

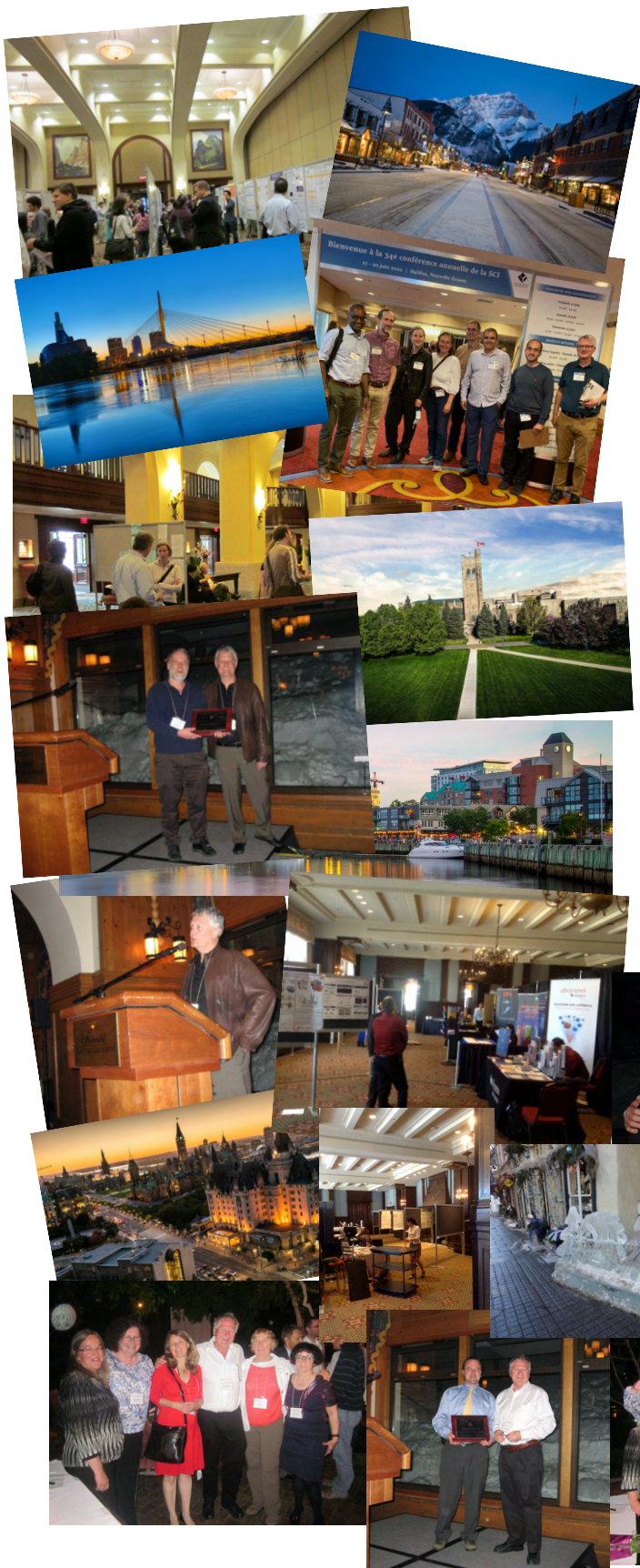


CSI BULLETIN

**JANUARY - DECEMBER
2022**

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PRESIDENT'S REPORT 2022

It has been my pleasure to serve as CSI President during a year where we emerged from the pandemic and re-connected in person at our spring meeting in Halifax. Kudos to the local organizing committee and Gemstone Event Management for fantastic work done under uncertain circumstances to pull this off. This year we also established CSI's first virtual seminar series, the Michael Gold Early Career Investigator Webinar series. It's been wonderful to provide our new investigators a national platform to share their science and interact with Canadian colleagues, while providing an opportunity to virtually gather our members in between annual meetings. This year also marks the formal establishment of CSI's Equity, Diversity and Inclusiveness committee, a working group drawn from CSI members. Our Trainee Engagement Committee are doing an amazing job, taking on expanding roles in engaging with CSI members (and beyond) throughout the year via social media ([@CdnImmunol](#)), and organizing professional development activities during meetings.

The Society continues to engage with partners such as the American Association of Immunologists and the Federation of Clinical Immunology Societies, hosting symposia at their 2022 meetings. This year we collaborated for the first time with Clinical Immunology Network of Canada to co-organize a symposium in Halifax and are delighted to be working together again in Orford, Quebec. The CSI sponsored a second bid by Toronto to host the 2028 meeting of the International Union of Immunological Societies which was recently approved, beating out a number of other strong proposals from across the globe. This is truly a major achievement and opportunity for Canadian Immunology!! I am very thankful to the Toronto community, including former CSI President and 2022 John D. Reynolds Awardee Juan-Carlos Zúñiga-Pflücker, for their perseverance and work to land this. I look forward to working with the Immunology community across Canada to help put together another memorable international congress.

The Society fortunately remains in a strong position to support our activities and I look forward to continue working to bring together the diverse Canadian Immunology community to support each other, cross-fertilize our science and promote Canadian Immunology to the world.

I have to end with the difficult acknowledgment of the loss of Dr. James R. Carlyle, a long-time member of our community who passed away late this year. Jim was a past winner of a CSI New Investigator award and will be forever remembered as a passionate scientist and a fun presence at many a CSI meeting.



1. CSI EXECUTIVE & COUNCIL MEMBERS 2022

CSI council members are nominated and elected from within the CSI community and volunteer their time to lead the core functions of the Society. These include planning conferences (in conjunction with local organizing committees), scientific programming, awards, collaborations with related scientific societies, oversight of CSI member-led sub-committees and global advocacy for our discipline.



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COUNCIL MEMBERS:



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2. 2022-23 EDI AND TEC COMMITTEES

EDI Committee 2022 – 23:

The equity, diversity and inclusiveness (EDI) committee provides consultation to the CSI council, helping to develop programs that ensure equal treatment of all Canadian immunologists regardless of career stage, affiliation, race, ethnicity, age, gender, spiritual belief, sexual orientation, gender identity, gender expression, disability, or other diverse backgrounds. **We strive to** make the CSI a more equitable, diverse, and inclusive society and to become a national and international role model for other societies through novel and strategic EDI initiatives. **We achieve this through** developing an EDI strategic plan, build awareness of EDI issues, creating an environment where all members feel valued and are open to other viewpoints. **EDI Publication:** Equity, diversity and inclusion in academia: lessons from the Canadian Society for Immunology, Published Jan. 26/22, Trends in Immunology.



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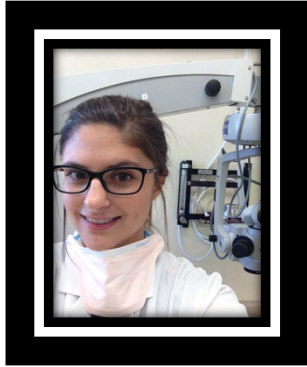
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TEC Committee 2022 – 23:

The CSI trainee engagement committee (TEC) has two main goals: (1) Social media management to engage the immunology and general community to promote awareness of immunology and provide a reliable and professional resource for information on research and immunology-related news. (2) Trainee engagement at the annual CSI conference – organizing sessions/activities at the Spring meetings that will foster meaningful connections between immunology trainees from across Canada that will extend beyond the scientific meeting.

Nova Scotia Local Organizing Committee



Emily Carter
Boudreau Lab, Dalhousie University



Sarah Nersesian
Boudreau Lab, Dalhousie University

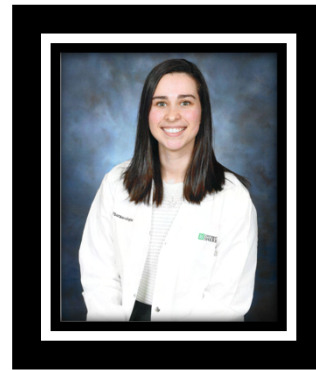


Morgan Pugh-Toole
Boudreau Lab, Dalhousie University

Quebec Local Organizing Committee



Vanessa de Carvalho Oliveira
Macdonald Lab, University of Sherbrooke



Lauralie Short
Evgin Lab, University of British Columbia



Stefanie Valbon
Melichar Lab, University of Montreal



Miranda Yu
Quail Lab, McGill University



Alberta Local Organizing Committee



Paulo Jose Basso
Tsai Lab, University of Alberta



Kasia Dzierlega
Clemente-Casares Lab, University of Alberta



Isla Skalosky
Geuking Lab, University of Calgary



3. MINUTES OF THE 34TH AGM 2022

2022 CSI Annual General Meeting
Sunday, June 19 11:30 am – 1:00pm ADT

Meeting called to order at 11:40 am AST and those present welcomed by A. Marshall.

1. **Approval of the Agenda**

No additions to the agenda

Motion to approve agenda – (Moved: Alberto Martin; Seconded: Manu Rangachari) – Motion carried.

2. **Approval of Minutes from March 11, 2022 meeting**

No additions or corrections

Motion to approve agenda – (Moved: Bebhinn Treanor; Seconded: Brent Johnston) – Motion carried.

3. **President's Report — A. Marshall**

- Review statement of purpose of CSI as a not for profit organization
- Review of Conference support: Guest Symposia: American Association of Immunologists - May 8, 2022, FOCiS – June 21, 2022, Toronto IUIS
- Toronto IUIS Congress 2028 – JC submitted a proposal November 4, 2021, should hear in Fall 2022.
- Early Career Investigator Webinar series – this increased social media presence and thank you to the TEC and ECI webinar committees.
- Review suite of Awards given to support different career stages and to recognize excellence in research, mentorship and service.
- Equity, Diversity and Inclusion update: EDI workshops, Code of Conduct, Travel awards targeting under-represented groups, removing barriers and the committee will continue to develop initiatives.
- New partnerships being developed: Australia and New Zealand Society for Immunology and the Clinical Immunology Network of Canada
- Government and public engagement: Advocacy via Research Canada and Participation in the IUIS Day of Immunology campaign
- CSI Membership: there has been recent growth in student memberships, Full memberships remain flat. Comparators: ASI has 1000 members from a 30 million population base and BSI has 3500 members from a 65 million population
- Moving CSI Forward, some food for thought: strategic planning, building bridges with related Canadian organizations, Cross-promote regional immunology meetings and “special interest groups”, build international networks (ASI, BSI) - grow while maintaining core strengths of CSI as a supportive community.

Manu Rangachari – for 2023 meeting plan to coordinate and do joint symposium, linking to other organizations on social media

Discussion regarding meeting session formats. Suggestion to do a workshop that are into depth and thoughtful to address a pre-determined big question. It may be time to review the program format

4. **Approval of New members**

Motion to approve agenda – (Moved: JC; Seconded: Brian) – Motion carried.



5. Meeting Reports:

CSI 2021 Victoria — L. Reynolds

The LOC consisted of: L. Reynolds, J. Lum, K. Brown, M. Larijani, M. Levings and L. Osborne.

She reported they had 299 virtual participants.

The TEC and EDI session organizers were recognized and noted this was the first time they highlighted EDI.

Revenue – \$62,175 (about \$40K Sponsors / \$20K Registration)

Expenditures – \$46,485.72

Profit - \$15,689.28

The post-event survey showed very positive feedback, with a general desire to return to in-person, strong support for EDI content, majority would like to have a weekday conference vs. weekend and there were many suggestions for childcare to be available at meetings.

CSI 2022 Halifax — A. Makrigiannis

Andrew reported that at the time of preparing his report, there were 345 in-person registrants, which is a record. There were 17 virtual attendees and noted CSI will have to do a cost-benefit analysis to see if this makes sense to do for 2023.

He reviewed the budget and advised there should be a \$10K+ profit. Final budget will be done approx. one month after conference.

Thanks to Lori for working with sponsors.

There were a couple questions:

- i) *Has there been any feedback on the virtual option? It was noted that none had been received yet, but will provide any feedback once the results from the survey are back.*
- ii) *Can the Trainee expenses can be paid directly before the meeting. This will be a follow-up question for Lori.*

CSI 2023 Eastern Townships, QC — M. Rangachari

Manu reported 2023 will be held Tuesday, June 6 – Thursday, June 9, 2023 in the Eastern Townships at Hotel Cheribourg. The current meeting space is approx. 2000 square feet less than 2022, so they will look into securing more space and doing a site visit to determine best program set-up.

The hotel is 140 km from the Montreal airport and there will be a shuttle service from the airport to the hotel. The LOC feels this is a beautiful location, best bang for buck, convenient to the YUL and YQB airports. The contract has been re-negotiated, signed with no penalty should they have to cancel and they applied the 2020 deposit to this contract. LOC are representing U of Laval, U of Sherbrooke, U of Montreal, UQTR and Ste-Justine

CSI 2024 Banff, AB — C. Anderson

Colin advised the meeting is booked for April 22 – 25, 2024 at The Banff Centre, hoping the spring meeting will be a welcome change. The hotel contract was re-negotiated and has been signed. The LOC will be: T. Baldwin, Chair, K. McCoy, M. Gueking, S. Tsai, X. Clement-Casares, C. Anderson and a TEC member, still to be determined. He noted the Banff Centre was in the midst of some renovations, and it was confirmed they are done. Childcare services will be discussed, once we see where 2023 goes with it.

Further discussion led to some other suggestions:

- *it would be nice to go back to Victoria, would like this considered for the future*
- *Aaron reminded everyone if they know of “special interest groups” related to Immunology that might like to partner with future CSI meetings, please contact us.*
- *Has the CSI invited journals or editors to the meetings. Aaron advised that yes, they have and if anyone has others, please send their contact info along. It was noted a representative from Journal of Leukocyte Biology is in attendance here at the meeting.*



6. Early Career Investigator Webinars – M. Haeryfar

The committee includes B. Treanor and C. Jenne. The first webinar was March 10th and they will be held bi-monthly. They are being run by Gemstone and are open to both CSI members and non-members by registration. They are not being recorded and sponsorship may be sought in the future. It was discussed at the Council meeting to name the series after Michael Gold. The first round of speakers was announced until January 12, 2023. Ways everyone can help are to nominate ECI's, spread the word and participate in a brief survey. From the first webinar, there were 86 people registered, 62 joined, 45 were present during Q & A and 14 filled out the post-webinar survey.

7. Treasurer's Report — B. Johnston

Brent advised that the Review of Engagement report from our auditor stated that the financial statements present fairly and are acceptable. Overall, CSI is in a very good financial position. In 2021, the Assets – End of year are \$1,351,557.

CSI Investment account Assets – End of year are \$1,339,001. This account has generated \$270K for awards and activities. The capital growth has exceeded inflation: \$756K in 2007 = \$1,014K in 2021.

Reviewed the recent conference history of meeting deficit / surpluses 2014 – 2021.

2021 Budget – Operating surplus of: \$3,984 (without considering contribution from investment account) but \$10K in deferred costs.

CSI Draft Budget 2022 is projecting an operating surplus of \$8,307.

Motion to approve – (Moved: B. Johnston; Seconded: JC Zúñiga-Pflücker) – Motion carried.

Questions/Discussion:

- i) *Why are we saving so much, it was advised it's minimal. Brent advised CSI investment account really only grown by \$300,000 over 14 years and market losses are expected within the next year.*
- ii) *Can CSI give out more travel awards?*

8. Awards Committee Report — A. Marshall (on behalf of K. Patel)

Minor clarifications have been made to some award criteria:

1. Nominees for all awards must hold a current CSI membership in order to be eligible.
2. For Investigator awards clarify that roles in training and mentorship will also be considered in addition to research accomplishments. Submit CV's instead of representative publications.
3. For the Cinader award, service to Canadian Immunology community will also be considered in addition to criteria currently specified.
4. For the CSI Investigator replace "at any stage of his / her career" with "at least 6 years from their first appointment as an independent investigator."

9. IUIS Report – H. Ostergaard

Hanne has been serving on the Council for the last 6 years. The last council meeting was held on November 19, 2022 virtually. Hanne reported on the highlights of this meeting:

- Changes to process for IUIS elections
- Revised Policy on Nomenclature for Fellowships and Awards
- IUIS courses and workshops

Hanne's personal opinion is to continue holding council meetings virtually, which she feels will lessen the carbon footprint.

The upcoming IUIS International Congress of Immunology will be held:

IUIS 2023 – Nov. 27 – Dec. 2, 2023 – Cape Town, South Africa

IUIS 2025 – Aug. 17 – 25, 2025 – Vienna Austria

IUIS 2028 – Bids received



- Brisbane
- Seoul (replaces St. Petersburg)
- Toronto (JC has submitted this bid)

10. CSI / Government Relations — E. Fish

As the CSI Rep for Research Canada, Eleanor reviewed the Mission and who the Members, Supporters and Partners are. She outlined the many member benefits, the key one being that CSI has a voice to advocate in the context of government. She is now part of the Policy Engagement Committee and reviewed the highlights from the Budget 2022.

Question: CSI has been a member of Canada Research for more than 5 years and it doesn't seem like CSI has a big voice, should council be taking some action?

Eleanor assures that she and others do have a voice and asks for patience while they get the message through. It was suggested to invite MP's to attend at upcoming CSI events. CIHR is always advocating for more money. The public needs to support this, so encourage everyone to reach out to their local MPP's. We need the electorate with us. We need the MP's in the house of common who are advocating for increasing the budget, which is fundamental to our success.

Motion to establish a working committee on government relations – (Moved: Tania Watts; Seconded: Francesca Di Cara) – Motion carried.

11. New Business:

Equity, Diversity and Inclusion Committee ToR – H. Melichar and C. Jenne

Heather will be representing the committee to put forth a motion to propose an Equity, diversity, and inclusion standing committee. She reviewed the proposed Mission and Initiatives. The purpose of the initial EDI standing committee will be comprised of the current membership of the ad hoc committee; new recruitment as outlined in the Terms of Reference will begin following full approval of the ToR.

Motion to establish a CSI standing committee on Equity, Diversity and Inclusion – (Moved: Bebhinn Treanor; Seconded: Nathan) – Motion carried.

Question: Will this be open to Trainees and Post-docs? Yes, this is outlined in the Terms of Reference.

Adjournment – 12:47 pm AST



4. FINANCIAL AUDIT 2022

THE CANADIAN SOCIETY FOR IMMUNOLOGY
Statement of Financial Position
December 31, 2021

| | 2021 | 2020 |
|---|---------------------|---------------------|
| ASSETS | | |
| CURRENT | | |
| Cash | \$ 122,152 | \$ 44,327 |
| Marketable securities (<i>Note 4</i>) | 1,266,838 | 1,160,116 |
| Accounts receivable | 774 | 432 |
| Goods and services tax recoverable | 1,443 | 192 |
| Deposits paid | 12,575 | 6,252 |
| | \$ 1,403,782 | \$ 1,211,319 |
| LIABILITIES | | |
| CURRENT | | |
| Accounts payable | \$ 4,500 | \$ 4,499 |
| Deferred conference sponsorship fees | 16,300 | 23,600 |
| Current portion of deferred membership dues | 15,735 | 13,365 |
| | 36,535 | 41,464 |
| DEFERRED MEMBERSHIP DUES | 15,690 | 14,875 |
| | 52,225 | 56,339 |
| NET ASSETS | 1,351,557 | 1,154,980 |
| | \$ 1,403,782 | \$ 1,211,319 |



THE CANADIAN SOCIETY FOR IMMUNOLOGY
Statement of Revenues and Expenditures
Year Ended December 31, 2021

| | 2021 | 2020 |
|--|-------------------|-------------------|
| REVENUES | | |
| Membership dues | \$ 20,230 | \$ 15,125 |
| Conference registration fees | 21,363 | - |
| Sponsorships | 45,600 | - |
| Donations | 260 | 330 |
| | 87,453 | 15,455 |
| EXPENDITURES | | |
| Awards | - | 1,500 |
| Conference expenses | 42,735 | 11,019 |
| Dues, licenses and memberships | 2,822 | 2,299 |
| Interest and bank charges | 1,404 | 1,006 |
| Office | 13,730 | 6,363 |
| Professional fees | 4,459 | 4,810 |
| Travel | 1,350 | 1,609 |
| Website services | 1,926 | - |
| | 68,426 | 28,606 |
| EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES FROM OPERATIONS | 19,027 | (13,151) |
| OTHER ITEMS | | |
| Investment income | 26,159 | 23,631 |
| Gain on sale of marketable securities | 36,888 | 62,486 |
| Unrealized gain on marketable securities | 134,332 | 63,079 |
| Investment management fees | (19,829) | (14,155) |
| | 177,550 | 135,041 |
| EXCESS OF REVENUES OVER EXPENDITURES | \$ 196,577 | \$ 121,890 |



5. CSI ANNUAL MEETING HIGHLIGHTS

The article below was written by University of Toronto student Philip Barbulescu and originally published in ImmPress Magazine - <https://www.immpressmagazine.com/5727-2/> It is reproduced here with permission. Also check out the excellent review of the 2022 meeting authored by members of our Trainee Engagement Committee and published in the Journal of Leukocyte Biology <https://academic.oup.com/jleukbio/advance-article/doi/10.1093/jleuko/qiad002/6995012?login=false>

After a two-year hiatus of in-person conferences, the **34th annual Canadian Society for Immunology (CSI) meeting** reunited immunologists in the port city of the Canadian Atlantic, Halifax, Nova Scotia, on June 17-20th. Situated at the beautiful Marriott Harbourfront Hotel, the three-day conference was packed full with discussions of exciting and novel research, workshops, and a chance for trainees to present their own work. We want to thank the local organizing committee chair Dr. Andrew Makrigiannis from Dalhousie University and his team for the incredible and safe in-person conference.

Keynote

The conference started off with keynote speaker **Dr. Anjana Rao** (La Jolla Institute for Immunology) who shared her insight into how pathways regulating methylation and demethylation impacted oncogenesis. Dr. Rao and her team found that across multiple cell types that included T cells, regulatory T cells, and myeloid cells, loss-of-function of the TET dioxygenase family-enzymes notable for their role in DNA demethylation-altered methylation signatures to promote aberrant cell lineage specification and cancer development.

However, under the right contexts, TET deficiency can also prove beneficial for cancer patients. One such scenario involved an individual undergoing chimeric antigen receptor (CAR) T cell immunotherapy to treat an advanced form of chronic lymphocytic leukemia, where insertion of the CAR transgene led to the disruption of one of the TET2 alleles. Serendipitously, this patient already harbored a loss-of-function mutation within the second allele, ablating TET2 activity within the CAR T cells and resulting in anti-tumor activity accompanied by complete remission. Dr. Rao's lab found that the altered methylation patterns caused by TET2 dysfunction impacted the differentiation state of the CAR T cells and their proliferative capacity, resulting in a lifesaving therapeutic outcome. This work showcased the potential in targeting the epigenome and the clinical significance that is achievable when we understand the molecular mechanisms.

Anti-Tumor Immunity

The conference's first symposium focused on both the pro and anti-tumorigenic immune responses to cancer. **Dr. David Brooks**, (University of Toronto) who served as a co-chair, began by discussing the dichotomy of how Type I interferons (IFN γ) can drive proinflammatory responses in immune cells but are suppressive for cancer cells. He showed that immune cells, notably T cells, responded differently to IFN- γ due to variations in chromatin accessibility signatures and that these variations could predict



the success of PD-1 blocking immunotherapy. **Dr. Thorsten Mempel** (Massachusetts General Hospital) then spoke about the cellular interactions within the tumor microenvironment that regulate T cell function. He showed how two distinct trajectories of tumor-infiltrating regulatory T cells initiated IFN γ expression, correlating the degree of expression to the success of checkpoint inhibitor therapy response.

Dr. Brent Johnston (Dalhousie University) continued the discussion by showcasing the therapeutic potential of natural killer T cell (NKT) activation in immunotherapy. He spoke on how NKT cells can work in combination with oncolytic virotherapy and checkpoint inhibitor therapy to enhance therapeutic outcomes. Lastly, **Dr. Daniela Quail** (McGill University) concluded the session by talking about the inflammation and cancer metastasis associated with obesity, finding that obesity led to neutrophil accumulation in metastatic sites, burdened the surrounding tissue, and allowed for increased access to tumor cells.

Layered Immunity

The second symposium focused on immune system development and layered immunity. Co-chair **Dr. Padmaja Subbarao** (University of Toronto) began by discussing her work on characterizing the trajectory of infant asthma and allergy development. She showcased how the power of deep datasets and machine learning can provide insights into the heterogeneity of childhood asthma and can lead to improved diagnostics and therapeutics. She also discussed how the microbiome can influence immune system development, mediating the development of traits associated with asthma progression. Next, **Dr. Petter Brodin** (Imperial College London & Karolinska Institute) presented his work on how the immune system evolves early in life along with the microbiome. He spoke on the sensitive interplay between commensal bacteria and immune cell profiles of newborns, showing that pregnancy length influenced the epigenetic signatures and compositions of immune cells towards that of tolerance or resistance against commensal bacteria.

Dr. Ana Cvejic (University of Cambridge) continued the discussion with a talk on human fetal blood development at a single-cell level. She presented the impact of the epigenetic landscape on hematopoietic stem cells and multipotent progenitor differentiation, showing the importance that DNA motif accessibility has on cell fate choice, and identifying the patterns of transcriptional accessibility that influence erythroid or myeloid/lymphoid lineage differentiation. **Dr. James E. Gern** (University of Wisconsin) then spoke about the approaches used to understand childhood asthma at a population level. He described that the conclusions drawn from single cohorts of data is complicated when compared to different populations from varying environments. Instead, using a collaborative approach containing multiple cohorts, he collected powerful datasets from an extensive population across the United States to find that race, socioeconomic factors, and genetic polymorphisms all contribute to an increased risk of asthma development. Finally, co-chair **Dr. Kathy McCoy** (University of Calgary) spoke about how the maternal microbiome can influence the development of the neonatal immune system. She described that the susceptibility of children to childhood illnesses including neurodevelopmental disorders and asthma is correlated to the microbiome transmitted from the mother during birth.



Primary Immune Deficiencies

The third and final symposium of CSI looked into primary immune deficiencies and the dysregulation and inflammation associated with developmental defects in the thymus. **Dr. Georg Holländer** (University of Oxford) began the symposium by sharing his work on key timings of thymic development and how molecular defects can affect it, observing that the mouse and human thymus have very different developmental windows. By creating a $\Delta 550$ variant of the FOXP1 transcriptional factor, his group highlighted the importance of FOXP1 on transcription, with the defect leading to its reduced activity and localization, culminating in the abrogation of proper thymus development. **Dr. Liana Falcone** (University of Montreal & IRCM) then highlighted the role of the microbiome in causing inborn errors of immunity, specifically in Chronic Granulomatous Disease (CGD). Using CGD mouse models, her lab found that colitis susceptibility is influenced by the microbial signature established at birth.

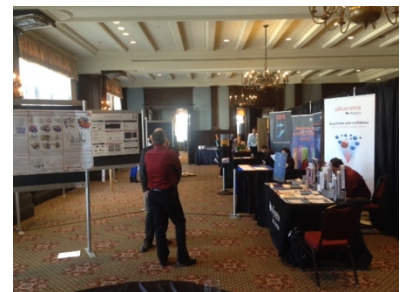
The co-chair of the seminar, **Dr. Hélène Decaluwe** (University of Montreal) discussed T cell exhaustion and the immeasurable value of clinical work studying patients as a way to better understand the immune system and immunodeficiencies. In severe combined immunodeficiency (SCID) patients for example, CD4 T cell abundance influenced the degree of T cell exhaustion post-transplantation, allowing the group to use exhaustion scores as a biomarker for T-cell reconstitution in future transplantation therapies. Next, **Dr. Aleixo Muise** (University of Toronto) showcased how studying extreme phenotypes in patients with Inflammatory Bowel Disease (IBD) can identify underlying genetic problems and provide insights into human biology. He found that certain patients who possessed gain-of-function mutations within the Spleen Tyrosine Kinase gene had immune dysregulation and inflammation, allowing his group to develop novel treatment options for IBD patients. Finally, the co-chair **Dr. Stuart Turvey** (University of British Columbia) reported on a new human immune deficiency. He presented that complete deficiencies in the NFAT family of transcription factors of activated T cells, specifically NFAT1, impacted joint contractures, osteochondromas, and B cell malignancy.

We would like to thank all who generously donated and the CSI 2022 sponsors: **Platinum sponsor** – BD Biosciences; **Gold sponsor** – Biolegend; **Silver sponsors** – 10X GENOMICS, Cytex, Miltenyi Biotec, and STEMCELL Technologies; **Bronze sponsors**: Adaptive Biotechnologies, Luminex, and Qiagen; **Cinader Award Sponsor** – Akoya Biosciences; **Educational Sponsor** – CIHR Institute of Infection and Immunity; **General sponsors** – Cedarlane, Journal of Leukocyte Biology, Kyowa Kirin, Lumicks, and Paraza Pharma Inc.

Finally, we thank the organizers, staff, and sponsors for making the 34th CSI meeting possible. A huge thank you goes out to the local organizing committee from Dalhousie University and Memorial University including **Dr. Andrew Makrigiannis** (Chair), **Dr. Jeanette Boudreau**, **Dr. Sherri Christian**, **Dr. Francesca Di Cara**, **Dr. Thomas Issekutz**, **Dr. Brent Johnston**, **Dr. Jean Marshall**, **Dr. Channakeshava Sokke Umeshappa**, and **Dr. Jun Wang**.

Congratulations for the huge success on a long-awaited, in-person CSI conference!

See you next year in Orford, Quebec for CSI 2023!





6. CSI 2022 AWARD RECIPIENTS

Hardy Cinader Award Recipient 2022



Brad H. Nelson, PhD

Founding Director, BC Cancer's Deeley Research Centre; Professor of Biochemistry & Microbiology, University of Victoria; Professor of Medical Genetics, University of British Columbia; Scientific Co-Director, BC Cancer's Immunotherapy Program

Presentation: "30 Years in the Cancer Immunotherapy Field, and More Optimistic Than Ever"

A native of Vancouver, Dr. Nelson started his undergraduate studies at Camosun College and University of Victoria before completing a BSc Honours in Zoology at UBC in 1987. His PhD studies were performed with Dr. David Weisblat at the University of California at Berkeley and focused on ectodermal versus mesodermal fate determination during leech embryogenesis. His mother-in-law's ovarian cancer diagnosis in 1989 inspired Dr. Nelson to switch his career focus to cancer immunotherapy, and in 1991 he began a postdoctoral fellowship with Dr. Philip Greenberg at the Fred Hutchinson Cancer Research Center and University of Washington (UW) in Seattle. The goal of his postdoctoral project was to genetically engineer "helper-independent" CD8 T cells for use in cancer immunotherapy, which led him to create a chimeric IL-2 receptor system that, in addition to potential therapeutic use, proved useful for deciphering the mechanisms of signal transduction by the IL-2 receptor.

Dr. Nelson held faculty positions at Fred Hutch and UW and in 1997 moved to the Benaroya Research Institute in Seattle, a leading centre in translational research in autoimmunity. This new environment sparked Dr. Nelson's interest in B cells and autoantibodies, which play such a prominent role in many autoimmune conditions yet at the time were often overlooked in the setting of cancer. At Benaroya, Dr. Nelson took his first steps into the B cell world by profiling the systemic antibody response to ovarian cancer. Moreover, continuing his work on IL-2 receptor signaling, his team elucidated the complementary roles of the STAT5 and Shc pathways in controlling lymphocyte proliferation.

In 2003, Dr. Nelson became the founding director of BC Cancer's Deeley Research Centre in Victoria, a position he holds to this day. He also serves as Professor of Biochemistry and Microbiology at UVic and Professor of Medical Genetics at UBC. Still focusing on ovarian cancer, his team applies histologic, genomic and bioinformatic methods to decipher the cellular and molecular mechanisms by which T cells, B cells and myeloid cells interact in the tumor microenvironment. Dr. Nelson's team has made seminal contributions toward understanding the immunologic and prognostic impact of tumour-infiltrating B cells and plasma cells in human cancer. In collaboration with Dr. Rob Holt's lab at the Genome Sciences Centre in Vancouver, they were among the first groups to use next-generation sequencing to profile the TCR repertoire (TCR-seq) and to systematically identify and track immunogenic mutations (neoantigens) in human cancer. In pioneering work with Dr. Sohrab Shah's group, they showed that anti-tumor T cell responses are associated with neoantigen elimination, allele-specific HLA loss, and reduced intratumoral heterogeneity in ovarian cancer, revealing how the immune system 'sculpts' the clonal architecture of tumors across time and space.

As Scientific Co-director of BC Cancer's Immunotherapy Program, Dr. Nelson and colleagues have developed a phase I clinical trials program focused on adoptive T-cell therapy, which includes a clinical-grade CAR-T cell manufacturing facility and immune monitoring facility in Victoria. With colleagues at Ottawa Health Research



Institute, they have an ongoing Phase I/II clinical trial of CD19 CAR-T cell therapy for lymphoid cancers, which is creating a new model for accessible and affordable point-of-care CAR-T cell manufacturing within the Canadian healthcare system. He is also a co-founder and CEO of Innovakine Therapeutics Inc, which is developing engineered cytokine receptors to increase the potency and safety of cell-based therapies for cancer. Dr. Nelson's passion is to leverage the complementary strengths of the public and private sectors to create innovative cell therapies that are safe, effective, affordable and accessible to cancer patients in Canada and beyond.

John D. Reynolds Award Recipient 2022



Juan Carlos (JC) Zúñiga-Pflücker, PhD
Professor and Chair, Department of Immunology
University of Toronto
Senior Scientist, Sunnybrook Research Institute

Juan Carlos (JC) Zúñiga-Pflücker is a Professor and Chair of the Department of Immunology, University of Toronto, and a Senior Scientist at Sunnybrook Research Institute. He is a Canada Research Chair in Developmental Immunology. He received a Ph.D. in Genetics-Immunology from the George Washington University, Washington DC, USA, with his graduate studies performed at the National Cancer Institute, USA. He was a postdoctoral fellow at the National Institute of Allergy and Infectious Diseases, USA. His research centers on the study of hematopoiesis, Notch signaling, thymus biology and T lymphocyte lineage commitment and differentiation, with a focus on developing model systems for the study of human T lymphocyte development from stem cells, and the generation of T cells for immune-regeneration and immune-regulatory therapies. His laboratory developed the OP9-DL system and then discovered how to generate T cells from stem cells in a stromal cell-free system. These discoveries led to co-founding Notch Therapeutics, for which he serves as chair of the scientific advisory board. He is a Distinguished Fellow of the American Society of Immunologists and has served as Councillor, Vice-President, and President of the Canadian Society for Immunology.

Investigator Award Recipient 2022



Dr. Kathy McCoy
Professor, Department of Physiology and Pharmacology
Scientific Director, International Microbiome Center, University of Calgary

Dr. McCoy obtained her PhD in Immunology from the Malaghan Institute of Medical Research, Otago University, Wellington, New Zealand. She performed her postdoctoral studies and was a junior group leader at the Institute of Experimental Immunology in Zürich, Switzerland. She then held Assistant Professor positions at McMaster University (2006-2010) and University of Bern, Switzerland (2010-2016). In Sept. 2016 she moved to the University of Calgary where is a Professor in the Department of Physiology and Pharmacology, Cumming School of Medicine, member of the Snyder Institute, and Scientific Director of the International Microbiome Center at the University of Calgary, Canada. In 2021 Dr. McCoy was



awarded the Killam Memorial Chair and was elected to the Royal Society of Canada. Her research group uses germ-free and gnotobiotic models to investigate the cellular and molecular mechanisms by which the microbiome regulates host immunity and physiology. She is particularly interested in the dynamic interplay between the gut microbiota and the innate and adaptive immune systems. Her research aims to understand how exposure to intestinal microbes, particularly during early life, educates and regulates the mucosal, systemic and neuronal immune systems and how this can affect susceptibility to diseases, such as allergy, autoimmunity, and neurodevelopmental disorders. Her lab also investigates how the microbiome regulates the immune system throughout life with the aim to identify microbial therapies that can be employed to enhance current therapeutic approaches, such as in cancer.

New Investigator Award Recipient 2022



Dr. Matthew Macauley

**Assistant Professor, Department of Chemistry, Faculty of Science,
University of Alberta**

Dr. Matthew Macauley obtained a BSc in Biochemistry from UBC (2003) and PhD from Simon Fraser University (2010). During his PhD, working with Prof. David Vocadlo, Dr. Macauley became fascinated in carbohydrates. For his postdoctoral studies, supported by a Human Frontiers Fellowship to support cross-disciplinary training, Dr. Macauley studied at The Scripps Research Institute with Prof. James Paulson and developed expertise in immunology. After a brief stint as an Assistant Professor at Scripps, Dr. Macauley obtained his first fully independent position at the University of Alberta. Dr. Macauley's primary appointment is within the Department of Chemistry, and holds an adjunct position in the Department of Medical Microbiology and Immunology. Since joining UAlberta, Dr. Macauley has quickly established an internationally recognized program of research that focuses primarily on a family of immunomodulatory carbohydrate-binding proteins called the Siglecs, studying their role in controlling immune cells. A large focus of the Macauley lab is the development and implementation of new biochemical approaches to Siglecs. Supported by a Canada Research Chair in Chemical Glycoimmunology and the Lemieux Chair of Carbohydrate Chemistry, Dr. Macauley's program of research is ultimately aimed at applying insights into the immunological roles of Siglecs to develop new approaches to skew immune cell responses in the areas of neurodegeneration, autoimmunity, and cancer.

HOW TO NOMINATE:

Do you think your supervisor, colleague, former trainee or friend is an OUTSTANDING immunologist? Then why not nominate them for one of the CSI AWARDS? We welcome nominations from the immunology community and it takes essentially no time to complete. Best of all, they can be submitted at any time (even now while you are at the meeting and reminded of all the great immunology research being done in Canada). Your nominee will be honored and appreciate that you recognized their achievements. Simply email the required information to: info@csi-sci.ca

We have four categories of awards:



The **Bernhard Cinader Award** is named in honor of Dr. Hardy Cinader who was the inaugural award recipient at the first CSI meeting held in 1987. Dr. Cinader was a member of a small group of Immunologists that “founded” immunology in Canada in the 60’s. Dr. Cinader was an outstanding immunochemist with a strong personality and a passionate patron of native Canadian art and artists. The Bernhard Cinader Award is awarded to an Immunologist working in Canada who is an exceptional researcher, exceptional mentor and also has something “extra”. The “extra” could be teaching, art, outreach, writing, - nearly anything in which the researcher excels (is not average). The nominee's service to the Canadian Immunology community will also be considered. Nominations are accepted by letter(s) and should describe the exceptional abilities and contributions of the scientist nominated. The award includes travel reimbursement to the meeting as well as a plaque along with a cash prize (\$500). The award is given at the CSI meeting.

CSI Investigator Award: An award for a member of the CSI recognizing for excellence in research and mentorship over their career. The applicant can be in any sector (academic, industry) beyond 6 years from their first appointment as an independent investigator. The award is up to \$1,000 for one or two trainees of the CSI Investigator Awardee to attend the next CSI Conference. Nominator must send a letter of rationale/support summarizing the achievements and CV of the Nominee. Note: the Awardee must use this award within two years of receipt.

CSI New Investigator Award: An award for a member of CSI for excellence or potential excellence in research. The applicant must be within six years from the date of their first appointment as an independent investigator, and can be in any sector (academic, industry). The award is up to \$1,000 for one or two trainees of the New Investigator Awardee to attend the next CSI Conference. Nominator must send a letter of rationale/support summarizing the achievements and CV of the Nominee. Note: the Awardee must use this award within two years of receipt.

John D. Reynolds Award: This award is named in honor of Dr. John D. Reynolds who was the inaugural award recipient at the 21st annual CSI meeting in 2008. For over 20 years John Reynolds served the CSI in multiple capacities including as Councilor and President. But what the CSI honors him for most is his developing, building, and managing of CSI's first Website. John's creative computer leadership led the CSI into the 21st Century in Conference and Membership management long before such usage was common. His volunteer service pushed the CSI to the forefront Internationally.

This John D. Reynolds award is given for a long term member of the CSI for their exceptional service to CSI. The award can be, but is not necessarily, given each year. The nominator should send a letter of rationale/support summarizing the service to the CSI. The award includes a \$2,000 travel reimbursement to be used by the awardee and as many trainees as they wish to include to the present CSI annual meeting or within two years of award receipt.



Meeting Travel Award Recipients 2022

Thank you to our Awards Committee, Lisa Osborne (Chair - University of British Columbia), Matt Buechler (University of Toronto), Markus Geuking (University of Calgary), Munir Rahim (University of Windsor), Maria Tokuyama (University of British Columbia), Chao Wang (University of Toronto Sunnybrook).

The Canadian Society for Immunology congratulates the following new investigators, graduate students and post-doctoral fellows for their success in the CSI 2022 Travel Award competition.

Students:

Top Prize (\$1000) in alphabetical order:

| | | |
|-----------------------|------------------------|--------------------------------|
| CSI Travel Award | Pailin Chiaranunt | University of Toronto |
| StemCell Travel Award | Marina Costa Fujishima | University of Manitoba |
| CSI Travel Award | Dominique Gatti | University of Victoria |
| CSI Travel Award | Melina Messing | University of British Columbia |
| JLB Travel Award | Caitlin Schneider | McGill University |

2nd Prize (\$500) in alphabetical order:

| | | |
|---------------------|------------------------------|------------------------------------|
| CSI Travel Award | Adeolu Adegoke | University of Alberta |
| Paraza Travel Award | Quiana Ang | Simon Fraser University |
| Paraza Travel Award | Sarah Asif | Ottawa Hospital Research Institute |
| CSI Travel Award | Blair Hardman | University of British Columbia |
| CSI Travel Award | Audrey Kassardjian | University of Toronto |
| CSI Travel Award | Ève Mallet Gauthier | University of Montreal |
| CSI Travel Award | Julia Murphy | University of Toronto |
| CSI Travel Award | Somtochukwu Stella Onwah | University of Manitoba |
| CSI Travel Award | Akouavi Julite Irmene Quenum | University of Sherbrooke |



| | | |
|------------------------|--------------|---|
| Cedarlane Travel Award | Terri Ser | University of British Columbia, BC Children's Hospital |
| CSI Travel Award | Madison Turk | University of Calgary |

Post-doctoral fellows:

Top Prize (\$1000) in alphabetical order:

| | | |
|------------------------|----------------|--|
| CSI Travel Award | Oscar Aguilar | University of California, San Francisco |
| CSI Travel Award | Kyle Burrows | University of Toronto |
| Greenberg Travel Award | Sabelo Lukhele | Princess Margaret Cancer Centre (UHN) |
| CSI Travel Award | Ryan Pardy | University of Pennsylvania |
| CSI Travel Award | Sebastian This | Hospital Maisonneuve-Rosemont Research Center |

New investigator:

Top Prize (\$1,500) in alphabetical order:

| | |
|----------------------------|------------------------|
| Matthew Buechler | University of Toronto |
| Jean-Francois Lauzon-Joset | University of Laval |
| Deanna Santer | University of Manitoba |



7. CSI SPONSORED SYMPOSIUMS

AAI Immunology 2022, May 6 – 10, Portland, OR

CSI Sponsored Symposium: May 8, 10:15am - 12:15pm

Mesenchymal—Immune Crosstalk in Fibrotic Disease

Chairs: **Dr. Subburaj Ilangumaran**, Université de Sherbrooke; **Dr. Simon A. Hirota**, University of Calgary

Dr. Subburaj Ilangumaran, *Université de Sherbrooke* - "Requirement of SOCS1 expression in hepatic stellate cells to regulate hepatic fibrogenic response"

Dr. Simon A. Hirota, *University of Calgary* - "Microbial metabolite sensing shapes the mesenchyme to restrain intestinal inflammation and fibrosis"

Dr. Sonya A. MacParland, *University of Toronto* - "Canada, Liver macrophage populations in fibrosis and tissue regeneration"

Dr. Carolyn J. Baglole, *McGill University* - "Aryl hydrocarbon receptor and fibroblast–neutrophil interactions in chronic obstructive pulmonary disease"

Dr. Kelly M. McNagy, *University of British Columbia* - "Innate lymphoid cells in tissue fibrosis"

FOCIS 2022, June 21 - 24, 2022, San Francisco, CA

CSI Sponsored Symposium: June 21, 1:00pm - 5:00pm

Unconventional T Cells in Chronic Disease and as Targets of Therapy

Chairs: **Dr. Sylvie Lesage**, Université de Montréal, **Dr. Kelly McNagy**, University of British Columbia

Dr. Kelly McNagy, *Professor, Dept of Biomedical Engineering, University of British Columbia* – "Parallel Origins and Functions of T Cells and ILCs"

Dr. Thierry Mallevaey, *Associate Professor, Dept of Immunology, University of Toronto*, "Understanding iNKT cell functional heterogeneity: towards immunotherapy"

Dr. Sarah Crome, *Assistant Professor, Dept of Immunology, University of Toronto*, "ILCs and applications in tolerance-promoting immunotherapies"

Dr. Caroline Lamarche, *Assistant Professor, Dept of Medicine, Université de Montréal*, "Treg dysfunction and its implication for cell therapy"

Dr. Mansour Haeryfar, *Professor, Dept of Immunology, University of Western Ontario*, "MAIT cells as vaccine targets for viral diseases?"

Dr. Nathalie Labrecque, *Professor, Dept of Medicine, Université de Montréal*, "Resident memory T cell subsets in bacterial and viral responses"



8. ECI WEBINAR SERIES

Early Career Investigators Webinar Series:

This year marked the launch of the CSI Early Career Investigator Webinar series. This lectureship Series is named in honor of Dr. Michael Gold who has made lasting contributions to the mentoring of ECIs and/or postdoctoral scholars transitioning into independent investigator positions. We have created an ECI database for future webinar slots, which we will keep updating as we will receive new nominations. Please help us celebrate the new additions to our community of scholars by nominating ECIs joining your own institutes and elsewhere. This is an open call with no deadline in place for the submission of new nominations. Visit the [CSI website](#) for details.



The Michael Gold Webinar Series has been established by the Canadian Society for Immunology (CSI) to honor a current or past CSI member who has made lasting contributions to the mentoring of early career investigators and postdoctoral scholars transitioning into independent research positions. Dr. Gold is a Professor and former Head of the Department of Microbiology and Immunology at University of British Columbia and the 2013 recipient of the CSI Cinader Award. He is known for his many contributions to the scientific community, including his roles in mentoring trainees of all levels to the top.

| | |
|----------------|---|
| March 10, 2022 | Dr. Lisa Reynolds , <i>University of Victoria</i> "Parasitic worm infection alters the intestinal metabolome, and the impact on mammalian immunity" |
| May 12, 2022 | Dr. Sebastien Talbot , <i>University of Montreal</i> "Pain neurons control cancer immunosurveillance" |
| July 14, 2022 | Dr. Maria Tokuyama , <i>University of British Columbia</i> "The role of endogenous retroviruses in immunity" |
| Sept. 8, 2022 | Dr. Omar Khan , <i>University of Toronto</i> "Converging immunology, chemistry and engineering: nanotechnology for the prevention and treatment of disease" |
| Nov. 10, 2022 | Dr. Liam O'Neil , <i>University of Manitoba</i> "Neutrophil extracellular trap formation in Rheumatoid Arthritis" |



9. IMMUNOLOGY IN CANADA

Below is a non-comprehensive collection of updates on Immunology happenings across the country.

From the CSI Executive:

We've been working with our colleagues from the Australian and New Zealand Society for Immunology (ASI) on initiatives to foster interactions between our respective communities of Immunologists. As a step in this direction, Mansour Haeryfar, Jean Marshall, Kamala Patel and Aaron Marshall organized a special virtual issue in the ASI journal Immunology and Cell Biology. This virtual issue highlights some great Canadian science which is summarized in a brief review. Check it out here: [https://onlinelibrary.wiley.com/doi/toc/10.1111/\(ISSN\)1440-1711.Canadian-Immunology](https://onlinelibrary.wiley.com/doi/toc/10.1111/(ISSN)1440-1711.Canadian-Immunology)

From the Vancouver & B.C. Immunology community:

We are delighted to announce the launch of the Immunotherapeutic Research Excellence Cluster (ITC) led by Kelly McNagny, Pauline Johnson and Alice Mui at the University of British Columbia. The primary goal of this initiative is to build an inclusive and interactive community that fosters communication and collaboration in immunology and immunotherapeutics between basic researchers, clinicians, industry and policy makers. With this initiative, we aim to drive advancements in immunotherapeutics discovery, development and translation from bench to bedside. An important part of this goal is to support and engage the trainees to guide future directions.

Check us out at www.ImmunoT.ubc.ca and on Twitter @Immuno_T

The ITC presently has over 150 members and, since launch, hosted a 'Support our Trainees' event and the first ITC inaugural research symposium, which brought together experts and trainees by showcasing both cross-pillar and trainee-led research. We have a vibrant and diverse Trainee Committee that plays a leadership role in organising trainee-focused events and outreach activities. Importantly, the ITC offers financial support to introduce under-represented students to immunotherapeutic-directed research and facilitates trainee engagement in cross-disciplinary collaborations.

ITC aims to complement other initiatives in BC such as the COVID-19 Immunology Consortium BC (CIC-BC) and ImmunoBC meetings. CIC-BC was established in September 2020 and has brought together infectious disease immunology researchers and trainees to facilitate collaborative COVID-19 immunology research in BC. By working together, we plan to create a broad Immunology-focused research base across BC, and going forward, have greater aspirations for a Pan-Canadian Immunotherapeutics Network and would welcome opportunities to partner with the wider Canadian Community.

Sincerely,



Drs Melina Messing & Pauline Johnson,
ITC and CSI members

From the University of Alberta – Immunology Network (ImmuNet)

On August 17, 2022, the trainees of the Immunology Network (ImmuNet) proudly hosted the 26th annual ImmuNet Research Day (IRD) at the Polish Hall in downtown Edmonton. The IRD welcomed over 120 individuals including undergraduate and graduate scientists, post-doctoral fellows, research associates and faculty. It was the first face-to-face meeting since 2019 and everyone thoroughly enjoyed spirited conversations around the diverse research topics explored by ImmuNet members.

The event began with a Keynote presentation from Dr. Elitza Tocheva from the University of British Columbia that combined amazing pictures of bacterial structures obtained through advanced imaging approaches with a glimpse into her journey through academia. Four outstanding oral presentation sessions that focused on various aspects of immunology, host-pathogen interactions, physiology, bacteriology and virology were mixed with two different energetic poster sessions. In total, there were 58 posters presented by undergraduate and graduate students, post-doctoral fellows and research associates. Awards were presented for each of the oral presentation sessions as well as for the poster sessions.

The IRD was grateful for the generous sponsorships secured by the organizing committee that again allowed for no cost attendance. The trainees have already begun the planning and organization of the 27th annual ImmuNet Research Day for June 2023. We are again looking forward to a stimulating day of science with fantastic presentations and lively discussions.

From the Montreal Immunology meetings group:



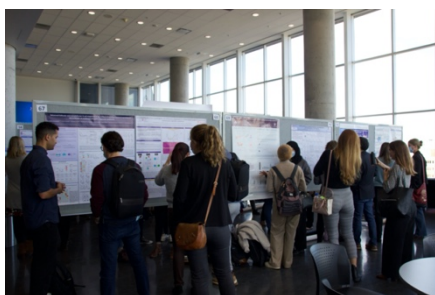
The Montreal Immunology Meetings activities are organized by a group of 10 immunologists with the goal of fostering interactions and collaborations among the fundamental and clinical immunology research community. The committee organizes informal Immunology Happy Hours as well as an Annual Symposium. After two years of virtual events, the 9th annual Montreal Immunology Meetings symposium was held on October 27, 2022 in person. The free, one day event had more than 200 registrants from the Montreal area and attracted immunologists from Sherbrooke and Ottawa, pushing the capacity limits of the venue. The theme of

this year's symposium was 'Immune Diseases' and featured international and local speakers with topics that ranged from primary immunodeficiencies to pathologic responses to infection, autoimmunity, and beyond. The symposium was





bookended by two Keynote speakers, Dr. Jie Sun from the University of Virginia and Dr. Mark Anderson from the University of California, San Francisco. Dr. Sun spoke about the immune determinants of acute and chronic viral pathogenesis in the respiratory tract with convincing arguments for the need to develop effective mucosal vaccines. Dr. Anderson described surprising heterogeneity in the thymic stromal cell compartment with striking tissue-specific cell characteristics that play important roles in T cell tolerance. Local speakers included Dr. Nathalie Grandvaux, who spoke about the mechanisms that regulate the type I IFN response to ensure an effective antiviral response and inhibit interferonopathies including autoimmune connective tissue diseases, Dr. Hélène Decaluwe, who presented work on the development of treatments for hemophagocytic lymphohistiocytosis patients, and Dr. Simona Stäger, who identified a new cell population that appears to maintain the CD4 T cell response during persistent infections. Nearly 70 abstracts were submitted; trainees had an opportunity to present posters over an extended lunch and four, Dr. Danielle Karo-Atar, Hamlet Adolfo Acevedo Ospina, Aanya Bhagrath, and Sabryna Nantel were chosen for short oral presentations. Four trainees, Dr. Sébastien This, Ève Mallet Gauthier, Laure Le Corre, and Angelina Bardoul, also received poster abstract awards. These activities and trainee support would not be possible without generous contributions from many of the local Montreal universities and research institutes as well as from corporate sponsors.



To know more about the effervescent immunology community in Montreal, we invite you to read a recent editorial piece published in Immunology & Cell Biology.
<https://onlinelibrary.wiley.com/doi/pdf/10.1111/imcb.12576>.

Dr. Heather Melichar & Dr. Sylvie Lesage

From Atlantic Canada:

CSI members from the Atlantic region were excited to host the annual general meeting in Halifax, Nova Scotia. With contributions from the local organizing team, faculty members, and the trainee engagement committee, we had a highly successful meeting on the waterfront. After two years of virtual meetings, this hybrid meeting was welcomed by all 330 attendees; the largest CSI meeting to date. Led by Dalhousie-based TEC members Sarah Nersesian, Emily Carter and Morgan Pugh-Toole, the meeting included - for the first time - several engaging activities for trainee professional development and networking.



Multiple CSI members are part of the Atlantic Cancer Consortium (ACC), of the Marathon of Hope Cancer Centres Network (MOHCCN), a national project sponsored by the Terry Fox Research Institute. This project brings research in precision medicine to all parts of the country to improve the survival of Canadians with cancer. For the past two years, the ACC has been in a pilot phase of the project, building the infrastructure and expertise to allow precision medicine research across the Atlantic region. The pilot project is led by CSI member, Sherri Christian, with leading roles held by CSI members Sheila Drover, Michael Grant and Jeanette Boudreau focused on the immunoprofiling of colorectal cancer. ACC has applied to become a full member consortium of the MOHCCN with an anticipated start date of January 1, 2023. Thereafter, we will be tasked with profiling approximately 1500 patient samples at the genome and transcriptome levels with full clinical datasets along with matched normal tissue; for a subset of these patients, multiplex immunoprofiling will also be performed. These data will be incorporated into a national database of 15,000 cancer patient profiles that can be interrogated by members of the MOHCCN.

A collaborative team of immunologists from Dalhousie, led by Jeanette Boudreau, recently published work describing an unconventional role for damage-associated molecular patterns: immunoregulation (Westhaver 2022). Using functional studies, and mass spectrometry, the group (which also features CSI member Brent Johnston) demonstrate that arginine depletion by arginase liberated from mitochondria, is responsible for settling an ongoing inflammatory response. This work sets the stage for understanding a new method for maintaining homeostasis and preventing excessive inflammation.

Andrew Makrigiannis' team observed that mice defective in the lectin-like receptor NKR-P1B are extremely susceptible to bacterial lung infections. NKR-P1B-KO mice had normal NK cell function in the lung, but showed severely reduced numbers of alveolar macrophages (AM). The few remaining AMs in these mice were large, foam-like cells with lipid inclusions. Transcriptomic and lipidomic analyses revealed elevated use of metabolic pathways responsible for lipid uptake in NKR-P1B-KO AMs, but also a corresponding decrease in pathways linked to lipid breakdown and excretion. Makrigiannis and team identified a new NKR-P1B ligand, Clr-g, expressed on type II pneumocytes. Interestingly, Clr-g expression is quickly downregulated after infection in the lung, suggesting control of AM surfactant uptake through a previously unknown NKR-P1B:Clr-g signaling axis. This study describes a novel immune and metabolic regulatory pathway of lung alveolar macrophages through NKR-P1B and Clr-g (Scur 2022).

Dr. Christian's team discovered that extracellular vesicles (EVs) can carry functional receptors from one B lymphocyte to another (Phan 2021). This included both CD24 and the B cell receptor (BCR), which are pro-apoptotic receptors in immature B cells. This transfer occurred when either CD24 or the BCR was stimulated. Thus, immature B cells are capable of sending signals via EVs that will increase the susceptibility of neighbouring cells to undergo apoptosis. This may be a mechanism to maintain homeostasis in developing B cells.

A team at Memorial University led by Michael Grant studied cellular and humoral immune responses against SARS-CoV-2 in persons with confirmed or suspected COVID-19 and found very few infections in the initial wave that were not confirmed by Public Health testing (Ings 2022). In a follow-up study, they showed that immunity following vaccination was much stronger in the group of



individuals who had been infected with SARS-CoV-2 (hybrid immunity) and that the strength also related to severity of infection (Holder 2022).

Francesca Di Cara's team at Dalhousie University, with CSI member Andrew Makrigiannis several collaborating institutions demonstrated that peroxisome regulated phospholipid waves that are needed to activate macrophages and mount the immune response against microbial pathogens, and dysregulated in macrophages and B cells of patients affected by chronic inflammatory diseases such as Juvenile arthritis and Kawasaki disease (Nath et al., March 1st, 2022 Cell Reports). The regulation of lipid waves by peroxisomes to modulate cytokines secretion was confirmed in mast cells in a follow-up study led by Francesca Di Cara and Jean Marshall (both CSI members and immunologists at Dalhousie University).