Suraj Bansal

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EDUCATION

McMaster University, Hamilton ON — *Expected: May 2025*
Bachelor of Health Sciences (Honours) Candidate (GPA: 3.98/4.00)
Relevant Coursework: Anatomy and Physiology, Cellular Biology, Biochemistry, Immunology, Epidemiology and Biostatistics
Honors: Dean's List (2021-22) | *Awards*: Faculty of Health Sciences Achievement Award ($1,000)

RESEARCH EXPERIENCE

The Dick Lab, Princess Margaret Cancer Centre, *Student Researcher* | Toronto, ON — *Sep. 2020 - Present*

- Developing a cloud-based bioinformatics pipeline that performs bulk and single-cell transcriptomic meta-analysis (ranging from unsupervised cell clustering to survival analysis) on 15+ blood development and leukemia datasets to enable rapid target characterization and precision medicine in AML (currently used in 5 collaborations across various labs).
- Building a R-based web application to automate transcriptomic meta-analyses for individual genes and prognostic gene expression scores in a cohort of 358 MPN patients at Princess Margaret Hospital (ClinicalTrials.gov Identifier: NCT02760238).
- Performed single-cell transcriptome analysis of the tumor micro-environment in MC38 mouse models of colorectal cancer treated with immune checkpoint blockade
- Identified 95 preclinical RNA-sequencing datasets and performed gene expression deconvolution before and after drug treatment to quantify changes in leukemia hierarchy composition and predict clinical responses to treatment

Awards: T-CAIREM AI in Medicine Summer Studentship (2022), UofT Molecular Genetics Undergraduate Summer Research Program (2021, 2022), University Health Network ORT Summer Research Program (2021, 2022)

Hamilton Social Medicine Response Team (HAMsMART), *Research Student* | Hamilton, ON — *Sep. 2022 - Present*

- Performing data collection, patient enrollment, chart reviews, and descriptive statistical analysis on 1) an observational cohort study on safer supply prescriptions for people with treatment-refractory opioid use disorder, 2) a mixed methods study investigating health outcomes of people experiencing emergency homeless shelter service restrictions and 3) a statistical analysis of causes of mortality of people experiencing homelessness in Hamilton
- Volunteering and shadowing at a physician-led safer supply clinic to distribute harm reduction supplies, and pharmaceutical grade opioid alternatives to homeless people at risk of mortality from the contaminated illicit opioid supply

St. Michael's Hospital, Division of Gastroenterology, *Research Volunteer* | Toronto, ON — *Jun. 2019 - Aug. 2019*

- Assisted with endoscopic training for University of Toronto residents as EndoVR simulation expert and standardized patient
- Performed data collection for their medical education research studying the effects of gamification on student learning

RESEARCH PROJECTS

Accepted Manuscripts

Zeng, A.G.X., **Bansal, S.**, Jin, L., Mitchell, A., Chen, W.C., Abbas, H.A., Chan-Seng-Yuel, M., Voisin, V., van Galen, P., Tierens, A., Cheok, M., Preudhomme, C., Dombret, H., Daver, N., Futreal, P.A., Mindenl M.D., Kennedy, J.A., Wang, J.C.Y., Dick, J.E. A cellular hierarchy framework for understanding heterogeneity and predicting drug response in Acute Myeloid Leukemia. (In Press). *Nature Medicine*. May 2022. DOI:10.1038/s41591-022-01819-x

Bansal, S., Ahn, M. The efficacy of nanoparticle-based CT imaging techniques in identifying pro-inflammatory macrophages in atherosclerosis. (In Press). *The Meducator.* April 2022. DOI:10.35493/medu.41.14

Manuscripts in Preparation

Bansal, S., Zeng, A.G.X., Mitchell, A., Lim, I.N.X., Nagree, M.S., Xie, S., Dick, J.E. A cloud-based computational target characterization pipeline to advance precision medicine in Acute Myeloid Leukemia.

Medeiros, J.J.F., Zeng, A.G.X., Chan-Seng-Yue, M., Woo, T., McLeod, J.L., **Bansal, S.,** Arruda, A., Tsui, H., Goraya B., Claudio, J.O., Ho, J.M., Kennedy, J.A., Maze, D., Sibai, H., Minden, M.D., Wang, J.C.Y., Dick, J.E., Gupta, V. Stem cell-derived gene expression scores predict survival and leukemic transformation in myelofibrosis.

C, Bodkin., Chan, K., Kouyoumdjian, K., Lamarche, L., Lennox, R., O'Shea, T., Wiwcharuk, G., Mancini, O., Di Pelino, S., Liu, R., Pitkis, A., Lee, A., **Bansal, S.** Nowhere To Go: A convergent mixed methods study of the health of people who experience emergency homeless shelter service restriction.

Turner, S., Lennox, R., Lamarche, L., Inglis, G., Busche, K., Bodkin, C., O'Shea, T., Atri, A., Wilton, D., **Bansal, S.,** Lemieux, C. Primary care-embedded safer supply program: A pilot program for people with treatment-refractory opioid use disorder .

Bodkin, C., Berditchevskaia, I., Stearns, G., Scott, J., **Bansal, S.** Mortality in People Experiencing Homeless in Hamilton

Abstracts Under Review

Egan, G., Hurren, R., Thomas, G.E., Sarathy, C., Zeng, A.G.X., **Bansal, S.**, Khan, D.H., Yan, Y., Feng, Y., St-Germain, J., Raught, B., Dick, J.E., Schimmer, A.D. The exportin, XPO2, is a novel therapeutic target in pediatric and AYA AML. *Cancer Research.*

Lim, I.N.X., Boulanger, M., **Bansal, S.,** Gupta, K., Nagree, M.S., Dick, J.E., Xie, S.X. Differential sensitivity of leukemia stem cells to sphingolipid modulation and in combination with venetoclax. *Molecular Pharmacology.*

Oral Presentations

Bansal, S., Zeng, A.G.X., Mitchell, A., Lim, I.N.X., Nagree, M.S., Xie, S., Dick, J.E. A cloud-based computational target characterization pipeline to advance precision medicine in Acute Myeloid Leukemia. *T-CAIREM AI in Medicine Summer Research Conference.*

RESEARCH PROJECTS

Poster Presentations

Bansal, S., Zeng, A.G.X., Mitchell, A., Lim, I.N.X., Nagree, M.S., Xie, S., Dick, J.E. A cloud-based computational target characterization framework to advance precision medicine in Acute Myeloid Leukemia. *University of Toronto Department of Molecular Genetics Undergraduate Summer Research Conference*

Bansal, S., Zeng, A.G.X., Mitchell, A., Dick, J.E. An intuitive cloud-based bioinformatics pipeline for transcriptomic meta analysis in blood development and leukemia. *University of Toronto Department of Medical Biophysics Undergraduate Research Day*

LEADERSHIP AND VOLUNTEERING EXPERIENCE

The Meducator, *Managing Editor* | Hamilton, ON *Sep. 2021 - Present*

- Facilitating bi-annual publication cycles for McMaster's open-access, peer-reviewed Undergraduate Health Sciences Journal
- Coordinated 20 editors in reviewing submissions, writing 10+ staff-written pieces, facilitating a double-blinded peer-review process, registering DOI's, and leading all publication efforts (1500+ issues; 65,000 online visitors yearly)
- Launched Canada's first collaborative journal between undergraduate science journals at McMaster, McGill, and UofT
- Co-developing a national database for undergraduate academia and local conference for student-led research at McMaster

McMaster University President's Advisory Committee (PACBIC), *R3 Member* | Hamilton, ON *Sep. 2022 - Present*

- Contributing to the Race, Racialization and Racism Working Group (R3) to identify and address issues affecting BIPOC communities within the University, and the broader McMaster community to advise the development of anti-racism policy
- Helping coordinate Let's Talk About Race drop-in sessions, highlighting shared experiences of racialized staff, faculty, and students on themed discussions (e.g. cultural appropriation, islamophobia, anti-black racism).

York Region District School Board Student Senate, *Prime Minister* | York Region, ON *Sep. 2018 - Jun. 2021*

- Managed a $30,000 portfolio and led 10 executives in launching a bi-annual mental health conference and monthly meetings attended by 500+ students from 33 YRDSB secondary schools (increased attendance by 1,500% across 3 years)
- Built FACESofYRDSB, an anonymous online platform to showcase racial discrimination stories from BIPOC students
- Launched weekly mental health symposiums on the impacts of COVID-19 on adolescent mental health and wellbeing
- Introduced the inaugural Indigenous Student Trustee and consulted the YRDSB 2020 Anti-Black Racism Strategy

TEDxYouth Toronto, *Student Co-Chair* | Toronto, ON *May. 2018 - Nov. 2019*

- Managed a $15,000 sponsorship portfolio (RBC, Western Ivey, NBA Canada) and sourced world-renowned TEDx speakers
- Implemented coordinated marketing strategies, procuring 1,000+ conference applications (increased from 500)
- Led 12 Youth Ambassadors in launching the inaugural TEDxYouth Summer Conference (100 attendees)

PERSONAL PROJECTS

Ryde AI, *Project Lead and Co-Founder* | Toronto, ON *Apr. 2020 - Nov. 2020*

- Developed a cloud-powered software to automate driving assist features like adaptive cruise control, automated lane centering, forward collision warning, lane departure warnings, and driver monitoring
- Contributed to a mobile application to interface the cloud-based software with on-board diagnostics using Bluetooth

Awards: Spark Teen Accelerator Challenge Finalist, Zappos (Amazon) Venture Challenge Finalist,

Sidewalk Labs (Alphabet), *Project Consultant* | Toronto, ON *Nov. 2019 - Feb. 2020*

- Created an innovation plan and end-to-end mobile application to reduce household expenditures for Toronto's eastern waterfront residents through a sharing economy digital infrastructure that monetizes personal assets
- Selected from 50 recommendations to present our proposal to C-level executives at Sidewalk Labs headquarters

SELECT HONOURS AND AWARDS

Recipient (1 of 20), T-CAIREM AI in Medicine Summer Research Studentship	2022
Recipient (1 of 1), Portraits of Giving Young Adult Honoree	2022
Recipient (1 of 1), Ontario Public Schools' Association Jack A. MacDonald Award of Merit ($500.00)	2021
Recipient (1 of 1), Ontario Student Voice Award: Entrepreneurship Category ($1,000.00)	2021
Recipient (1 of 1), Richmond Hill Volunteer Youth Achievement Award	2021
Recipient, 5-Year Ontario Volunteer Service Award	2021
Recipient, Youth Ontario Volunteer Service Award	2021
Recipient (1 of 50), RBC Scholarship Program ($2,500.00)	2021
Recipient (1 of 5), Benson Kearley IFG Students Making an Impact Scholarship ($2,000.00)	2021
First Place, Sidewalk Labs (Google) Consulting Competition	2020
First Place, SHAD Design Entrepreneurship Challenge, University of British Columbia	2019

SKILLS & INTERESTS

Languages and Libraries: Python, R, Javascript, SQL, Keras, Tensorflow, ScanPy, Seurat, Pandas, NumPy, Scikit-learn

Interests and Hobbies: Artificial Intelligence, Food Culture, Squash, Guitar, Weightlifting, Startups, Self-driving Cars