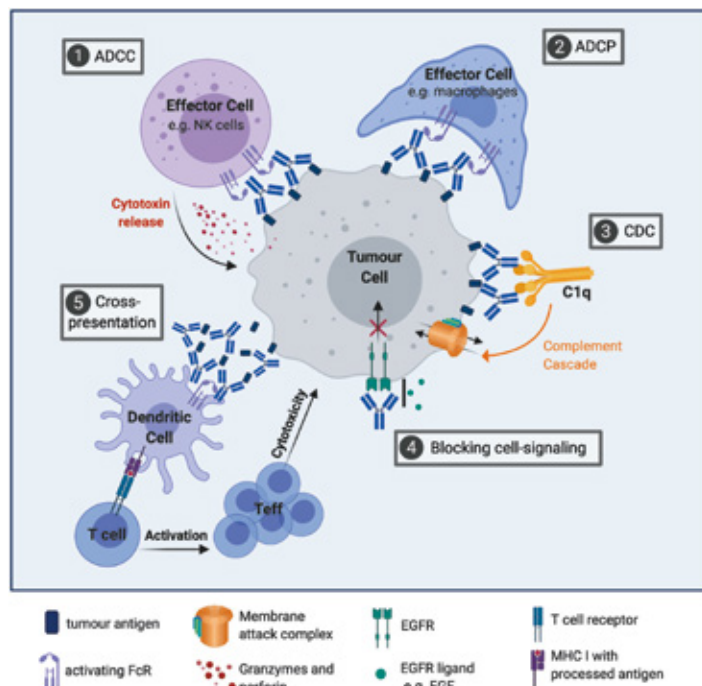
Cancer Immunology & Immunotherapy Virtual Issue

In celebration of World Cancer Day 2021, the British Society for Immunology presented a new Virtual Issue on cancer immunology and immunotherapy.

Knowledge of the mechanisms by which the immune system interacts with cancer as it develops is increasing rapidly. From this field, cancer immunotherapy has emerged as one of the most exciting and promising approaches to treating cancer. These developments have translated into medical breakthroughs for many cancer patients, although the high prevalence of non-responders and adverse reactions reveals that there are still significant challenges to overcome.

In this Virtual Issue we collected some of the recent articles from the BSI's journals *Clinical & Experimental Immunology*, *Immunotherapy Advances* and *Immunology* which highlight key topics in the field and cutting-edge research into cancer immunology. The collection features research and reviews on topics such as CAR-T cell therapies, cancer vaccination, regulatory T cells and checkpoint inhibition-induced adverse events. All articles have been published in 2019 and 2020 and are free to read online here: bit.ly/3tGcAa1.

Please note that from 2022 the journal *Immunology* will no longer be affiliated with the British Society for Immunology. From 2022 onwards unfortunately the BSI will be unable to offer any BSI member benefits relating to *Immunology* and profits derived from the journal will no longer contribute to the Society. If you have any questions about how these changes will affect you, please take a look at our FAQs at www.immunology.org/faqs-about-changes-the-bsti-publishing-portfolio.



SOCIETY NEWS

New BSI Group Secretary

We are delighted to welcome **Professor Mark Travis** (University of Manchester) into his new role as the BSI Groups Secretary. Mark will work closely with the BSI team to coordinate our numerous Regional and Affinity Groups and their activities. Taking the lead from our strategic priorities, our Groups Secretary works to ensure that our Groups provide good support to members throughout the country. Mark takes over this role from Professor John Curnow (University of Birmingham), after being appointed in the 2020 Committee Elections.

On behalf of our members and staff, we would like to extend our sincere thanks to the outgoing secretary **Professor John Curnow**. Under his guidance, the Groups' activities have continued to strengthen and evolve as new areas of immunology research emerge and in response to the switch to virtual networking during the COVID-19 pandemic.

The BSI Regional and Affinity Groups represent the core of our activities, providing forums for essential networking and scientific discussion to promote the further development of immunology. The



Professor Mark Travis



Professor John Curnow

BSI provides annual financial assistance as well as a variety of resources and services to assist Groups in their activities.

Learn more about the BSI Regional and Affinity Groups and get involved here: www.immunology.org/about-us/our-people/regional-and-affinity-groups.

BSI Forum: here to represent you

The BSI Forum is the place where the voice of our membership is fed into our activities. Chaired by Ann Ager, the 18 elected members come from all sections of the Society's membership. Their role is to act as our 'think tank' on issues relating to education and careers, public engagement, policy and public affairs, as well as communications. Forum aims to help the Society in implementing its strategic plan by providing a mechanism by which the voice of the membership can be fed into activities.

At the most recent meeting in January, Forum focused on our new public engagement campaign 'Vaccine engagement starts at home'. The BSI's Public Engagement Manager, Erika Aquino, explained how we're supporting our members to have constructive conversations with the public around COVID-19 vaccines. In particular, they discussed ways in which we can empower our members to be positive ambassadors for vaccination, looking into common concerns and sharing ideas for new resources and platforms.

The BSI's Policy & Public Affairs Manager, Matthew Gibbard, gave an overview on the new inquiry about equity in the STEM workforce from the All-Party Parliamentary Group on Diversity and Inclusion in STEM, and Forum discussed high-level topics of particular impacts relevant to immunology. Additionally, we examined the future landscape of scientific meetings. We want to make sure our future conferences continue to connect and support immunologists. Finally, Forum took an overview of all the external affairs and outreach activities that the BSI has undertaken over the past few months to communicate the voice of our immunology community to the wider world.

The BSI Forum and its members are here to represent you. If you would like to raise any issues for Forum to discuss at an upcoming meeting, please do contact your relevant Forum member – you can find a list of your representatives on our website at www.immunology.org/forum. Alternatively you can email our Head of External Affairs, Jennie Evans, at j.evans@immunology.org, who can pass the message on.

New webinar series for BSI members

This spring, the British Society for Immunology is undertaking a new career development webinar series designed to highlight and promote alternative career paths for immunologists.

Immunologists pursue varied career paths, each following different routes to reach their destinations. Many immunology graduates follow a more traditional route starting with a PhD and postdoc placements and then moving onto independent research as a principal investigator. However, there are many exciting career paths beyond academia. With this series, we aim to offer insights into different routes you can take using the foundations and transferable skills learnt studying immunology. In these webinars, you will be able to explore how to enter different career pathways, what the day-to-day looks like, the prospects for career development and progression, and more.

Each webinar in the series will be delivered by immunology graduates and/or researchers who currently work in that respective area. Topics covered will include clinical science, scientific publishing, research funding and strategy, technical laboratory positions, science policy and secondary school science teaching.

This series is free for all BSI members. Find out more at www.immunology.org/careers-in-immunology-webinar-series.

SOCIETY NEWS

New EFIS report on COVID-19 vaccines

The European Federation of Immunological Societies (EFIS) has published a new expert report which reviews vaccination strategies across Europe, effective scientific communication and public engagement, long-term immune monitoring programmes and equitable access to vaccines for all nations.

This report has been produced by the EFIS Vaccination Taskforce, a group of representatives from European immunology societies chaired by Dr Doug Brown, Chief Executive of the British Society for Immunology. The taskforce builds on the British Society for Immunology's vaccine engagement strategy and aims to address issues around vaccination at a European level.

The report outlines the following recommendations:

COVID-19 vaccination

- Vaccination against SARS-CoV-2 should be free of charge at the point of access to enable the highest uptake by the public as possible.
- Even after vaccination, people must adhere to public health measures such as social distancing, washing hands and wearing face masks, as we do not yet know the risks of virus carriage in a vaccinated population.
- There must be a robust observation programme across Europe through which vaccination uptake by the public is measured and these data shared. This will enable a comparison of the effectiveness of vaccination programmes and rapid learning in light of emerging data, allowing nations to amend the strategy of their own vaccine programmes if necessary.
- There should be a surveillance programme for breakthrough infections to better understand the impact of vaccines on the variants in real-life situations.

Public engagement

- Robust public health awareness engagement programmes should be implemented alongside vaccine rollout. Understanding and answering genuine questions from the public will be essential to ensure optimal uptake of the vaccine.

COVID-19 vaccine safety and effectiveness

- The prospective evaluation of the persistence of IgG anti-SARS-CoV-2 titres and neutralising activity after vaccination, and how antibodies against different antigens/epitopes might differ.
- The full list of the recommendations for this section may be found on page 13.

Vaccine nationalism

- Stronger investment in equitable COVID-19 vaccine access coupled with extensive planning for assisting in the supply of vaccines to all parts of the world.

Download the full report here: <https://bit.ly/3cMW0mD>.

Avid Longing Affinity Arriving

When I first saw you
A billion immunoglobulins flooded the plasma membrane of my being
10 to the 5-fold domains binding summarily strong
And now see how I respond to a stimulus of one
When I first saw you
Every cell awaiting the call-to-loving arms cross-linked themselves one-by-one
Attentive proliferation rapidly transforming pro- to pre- to immature naive
And now, see how I circle your periphery like Adam did Eve
When I first saw you
I dreamt of IgDays by your side
Falling asleep in your IgEee arms
Awaking to IgMmm...5 more minute of vivid dreaming
And now; see how this IgGenie has wished your IgAladdin into being
When I first saw you
You showed me four heavy chains made whole by the lightness of two combined
Invited me to Professor M's Gene Expression Editing class 101
And now? See how my B minus in calculated understanding means nothing
if V(D)J's loving sum remains sound
When I hold you now
All secondary responses are of a magnitude unfathomable by primary's
imagination
Profundity found in the lost at sea & buried in shallow ground
For your happiness has become my Fc receptor
And all I can think of is phagocytosing you right now
When I hold you now
All point mutations are an affinity maturation normalised to an n of one
For your arresting, activation-induced deaminase ocean of adoration
Only makes me want to surf this somatic Sunny-ever-after hyper-mutational wave
A thousand lifetimes longer
When I hold you now
My love is no less than infinite avidity by zero affinity divided
Nor any more profound than the secret of clonal expansion passed forward
And yet somehow
When I hold you
We become murmuration's light
An Fc region
A fusion loop of engineered creation
A Fragment of humanity
crystallisable
Beyond all reason

Bokcaerin

Get creative!

Have you written, drawn or made something about immunology?
We would love to see your creations! Let us know by emailing
t.prados@immunology.org
or tagging [@abritsocimm](https://twitter.com/abritsocimm) on Twitter.



New BSI COVID-19 immunology report: Immunity and COVID-19

The BSI's Immunology and COVID-19 taskforce has produced a report on immunity and COVID-19. The rapid review-style document lays out what we do and don't currently know about immunity to SARS-CoV-2 and outlines four research recommendations to help increase our knowledge of the immune system's response following COVID-19 vaccination and natural infection. In this article, our Policy & Public Affairs Manager, Matthew Gibbard, discusses the findings of this report and explains its importance, both for the BSI's policy work and mission, and to ensure the UK comes out from the pandemic swiftly while minimising risks.

Informing policymakers

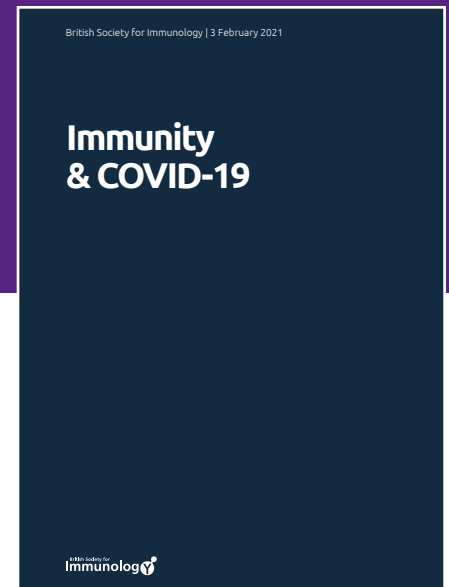
The BSI's Immunology and COVID-19 taskforce has continued its successful run of reports addressing the key questions that are facing policymakers in the UK by bringing together the latest science to form answers on what we do and don't know about immunity and COVID-19 and issuing a set of research recommendations. After publication, we send a copy to civil servants and legislators across the country, in the UK Parliament in Westminster, in the Scottish Parliament, in the Senedd, and in the Stormont to ensure that every government and scrutinising body has access to high level immunology in looking at the decision making in the weeks and months to come.

And as usual, we received excellent feedback from many parliamentarians,

officials, and others working in the science and research policy arena, with many spurred into action. This has included Peers and MPs asking questions to Ministers in the Houses of Lords and Commons, respectively, and the BSI being asked to send a representative to give oral evidence at the All Party Parliamentary Group on Coronavirus's evidence session on 'vaccination and vaccine rollout'.

Public education

With many of the questions being addressed also being of great interest and relevance to the general public, we have also produced a briefer and more accessible Q&A blog for those without a research background. Much of the uncertainty that people have around taking a COVID-19 vaccine or what generating



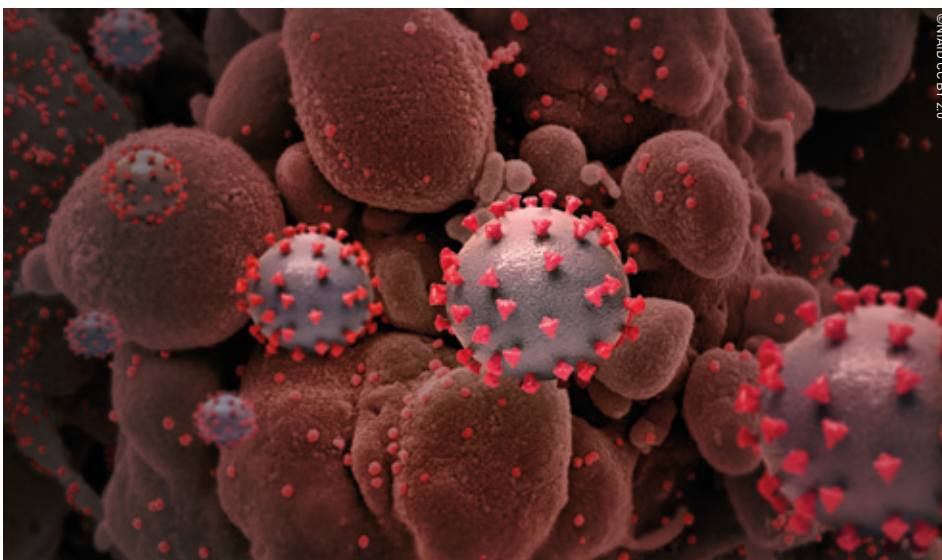
immunity means to them comes, not from misinformation necessarily, but from a lack of good quality information which is accessible, so we hope that this will, in part, address that and we urge you to share it with non-scientific family and friends.

Unravelling the immune response to SARS-CoV-2

Understanding immunity to COVID-19, induced by both natural infection and through vaccination, is key to our ability to exit the current pandemic. In this report, we explored the answers to key questions around immunity, including the effectiveness of the immune response, how to measure and track immunity, the benefits of vaccine-mediated immunity, and the longevity of any immunity conferred.

It is important to say that there are differing degrees of immunity. Different individuals will create different immune responses to invasive pathogens, and the case of the SARS-CoV-2 virus is no exception. Some people create a very effective immune response, so they will not get sick again from SARS-CoV-2 and will not pass the virus to anyone else (so-called 'sterilising' immunity), while others will make antibodies and be protected from the disease COVID-19, but may still be infected with the SARS-CoV-2 virus and transmit it to others ('protective' immunity).

Immunity can be difficult to measure. The best marker currently is neutralising antibodies, which have been shown to persist in some individuals up to 8 months after original infection. While immunity can also be measured by looking at memory immune cells, methods for doing this at



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“The research recommendations in this British Society for Immunology report clearly outline the next steps we need to take to uncover vital questions about the long-term protection from COVID-19 conferred by vaccines. It is only through detailed studies of how immunity is generated and a strong monitoring programme of vaccine-mediated immunity that we will be able to control the virus and exit the current pandemic.”

Professor Deborah Dunn-Walters Chair of BSI Immunology & COVID-19 taskforce

scale are not currently available. Immunity can wane over time and this can lead to the small chance of reinfection. Exactly how long immunity following COVID-19 lasts will need a longer time to determine.

Vaccine-mediated immunity is preferable and safer than naturally acquired immunity. While clinical trials recorded the ability of the vaccines to protect from COVID-19 disease, questions remain around whether the vaccines being administered currently will prevent people from being able to carry and transmit the SARS-CoV-2 virus. Currently not enough time has elapsed between the vaccines first being administered in humans and the present time for durability of vaccine-induced immunity to be determined, but this is the subject of ongoing Phase 3 vaccine studies.

Research priorities

- 1. To establish detailed studies of the immune response following COVID-19 vaccination and natural infection to identify how long immunity conferred by vaccination might last, how often booster vaccinations might be needed and to support the development of future vaccines.**
- 2. To use structural biology modelling to build our understanding of how potential mutations in the virus may affect infectiousness. If we can predict these, we can proactively develop vaccines to combat them before they arise.**
- 3. To implement ongoing, detailed monitoring of new SARS-CoV-2 variants that might emerge on a global scale and assess the level of protection that current COVID-19 vaccines might provide against these variants.**
- 4. To monitor how well the different COVID-19 vaccines work in different age groups to make sure that the right vaccines are given to the right patients.**

Monitoring COVID-19 immunity

The answers to all the questions in the report will have a profound impact on the policy decisions that the Government makes. Questions over how immunity can be measured, how long immunity lasts and the reliability of such tests can undermine the usefulness of ‘vaccine passports’, and whether the vaccine stops the spread of the SARS-CoV-2 virus to others or simply stops the person who has been vaccinated from contracting the disease, COVID-19, will be vital to looking at how we end lockdown. The longevity of immunity conferred by a vaccine will determine whether there will be need for an annual COVID-19 vaccination programme, like that currently carried out for flu.

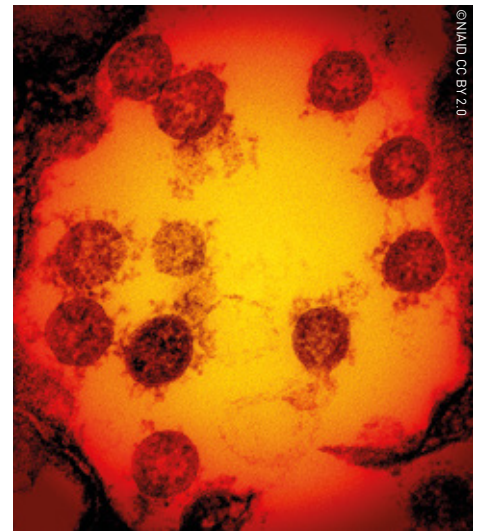
With so many key policy issues resting on issues of COVID-19 immunity, it is integral to the country’s future that we immediately implement a robust and widespread immune monitoring programme to understand in detail the immunity conferred through vaccination in different individuals.

It is also crucial that we ensure proper surveillance of viral variance at a global scale and through this the ability of any variants to escape vaccine-mediated immunity.

With the UK being an international leader in the rollout of COVID-19 vaccines, we can lead the world in immune monitoring protocols that will allow us to emerge from this pandemic more safely and quickly. This is an opportunity that we should seize with both hands.

Matthew Gibbard

BSI Policy & Public Affairs Manager
Email: m.gibbard@immunology.org



Making research accessible

The project has also been condensed into a question and answer blog, which is more accessible for those without a research background. You can read a summary of the main points here: www.immunology.org/news/immunity-and-covid-19-what-do-we-know-so-far.

Find out more:

- Download the full report from our website: bit.ly/3sjyKhx

Our huge thanks to all members of our Immunology and COVID-19 taskforce who gave their time to contribute to this work. Our expert advisory group aims to identify the immunology research priorities to guide future studies and treatments and inform public health measures to control the Coronavirus spread. Find out more: www.immunology.org/coronavirus/immunology-and-covid-19.

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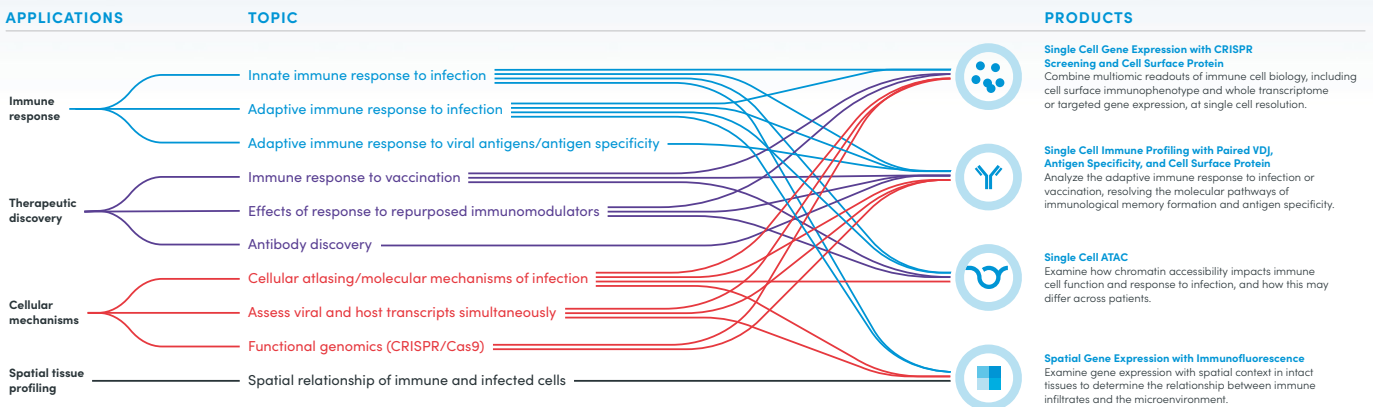
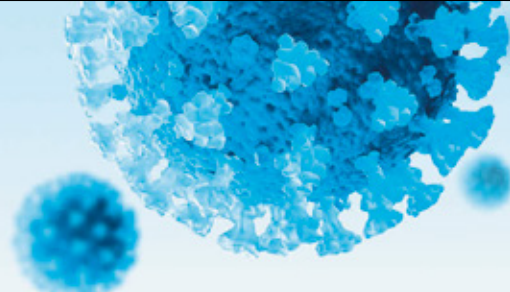
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Defining preclinical autoimmunity and SLE

Researchers from the Leeds Institute of Rheumatic and Musculoskeletal Medicine are studying autoimmune disease progression looking into the key players in interferon production. In this article, BSI member, Dr Antony Psarras, discusses their recent findings published in *Nature Communications* which unravel the cellular sources responsible for interferon production in patients with systemic lupus erythematosus.



Dr Antony Psarras, King's College Hospital NHS Foundation Trust

Systemic lupus erythematosus (SLE) is a multisystem autoimmune disease characterised by the breakdown of immune tolerance and the presence of autoantibodies against nuclear antigens. One of the most profound immune abnormalities is the aberrant activation of the type I interferon (IFN) axis, as demonstrated by increased expression of interferon-stimulated genes (ISGs) in the peripheral blood of patients with SLE.¹ Our research group in the Leeds Institute of Rheumatic and Musculoskeletal Medicine, led by Dr Ed Vital, has reported that a key determinant of progression from a stage of benign preclinical autoimmunity to established clinical autoimmune disease is the level of IFN activity.²

Although the cellular source and regulation of type I IFNs in SLE had not previously been clear, plasmacytoid dendritic cells (pDCs) – the professional type I IFN-producing cells – were thought to be dysregulated and contribute to excessive type I IFN production, in turn activating other compartments of the immune system such as T cells. Therefore, one of the key questions when I started my

PhD was to address why pDCs are functionally impaired and how they contribute to early stages of disease pathogenesis.

Characterising the role of pDCs in preclinical autoimmunity and SLE

Peripheral blood pDCs were enumerated and immunophenotyped by flow cytometry from healthy controls, patients with SLE and a unique cohort of antinuclear antibody (ANA)-positive individuals, who did not fulfil criteria for an established autoimmune disease and were defined as 'At-Risk'. We found that circulating pDC numbers were significantly reduced in SLE independently of critical parameters such as type I IFN activity in peripheral blood (IFN Score), disease activity, treatment with immunosuppressant agents and corticosteroids. More interestingly, this finding was also extended to the At-Risk individuals who did not exhibit any clinical symptoms, were treatment naïve, and usually never developed clinical autoimmunity in follow-up.

Next, we sought to investigate how pDCs respond to TLR stimulation. pDCs were



Dr Ed Vital, University of Leeds

purified from peripheral blood and were cultured *in vitro* in the presence of TLR9 or TLR7 agonists before they were analysed by flow cytometry for their cytokine-producing capacity. Unlike the pDCs from healthy controls, which responded to the TLR-stimulation by producing both IFN- α and TNF, the pDCs from patients with SLE and At-Risk individuals failed to produce a significant cytokine response, independently of their intracellular expression of TLR9 and TLR7.

Since pDCs possess weak antigen-presenting properties, we also co-cultured pDCs with allogeneic naïve CD4⁺ T cells to assess their capacity to induce T cell responses⁴. pDCs from both SLE and At-Risk individuals failed to induce strong T

'We found that circulating pDC numbers were significantly reduced in SLE independently of critical parameters such as type I IFN activity in peripheral blood (IFN Score), disease activity, treatment with immunosuppressant agents and corticosteroids.'

'Further *in vitro* experiments confirmed that SLE pDCs had increased telomere erosion, while mild oxidative stress could strongly interfere with type I IFN responses.'

cell proliferation and activation, while they showed significantly reduced antigen uptake compared with healthy pDCs. Additionally, while healthy pDCs enhanced cytokine responses by T cells, pDCs from SLE and At-Risk individuals actively inhibited T cell cytokine production.

Utilising transcriptomics – a picture of immune senescence

RNA-sequencing analysis of purified pDCs from healthy individuals, patients with SLE, and At-Risk individuals showed that pDCs clustered according to ISG expression (IFN Score). Samples were thus assigned into an IFN-low or an IFN-high subgroup. pDCs from SLE and At-Risk individuals had a range of IFN scores but an overall higher IFN Score than pDCs from healthy individuals. Given that the impaired function of pDCs seen in preclinical and established autoimmunity was independent of IFN Score, we investigated the differentially expressed genes in pDCs from patients in both the IFN-high and IFN-low subgroups compared with pDCs from healthy individuals. We found 80 commonly expressed transcripts corresponding to cellular senescence and stress pathways. Further *in vitro* experiments confirmed that SLE pDCs had increased telomere erosion, while mild oxidative stress could strongly interfere with type I IFN responses.

Keratinocytes take control – a key player in type I IFN production

If pDCs are functionally impaired in SLE and preclinical autoimmunity, then what is the cellular source of type I IFNs? Skin is the most commonly affected tissue in SLE. We noticed that IFN Score was particularly enriched in skin biopsies of SLE and At-Risk individuals, even in the absence of cutaneous inflammation. As a result, we used *in situ* hybridisation in the same skin biopsies to visualise the expression of type I IFNs. Interestingly, we found a diffuse expression of IFNK in the epidermis without leukocyte infiltration (Keratinocytes image: Psarras *et al.* 2020 *Nat Commun* **11** 6149 <https://bit.ly/3cpcrCx>).

Further *in vitro* analysis of isolated keratinocytes from these biopsies confirmed that these cells were primed to produce type I IFNs, whereas they demonstrated a stronger response to TLR3 and RIG-I agonists compared with keratinocytes from healthy individuals.

Future challenges

Our findings have recently been published in *Nature Communications*.³ We can conclude that non-haematopoietic tissues such as the skin are not passive targets for leukocyte-mediated immune processes but have an

active role in generating an IFN response, which dominates over functionally exhausted pDCs, and that this is present prior to disease initiation.

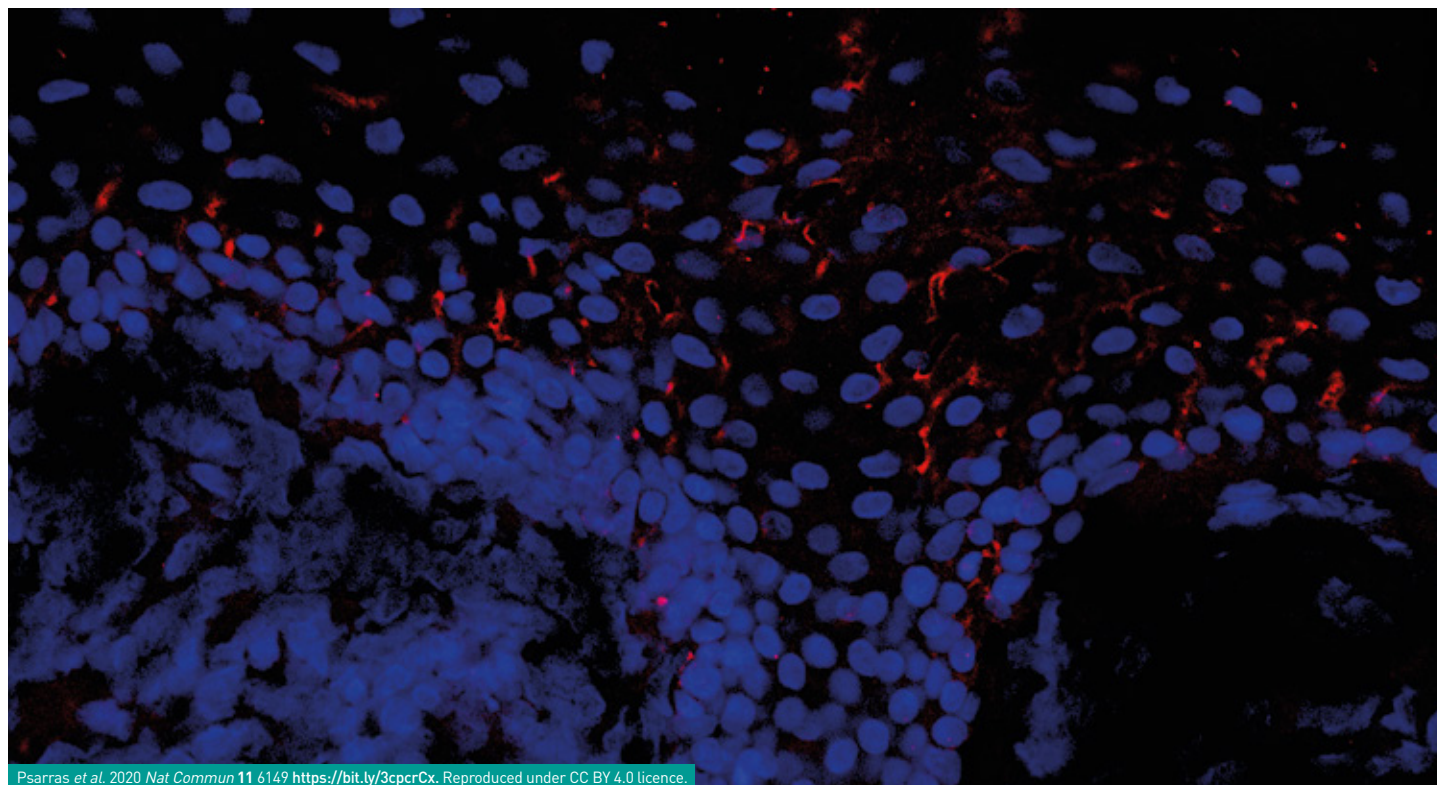
So-called 'target' organs may therefore play an active role in the autoimmune process, which may explain the resistance of tissue inflammation to commonly used therapies that target leucocytes in SLE, pointing to therapeutic targets that lie outside the conventional immune system. Future work may offer further insights into the early events in the initiation of autoimmunity and perpetuation of inflammatory responses.

Antony Psarras MD MSc PhD

Internal Medicine Trainee, King's College Hospital NHS Foundation Trust
Twitter: @AntonyPsarras

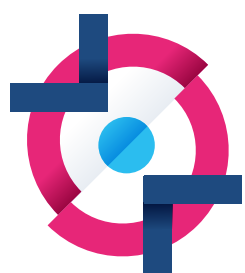
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4. Psarras *et al.* 2021 *J Immunol* **206** 785–796 <http://bit.ly/3loHTTG>



Psarras *et al.* 2020 *Nat Commun* **11** 6149 <https://bit.ly/3cpcrCx>. Reproduced under CC BY 4.0 licence.

The boom in immunotherapy clinical trials: a new TrialsWatch feature



Immunotherapy ADVANCES

Last year we ventured into new areas with the publication of the British Society for Immunology's first fully Open Access journal, *Immunotherapy Advances*. As part of our aim to widely disseminate immunotherapy research with our new journal, we have launched a new series of articles: TrialsWatch. The aim of the TrialsWatch series is to review, discuss and highlight the latest research and advances in immunotherapy clinical trials from specific areas.

In this article, our Journals Manager, Robyn Taylor, discusses the conception of TrialsWatch, how we sought out leading experts in a variety of areas of immunology by collaborating with the BSI Affinity Groups, and the two excellent articles already published in the journal from the BSI Inflammation Group and the BSI Tumour Immunology Group.

What is TrialsWatch?

Featuring both reviews and commentaries, the TrialsWatch series will draw attention to the important clinical trials happening within a specific field by summarising the results, innovations and implications of potential new therapies. Negative clinical trial results are also welcome in the series where they contribute to immune-mechanistic insight and future developments.

TrialsWatch has been a key focus for our Founding Editor-in-Chief, Professor Tim Elliott. He notes, "As a fully Open Access journal we are keen to bring the latest news about immunotherapy trials to a diverse worldwide audience including researchers, doctors, health professionals, industry, patients and a growing body of interested public and policymakers. We want this information

to be as relevant and comprehensive as possible and so I have enlisted the help of the BSI Affinity Groups."

Working with the BSI Affinity Groups

The BSI Affinity Groups are well established networks organised across key themes in immunology. As experts within their particular subject areas, they have been integral in the development of this series, providing insights into the field and inviting key researchers to contribute.

One of our first TrialsWatch articles came from members of the BSI Inflammation Affinity Group. The Group's Chair, Professor Peter Barlow (Edinburgh Napier University) comments: "The BSI Inflammation Affinity Group was delighted to be involved in *Immunotherapy Advances*, which we feel brings a much-needed focus towards therapeutic manipulation of the immune system and meets a real need for showcasing important work in this area."

"We were extremely proud to see that the fantastic article on the MARVEL (Mitochondrial Anti-oxidant therapy to Resolve Inflammation in Ulcerative Colitis) trial by Dr Emily Gwyer Findlay, Dr Gwo-Tzer Ho and Dr Greg Sutton (University of Edinburgh) was one of the first pieces published in the journal and

we look forward to contributing more articles in the future as the BSI Affinity Group expands its membership."

The in-depth commentary from Gwyer-Findlay *et al.* focused on the MARVEL Phase 2b trial, using a mitochondrial anti-oxidant (MitoQ) to suppress the inflammation in patients with ulcerative colitis. It is hoped that this trial will develop a new target for the disease through repurposing a relatively cheap, non-toxic and well-characterised drug (Findlay *et al.*, doi.org/10.1093/immadv/ltaa002).

"We recognise how critical it is that clinical trials (including those with negative results) are highlighted and discussed, and we welcome and support the recognition and opportunity for this work to be presented to UK-based and international immunologists."

Professor Peter Barlow,
BSI Inflammation Affinity Group

Another brilliant contribution to the series came via the BSI Tumour Immunology Group, who worked with Professor Gary Middleton (University of Birmingham) to produce a detailed overview of a carefully selected set of clinical trials that are currently recruiting or about to open to recruitment in melanoma. [G Middleton, doi.org/10.1093/immadv/ltaa010].

What is the future of clinical trials?

"This is a great time to be an immunologist: we're seeing the application of immunological knowledge to the treatment of diverse illnesses on an unprecedented scale," observes Professor Tim Elliott. "Immunotherapy is expected to boom over the next decade. For example, it is likely to become the treatment of choice for cancer with over half of previously treated cancer patients likely to adopt immunotherapy within the next five years; and the allergy immunotherapy market is set to double in the same timeframe. Underpinning all this clinical utility is a vibrant world of immunological discovery science, experimental medicine and clinical trials – which is the ecosystem in which we at *Immunotherapy Advances* are perfectly positioned."

Following the successful implementation of immunotherapy as an effective treatment option for cancer, immunologists are now focusing on other areas where this type of therapeutic intervention can be applied. Professor Lucy Walker (University College London), the Chair of the BSI Autoimmunity Affinity Group, highlights: "From an autoimmunity perspective I would say it's a really exciting time – we've seen huge successes with immunotherapy in the cancer setting and now we're starting

"I'm very excited about working this way because not only will it bring to light the clinical trials that researchers in the field are talking about, but it's also a terrific way of building strong links between BSI members and Immunotherapy Advances."

Professor Tim Elliott

to see immunotherapy being more widely used in autoimmunity. The success of T cell directed immunotherapy (Teplizumab) in individuals at risk of developing diabetes (Herold *et al.* 2019 *N Eng J Med*) has really highlighted the possibility to intervene early and prevent disease development. There's also a lot of activity around the development of novel IL-2 reagents to promote regulatory T cell function and suppress autoimmunity. The new BSI journal, and specifically the TrialsWatch articles, will be an excellent way of highlighting these new developments to the autoimmunity community."

How you can get involved

We are aiming to make TrialsWatch a regular feature, creating a valuable resource for readers looking to get a better understanding of therapeutics and research happening across all areas of immunology. We are particularly interested in first-in-human clinical studies, and negative clinical trials are welcomed where they contribute to immune-mechanistic insight.

"The BSI Affinity Groups are encouraged to consult widely to agree on the content of the article – perhaps by organising a focused scientific meeting or hosting a discussion group. The articles are then peer-reviewed as normal," Professor Tim Elliott informs.

If you are interested in contributing a TrialsWatch article to *Immunotherapy Advances*, we would love to hear your ideas! These can be discussed directly with our Editorial team or in consultation with the BSI Affinity Groups.

Robyn Taylor

BSI Journals Manager
Email: r.taylor@immunology.org



Find out more

Read our latest articles, including the TrialsWatch features here: academic.oup.com/immunotherapyadv/issue.

Follow the journal on Twitter:

 @IMTadvances

Consider submitting your next article! All BSI members are eligible for a 20% discount on Article Processing Charges: academic.oup.com/immunotherapyadv/pages/general-instructions.

Read the Introductory Editorial: doi.org/10.1093/immadv/ltaa009.

"This is a great time to be an immunologist: we're seeing the application of immunological knowledge to the treatment of diverse illnesses on an unprecedented scale."

Professor Tim Elliott



Black In Immuno Week:

Celebrating the contributions of Black immunologists

Black In Immuno Week was a week-long celebration in the last week of November 2020 to showcase, amplify, support and connect Black immunologists. We were delighted to support this initiative organised by Black In Immuno and to be able to contribute by raising the voice of our members and sharing their experiences. Here, BSI Marketing & Communications Manager, Teresa Prados, highlights the activities planned by the organisers of this important initiative and our members' contributions.



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Black In Immuno is a platform created by a collective of Black immunologists and allies aimed at raising, recognising and supporting Black voices in immunology. Their inaugural event in November last year was based on TEDx-style talks – each day focused on a different immunology topic. In addition, there were panel discussions, workshops and social networking activities. All of this was held online and was accessible to all free of charge. Most sessions can be found on the Black In Immuno YouTube channel: <https://bit.ly/3cbgG3X>.

Seven days, seven hashtags

Sunday 22 November – #BlackInImmunoRollCall

The week kicked off with a roll call to amplify the contributions from Black immunologists and talk about what it means to be Black in immunology. It was an important initiative which saw lots of Black immunologists sharing their brilliant work and important experiences on social media, with supportive allies helping to increase their visibility. Dr Keke Fairfax gave the keynote presentation entitled 'My journey through science: From microbial pathogenesis to immuno-parasitology'.

Monday 23 November – #BlackInImmunoJourney

TEDx-style talks on innate immunity research and an early career panel discussion.

Tuesday 24 November – #BlackInImmunoCareers

TEDx-style talks on adaptive immunity research and a career panel discussion.

Wednesday 25 November – #BlackInImmunoTech

TEDx-style talks and a panel discussion on immunology technology.

Thursday 26 November – #BeyondImmuno

An all-day immunology talent show and a focus on science communicators.


Friday 27 November – #BlackInImmunoHub

Inspiring discussions took place on social media about outreach work and engaging with the community, individual and collective advocacy efforts and defining intersections within Black immunologists.

Saturday 28 November – #BlackInImmunoWellness

On the last day there was an insightful wellness workshop looking into managing your mental health in academia, identifying the warning signs, developing coping skills and building an effective support network. The week ended with a yoga session and a virtual party.

British Society for
immunology



Dr Daniel O'Connor

What's your research on?

"My research focuses on using "big-data" or "systems immunology" to understand the complexities of immune responses to infectious diseases and vaccines. My view is that this **holistic approach** will revolutionise both **therapeutics and diagnostics** — the potential of which is now starting to be realised"

What would you like to share about your experience as a Black immunologist?

"While I am on track to be the **first Black female graduate** from the University of Glasgow's PhD of Immunology programme, I want to stress to other Black immunologists that while I have yet to see myself represented in my field, it is possible to **find your own community** and strength to pursue your goals despite the lack of representation."

#BlackInImmunoWeek

Kristyn A. Carter



@KrisAlex95

The BSI's contribution

The Society made a donation to Black In Immuno to help support the planning and promotion of the inaugural week, as well as wider activities such as the development of the first database of worldwide Black researchers in the field of immunology 'Black In Immuno Hub' which should be launching this year.

As part of the week, we made our webinar on equality and diversity freely available for all. This webinar was part of our career development webinar series and was presented by Dr Faith Uwadiae (Francis Crick Institute) and Karim Boustani (Imperial College London). They shared practical solutions and effective ways to promote diversity and to enact positive change. Through their own lived experiences and as early career scientists, Faith and Karim talked about the issues surrounding diversity and inclusion. This webinar is free for BSI members and we encourage scientists looking for ways to become active participants around diversity and inclusion to watch it.

The BSI helped increase the reach of this amazing initiative by highlighting the activities that the organisers had planned to our members and the wider immunology community. We also wanted to showcase the work and experiences of Black immunologists who are part of the BSI

community. We put together short profiles of our members and shared them through our social networks to raise their voices. Take a look at our Twitter thread to learn about their research and their experience of being Black in immunology: <https://bit.ly/3983tXQ>.

What our members said

Dr Faith Uwadiae is one of the co-organisers of the Black In Immuno initiative. She's a Postdoctoral Training Fellow at the Francis Crick Institute and an Early Career Representative on the BSI Forum. Faith commented: *"I loved being part of Black In Immuno week. It was a great opportunity to connect with Black immunologists from all across the world and see so many Black people thriving within different fields of immunology. My favourite part of the week was seeing many Black immunologists present their research without the focus being 'why are there so few Black immunologists?'. This is so rare! It was a celebration of Black researchers and it was wonderful. The best thing is Black In Immuno is more than one week, it is actually a movement and I know the team have loads of exciting ideas and events coming, so watch this space."*

Dr Donald Palmer is an Associate Professor of Immunology at the Royal Veterinary College (RVC), University of London and the BSI Education & Careers

Secretary. Donald commented: *"Initially I was not really aware of Black In Immuno week, so I'm grateful to the BSI for highlighting and promoting this event. It is becoming clearer that there is a need to highlight the contribution of underrepresented groups within STEM, so Black In Immuno week provided an opportunity to promote, inspire and to engage with Black immunologists all around the work. It was a delight to see many sharing their passion of immunology and demonstrated one of the main aims of this week which was to showcase the contributions of Black immunologists. The organisers should be applauded for putting this together."*

How it ties into the BSI's strategy

The BSI is committed to achieving a fair and equal working environment in immunology, accessible to all and free from any form of discrimination. We continue to reflect on our work, educate ourselves and take action to promote the principles of equality, diversity and inclusion. Our aim is to provide a platform for immunologists of all backgrounds to share their voice and encourage greater participation from underrepresented groups in all aspects of the Society.

We are currently working on an ambitious five-year plan which will set out our ED&I strategy and how we plan to support Black people in the immunology community. Our CEO, Dr Doug Brown commented: *"The British Society for Immunology will continue to listen and work with our members to challenge inequality and take measures to widen representation of Black people in the BSI membership and break down any barriers hindering their progression in immunology."*

We are constantly monitoring and reviewing our progress and striving to improve. We are always open to new ideas to help us in our mission. Please email us at bsi@immunology.org with your comments and suggestions.

Teresa Prados

BSI Marketing & Communications Manager
Email: t.prados@immunology.org

'The BSI is committed to achieving a fair and equal working environment in immunology, accessible to all and free from any form of discrimination. We continue to reflect on our work, educate ourselves and take action to promote the principles of equality, diversity and inclusion.'

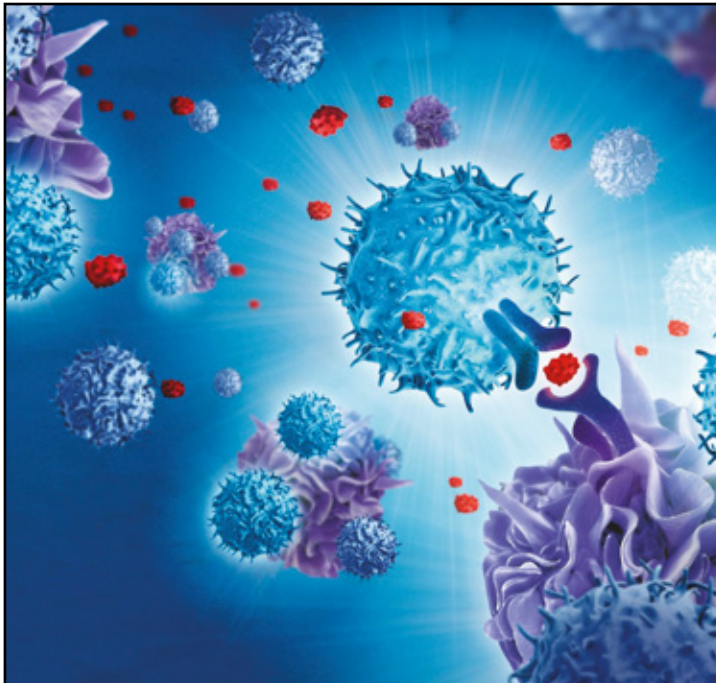


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Congratulations

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

Bright Sparks shine through

The BSI virtual conference 'Connecting immunology in the time of COVID-19' saw the return of our very popular 'Bright Sparks' sessions, highlighting exceptional work from PhD students and postdocs. The judges praised the incredibly high standard of presentations across both sessions.

Leanne Bradley (University of Edinburgh) won the postdoc category for her talk entitled 'Glioblastoma stem cells hijack myeloid-affiliated transcription factors via epigenetic immunoeediting to elicit immune evasion'. **Stefan Szymkowiak** (University of Edinburgh) was highly commended in this category for his talk 'TREM2 promotes microglial reprogramming and resilience to subcortical white matter disease in a model of vascular cognitive impairment'.

Meanwhile, the PhD category was won by



Caitlin McManus (University of Glasgow) for her presentation on 'Heterogeneity of Tregs in helminth infection'. **Lucy MacDonald** (Research into Inflammatory Arthritis Centre Versus Arthritis, University of Glasgow) was highly commended for her talk 'COVID-19 and rheumatoid arthritis share myeloid pathogenic and resolving pathways'. Our congratulations to all the finalists.

BSI virtual conference poster prizes

Our congratulations to the following winners of the BSI virtual conference poster prizes.

Nikhil Faulkner (Francis Crick Institute/Imperial College London) won the poster prize for 'Pre-existing antibodies to endemic human coronaviruses cross-react with pandemic SARS-CoV-2 spike and exhibit specific neutralising activity against SARS-CoV-2 *in vitro*'.

Robert Watson (University of Oxford) was the runner-up with 'Immune checkpoint blockade differentially affects CD8+ T-cells as a function of their phenotype and clonal size'.

You can read the abstracts for all posters presented at the BSI virtual conference on the conference website at www.bsvirtualconference.com.



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.



Spatial Biology Grants for Immunology & COVID-19 research

The British Society for Immunology co-sponsored two Spatial Biology awards for immunology and COVID-19 research with our Corporate Member, NanoString, in collaboration with Illumina. Congratulations to the winners!

Susanne Krasemann (University Medical Center Hamburg) won the award for the most impactful proposal in COVID-19 host response research 'BBB Dysregulation in COVID-19'.

Michelle Naughton (Queen's University Belfast) won the award for the most impactful proposal in immunology research 'Tertiary Lymphoid Structure in MS'.

Communicating Immunology Grants

The BSI is delighted to fund the following projects.

Franca Fraternali from King's College London has been awarded funding to create short films explaining how the COVID-19 vaccines work, addressing safety concerns and presenting the results from a research project looking at antibody repertoire of vaccinated individuals, in an accessible way for the public. These films will provide better understanding of how vaccines protect against SARS-CoV-2.

Angi Mariani, from television production company Latest CIC, has been funded to create a one-hour long TV programme broadcast across the UK Local TV network providing up-to-date COVID-19 immunology research made accessible to the public. The programme will explore questions about immunity and vaccination and feature the work of immunologists in an easy-to-understand way.

Jo Pennock at the University of Manchester has been awarded funding to debunk COVID-19 vaccine misinformation and tackle vaccine hesitancy. The project will collaborate closely with UK patient groups and work through social media to determine key concerns about COVID-19 vaccines. Short animations will be created to help address those questions and reduce barriers to vaccination.

The next application deadline is 1 April 2021 and we welcome virtual project ideas. We're particularly keen to hear of projects for engaging the public about COVID-19 in digital or online formats. Please get in touch with Erika Aquino (E.Aquino@immunology.org) for guidance or with any questions. For more details, visit www.immunology.org/grants-and-prizes/communicating-immunology.

New CRUK Oxford Centre Co-director

BSI member and Editor-in-Chief of the BSI official journal *Immunotherapy Advances*, **Professor Tim Elliott**, has been appointed as Co-director of the Cancer Research UK Oxford Centre. He will work alongside Professor Mark Middleton to develop and deliver the research strategy for the Oxford Centre.

He said: "I am excited by the prospect of helping multidisciplinary teams to converge on difficult problems that will ultimately lead to better clinical outcomes for people diagnosed with cancer."

FUTURE FOCUS

BSI virtual Winter School 2020 An online event for MSc level students

An important part of the British Society for Immunology's mission is to support future generations of immunologists. We do this through numerous initiatives, including our Winter School event, which we adapted to a virtual setting in 2020. This one-day online event gave immunology students at a Master's degree level the opportunity to hear from top immunologists. Here, our Education & Careers Officer, Eolan Healy, talks about how the highlights of the day, featuring scientific talks on a range of topics, a careers panel and a wellbeing session, all of which are available to BSI members on our website (www.immunology.org/bsi-virtual-winter-school-2020).

On 3 December 2020, the British Society for Immunology hosted an online Winter School geared towards those studying immunology at Master's degree level or those with equivalent industry or clinical sector experience. It was also suitable for PhD students and postdocs wishing to update and revise their immunology knowledge. The event gave attendees the opportunity to hear from some of the leading immunology researchers.

The programme for the day

The event was split into morning and afternoon sessions. The former was chaired by Dr Sue Outram from Middlesex University and the latter by BSI Education & Careers Secretary, Dr Donald Palmer from the Royal Veterinary College.

The scientific talks were spread out over a wide variety of immunology topics, with a particular focus on the latest COVID-19 research. Each 30-minute talk began with an overview of each topic and moved onto details of the speakers' research before ending with questions from the attendees. The speakers represented a range of UK institutions and were all leading researchers in their respective areas of immunology.



In addition to the six scientific talks, the programme was supplemented by a session on wellbeing and self-care, which focused on some of the methods students could use to maintain their wellbeing and mental health during the COVID-19 pandemic and subsequent lockdowns. We also hosted a careers panel showcasing professionals from different areas of science highlighting some of the routes that immunology graduates can take – the academic route, the clinical route, the industry route and the route into science communications.

Talk summaries

COVID-19 and complement.

A toxic combination

Professor Paul Morgan from Cardiff University introduced us to the ideas underpinning the complement system and the importance it plays in the immune system. He also detailed some of the latest research that both he, his team and others have undertaken with regard to the complex relationship between an infection such as COVID-19 and complement, and how a combination of the two can be a danger to human health.

How parasites regulate the immune system

This talk was introduced by Professor Rick Maizels from the University of Glasgow. Rick focused on how parasites such as *H. polygyrus* can inhibit immune cell responses and how infection with this parasite can suppress airway allergies, colitis, inflammatory disease and other pathologies.

Introduction to immunometabolism

In the third session Dr Sarah Dimeloe from the University of Birmingham introduced us to immunometabolism. Sarah focused mainly on T-cells and how activated T-cells change their metabolism via aerobic glycolysis, altered mitochondrial function and altered amino acid metabolism.

Strategies for vaccine development

The next talk was given by Dr Alex Spencer from the University of Oxford. Alex gave an overview of infectious diseases and the development of the first vaccines historically. She then went on to discuss the methodologies of vaccine-induced immunity and how to measure antibody responses. She concluded with discussing

"I really liked the talks and the time each presenter took to answer questions. The chair was great too, with positive energy. I enjoy learning a new thing every day and today I learnt several things both in science and how I should try to balance my life. A day well spent."

"I really enjoyed the course and found the talks engaging and informative, I feel very fortunate to have attended this meeting and it was a very good use of my time and I learnt so much. Thanks so much for arranging."

the ground-breaking research undertaken at the University of Oxford to develop their vaccine against COVID-19.

Inflammaging: Who started the fire?

BSI President, Professor Arne Akbar, from University College London, talked about the topic of inflammation and ageing and how this interaction can be mitigated with treatments and therapeutics. He went on to describe how tissue microenvironments change, T-cell functionality changes and how inflammaging develops.

Controlling inflammation in the lung and its dysregulation in COVID-19

In the final session, Professor Tracey Hussell from the University of Manchester introduced us to the topic of lung inflammation and how it is dysregulated during COVID-19. Tracey discussed the innate immune rheostat and presented the CIRCO study of immune profiling of COVID-19 patients from hospitals across Greater Manchester and the resultant clinical implications.

Wellbeing and self-care

In this session mentoring and coaching expert, Alexis Hutson, highlighted both the common issues people face during lockdown and remote working/learning



Dr Kathryn Jackson-Jones
@gadiscymraes

Thank you so much to @britsocimm and especially Dr Donald Palmer for hosting the fantastic #BSIvirtualWinterSchool and sharing your enthusiasm for #immunology and #Science 10/10 would recommend 🧐



environments and some ways to mitigate these problems.

Eolan Healy

BSI Education & Careers Officer

Careers panel

This panel discussion was hosted by Dr Donald Palmer and included panellists that covered a variety of career routes. The panellists were Dr Alison Whitelegg (clinical), Alik Vodyanov (industry), Dr Faith Uwadiae (academic) and Gabriela de Sousa (science communication). They spoke about their own personal journeys into their respective fields and took questions from attendees.

For further information on the virtual Winter School or on any BSI education and career related event, please do not hesitate to contact me at e.healy@immunology.org.



Rachel Lamerton
@RachelLamerton

Wonderful day watching the #BSIvirtualWinterSchool, massive thankyou to the organisers @britsocimm and all the amazing speakers!

4:36 pm · 3 Dec 2020 · Twitter Web App

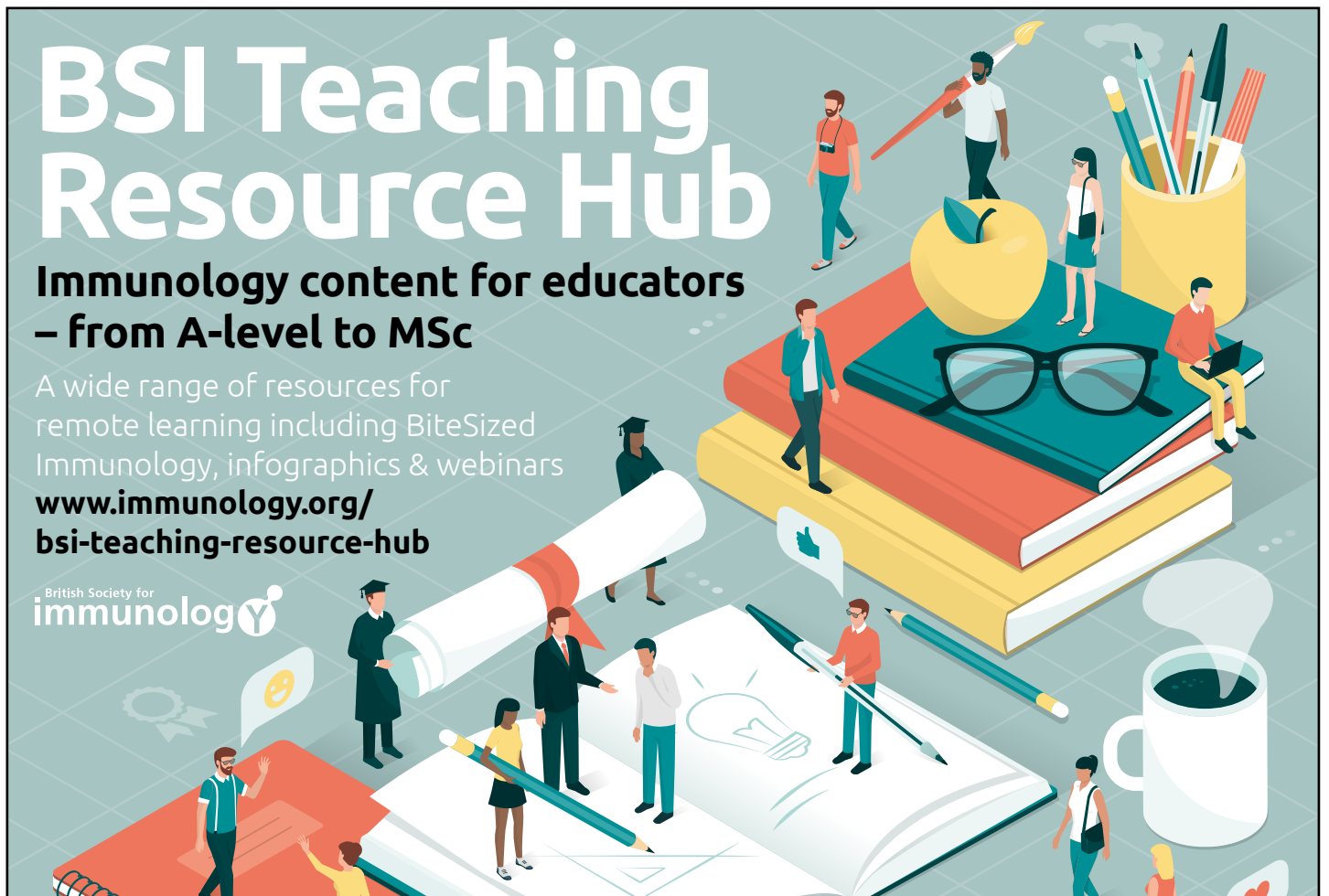
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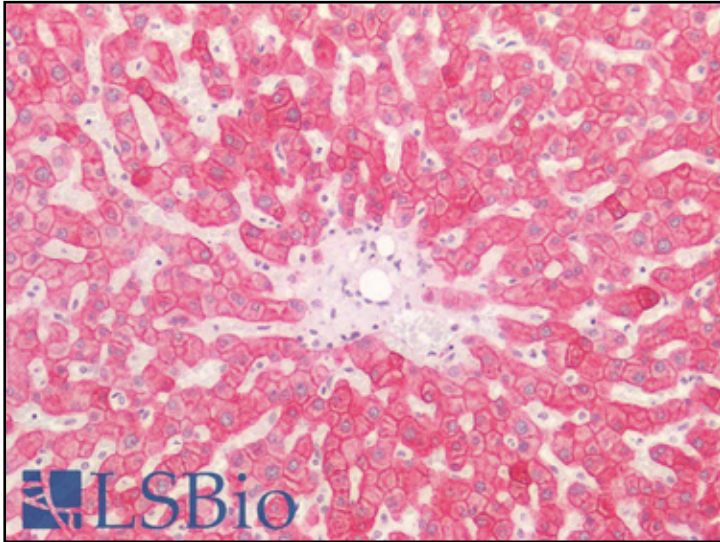
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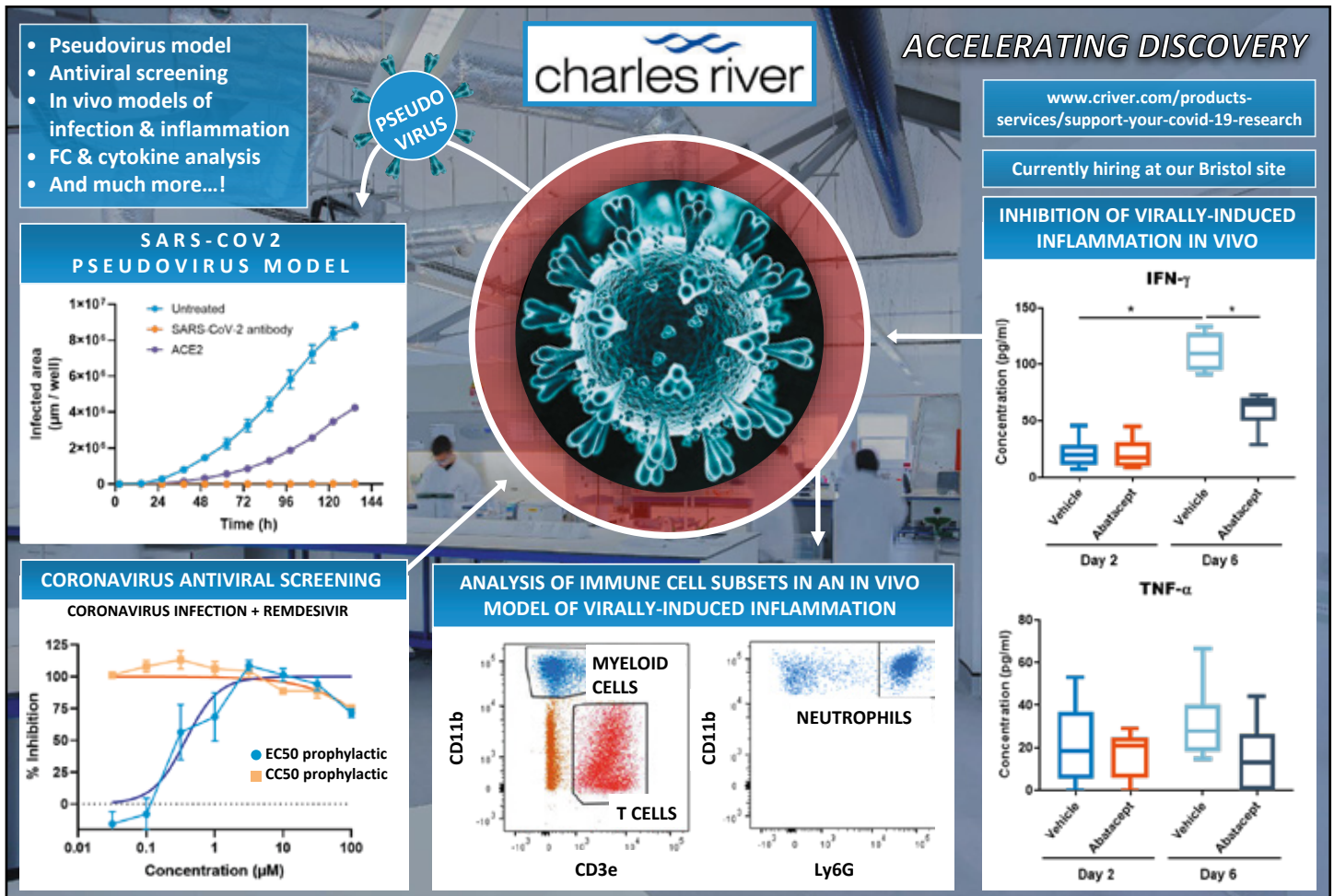
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BSI Immunology North East

The BSI Immunology North East Group is a Regional Group of the British Society for Immunology. It was created to promote interaction and collaboration between all those interested in immunology in the North East of England. Here, Dr Ben Barron-Millar, the Group's Communications Officer, tells us about their activities, including seminars from renowned immunologists, a friendly journal club and public engagement events, their transition to a virtual world and how you can get involved.

Our Immunology North East (INE) regional group for the British Society for Immunology was set up to enable discussion and collaboration between immunologists in the North East of England linking Newcastle University, University of Northumbria, Durham University and Sunderland University. Events and activities throughout the year organised by our committee bring together individuals from both academic and clinical settings, and include students (undergraduate and postgraduate), research associates, early career research fellows, principal investigators and external speakers on all aspects of immunology.

Typically, our programme of events encompasses a series of seminars (presented by international and national speakers) hosted by one of the INE institutions, journal clubs (hosted at lunchtime in a nearby venue with pizza, pub quizzes (every quarter) and public engagement events (such as Pint of Science). This programme of events is rounded off by our annual INE Research Symposia and AGM, which offers researchers in the region a chance to showcase their work via poster and oral presentations in a one-day event with a keynote speaker.

As this has not been a typical year our *modus operandi* had to change with the COVID-19 pandemic drastically altering the landscape of engagement between researchers and the public.

Virtual transition

Our seminars bring together speakers with our INE members from different institutes in the region. Typically, we invite eminent local, national and international scientists to give inspiring seminars to our researchers and students, which promote discussions and have led to novel ideas and collaborations.

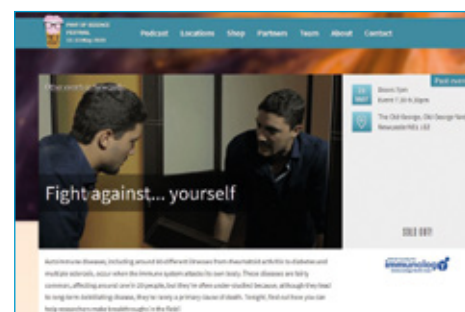
As the COVID-19 pandemic expanded globally, our programme of events was naturally affected with speakers no longer being able to visit Newcastle. In recent months, our seminar programme has re-started with the new academic year in a new Zoom-oriented format. Our 2019–2020 programme finished after the first lockdown with an AGM in July 2020 where our keynote Professor Gerry Graham (University of Glasgow) spoke about his research into 'Chemokine receptors and the orchestration of the inflammatory response'.

Our 2020 monthly seminar programme had good attendance rates (despite a growing rate of Zoom fatigue) and promoted active discussion sessions. These virtual seminars were recorded for members that were not available for the live event to allow for other commitments/responsibilities.

Due to its prior success a virtual version of our journal club was re-instigated during the first lockdown. This was important as it allowed postgraduate students and researchers to engage with one another in a period of particularly low morale. Additionally, two online pub quizzes – comprising immunology, general knowledge and film trivia rounds – took place at quarterly intervals, carrying on from the previous year. Though not in their usual setting these events were well attended and provided a welcome break from news fatigue and a light-hearted atmosphere.

Science festivals

As part of its public outreach programme, the BSI INE Group is involved in events to highlight the importance of immunology research in day-to-day life and engage with the general public. One such event is the Pint of Science festival designed to bring researchers to local pubs to talk about



scientific research. In the past we have sponsored the 'Our Body' theme of the Pint of Science festival in Newcastle-upon-Tyne (2018 and 2019) with tickets selling out over the three-day event, equating to audiences of over 100 from the general community.

The 2019 event consisted of researchers talking about research being carried out at Newcastle University on autoimmune diseases such as rheumatoid arthritis.

Dr Ben Barron-Millar

Newcastle University
Immunology North East
Communications Officer

Find out more

To join the Group and take part in upcoming activities: www.immunology.org/immunology-north-east

 @ImmunoNorthEast

 www.facebook.com/ImmunologyNorthEast

Professor Sir Peter Lachmann, FRS, FMedSci 1931–2020

The BSI was saddened to learn about the recent death of our Honorary Member, Professor Sir Peter Lachmann. He had been a member of the British Society for Immunology for over 15 years, making significant contributions to the field over decades.

Professor Sir Peter Lachmann died peacefully and at home on 26 December 2020. With his passing we have lost a giant of UK Immunology, a polymath with encyclopaedic knowledge and expertise crossing most areas of science, but who always considered himself an immunologist.

Best known for his seminal contributions to understanding of the complement system, an unfashionable backwater of immunology for much of his early career, Peter always sought to marry lab observations to clinical disease. In the 1960s and 1970s, he showed the importance of complement dysregulation in diverse autoimmune diseases, demonstrated the clinical impact of different complement deficiencies and showed the importance of nephritic factors, autoantibodies targeting the complement enzymes, as triggers for complement dysregulation in disease. In an early example of 'bedside-to-bench' research, he used these clinical observations to guide experiments that formed the basis of his 'C3 tickover hypothesis', published with little fanfare in the BSI's house journals, *Immunology* and *Clinical & Experimental Immunology* in 1973 and 1975 respectively. These discoveries changed understanding of how complement was activated and amplified,

key to its roles in disease and critical for current efforts at therapeutic modulation in disease.

More recently, Peter was also involved in the discovery and characterisation of CD59; I was fortunate enough to collaborate with him on these studies and learned much from the experience. True to form, when the 'landmark' paper on our CD59 work was ready for publication, Peter decided that *Immunology* was the right journal because the right people read it! Peter 'retired', in 1997 but continued to lead a small research team focused on therapeutic modulation of the amplification loop of complement, a highly productive period that included co-founding a company in his ninth decade.

Peter was an inspiration and mentor to many, including me. Indeed, I first 'properly' encountered Peter in 1984 when he travelled to Cardiff to examine my PhD – I was terrified! After four hours of interrogation, he called a truce, slapped me on the back and said 'that was fun' – and I think he meant it! He was hugely supportive of students, junior staff and fellows and would always be ready with advice, a letter of support or a dose of mentoring of the 'old school' kind. He was a delight to debate with (as long as you didn't expect to win), a font of knowledge and incredibly generous with his time and patronage. His contributions at conferences (remember those?) were legendary – always installed in the front row and ready with 'killer' questions or comments that cut to the heart of the issue, but also the first to offer advice, support and a pat on the back at the coffee break.

There was much more to Peter than his research. A shrewd politician, he made



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significant and lasting changes to UK Science. Notable among many was his role in establishing the Academy of Medical Sciences – appointed in 1998 as first President, he set the Academy on the path to its current position as a world-leading Medical Sciences Academy.

Peter will be greatly missed by many in the UK immunology community and beyond. I have lost a friend and mentor of over 35 years. I look forward to celebrating this great life with the many others he touched over his remarkable career when circumstances allow.

Paul Morgan

'With his passing we have lost a giant of UK Immunology, a polymath with encyclopaedic knowledge and expertise crossing most areas of science, but who always considered himself an immunologist.'

Professor Don Mason

1934–2021

The BSI was saddened to learn about the recent death of our Honorary Member, Professor Don Mason. Don made significant contributions to cellular immunology and training the next generation of immunologists over decades.

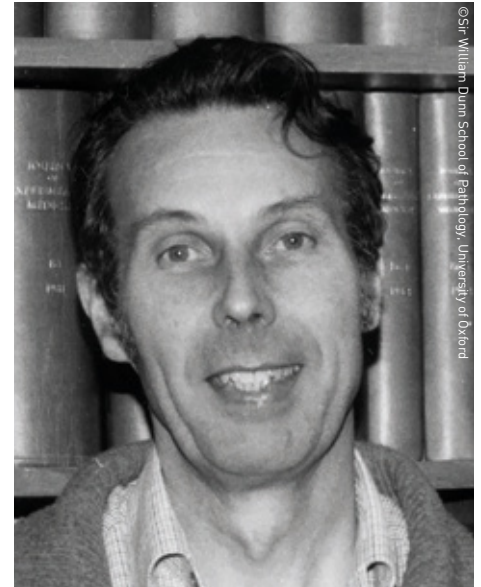
The immunology community lost a much valued friend and colleague on 13 January 2021 when Don Mason passed away peacefully surrounded by his family. An Honorary Life Member of the BSI, Don made influential fundamental contributions to cellular immunology and also trained several generations of successful immunologists across the world.

Don trained initially as a physicist, working for several years in the field of thermonuclear fusion before studying medicine and moving into immunology research in 1973 at the MRC Cellular Immunology Unit, in the Sir William Dunn School of Pathology, Oxford University. His research was highly innovative and often ahead of current paradigms. Together with Alan Williams and colleagues at the MRC Cellular Immunology Unit, Don focused on immunological studies using the rat as a model organism. He was among the first to identify the T-helper function of CD4+ T cells, initially in the mixed leukocyte reaction *in vitro*. Using panels of monoclonal antibodies generated at the Dunn School to key leukocyte surface molecules, he further analysed functions of lymphocytes. For example, using antibodies to restricted high molecular weight forms of CD45 (OX-22), he was able to show that CD4+ T cells that provided B cell help were distinct from those that mediated graft versus host disease, providing early evidence of the functional heterogeneity of T-helper cells.

Those studies also identified specialised suppressive T cells, now known as regulatory T cells, that control autoimmune and inflammatory responses. His work on the ability of thymocyte subpopulations to suppress autoimmune disease led him to conclude that the production of regulatory T cells was the third function of thymus. Although many immunologists at the time were sceptical of the concept of specialised T cells capable of policing the immune response, Don and a handful of immunologists continued to pursue this idea. Those studies established the foundations of the regulatory T cell field, now a major immunological paradigm that continues to define the field of immune regulation today.

Through his rigorous approach, Don also characterised many of the parameters regulating the development of experimental autoimmune encephalitis, a model of multiple sclerosis in rats, and potential therapeutic approaches. He extended these studies to other autoimmune diseases, thyroiditis and diabetes. Through his application of quantitative approaches, he published classical papers on antibody kinetics and a theoretical paper arguing that the specificity of the T cell receptor had to be broadly cross-reactive and not highly specific as was widely argued. This paper has been cited more than 700 times and remarkably after more than 20 years is still cited more than 30 times a year; a testament to the enduring quality of Don's work that continues to influence immunologists today.

Don was an inspiration and huge positive influence on his mentees. He led a small lab emphasising the joy of discovery accompanied by a robust and critical approach to data alongside a friendly and collegiate spirit. Many trainees became friends who Don kept in touch



© Sir William Dunn School of Pathology, University of Oxford

with, maintaining an interest in their career. His combination of high intellect combined with kindness and humility made him a highly regarded colleague in Oxford and beyond. He was generous with his time and aided and encouraged many researchers in other institutions by sharing reagents and discussing ideas freely.

Don's strong scientific principles were matched by his concern for societal issues. He was a vegan, a Quaker and a committed pacifist. He adapted his lifestyle out of concern for the environment stating that humans will be the only species to threaten their own existence – sadly a prophecy with huge relevance today. He believed in the goodness of people. He corresponded with prisoners, showing kindness to those not as fortunate as himself and felt that everybody deserved a second chance. Most of all Don was a family man, immensely proud of his wife, children and grandchildren.

Fiona Powrie, Anne Cooke

'His combination of high intellect combined with kindness and humility made him a highly regarded colleague in Oxford and beyond.'

Immune Update

The BSI journals

A round-up of new research published in the British Society for Immunology's official journals *Immunology*, *Clinical & Experimental Immunology* and our new Open Access journal *Immunotherapy Advances*. Members can access these journals free of charge at www.immunology.org/journals.

Clinical & Experimental Immunology

Immune monitoring reveals multiple triggers of Kawasaki disease

Kawasaki disease (KD) is an acute paediatric vasculitis of unknown aetiology that can cause coronary artery aneurysms and is the leading cause of acquired heart disease in children.

Burns *et al.* studied immune cell populations in whole blood samples from 17 children with acute KD to investigate whether variations in clinical presentation represent responses to different triggers. They found that immune patterns varied greatly across the cohort, but identified that certain innate immune motifs were linked to clinical subtypes. Older children showed high numbers of proinflammatory myeloid dendritic cells (DC) in circulation,

which correlated with a severe inflammatory phenotype. Conversely, anti-inflammatory myeloid DC deficiency was strongly associated with enlarged cervical lymph nodes. T cell populations showed no specific correlations to clinical subgroups in this study, although they are known to play an important role in KD pathogenesis.

The diversity of the innate and adaptive immune responses observed in acute KD subjects suggests that different patterns of immune response may reflect exposure to different antigenic triggers. These results are relevant, given the possible role of SARS-CoV-2 as one of many triggers for the vascular inflammation as seen in acute KD.

Burns *et al.* 2020 *Clinical & Experimental Immunology* **202**, 263–272 <https://doi.org/10.1111/cei.13506>



Immunotherapy Advances

Vitamin D₃ replacement enhances antigen-specific immunity in older adults

Ageing is associated with increased susceptibility to infections, re-activation of latent infections such as varicella zoster virus (VZV), decreased vaccine efficacy and inflammaging. Vitamin D has key immunomodulatory functions; however, vitamin D insufficiency is more common in older adults where it is associated with frailty and elevated inflammatory markers.

Chambers *et al.* administered vitamin D₃ orally to vitamin D-deficient older adults (≥65 years) with pre-existing VZV immunity for 14 weeks. Antigen-specific immunity was assessed before and after vitamin D₃

replacement by intradermal challenge with VZV antigen, followed by transcriptional analysis of biopsies collected from the challenged injection sites. They found that



vitamin D₃ supplementation significantly improved response to VZV antigen challenge in older adults. This enhancement was associated with reduced infiltration of inflammatory monocytes and increased T cell recruitment at the site of antigen challenge.

This indicates that vitamin D supplementation in deficient older adults decreases non-specific inflammation and enhances antigen-specific immunity.

Chambers *et al.* 2020 *Immunotherapy Advances*, lta008 <https://doi.org/10.1093/immadv/ltaa008>

Immunology

Tolerance induction in memory CD4 T cells is partial and reversible

Memory CD4 T cells play central roles in enhancing immune protection against pathogens the host has previously encountered, but also contribute to chronic inflammatory conditions such as rheumatoid arthritis. Antigen-specific tolerance strategies have been used for many years to treat allergies, and there are ongoing trials in autoimmune patients. These strategies are based on experiments examining T cell receptor (TCR) activation of naïve CD4 T cells in the absence of costimulatory and

inflammatory signals. Less is known about the consequences of activating memory CD4 T cells with TCR signals alone.

Gray *et al.* generated antigen-specific memory CD4 T cells in mice by infection or immunisation. Memory CD4 T cells were then reactivated with a peptide antigen in the presence (immunogenic) or absence (tolerogenic) of adjuvant. They found that memory CD4 T cells survive secondary activation with antigen delivered without adjuvant. However, after tertiary immunisation

with antigen and adjuvant, cells continued to produce inflammatory cytokines but were proliferating poorly.

These data suggest that while the responses of memory CD4 T cells can be moderated by exposure to tolerogenic signals, these cells may not be permanently silenced.

Gray *et al.* 2021 *Immunology* **162**, 68–83 <https://doi.org/10.1111/imm.13263>

Around the journals

A summary of some of the latest papers from the world of immunology.
Written by Edd James, Louisa James, Donald Palmer and Jasmine Catmull.

Modelling human adaptive immune responses with tonsil organoids

Wagar and colleagues established organoid cultures from human tonsils capable of forming characteristic light and dark zones with transcriptional profiles that corresponded to germinal centre cells.

Stimulation with influenza vaccine induced B cell clonal expansion, affinity maturation and class switching, and the production of antigen-specific antibodies mirrored the kinetics typical of *in vivo* vaccination. Depletion of plasmacytoid dendritic cells reduced the antibody response, which was rescued with endogenous type I interferon, whereas depletion of CD4⁺ T cells influenced antibody affinity, highlighting the value of this system for understanding germinal

centre regulation. In addition to responses to recall antigens, organoids were capable of priming responses to new antigens, and could be further enhanced with adjuvants.

Organoid cultures that recapitulate the organisation and function of different tissues have proved valuable for evaluating responses to treatments. This tonsil organoid system has potential for testing and validating strategies for vaccine design, moreover, donor variability could be exploited to examine factors that influence natural susceptibility to infection or predict responses to vaccination.

Wager *et al.* 2021 *Nature Medicine* **27** 125–135

Gut CD4⁺ T cell phenotypes are a continuum moulded by microbes, not by TH archetypes

The way CD4⁺ effector T cells are categorised is primarily based on the cytokines they produce and expression of key transcription factors and chemokine receptors. Despite this, how well these markers capture effector CD4⁺ T cell populations *in vivo* at steady state or during immunological challenge is unclear.

Here, Kiner and colleagues use single-cell transcriptomics to reveal that while CD4⁺ T cell subsets (Th1, Th2, Th17 and Tfh) are detected by flow cytometry, these curated signatures were not clearly partitioned following transcriptome analysis. The type of

infection was found to be a dominant factor, rather than the cytokine they produced, in defining identified clusters. Interestingly, clones derived from a single progenitor were found to give rise to cells producing both IFN- γ and IL-17 in response to infection.

This study highlights how single-cell sequencing can provide valuable insights into cellular heterogeneity questioning our perception of CD4⁺ T cell responses.

Kiner *et al.* 2021 *Nature Immunology* **22** 216–228

Distinct developmental pathways generate human lung macrophage diversity

The origin of tissue macrophages is coming under increasing scrutiny with studies revealing that these cells are highly heterogeneous, exhibiting different kinetic and development properties. Moreover, the development of human lung macrophages remains poorly understood.

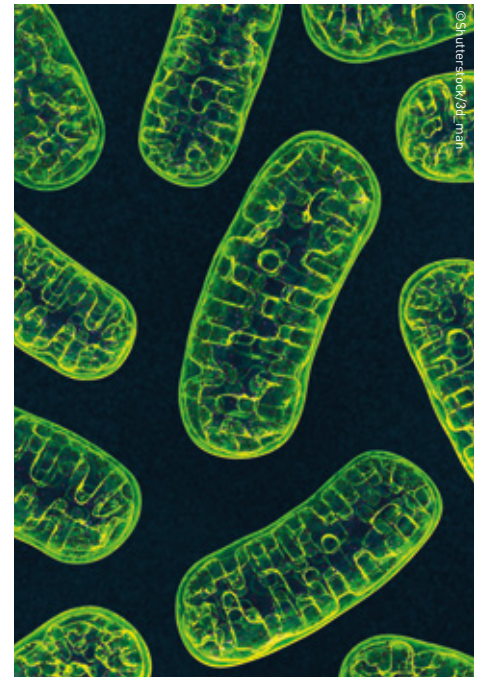
Using a humanised mouse model termed 'MISTRG' that can support human haematopoiesis, Evren and colleagues showed that human CD34⁺ cells from cord blood can give rise to alveolar, and interstitial lung macrophages, and lung monocytes which phenotypically resemble those cells that are found in human lung.

Transcriptional analysis revealed that the ontogeny of lung macrophages involves a series of development pathways. Indeed, the authors revealed that CD14⁺ monocytes generated alveolar and

interstitial macrophages whereas CD16⁺ blood monocytes gave rise to pulmonary intravascular macrophages.

These studies highlight the diverse nature of generation of tissue macrophages.

Evren E *et al.* 2021 *Immunity* **54** 259–275



Arginase-2 – a key to treating inflammation?

Inflammatory macrophages utilise arginine for the production of nitric oxide. Here, Dowling and colleagues identify that arginase-2 (Arg2), a protein that metabolises arginine, is a key resolver of inflammation and is regulated by the IL-10/miR-155 axis. An *in vitro* transcription/translation system was used to show that Arg2 is localised at the mitochondria in macrophages. Microarray confirmed that IL-10, which limits inflammatory responses, upregulates Arg2 at the protein level and at the mRNA level, through miR-155. Metabolic assays further revealed that Arg2 enhances mitochondrial respiration through complex II of the electron transport chain. Together, these findings indicate that IL-10-mediated induction of Arg2 is essential for metabolic reprogramming of inflammatory macrophages towards an oxidative, anti-inflammatory phenotype. This study elucidates a new arm of IL-10-mediated metabolic regulation and, considering the difficulties of targeting IL-10, may reveal through Arg2 an alternative route for the treatment of inflammatory disorders.

Dowling *et al.* 2021 *Nature Communications* **12** 1460
doi: 10.1038/s41467-021-21617-2



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