Stanford

Joshua Gillard

Postdoctoral Scholar, Cardiovascular Medicine

Bio

BIO

Dr. Josh Gillard is a Canadian biomedical data scientist with experience in bioinformatics, machine learning, and immunology. After completing a BSc and a MSc in Experimental Medicine at McGill university, he relocated to the Netherlands for his PhD in bioinformatics at Radboud University in Nijmegen. During his PhD, he gained experience analyzing and interpreting complex immunological data (bulk and single-cell transcriptomics, high-dimensional cytometry, high-throughput proteomics) derived from human observational or intervention studies (vaccination and experimental human infection). This work revealed molecular and cellular correlates of clinically important endpoints such as disease severity, symptom progression, and antibody responses. In 2022, Josh relocated to Stanford to join the Gaudilliere lab to develop and apply multi-omic data integration and machine learning techniques, establishing that early gestational immune dysregulation can predict preterm birth. Since 2024, in the Ashley lab, Josh is developing deep learning models to investigate aberrant splicing in cardiovascular disease.

PROFESSIONAL EDUCATION

- BSc, McGill University , Microbiology & Immunology
- MSc, McGill University , Experimental Medicine
- PhD, Radboud University Nijmegen , Bioinformatics

STANFORD ADVISORS

- Euan Ashley, Postdoctoral Faculty Sponsor

Publications

PUBLICATIONS

- **Antiviral responses induced by Tdap-IPV vaccination are associated with persistent humoral immunity to Bordetella pertussis.** *Nature communications*

  Gillard, J., Suffiotti, M., Brazda, P., Venkatasubramanian, P. B., Versteegen, P., de Jonge, M. I., Kelly, D., Bibi, S., Pinto, M. V., Simonetti, E., Babiceanu, M., Kettring, A., Teodosio, et al

  2024; 15 (1): 2133

- **Discovery of sparse, reliable omic biomarkers with Stabl.** *Nature biotechnology*

  Hédou, J., Marić, I., Bellan, G., Einhaus, J., Gaudillière, D. K., Ladant, F. X., Verdonk, F., Stelzer, I. A., Feyaerts, D., Tsai, A. S., Ganio, E. A., Sabayev, M., Gillard, et al

  2024

- **Longitudinal clinical phenotyping of post COVID condition in Mexican adults recovering from severe COVID-19: a prospective cohort study.** *Frontiers in medicine*

  Núñez, I., Gillard, J., Fragoso-Saavedra, S., Feyaerts, D., Islas-Weinstein, L., Gallegos-Guzmán, A. A., Valente-García, U., Meyerowitz, J., Kelly, J. D., Chen, H., Ganio, E., Benkendorff, A., Flores-Gouyonnet, et al

2023; 10: 1236702

- **Integrated plasma proteomic and single-cell immune signaling network signatures demarcate mild, moderate, and severe COVID-19.** *Cell reports. Medicine*

  Feyaerts, D., Hédou, J., Gillard, J., Chen, H., Tsai, E. S., Peterson, L. S., Ando, K., Manohar, M., Do, E., Dhondalay, G. K., Fitzpatrick, J., Artandi, M., Chang, et al

  2022: 100680

- **BCG-induced trained immunity enhances acellular pertussis vaccination responses in an explorative randomized clinical trial.** *NPJ vaccines*

  Gillard, J., Blok, B. A., Garza, D. R., Venkatasubramanian, P. B., Simonetti, E., Eleveld, M. J., Berbers, G. A., van Gageldonk, P. G., Joosten, I., de Groot, R., de Bree, L. C., van Crevel, R., de Jonge, et al

  2022; 7 (1): 21

- **SARS-CoV-2 mucosal antibody development and persistence and their relation to viral load and COVID-19 symptoms.** *Nature communications*

  Fröberg, J., Gillard, J., Philipsen, R., Lanke, K., Rust, J., van Tuijl, D., Teelen, K., Bousema, T., Simonetti, E., van der Gaast-de Jongh, C. E., Bos, M., van Kuppeveld, F. J., Bosch, et al

  2021; 12 (1): 5621

- **Functional Programming of Innate Immune Cells in Response to Bordetella pertussis Infection and Vaccination.** *Advances in experimental medicine and biology*

  Gillard, J., van Schuppen, E., Diavatopoulos, D. A.

  2019; 1183: 53-80