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Joao Xavier, PhD
Member, Computational & Systems Biology Program

We combine computation and experiment to investigate how cells interact with each other to produce complex cell group behaviors.

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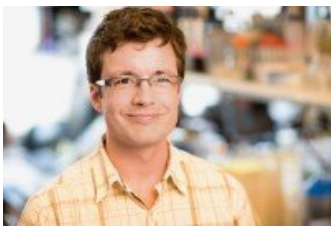
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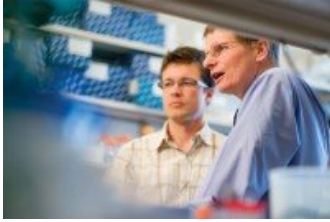
[MSK Study Is the First to Link Microbiota to Dynamics of the Human Immune System](#)

MSK researchers have shown for the first time that the concentration of different types of immune cells in the blood changes in relation to the presence of different bacterial strains in the gut.



[At Work: Computational Biologist Joao Xavier](#)

Computational biologist Joao Xavier combines computer models and laboratory experimentation to understand how cells interact.



[Turning to Bacteria for Clues](#)

Several Memorial Sloan Kettering investigators are focused on the study of bacteria, which can teach us much about human health, and about cancer in particular.

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Publications Highlights

Liao C, Rolling T, Djukovic A, Fei T, Mishra V, Liu H, Lindberg C, Dai L, Zhai B, Peled JU, Brink MRMvd, Hohl TM, Xavier JB. A high fraction of oral bacteria in the feces indicates gut microbiota depletion with implications for human health. *bioRxiv*. 2023:2022.10.24.513595. doi: 10.1101/2022.10.24.513595. (Accepted for publication in *Nature Microbiology*)

Mathur D, Liao C, Lin W, La Ferlita A, Alaimo S, Taylor S, Zhong Y, Iacobuzio-Donahue C, Ferro A, Xavier JB. The Ratio of Key Metabolic Transcripts Is a Predictive Biomarker of Breast Cancer Metastasis to the Lung. *Cancer Res*. 2023 Oct 13;83(20):3478-3491. doi: 10.1158/0008-5472.CAN-23-0153. PMID: 37526524; PMCID: PMC10570685.

Schluter J, Djukovic A, Taylor BP, Yan J, Duan C, Hussey GA, Liao C, Sharma S, Fontana E, Amoretti LA, Wright RJ, Dai A, Peled JU, Taur Y, Perales MA, Siranosian BA, Bhatt AS, van den Brink MRM, Pamer EG, Xavier JB. The TaxUMAP atlas: Efficient display of large clinical microbiome data reveals ecological competition in protection against bacteremia. *Cell Host Microbe*. 2023 Jul 12;31(7):1126-1139.e6. doi: 10.1016/j.chom.2023.05.027. Epub 2023 Jun 16. PMID: 37329880; PMCID: PMC10527165.

Santamaria G, Liao C, Lindberg C, Chen Y, Wang Z, Rhee K, Pinto FR, Yan J, Xavier JB. Evolution and regulation of microbial secondary metabolism. *Elife*. 2022 Nov 21;11:e76119. doi: 10.7554/eLife.76119. PMID: 36409069; PMCID: PMC9708071.

Schluter J, Peled JU, Taylor BP, Markey KA, Smith M, Taur Y, Niehus R, Staffas A, Dai A, Fontana E, Amoretti LA, Wright RJ, Morjaria S, Fenelus M, Pessin MS, Chao NJ, Lew M, Bohannon L, Bush A, Sung AD, Hohl TM, Perales MA, van den Brink MRM, Xavier JB. The gut microbiota is associated with immune cell dynamics in humans. *Nature*. 2020 Dec;588(7837):303-307. doi: 10.1038/s41586-020-2971-8. Epub 2020 Nov 25. PMID: 33239790; PMCID: PMC7725892.

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People

Joao Xavier, PhD

Member, Computational & Systems Biology Program

Systems biologist Joao Xavier combines experimental and computational approaches to study diverse problems relevant to cancer: how the microbiome influences cancer and cancer treatment, how cancer cells metastasize, and how metabolic fluxes command the behavior of living cells.

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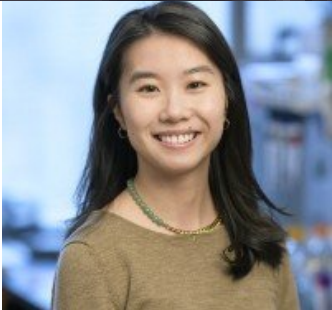
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Disclosures

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.

Joao Xavier discloses the following relationships and financial interests:

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Fiduciary Role / Position

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This page and data include information for a specific MSK annual disclosure period (January 1, 2022 through disclosure submission in spring 2023). This data reflects interests that may or may not still exist. This data is updated annually.

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