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Welcome to the December 2019 edition of Immunology News. It’s the most exciting time of the year for the BSI as we look forward to our Congress this month in Liverpool. The BSI Trustees, Committee members and staff can’t wait to welcome over 1,200 of you to our four-day festival of all things immunological! You’ll find lots of details on what you can look forward to throughout this issue. With cutting-edge science, excellent networking opportunities and the obligatory Congress party, it’s sure to be a week to remember.

Additionally, we’re holding our AGM at Congress on Wednesday 4 December. This is your opportunity to find out about our work to support our members and represent the discipline of immunology. Do please join us – we love hearing your feedback.

We’re proud to announce that we now have over 4,000 members from 68 countries worldwide! We’d like to offer our new members a warm welcome, particularly to those of you who are reading Immunology News for the first time. A key part of the BSI’s mission is to represent immunologists from all sectors including academia, industry and healthcare. With our increasing membership and sphere of influence, we’re looking forward to 2020 and delivering on the BSI’s mission to promote immunology in all its form to improve human and animal health.

Wishing you all a merry Christmas and happy new year.

Jennie Evans
j.evans@immunology.org

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Immunology News | December 2019
It’s nearly time for our flagship event to commence and I for one am very excited about it – BSI Congress 2019 is looking to be our best one yet! Many thanks to the Congress Committee, the BSI team, our Regional and Affinity Groups and many of you for helping to shape the programme and ensure that this is the premier UK immunology conference. This will be my (and many of the BSI’s staff team) first Congress and we can’t wait to get stuck in and meet as many of you as possible (if you want to know who we are, please do check us out at www.immunology.org/about-us/our-people/our-team).

We will be very visible at the conference so do find us to chat about what we’ve been doing at the BSI, what we’ve got planned for the future and how you can get involved, it is all very exciting!

Talking of exciting, you will no doubt have seen our Annual Review which summarises the impact your BSI, with your help, has had over the last year. We’ve highlighted some of this on page 8 but please do have a read of the full report. We are making tremendous progress to bring real benefits across immunology research, translation, clinical delivery and public health.

We would not be able to make this progress without the amazing volunteers we have on our Board of Trustees and on Forum. Sadly, as is the case with necessary turnover, some of our committee members will finish their terms of office over the next year and we thank them for their efforts over the years to bring the BSI to where we are. This does, however, present an opportunity for all of you to consider taking on these roles and to help us reach even greater heights in the future! Please do read more about this on page 5.

Sticking with the achievement theme, I would like you to join me in offering very well-deserved congratulations to Joanne Pennock from The University of Manchester – our Teaching Excellence Award winner 2019 (page 23-24)! This is such an important award and one that recognises the very best in inspiring the next generation of immunologists. All our higher education teachers are central to ensuring research in immunology, and the wider life sciences continues to thrive and delivers benefit for human and animal health. Well done Jo for being recognised as one of our nation’s best!

We have been busy in a number of other areas over the last few months, much of which you can read about in this issue of Immunology News. We have continued to represent and support global work through a strong presence at the IUIS Congress in Beijing in October (page 11), in leading a European Task Force on childhood vaccinations (more news on that soon), as well as shaping policy and raising the profile of the issues and what needs to be done with regard to the falling UK childhood vaccinations rates [page 12-14]. Engaging in the wider UK political environment has also been interesting in the last few months, to say the least – find out more on page 15.

We were also fortunate to be selected by an organisation, The Collaboration Company, to benefit from 24 hours of expert thinking of senior leaders from major multinational companies for an ‘Ideathon’. More info is on page 25 but, in a nutshell, this was a fantastic opportunity that no other learned society has had the privilege to engage with and one that has given us lots of innovative and creative solutions to address childhood vaccination rates in the UK. They were a wonderful team of incredibly smart people, giving up their time for free to help us solve this important issue – such a fulfilling and helpful experience.

Overall, I’m delighted to see that we continue to be recognised as a leading immunology organisation nationally and globally, and one that can influence and implement positive change. Now with over 4,000 wonderful members in the BSI family, who have an expert, passionate and solution-focused voice, we most definitely deserve that position! Thank you for all your support – the team and I look forward to seeing you in Liverpool!

Doug Brown
Chief Executive,
British Society for Immunology
Email: d.brown@immunology.org
BSI Forum: there to represent you

The BSI Forum is our ‘think tank’ and the place where issues and ideas are raised, discussed and developed for the consideration and approval of the Board of Trustees. These relate to education and careers, public engagement, policy and public affairs, as well as communications. The role of Forum is to help the Society in implementing its strategic plan by providing a mechanism by which the voice of the membership can be fed into the place where issues and ideas are raised, discussed and developed for the Society and to make a real difference to immunology in the UK.

For the success of our organisation, it is vital that we have Society members who are willing to stand for election and contribute their knowledge, expertise and experience to ensure that we are doing all we can to support our members and the field of immunology as a whole. This is a fantastic opportunity for you to get involved in the work of the Society and to make a real difference to immunology in the UK. We are looking for committee members from all backgrounds and career grades. You don’t need to have previous experience of sitting on a committee but you do need lots of enthusiasm and a willingness to get involved to help formulate our activities and polices. Through serving on a Society committee, you will also increase your networks, widen your knowledge and gain many transferable skills.

Upcoming vacancies

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

**Board of Trustees**

**Trustee** – We will have one vacancy for a General Trustee position with the term commencing at the start of 2021.

**Secretary roles**

**Education Secretary** – The Education Secretary works with the BSI to take forward our activities to support the education and careers of those working in the field of immunology (especially in the UK). Taking their lead from our strategic priorities, the Education Secretary works to increase the support that the BSI provides to our members throughout their careers. This role is due to commence in mid-2020.

**Groups and Meetings Secretary** – This person works closely with the BSI team to coordinate our numerous Regional and Affinity Groups and their activities. Taking the lead from our strategic priorities, the Groups and Meetings Secretary works to ensure that our Groups provide good support to members throughout the country. This role is due to commence at the start of 2021.

**Forum**

The following roles will be up for election:
- Northern Ireland representative
- Early-career representative
- PhD representative × 2

All of these roles are due to commence in mid-2020.

**Congress Committee**

We have four vacancies on this committee for general members commencing January 2021. 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.

Nominations for all these positions will open in the new year.

Want to find out what it’s like being a committee member for the BSI? Come along to our stand at the BSI Congress during the evening poster session at 18:00 on Tuesday 3 December when our Trustees and Forum members will be on hand to answer your questions.

Make a difference for immunology!

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

For the success of our organisation, it is vital that we have Society members who are willing to stand for election and contribute their knowledge, expertise and experience to ensure that we are doing all we can to support our members and the field of immunology as a whole. This is a fantastic opportunity for you to get involved in the work of the Society and to make a real difference to immunology in the UK. We are looking for committee members from all backgrounds and career grades. You don’t need to have previous experience of sitting on a committee but you do need lots of enthusiasm and a willingness to get involved to help formulate our activities and polices. Through serving on a Society committee, you will also increase your networks, widen your knowledge and gain many transferable skills.

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BSI Congress 2019
2 – 5 December 2019, Liverpool, UK

There are only a few days until the BSI Congress. We are looking forward to welcoming many of you to Liverpool on 2–5 December. We have a fantastic programme lined up for you with a mixture of parallel sessions, plenary talks, poster sessions, educational events and networking opportunities.

**Scientific highlights**

**Keynote session** – in this prestigious session, Doreen Cantrell will discuss ‘Environment control of T cell function’. This is a ‘must attend’ talk for all immunologists and promises the chance to hear Doreen discuss her ground-breaking research.

18:00–19:00, Monday 2 December

**Immunological challenges of controlling influenza** – plenary session featuring Katherine Kedzierska, Peter Openshaw and Alain Townsend.

09:00–10:30, Tuesday 3 December

**Cancer immunotherapy** – plenary session featuring Ana Anderson, Carl June and Cornelius Melief.

16:30–17:30, Tuesday 3 December

**Tissue resident memory T cells** – plenary session featuring Donna Farber and David Masopust.

16:30–17:30, Tuesday 3 December

**The recognition and clearance of senescent cells by leukocytes** – plenary session featuring Arne Akbar and Valery Krizhanovsky.

16:30–17:30, Wednesday 4 December


**BSI AGM**

At the annual general meeting you can learn about the work of your Society, what activities we have carried out in the past year and what our plans are to support members and represent immunology in the UK. We encourage as many members as possible to attend.

17:30–18:00, Tuesday 3 December

**What to do?**

- **Be a Bright Spark** – make sure you arrive in time for our Bright Sparks session at 12:30 on Monday 2 December, which highlights the best work from early career researchers. Be ready for innovative science, creative presentations and a friendly and welcoming atmosphere – one of the highlights of the Congress.

- **Showcase your work** – whether you’re giving an oral or poster presentation, make the most of this opportunity to showcase your work, talk to others in the field and raise your profile.

- **Network** – the BSI Congress is the perfect opportunity to widen your network and make contact with others working in similar fields – make a point of talking to one person each day who you haven’t spoken to before.

- **Get your stamp** in our ‘Passport for Prizes’ competition – make sure you visit each exhibition stand to be entered into a prize draw!

- **Dance the night away** at the Congress Party taking place on Wednesday evening at Revolution St Peter’s Square. The party starts at 9pm and tickets cost only £15 via the Congress website and include two drink vouchers!
**Additional sessions**

We have a number of additional sessions running in which you can increase your knowledge on a range of topics that can boost your career and widen your horizons.

**Meet the editors** – an opportunity for you to meet the editors of the Society’s two official journals, *Clinical & Experimental Immunology* and *Immunology* at the BSI stand. 19:00–20:00, Monday 2 December

**Meet the BSI Trustees and Committee members** – come along to the BSI stand to meet our Trustees and Forum members to find out what their roles entail and how they make a difference to immunology in the UK and explore how you can get involved. 18:00–19:00, Tuesday 3 December

**Postdoc networking** – structured networking aimed at postdocs looking to learn about how to transition to independence from newly independent PIs. 08:00–09:00, Tuesday 3 December

**Public engagement showcase** – for the first time in 2019, delegates will be able to explore activities, materials and resources that have been developed by BSI members. 13:00–14:00, Tuesday 3 December & 13:00–14:00; 18:00–19:00, Wednesday 4 December

**Meet the funders** – in this lunchtime session, a panel from the BBSRC, MRC and the Wellcome Trust will answer your questions on where their funding priorities lie and how to write a successful grant application. 13:15–14:15, Wednesday 4 December

**Meet the BSI Groups** – our Regional and Affinity Groups play a huge role in our work, connecting us with our members and running innovative events. Representatives from our Groups will be available in the Exhibition Hall to discuss their activities and how you can get involved. 18:00–19:00, Wednesday 4 December

**Immunology education meet up** – this informal meet up will give those who have an interest in immunology education the opportunity to discuss ideas and see how the BSI can support them. 18:15–19:15, Wednesday 4 December

**Autoimmune meet up** – a breakfast networking session to connect researchers working on autoimmunity and introduce our Connect Immune Research initiative which aims to facilitate progress in autoimmune research. 08:00–09:00, Wednesday 4 December

**Expert’s guide to publishing** – if you’re interested in learning more about what journal editors do and how they make their decisions, join our Editors-in-Chief to discuss tips for getting published and maximise the impact of your work. 13:15–14:15, Wednesday 4 December

**Joint sessions with UK PIN**

On Thursday 5 December, we will hold several joint sessions with the UK Primary Immunodeficiency Network (UK PIN). This includes two plenaries, ‘Learning from cell signalling in immunodeficiency’ where we hear from Ulf Klein, Klaus Okkenhaug and Sonal Srikanth, and ‘Mechanism of inflammation in immunodeficiency’ with Sophie Hambleton and Andrew Snow, as well as additional parallel sessions.

**Connect with us**

The BSI is keen to keep you up to date with all the latest news from the BSI Congress. There are several ways you can connect with us.

- **www.bsicongress.com**
- **Download the Congress app. Search for ‘BSI Congress’**
- **@bsicongress or #BSI19**

**Stand:** The BSI will be at stand number 22 in the exhibition area. Do stop by to say hello – we’d love to see you!
BSI Annual Review

The BSI is pleased to publish our Annual Review showcasing the activities and achievements of the Society over the last year. We are now almost at the end of our current strategic plan and the past 12 months have seen the organisation achieve some important milestones, both in terms of the support and activities that we provide for our members and our work engaging with the wider world to put immunology centre stage in the public arena.

This year saw us welcome our new President, Arne Akbar, and a new CEO, Doug Brown, to the BSI. Activity highlights include running our first ever parliamentary events, and building our partnership initiatives both in the cancer immunotherapy sphere with the National Cancer Research Institute, and in autoimmunity through our Connect Immune Research initiative. We also extended our offering for members through our grants and training programme and by building links with the international immunological community.

None of these achievements would have been possible without the support of our members. Be it through volunteering on our committees and boards, editing our journals, running our Regional and Affinity groups or helping us with media, policy and public engagement activities, our members are the lifeblood of the Society. We’re incredibly grateful to you all for your help and support throughout the year.

You can download the full Annual Review from our website at www.immunology.org/annual-review-2019 to discover more about how the BSI has made a difference for immunology in the last year. Print copies will also be available on the Society’s stand at Congress, so do pop along to pick up a copy and talk to us about how you can get involved with our work. You can also request them from membership@immunology.org.

Thank you

The end of this year sees an important change to our Board of Trustees. At our upcoming AGM, BSI Clinical Secretary, Sofia Grigoriadou, will finish her terms of office with us. Over the last four years, Sofia has sat on our Board of Trustees as well as leading the clinical activities of the Society. She has made an enormous contribution to our work in this area including leading on our first ever clinical guidelines (published jointly with UKPIN in Clinical & Experimental Immunology https://onlinelibrary.wiley.com/doi/10.1111/cei.13272) and building up our collaboration work, particularly in the primary immunodeficiency space. The BSI owes her a huge debt of gratitude for the time, energy and care she has put into bringing her expertise to bear to develop our strategy, guide our activities and ensure the BSI is run to the highest standards. Thank you from all of us!

We look forward to welcoming a new face to the Board of Trustees in the new year in Colin Dayan, who takes over as our new Clinical Secretary. Welcome to the BSI family, Colin!

BiteSized Immunology

We’re delighted to announce that all the BiteSized Immunology articles are now available to read and download in Spanish. BiteSized Immunology is an extensive online guide to the immune system suitable for undergraduate bioscience students, MSc students and anyone wishing to refresh their knowledge on a specific immunology topic. Working with the Spanish Society for Immunology and their community manager, Jesús Gil-Pulido, all the articles can now be found in Spanish including diagrams, tables and graphics. This exciting project allows BiteSized to be accessible to an even wider audience of bioscience students across the world. You can access this useful online resource here: www.immunology.org/public-information/bitesized-immunology.
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Why contribute to your Society’s journals?

Discover the reasons to publish with us and find out why our journals are a great place to submit your next article. The Society’s two official journals, Immunology and Clinical & Experimental Immunology, are key journals for all immunologists. The revenue derived from our journals provides major financial support for all the BSI’s activities so, by submitting your work, you’re supporting your Society. We’d like to invite all our members to explore the journals and encourage them to consider contributing to them. As a BSI member, you can benefit from free access to read the journals and from reduced open access fees to publish your work.

**Immunology**

*Immunology* is one of the leading journals in the field. *Immunology* publishes papers describing original findings in all areas of cellular and molecular immunology. High-quality original articles describing mechanistic insights into fundamental aspects of the immune system are particularly welcome.

**Clinical & Experimental Immunology**

*Clinical & Experimental Immunology (CEI)* is an international, authoritative, and timely journal publishing high-quality and impactful papers in the field of translational immunology. All primary research articles in *CEI* are relevant to human disease, based in part on translational research and underpinned by novel mechanistic insight.

**Topics of interest to the journal include:**

- Autoimmunity
- Inflammatory diseases
- Primary and secondary immunodeficiencies
- Complement disorders

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**Editor-in-Chief: Simon Milling**

Simon Milling is Professor of Immunology in the Institute of Infection, Immunity and Inflammation at the University of Glasgow. His lab focuses on the biology of antigen presenting cells in the intestine, and on how these cells respond to infectious or inflammatory stimuli.

**Editor-in-Chief: Leonie Taams**

Leonie Taams is Professor of Immune Regulation and Inflammation, and Director of the Centre for Inflammation Biology and Cancer Immunology at King’s College London. Her lab studies cellular processes and molecular mechanisms involved in the regulation of inflammation in humans, with a specific interest in inflammatory arthritis.
BSI at the International Congress of Immunology

In October, members of the BSI team made the trip to China to attend the 17th International Congress of Immunology (IUIS 2019), which this year was held in Beijing. This prestigious conference, held jointly by the International Union of Immunological Societies (IUIS) and the Chinese Society for Immunology, brought together the world’s top immunologists to discuss the latest research, with the programme organised around four core themes: adaptive immunity, innate immunity, immunology and diseases, and interventions.

With over 100 invited speakers and chairs from all over the world, it was certainly an event not to be missed. The BSI was represented at the Congress by our President, Arne Akbar, our past President Peter Openshaw, our Chair of Forum Ann Ager and our Congress Secretary Gary Entrican. Elections for the IUIS Council were also held during the event and we were delighted that Ann was elected onto the Board.

Our journals were also well represented at IUIS 2019, with our Journals Manager Christine Fears in attendance. As well as networking and commissioning content for our publications, Christine spoke in the ‘An expert’s guide to publishing’ workshop alongside international colleagues from the Australian and New Zealand Society for Immunology, the European Journal of Immunology, and from Wiley’s Beijing offices. The workshop, sponsored by Wiley, discussed key tips for getting your work published and read, followed by a lively question and answer session, and attracted over 400 delegates.

The BSI was also delighted to be able to provide travel awards for a number of our members to travel to Beijing to present their work at the Congress. Schemes such as our travel awards are key to the BSI’s objectives to provide career support to members and to offer new opportunities.
Improving the childhood vaccination rate in the UK

The British Society for Immunology is here to represent our members and discipline of immunology as a whole. A key aim, highly valued by our members, is to provide a strong voice on behalf of our community to represent immunology to the highest levels. Part of this is ensuring that the public reaps the benefits from immunology research and clearly a crucial topic in this is vaccination.

Over the past 18 months, the BSI has significantly increased our external affairs work, in particular focusing on the childhood vaccination rate in the UK. Vaccine uptake in England has decreased over the last five years. England does not hit the World Health Organization target of 95% uptake at the correct time point for any of the routine childhood vaccinations.1 Although uptakes are, on average, 2–3% higher in the devolved nations, they too have seen recent decreases and do not achieve the 95% target in some vaccinations. We are now starting to witness the implications of these declines, with cases of measles and mumps at their highest for over 10 years. As the UK-wide organisation representing scientists and clinicians who study the immune system, we feel that the BSI is ideally placed to provide a loud voice to champion vaccines in the public arena and to advocate for what is needed to increase uptake rates.

What’s causing the decline in childhood immunisations rates?

This is obviously a complex and multifactorial issue, but it helps if we break it down into the ‘3Cs’ – confidence, complacency and convenience.

Despite much publicity around social media’s effect on vaccine ‘confidence’, there is little evidence in the UK to back up claims that this is a leading cause of decreased uptake rates. Public Health England research shows that the public’s confidence in vaccination is actually high, with healthcare professionals the most trusted source of information while social media is the least.2 Rather than focusing on the zeitgeist of social media, the BSI advocates that instead we put efforts into ensuring that healthcare professionals have the information and resources they need to engage with parents who have questions on vaccination.

Vaccines have been one of the most effective public health inventions, saving millions of lives around the world. In fact, they have been so effective that they can be seen as a victim of their own success. Many of the diseases targeted are now rare in our communities, meaning it’s easy to be complacent and forget just what a serious risk they pose to children’s health. The BSI view is that instead of alienating parents who miss their child’s vaccinations, we should engage with them to answer their questions and to provide evidenced-based information on just how important vaccinations are.

The last factor of convenience refers to the suitability and accessibility of our healthcare services for the communities they are designed to serve, and there’s evidence that this is a significant cause of the decreased vaccination rates. Over the past decade, there has been a reduction in overall capacity and specialist knowledge within our immunisation services. This is due to several factors including fragmentation of the service following the Health and Social Care Act 20123 and public health budget cuts. Despite the efforts of hardworking

BSI’s stance on compulsory vaccination

The BSI does not support compulsory vaccination. Our view is that it is a blunt tool, with no current evidence that it would increase the UK’s immunisation rate, but rather concerns that it could increase current health inequities, and alienate parents with questions on vaccination. Rather than implement this costly policy, we advocate that the Government should instead increase funding our vaccination services to ensure they are adequately resourced to provide accessible services to parents.
and dedicated immunisation teams, these changes have resulted in a service that is underfunded and less fit for function. However, there is action we can take. As well as increasing funding, improving the number of immunisation co-ordinator roles, standardising reminders for parents on when vaccinations are due, and ensuring clinics are open at appropriate times are all techniques that we know boost immunisation rates. Additionally, it’s important that services have the capacity to reach out into under-vaccinated communities to engage with people directly and gain their trust.

What is the BSI doing?

The BSI works on a number of fronts to increase the childhood vaccination rate and provide reliable, evidenced-based resources for parents on immunisation.

Parliamentary engagement

Our parliamentary engagement takes a number of different forms but has seen success on many fronts. We regularly contact MPs to suggest questions on vaccinations that they can put to Ministers in the Department for Health and Social Care. To date, we’ve had 20 questions asked for us by 6 MPs from 4 parties (Conservative, DUP, Labour and Liberal Democrat). As well as raising the profile of vaccination among MPs, this also allows us to get the Government to state on the record what actions they are planning and can identify areas requiring more scrutiny.

Earlier this year, we worked with Chris Green MP (Con, Bolton West) to hold a debate on childhood vaccination uptake in Westminster Hall.1 We provided Chris with a briefing on important issues to raise, and he was able to mention most of these in presenting the case to Seema Kennedy MP (Con, South Ribble), the then Parliamentary Under Secretary of State for Public Health and Primary Care, that more measures should be taken to reverse the decline in vaccination coverage seen during recent years. We were pleased that, in her response, she mentioned all of the key areas that the BSI been calling for more Government support on – more accessible services, more information and more training for healthcare workers.

Responding to consultations around vaccination is also a key part of our work and certainly kept us busy over the summer. Having built up a relationship with the Chair of the All Party Parliamentary Group on Vaccinations for All, Dr Philippa Whitford MP (SNP, Central Ayrshire), we responded to their inquiry on vaccine uptake, the findings of which have yet to be published. We also responded to a NICE consultation to increase vaccine uptake.

Evidently, Government experienced many changes over the summer but the BSI was on hand to make sure that vaccination did not get lost in the mix. Within one week of Boris Johnson taking office as Prime Minister, we sent a letter to him from our President, Arne Akbar, suggesting that he take early action to tackle the issue of childhood vaccine uptake. Now, naturally the Prime Minister’s office receives lots of correspondence so we can’t claim sole credit here, but we were delighted that less than one month later a press release was sent out from Number 10 entitled ‘Prime Minister orders urgent action to improve vaccination uptake’,2 containing proposals that the Government intends to take on this, many of which were actions we’d been calling for. They also pledged to publish a comprehensive vaccine strategy. Although this is now on hold due to the General Election, we will be campaigning hard to the new Government to take this forward.

Partnership and consensus building

As well as carrying out our own work around vaccinations, we feel that it’s incredibly important for us to reach out to other organisations working in this sphere to understand their views, build consensus and look for fruitful partnerships. Over the last year, we have met with representatives from many organisations including Public Health England, Royal College of Nursing (RCN), Royal Society for Public Health and Royal College of Paediatrics and Child Health (RCPCH). We also met with Sally Davies, the then Chief Medical Officer, to discuss our plans around providing training for healthcare professionals on vaccination and were pleased to gain her support.

Media work

As a champion of immunisation, we feel that it’s vital that the BSI speaks out to the media and provides a strong evidence-based voice for vaccination. This year, vaccination has rarely been out of the spotlight, which has kept our media team, and our President and Chief Executive, extremely busy. Since the start of the year, we’ve received major national and international coverage on the issue of vaccinations in outlets including BBC News, The Times, The Guardian, Daily Telegraph, Daily Mail, The Sun, Daily Mirror, CNN and Sky News to name but a few. Particular highlights include contributing an opinion article to The Guardian on the reasons for the fall in vaccine uptake, which gave us an excellent platform to put forward our views.4 We also worked with the Science Media Centre and experts from the RCN and RCPCH to provide a briefing for journalists on the topic of mandatory vaccination. This was incredibly successful, leading to over 25 national news articles and allowed us to put across the evidence behind the decline in vaccine uptake. Finally, we worked with the Daily Mail on their recent campaign to increase uptake of MMR, which has seen significant success in raising the profile of this issue.
Healthcare professionals

Many of you will remember our vaccine ambassador scheme that we piloted a couple of years ago. While the results of this were positive, the logistics of setting up meetings with parent and baby groups proved too resource heavy for us to take forward. So, we took a step back and re-evaluated as we still felt there was value in the approach; we have now redefined it to ‘a train the trainer’ approach – essentially using a similar format to engage with healthcare professionals who give vaccinations. We are currently running focus groups with these frontline healthcare professionals who deliver vaccinations to find out what their learning needs are and what resources they would like to be able to deliver an optimal service. From these, we will develop a more fully formed plan on how to take this aspect of our work forward.

Public information

Our popular ‘Guide to Childhood Vaccinations’ and accompanying videos are available for free on our website and provide a reliable, easy to understand guide to how vaccines work and why they’re important. We have plans for both updating this guide and for producing more in the series – watch this space.

We also regularly provide opportunities for the public to engage with our members directly on this topic, both through our Immunology News (December 2019) and the life-saving benefits they confer.

Communicating Immunology grant scheme and our own centrally organised public engagement activities. For example, in the summer we supported a Science Day run by the Dr Jenner’s House & Museum, where we provided two speakers on the topic of vaccination and ran an activity stand for kids.

Next steps

This has been a year where vaccination has been high up in the social consciousness, due to the decrease in vaccination rates and increase in measles cases. Although we’ve achieved notable successes this year, we have no intention of stopping there and will continue our programme of work into 2020. We’re particularly keen to start a programme of engagement with the devolved nations.

Vaccines, and immunological research which led to them, have revolutionised public health in this country and round the world. The BSI is proud to champion the importance of vaccinations on behalf of our community, and the life-saving benefits they confer.

Jennie Evans
Head of External Affairs, BSI
Email: j.evans@immunology.org

REFERENCES

5. Gov.uk 2019 Prime Minister orders urgent action to improve vaccination uptake https://bit.ly/20qA6lq

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Immunology News | December 2019
BSI policy work update

The BSI has continued to enjoy policy and public affairs successes over the summer period. This has included positive engagement with the new Government led by a new Prime Minister as well as talking to the Opposition and building on previous work.

All change in Westminster

When I wrote in the last issue of Immunology News, we were just gearing up to launch a new contacts programme to introduce the BSI and its agenda to a (mostly) new set of Ministers. This began with writing to the Prime Minister, Rt Hon Boris Johnson MP [Con, Uxbridge and South Ruislip] to discuss two major priorities: the need to tackle the worrying decline in childhood vaccination uptake through positive Government action; and the necessity of retaining the Government’s ambitious commitment to reach 2.4% GDP for R&D funding by 2027.

New Vaccine Strategy

While we were waiting for a reply to our letter, the UK lost its World Health Organization ‘measles free status’ and the Government took that opportunity to announce that it would be launching a new Vaccine Strategy to reverse the decreasing childhood vaccination uptake in England. A few weeks later, we received a letter back from Baroness Blackwood of North Oxford [Con, Parliamentary Under Secretary of State for Innovation in the Department of Health and Social Care], asking the BSI to contribute its thoughts to the previously announced Vaccine Strategy. We have since done so and look forward to seeing the results very soon.

BSI policy input continues

While the summer parliamentary recess and prorogation have meant that there have been limited opportunities to engage with MPs on parliamentary questions (and debates), we have had the opportunity to feed in our views to Parliament and Government on almost myriad consultations. These have ranged from responding to the All Party Parliamentary Group on Vaccinations For All on ways to increase vaccine uptake; to making a submission3 to the Joint Committee on the National Security Strategy’s inquiry on biosecurity and human health, which discussed the UK’s pandemic preparedness; to responding to the Government’s consultation on the ‘Prevention Green Paper’, which aims to put prevention at the heart of healthcare in England. Responding to consultations and inquiries is an excellent way for the BSI to inject its views into the heart of the UK’s policymaking and scrutiny processes.

‘Responding to consultations and inquiries is an excellent way for the BSI to inject its views into the heart of the UK’s policymaking and scrutiny processes.’

References


Matthew Gibbard
Policy & Public Affairs Manager, BSI
Email: m.gibbard@immunology.org
Now in its eighth year, the Cambridge Big Biology Day took place on Saturday 5 October at Hills Road Sixth Form. The British Society for Immunology was one of 47 exhibitors on the day, with our stall focusing on the immunology of vaccinations. Along with many other learned societies, scientific organisations and university departments, we arrived nice and early to set up a large space with games, activities and information.

Importance of public engagement
The event was both fun and educational, and our enthusiastic volunteers were kept busy all day. We are very grateful for the support of our Regional Cambridge Immunology Group and their members who helped out for the day. Through providing opportunities for our members to get involved with public engagement, we hope to increase their confidence in communicating with wide audiences about their research.

Modelling immunology
We were able to discuss the importance of vaccines with parents and distribute our ‘Guide to Childhood Immunisations’ (which you can access at: www.immunology.org/vaccines), while entertaining smaller children with pathogen modelling. We had plenty of plasticine and craft items (things got a bit messy!) for visitors to create their own virus or bacteria so we could explain their basic structures and introduce the concept of how our immune system recognises specific pathogens. The older children had very impressive understanding of how our immune system fights off nasty diseases. We were able to build on their knowledge with our antibody army game, emphasising how antibodies are specific to a bacteria or virus and help clear the body of these disease-causing bugs.

Lucky dip
Our BSI volunteers particularly enjoyed playing our lucky dip game with visitors. This activity demonstrates the importance of herd immunity and highlights how vaccines not only protect those who get their jabs, but also those unable to vaccinate within their communities. If you’d like any support creating or running your own public engagement project, or you’re interested in volunteering at one of our public events, please do get in touch.

Erika Aquino
Public Engagement Officer, BSI
Email: e.aquino@immunology.org

‘Through providing opportunities for our members to get involved with public engagement, we hope to increase their confidence in communicating with wide audiences about their research.’

We wish you all our readers a very

Merry Christmas

and happy new year!
Congratulations

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

Communicating Immunology Grants

The BSI is delighted to fund the following projects.

Michael Daniels and colleagues from the University of Edinburgh and The University of Manchester received funding to continue their award-winning project called ‘Have you heard?’, which aims to clear the haze that can surround science in the media. They will hold open discussions between immunologists and the public about recent science headlines and their significance, recounting the journey of a research project from brainstorm to media storm, and provide an innovative infographic that breaks down how to interpret a science story in the news.

We also funded Samantha Mariani and colleagues from the University of Edinburgh to develop fun workshops to explain the importance of vaccination through hands-on activities. Children aged 7–13 will become immunologists and learn about the success of vaccines, how they work and the concept of ‘herd immunity’.

The next application deadline is 15 January 2020. For more details, visit www.immunology.org/grants-and-prizes/communicating-immunology.

IUUIS council

We’re delighted that BSI Trustee and Chair of Forum, Ann Ager, has been elected as a Council Member of the International Federation of Immunological Societies (IUIS). This is the umbrella organisation for many of the regional and national societies of immunology throughout the world. It works to organise international co-operation in immunology, to contribute to the advancement of immunology and puts on the International Congress of Immunology.

Travel grant success

The following members were recently awarded BSI travel grants:


In addition, we received a record number of applications for travel bursaries for our members to attend the BSI Congress in Liverpool. To ensure that we could fully fund all applications that our judges deemed fulfilled the criteria, our Trustees released an additional £24,000. With the additional funds, we were able to provide 156 grants (up to £250) to BSI members. Congratulations to all recipients and we hope you enjoy your time at the conference.

We’re also proud to announce our inaugural Carers’ Fund for attendance at this year’s Congress has been awarded to 10 members. The Fund was established to provide BSI members with a grant of up to £300 to support them to attend Congress with the aim of contributing towards these additional costs of care when attending the meeting.

Delphine Parrott Memorial Award

Many congratulations to BSI member and former Chair of Forum, Professor Anne Cooke (University of Cambridge) who was awarded the Delphine Parrott Memorial Award at the BSI West of Scotland Immunology Group 2019 Showcase which took place in September at Glasgow University.

Women of the Future programme Science

BSI member Rachel Tanner from the University of Oxford was recently awarded the Women of the Future programme Science award that recognises remarkable female talent in the UK across diverse sectors.

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.
The British Society for Immunology runs a Corporate Membership scheme with the aim of strengthening our relationship with industry and furthering our charitable objectives. We thank our Corporate Members for their support and contribution to scientific and clinical immunology and we are pleased to highlight their activities here. Corporate support is vital to the British Society for Immunology, enabling us to engage with immunologists to support their learning and advancing the science of immunology. For more information on the scheme, visit www.immunology.org/corporate-members or contact Jane Sessenwein at j.sessenwein@immunology.org.

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Supporting life science research since 1988, PeproTech is a privately-owned biotechnology company focusing on the development and manufacture of high-quality cytokine products for the life-science and cell therapy markets.

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We’re pleased to announce the winner of our 2019 Immunology Teaching Excellence Award, Dr Joanne Pennock. Our Teaching Excellence Award highlights excellent immunology teachers in UK higher educational institutes. The award rewards those who show a passion for immunology and education, along with the communication skills to make these complex subjects accessible to their students. Find out more about the award at www.immunology.org/teachingaward.

Joanne is a senior lecturer in the Lydia Becker Institute of Immunology and Inflammation at The University of Manchester. She has been teaching immunology for over ten years and has set up two postgraduate immunology programmes: The Clinical Immunology pathway for the NHS Scientist Training Programme and the Clinical Immunology MSc. Joanne also conducts research into host–pathogen interactions, currently supervising three PhD students and one postdoc.

Read the interview below to find out about how she got involved in teaching, some of her most effective methods and the importance of using innovative teaching to inspire the next generation of immunologists.

Tell us a bit about your academic and professional background. How did you first get involved in teaching?

I have taken an unconventional route into immunology. I started as a chemistry undergraduate at Imperial College London, then moved to a PhD in organic chemistry, designing anti-cancer drugs at the University of Portsmouth. I didn’t discover immunology until I started an MSc at the London School of Hygiene and Tropical Medicine, which I loved. I realised then that I am a ‘big picture’ person, and immunology combined the things I liked most about chemistry (pathways, cascades), with my other interests in disease and global health. I started a postdoc at The University of Manchester with Professor Richard Grencis and when the opportunity arose for me to apply for a Lectureship, I took it. I have been very fortunate in that I have been able to help build capacity in immunology at The University of Manchester, designing and delivering two postgraduate courses in Clinical Immunology, one as part of the NHS Scientist Training Programme. Teaching clinical immunology ticks all the boxes for me. In particular, I love finding real-life examples that evidence theory, and this is the perfect topic!

What aspects of teaching do you find most challenging and what are the most rewarding?

I find teaching itself rewarding. Seeing that epiphany moment in a student who has travelled half way across the world to learn immunology is really worthwhile. All students (hopefully!) have one of those moments where they suddenly understand how things fit together and start to realise how much we don’t know. Setting students up with the ability to ask critical questions is essential. It is really gratifying to watch students move on with their careers all over the world and take the skills and knowledge from their degree with them.

At The University of Manchester, we are proud of our incredibly diverse student population, but this presents its own set of challenges. Individual student learning needs can be very different and in small group teaching this is often amplified. I find that bringing in interactive approaches really helps. Varying the style of teaching (workshops, didactic teaching, peer assessment, formative tasks) means that students can find a way of working that suits them.

Can you describe some of the most effective teaching methods you use to inspire the next generation of immunologists?

I am very supportive of using different teaching approaches to help students develop their investigative skills and critical analysis. However, central to all of this is an ability to communicate, both with each other and with scientific and non-specialist communities. By improving communication within a cohort of students we can create a more engaged learning environment, encouraging discussion, critical thinking and peer learning.

‘I find teaching itself rewarding. Seeing that epiphany moment in a student who has travelled half way across the world to learn immunology is really worthwhile.’
Together with our patient representative Lindsey Brown, we have developed a number of workshops in line with the immunology curriculum which help students develop their peer and non-specialist communication skills. This includes inviting patients onto campus to talk about their individual experiences.

We also run an annual event ‘From Me to You’, where students are paired with a patient who suffers from a condition related to the student’s project topic. Students share both their research proposals and then the research findings with the patient at the end of their project. The feedback from students and patients is always incredibly positive; students realise the real-life impact of their project and work hard to research and communicate their data to a non-scientist audience. Patients gain a new insight into research and really enjoy helping to inspire the next generation of immunologists. As a lecturer I see students grow in confidence and realise that the immunology they are learning impacts every chronic disease that they can think of.

Can you tell us about the importance of finding innovating teaching methods to engage with a range of students and its potential impact on their careers and the immunology field?

Often when we talk about innovative teaching we talk about different ways of presenting information. However, the next generation of immunologists are already digital learners, and expert information gatherers. Learning from the world around us is very accessible with platforms such as YouTube. However, I believe real engagement and deep learning comes from social context and interaction. Interactivity can engage a diverse student group without compromising quality of learning. If we want our students to go on to innovate and discover, we need to give them the space to discuss concepts, make clear choices about information sources and critically analyse what they read.

In today’s funding and political climate, we need immunologists to engage with the public and be clear about the impact of their work. In addition, the ability to network and collaborate drives the field forward. Helping students gain the skills to communicate effectively as a peer group will ultimately engage a wider audience, increase diversity and raise the profile of immunology as a discipline.

Interview by Eolan Healy

What her students say…

"Jo Pennock’s lectures were brilliant; fantastic speaker and really interesting content. The lectures were nicely pitched at exactly the right level with great slides and resources."

"Being an excellent communicator as well a tireless mentor throughout the learning process, Joanne shows a high level of devotion, and inspires junior immunologists."

"Jo deserves this award because of the incredible amount of effort she has put into producing a seamless, modern MSc immunology course whilst supervising PhD and Masters students, teaching, and working in public engagement programmes, to inspire a youth of immunologists."

"As a fellow woman in STEM, she not only inspires me to pursue immunological knowledge and academic excellence, but also to maintain integrity in non-academic areas of life. Dr Pennock is a power woman!"

Congratulations!

Everyone here at the BSI would like to congratulate Joanne on her achievement in winning the 2019 Immunology Teaching Excellence Award. We would also like to thank the other nominees, all of whom demonstrated commitment, innovation and creativity in their teaching. Finally, thanks also go to our judges for their time and expertise in reviewing all the nominations. They had a tough task choosing just one winner due to the high calibre of all the nominees.

We’d also like to congratulate our previous winners once more:
Dr Jenna Macciochi from the University of Sussex, winner of the 2018 award, and Dr Andrew Foey from Plymouth University, winner of the 2017 award.

New immunology educators’ profiles

Dr Joanne Pennock will now form part of our database of immunology educators. We have developed this resource as part of our remit to support and develop immunology to allow BSI members to search for and contact other educators in the field. Please consider becoming part of this immunology family. Find out more at: https://www.immunology.org/immunology-educators.

BSI Congress 2019

Opening ceremony
17:30–18:00, Monday 2 December
Dr Joanne Pennock will be awarded the 2019 Immunology Teaching Excellence Award at the opening ceremony.

Education meet-up at
17:30–19:00, Wednesday 4 December
This informal meet-up will give those who have an interest in immunology higher education the opportunity to share ideas and see how the BSI can support them.
Ideathon: innovation that makes a difference

Over the last few months, the BSI has been extremely privileged to be picked as a focus charity to take part in an ‘Ideathon’.

What is that I hear you ask? Well, run by an organisation called The Collaboration Company, it’s an opportunity for charities to pitch a key strategic challenge that they are currently working on to a group of top executives from leading international companies. These leaders spend two days of intense work to develop novel solutions to this challenge. They gain different perspectives from their experience and insight into their ability to drive collaboration in their own companies. The charity, on the other hand, gains from a novel perspective on the challenge and innovative solutions, drawing on expertise from outside their own field.

Our session took place in October where we pitched the question ‘How might we increase childhood vaccine uptake in the UK, through improving knowledge and understanding of vaccinations, so as to reduce potentially fatal illnesses?’ Working with executives from companies such as BNP Paribas, Burberry, Taylor Wimpey and Tui, the BSI’s Senior Management Team initially led the group through a whistle stop tour of the issues surrounding vaccine uptake. This was followed by an intense day of brainstorming, collaboration and idea development by the executives to come up with novel solutions. The group then presented their ideas back to our CEO, Doug Brown.

Overall, over 300 ideas were generated for how the BSI could tackle the issue of vaccine uptake, with key focuses including community engagement, how messaging around the issue is portrayed, engagement with healthcare professionals and data management. We are currently working some of these proposals up further to take forward in our long-term work on this area.

Our huge thanks go to The Collaboration Company and all the executives who took part in our Ideathon session for their commitment, insight and brilliance. It was a hugely informative exercise for the BSI and has given us new ideas to take forward to work on increasing the childhood vaccination rate in the UK.

Jennie Evans
Head of External Affairs, BSI

‘An Ideathon is an opportunity for charities to pitch a key strategic challenge that they are currently working on to a group of top executives from leading international companies.’
A sustainable future: a cross-Society collaboration

We're pleased to present a new cross-Society collection around the United Nations Sustainable Development Goals (sustainabledevelopment.un.org/sdgs). We have collaborated with eight learned societies and membership charities to create a collection of must-read articles to highlight the vital role our members play in delivering on the UN Sustainable Development Goals. We aim to cut across traditional disciplinary boundaries, as it is only by working together that we can achieve a sustainable future. We hope you enjoy reading this collection of articles.

“The British Society for Immunology is proud to participate in this unique collaboration among nine learned societies and membership charities in support of the UN Sustainable Development Goals. A core part of our mission is to disseminate and further the progress of immunological research in order to improve human health. The publication of our two official journals, Immunology and Clinical & Experimental Immunology, enables us to do so, while providing major financial support for our activities.

“The UN Sustainable Development Goals are a call to action for everyone to come together to strive for a sustainable future. By working with our partners to link world-class research and share expertise in this joint collection, we hope to continue our mission and ensure sustainable progress in the life sciences field. At the British Society for Immunology, we are closely aligned with the third goal: to ensure healthy lives and promote wellbeing for all at all ages. In particular, we’re proud to publish many papers pursuing crucial targets around maternal health, tackling both communicable and non-communicable disease, and vaccine research.

“We hope to encourage sustained collaboration between scientists and across different organisations to continue the major progress in sustainable development made so far and concentrate our combined efforts to improve global health and wellbeing.”

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

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Our Regional & Affinity Groups are integral to the Society’s activities and they provide the perfect way for you to get more involved and make the most out of your BSI membership. Our Groups have been closely involved in organising some of the parallel sessions at BSI Congress 2019 and they are very much looking forward to seeing you there. There will be a great number of exciting sessions for you to join and plenty of opportunities to network and explore which groups are the best fit for you. You can visit the Congress website www.bsicongress.com for more details.

**Tuesday 3 December**

**Immunology News  |  December 2019**

**Tuesday 3 December**

**Immunology News  |  December 2019**

**Immunotherapy and neurological disease 11:00–12:45**

BSI Wessex Immunology Group

**New developments in neuroimmunology 14:15–16:00**

BSI Neuroimmunology Group

The Group says...

“We have some very exciting talks lined up covering inflammasome biology. Drugs targeting NLRP3 inflammasome signalling are already in clinical trials, so we are sure this will stimulate discussion on the therapeutic potential of innate immune receptors.”

**Common themes in cancer and inflammatory disease 14:15–16:00**

BSI West of Scotland Immunology Group

**Inhibitory immune receptors and new immunotherapies 14:15–16:00**

BSI Greater Manchester Immunology Group

**Meet the BSI Regional and Affinity Groups 18:00–19:00**

Our Groups play a huge role bringing together immunologists within a local community or a particular area of immunology. This is an excellent opportunity to link up to your relevant Group and find out how you can get involved.

**Wednesday 4 December**

**Immunotherapy in autoimmunity: finding the perfect reset button 11:00–12:45**

BSI Bristol Immunology Group

**Mutated and non-mutated proteins and cellular regulation in cancer immunity 11:00–12:45; 14:15– 6:00**

BSI South Wales Immunology Group

**B cell activation and differentiation 14:15–16:00**

BSI London and West Midlands Immunology Groups

The Groups say...

“B cell research provides wide-ranging opportunities for improving human health. Recent advances are defining the factors that regulate the initiation of B cell activation, the dynamic processes at play in the germinal centre response and the mechanisms involved in establishing B cell memory. This session aims to provide a snapshot of the exciting and innovative research that is driving our understanding of B cell biology forward and impacting on diverse areas of human health.”

**Stromal-immune cell cross-talk 14:15–16:00**

BSI London Immunology Group

**Thursday 5 December**

**Pattern recognition in inflammation: from mechanisms to therapy 11:00–12:45**

BSI Inflammation Affinity Group

**Emerging functions of non-classical lymphocytes 11:00–12:45; 14:15–16:00**

BSI Greater Manchester Immunology Group

**Immune cell metabolic pathways as targets in disease 11:00–12:45; 14:15–16:00**

BSI Immunometabolism Affinity Group

The Group says...

“In this dedicated, double-length parallel session we hope to bring you some exciting new science from PhD students, postdocs, junior PIs and professors working on immunometabolism. We aim to address to what extent dysfunctional immune cell metabolism is a contributory factor of human disease and whether it can be targeted to yield new therapies.”

**Autoimmunity: natural and man-made 14:15–16:00**

BSI Autoimmunity Affinity Group

**Leukocyte trafficking during infection, inflammation and cancer 14:15–16:00**

BSI Leukocyte Migration Group

The Group says...

“Leukocyte migration influences every aspect of immunology from immune homeostasis and adaptive immunity, to inflammation and disease. This session will provide an opportunity to compare and contrast this important aspect of the immune response during cancer and infection.”
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Sirtuin4 inhibits anti-neuroinflammatory role of infiltrating Tregs in spinal cord injury

Neuroinflammation following traumatic spinal cord injury (SCI) is a critical process that impacts both the injury and the recovery of spinal cord parenchyma. Infiltrating Treg cells are potent anti-inflammatory cells that restrain post-SCI neuroinflammation. Lin et al. used a mouse spinal cord compression injury model to analyse the role of Sirtuins (SIRTs) in the modulation of infiltrating Treg cell functions. Among their findings, they discovered that the expressions of SIRT4 and SIRT6 were upregulated in infiltrating Treg cells. Using lentivirus-mediated gene expression or RNA interference, they found that SIRT4 substantially inhibited the expression of Foxp3, interleukin-10 and TGF-β in Treg cells, whereas SIRT6 had little effect on Treg cells. This research unveils a new mechanism by which the post-SCI neuroinflammation is regulated.

Lin et al. 2019 Immunology doi.org/10.1111/imm.13123

Anti-toll-like receptor 4 mAb: an adjuvant for cancer immunotherapy?

Tsukamoto et al. investigated the adjuvant activity of an anti-TLR4 mAb in T-cell-mediated anti-tumour immunity. The anti-TLR4 mAb induced the activation of antigen-specific T-cells in adoptive transfer studies. The growth of ovalbumin (OVA)-expressing tumours was significantly suppressed by administration of OVA and anti-TLR4 mAb in combination, but not individually. The anti-tumour effect of anti-PD-1 mAb was enhanced in mice administered with OVA plus anti-TLR4 mAb. OVA-specific IFN-γ-producing CD8 T-cells were induced by administration of OVA and anti-TLR4 mAb. The suppression of tumour growth was diminished by depletion of CD8, but not CD4. The inflammatory response to anti-TLR4 mAb was of lesser magnitude than that to LPS. Administration of LPS plus OVA induced no or less-marked activation of OVA-specific T-cells and failed to suppress tumour growth in mice. The authors concluded that the agonistic anti-TLR4 mAb has potential as an adjuvant for use in vaccines against cancer.


Decreased A20 expression associated with worsened disease status in ankylosing spondylitis

A20, a pivotal anti-inflammatory protein, preserves immune homeostasis and regulates prolonged inflammation. The precise role A20 plays in reducing autoimmune disorders was investigated in this study. Yang et al. found A20 expression to be preferentially reduced on circulating CD56bright NK cells in patients with ankylosing spondylitis (AS). Further, A20 reduces IFN-γ and TNF-α production in CD56bright NK cells after stimulation with monokines or phorbol myristate acetate. CD56bright NK cells isolated from AS patients promote TNF-α secretion by autologous monocytes, and increasing the A20 expression level partially attenuates this process. More importantly, decreased A20 expression on circulating CD56bright NK cells is associated with worse disease status in patients with AS. These findings reveal that A20 participates in the pathogenesis of AS by negatively regulating CD56bright NK cells and that its reduced expression contributes to a worsened disease status in patients with AS.


Influence of maternal microbiota during pregnancy on infant immunity

Microbiota from various maternal sites, including the gut, vagina and breast milk, are known to influence colonisation in infants. However, there is emerging evidence that the composition of the maternal gut microbiota prior to delivery influences neonatal immunity. While the presence and function of placental microbiome is not clear, data supporting the notion of bacterial translocation from the maternal gut to extra-intestinal sites during pregnancy are emerging, and much evidence suggests that the maternal gut microbiota during pregnancy potentially determines the development of atopy and autoimmune phenotypes in offspring. In this review, Nyangahu & Jaspan highlight the role of the maternal microbiota prior to delivery and discuss potential mechanisms that underlie this phenomenon.

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 Mihil Patel.

Putting CAR T cells in idle

A major problem with ab CAR-T cells is cytokine release syndrome (CRS) which occurs following the release of inflammatory cytokines, chiefly IL-6. While IL-6 antagonist can mitigate this, there is no way of controlling the activity of the CAR-T-cell compartment. In this work, the tyrosine kinase inhibitor dasatinib was found to rapidly halt CAR-T cells activation and proliferation, while maintaining viability of the cells. In vivo, the cytokine production of CAR-T cells was prevented upon dasatinib administration, and was rapidly restored following withdrawal of the drug. Using a mouse model resulting in fatal CRS upon CAR-T cell injection, the administration of dasatinib mitigated fatal CRS and resulted in more surviving mice. This work shows that CRS following CAR-T cells infusion could be treated with pharmacological interventions.

Mestermann et al. 2019 Science Translational Medicine 11 eaau5907

Bat MHC class I structure provides clue to antiviral immunity of bats

Bats carry many human zoonotic viruses that are highly pathogenic and yet they are not affected. Here, Lu et al. show that some unusual features of the bat MHC class I molecules may underpin their resistance to these viruses. Examination of peptide presentation from four viruses, including Ebola virus, revealed that bat MHC class I has a 3 or 5 amino acid insertion in the peptide binding groove. This enables a tight anchoring of the P1 peptide residue into the 'A' pocket of the groove. In addition, altered conformations of the classical peptide binding anchor sites contribute to unusual peptide motifs and altered peptide presentation. These features of bat MHC class I may therefore enable their resistance to the pathogenic viruses they carry.

Lu et al. 2019 Plos Biology 17 e3000436

Resolving the fibrotic niche of human liver cirrhosis at single-cell level

Liver disease is associated with progressive fibrosis of liver tissue which can ultimately lead to liver failure. The incidence of liver disease is increasing worldwide but there are currently no treatments to reverse or prevent fibrosis. To address this, Ramachandran et al. profiled over 100,000 cells from healthy and cirrhotic human liver tissue using single-cell RNA sequencing. They identified a novel subpopulation of TREM2+ CD9+ ‘scar-associated macrophages’ with a pro-fibrogenic phenotype that accumulate in and localise to fibrotic regions. They demonstrate that the gene expression profile of scar-associated macrophages is consistent with their differentiation from peripheral monocytes. By analysing receptor : ligand expression patterns, the team identified Notch, TNF-family and PDGF as key signalling pathways through which scar-associated macrophages appear to regulate the pro-fibrogenic function of scar-associated mesenchymal cells. The results of this study therefore reveal a number of potential therapeutic targets to tackle the rising incidence of fibrosis in the global population.


Role for cytotoxic CD4+ T cells in fighting viral infections

In general, cytotoxic function resides in CD8+ T cells, however, there is increasing evidence that CD4+ T cells can also exhibit cytotoxic activity; particularly in persistent viral infections. In this paper Meckiff et al., using pHCIII tetramers, identified cytotoxic CD4+ T cells (CD4-CTL) during acute EBV infection. These virus-specific cells were oligoclonal, predominantly secreting IFN-γ, expressed perforin and granzyme B, and were able to exhibit functional activity. Interestingly, the presence of EBV-specific CD4-CTL peaked during the early stages of infection but decline thereafter. These studies highlight the potential role CD4-CTL may play in fight viral infections.

Meckiff et al. 2019 The Journal of Immunology 203 1276–1287
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