The Christina Leslie Lab

Research

Christina Leslie, PhD
Member, Computational & Systems Biology Program

Our lab develops novel computational methods to study cellular biological systems from a global and data-driven perspective. We seek to exploit diverse, high-throughput functional and genomic data to understand the molecular networks underlying fundamental cellular processes, including regulation of transcription, pre-mRNA processing, signaling, and post-transcriptional gene silencing. Our algorithmic methods draw on machine learning, a computational field concerned with learning accurate, predictive models from noisy and high-dimensional data.

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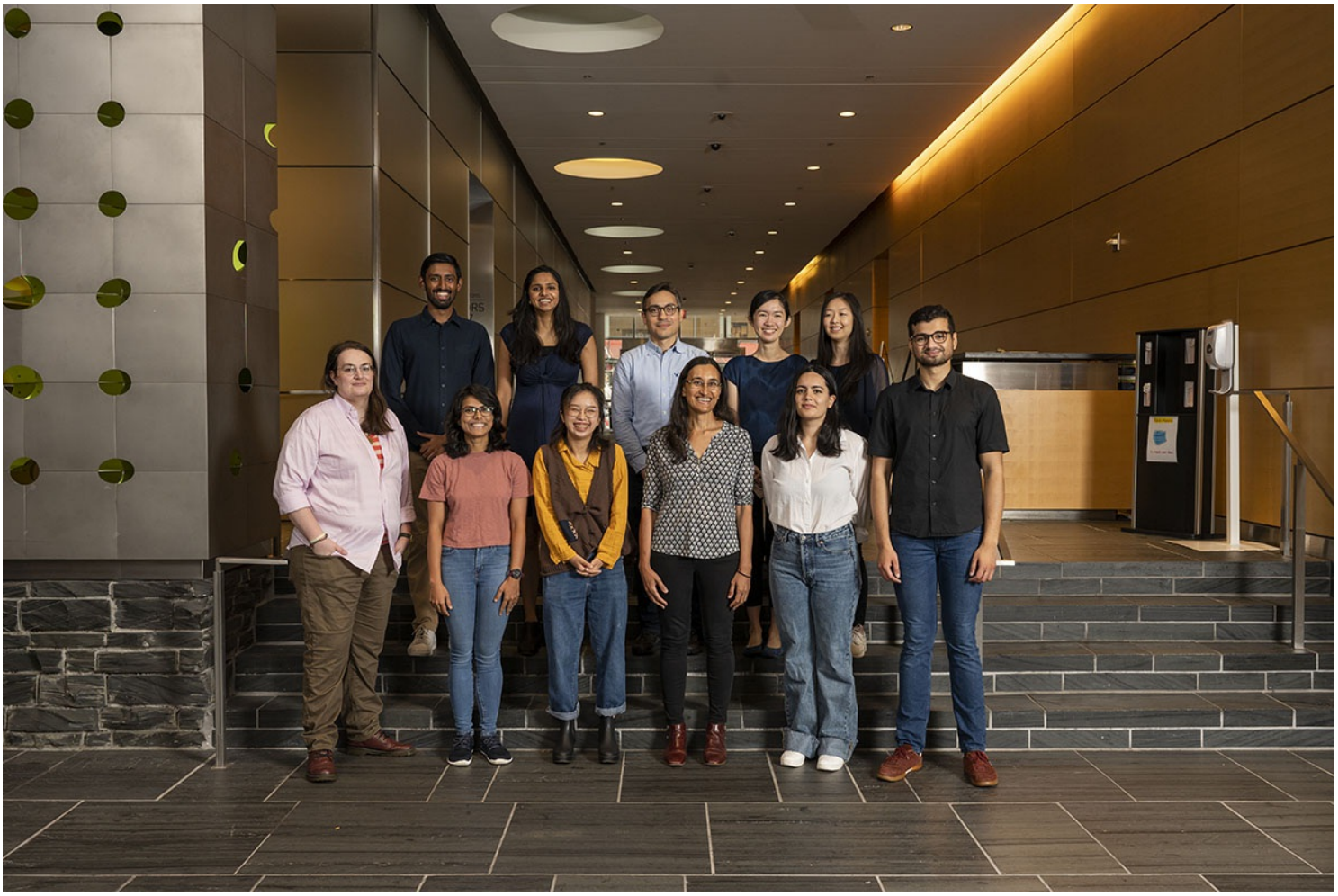

Featured News

[At Work: Computational Biologist Christina Leslie]

In the field of computational biology, Christina Leslie has the opportunity to expand the impact of her work by connecting math to science.

IN THE LAB

[Scientists Find Cancer Drivers Hiding in a New Place]

New findings from researchers at the Sloan Kettering Institute suggest that cancer causes may be lurking in the molecule that bridges DNA and protein.

[Making a Splash: Researchers Apply Face-Detection Technology to the Study of Genes]

Taking a cue from smartphone technology, scientists are using face-recognition algorithms to improve RNA interference.

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Publications Highlights

CRISPR screening uncovers a central requirement for HHEX in pancreatic lineage commitment and plasticity restriction. Yang D, Cho H, Tayyebi Z, Shukla A, Luo R, Dixon G, Ursu V, Stransky S, Tremmel DM, Sackett SD, Koche R, Kaplan SJ, Li QV, Park J, Zhu Z, Rosen BP, Pulecio J, Shi ZD, Bram Y, Schwartz RE, Odorico JS, Sidoli S, Wright CV, Leslie CS, Huangfu D.Nat Cell Biol. 2022 Jul;24(7):1064-1076. doi: 10.1038/s41556-022-00946-4. Epub 2022 Jul 4.PMID: 35787684

Cytotoxic innate lymphoid cells sense cancer cell-expressed interleukin-15 to suppress human and murine malignancies. Kansler ER, Dadi S, Krishna C, Nixon BG, Stamatiades EG, Liu M, Kuo F, Zhang J, Zhang X, Capistrano K, Blum KA, Weiss K, Kedl RM, Cui G, Ikuta K, Chan TA, Leslie CS, Hakimi AA, Li MO.Nat Immunol. 2022 Jun;23(6):904-915. doi: 10.1038/s41590-022-01213-2. Epub 2022 May 26.PMID: 35618834

Globin vector regulatory elements are active in early hematopoietic progenitor cells. Cabriolu A, Odak A, Zamparo L, Yuan H, Leslie CS, Sadelain M.Mol Ther. 2022 Jun 1;30(6):2199-2209. doi: 10.1016/j.ymthe.2022.02.028. Epub 2022 Mar 2.PMID: 35247584

Base editing sensor libraries for high-throughput engineering and functional analysis of cancer-associated single nucleotide variants. Sánchez-Rivera FJ, Diaz BJ, Kastenhuber ER, Schmidt H, Katti A, Kennedy M, Tem V, Ho YJ, Leibold J, Paffenholz SV, Barriga FM, Chu K, Goswami S, Wuest AN, Simon JM, Tsanov KM, Chakravarty D, Zhang H, Leslie CS, Lowe SW, Dow LE.Nat Biotechnol. 2022 Jun;40(6):862-873. doi: 10.1038/s41587-021-01172-3. Epub 2022 Feb 14.PMID: 35165384

Programme of self-reactive innate-like T cell-mediated cancer immunity. Chou C, Zhang X, Krishna C, Nixon BG, Dadi S, Capistrano KJ, Kansler ER, Steele M, Han J, Shyu A, Zhang J, Stamatiades EG, Liu M, Li S, Do MH, Edwards C, Kang DS, Chen CT, Wei IH, Pappou EP, Weiser MR, Garcia-Aguilar J, Smith JJ, Leslie CS, Li MO.Nature. 2022 May;605(7908):139-145. doi: 10.1038/s41586-022-04632-1. Epub 2022 Apr 20.PMID: 35444279

View All Publications

People

Christina Leslie, PhD

Member, Computational & Systems Biology Program

Computational biologist Christina Leslie focuses on developing machine learning algorithms for computational and systems biology.

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Vijay Yarlagadda

Graduate Student

Lab Alumni
+

Lab Affiliations
+

Achievements

- Introduction of string kernel methodology for SVM classification of biological sequences
- Development of algorithms for predictive modeling of gene regulation
- First systems-level analyses of competition between microRNAs and between target transcripts

Lab News & Events

UPCOMING EVENT

Single-cell Epigenomics and the Regulatory Control of Cells

Friday, May 24, 2024 - 10:30 AM to 11:30 AM

Memorial Sloan Kettering Cancer Center
Rockefeller Research Laboratories
430 East 67th Street
Room RRL-116
New York, NY 10065

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Disclosures

Doctors and faculty members often work with pharmaceutical, device, biotechnology, and life sciences companies, and other organizations outside of MSK, to find safe and effective cancer treatments, to improve patient care, and to educate the health care community.

MSK requires doctors and faculty members to report (“disclose”) the relationships and financial interests they have with external entities. As a commitment to transparency with our community, we make that information available to the public.

Christina Leslie discloses the following relationships and financial interests:

Episteme Prognostics
Intellectual Property Rights

The information published here is for a specific annual disclosure period. There may be differences between information on this and other public sites as a result of different reporting periods and/or the various ways relationships and financial interests are categorized by organizations that publish such data.

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