



Gerstner Sloan Kettering
Graduate School of Biomedical Sciences

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CELL BIOLOGY PROGRAM

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The Michael Overholtzer Lab

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Michael Overholtzer, PhD

The Overholtzer lab studies mechanisms of nutrient sensing and cellular responses to nutrient starvation, including the nutrient recycling pathway autophagy, scavenging pathways such as macropinocytosis, and mechanisms of cell death. We investigate cell death mechanisms that have unique effects on cell populations, including entosis that supports the survival of starved cells and promotes cell competition, and ferroptosis that eliminates starved cell populations by propagating from cell to cell. The lab also studies mechanisms that regulate autophagy protein and lysosome function in endocytic trafficking and nutrient homeostasis.

[View Lab Overview \(https://www.sloankettering.edu/research-areas/labs/michael-overholtzer/overview\)](https://www.sloankettering.edu/research-areas/labs/michael-overholtzer/overview)

Research Projects

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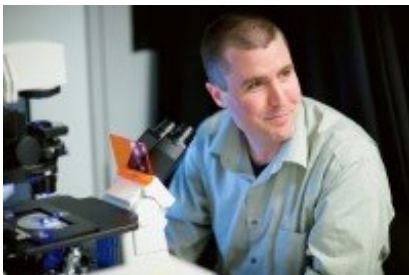
Featured News

IN THE NEWS



[MSK's Graduate School Welcomes New Dean, Bids Farewell to Its First](#)

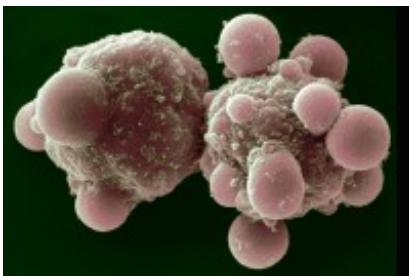
Cell biologist Michael Overholtzer will succeed DNA replication expert Ken Mariani.



[At Work: Cell Biologist Michael Overholtzer](#)

Cell biologist Michael Overholtzer explores genes that make normal cells turn cancerous, which could one day could prove useful for treating cancer.

DECODER



[What Is Apoptosis?](#)

Cell biologist Michael Overholtzer explains apoptosis, a form of programmed cell death that can lead to cancer when it doesn't function properly.

Publications Highlights

[Bandyopadhyay U, Todorova P, Pavlova NN, Tada Y, Thompson CB, Finley L, Overholtzer M. \(2022\) Leucine retention in lysosomes is regulated by starvation. *Proc Natl Acad Sci USA*. Feb 8;119\(6\):e2114912119.](#)

[Hayashi A, Fan J, Chen R, Ho YJ, Makohon-Moore AP, Lecomte N, Zhong Y, Hong J, Huang J, Sakamoto H, Attiyeh MA, Kohutek ZA, Zhang L, Boumiza A, Kappagantula R, Baez P, Bai J, Lisi M, Chadalavada K, Melchor JP, Wong W, Nanjangud GJ, Basturk O, O'Reilly EM, Kimstra DS, Hruban RH, Wood LD, Overholtzer M, Iacobuzio-Donahue CA \(2022\) A unifying paradigm for transcriptional heterogeneity and squamous features in pancreatic ductal adenocarcinoma. *Nat Cancer*. Feb 2.](#)

[Riegman M, Sagie L, Galed C, Levin T, Steinberg N, Dixon SJ, Wiesner U, Brandbury MS, Niethammer P, Zaritsky A, Overholtzer M. \(2020\) Ferroptosis occurs through an osmotic mechanism and propagates independently of cell rupture. *Nat Cell Biol*. Sep 22; \(9\):1042-1048.](#)

[Katikaneni A, Jelcic M, Gerlach GF, Ma Y, Overholtzer M, Niethammer P. \(2020\) Lipid peroxidation regulates long-range wound detection through 5-lipoxygenase in zebrafish. *Nat Cell Biol*. Sep 22;\(9\):1049-1055.](#)

[Lee C, Lamech L, Johns E, Overholtzer M. \(2020\) Selective Lysosome Membrane Turnover is Induced by Nutrient Starvation. *Dev Cell*. Aug 31;S1534-5807\(20\)30666-3.](#)

[View All Publications](#)

People



Michael Overholtzer, PhD

Dean, Gerstner Sloan Kettering Graduate School

Professor

- Cell biologist Michael Overholtzer studies the mechanisms of tumor initiation and progression, cell adhesion, and cell death.
- PhD, Princeton University

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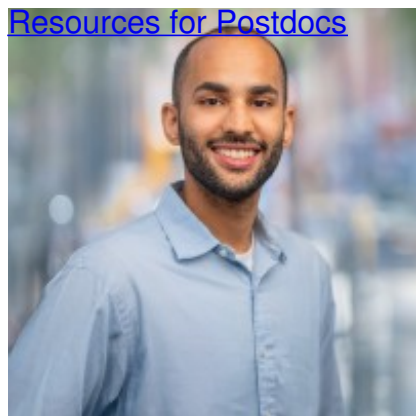
Lab Affiliations

Open Positions

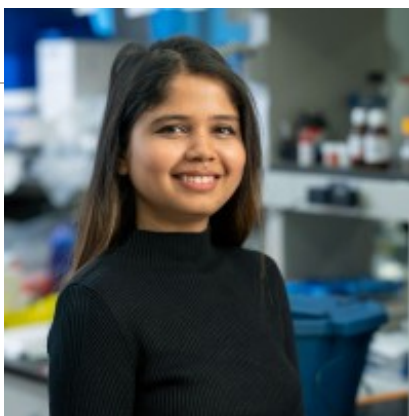
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[now \(https://www.sloankettering.edu/research-areas/labs/michael-overholtzer/postdoctoral-fellow\)](https://www.sloankettering.edu/research-areas/labs/michael-overholtzer/postdoctoral-fellow)

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Disclosures

Members of the MSK Community 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. These activities outside of MSK further our mission, provide productive collaborations, and promote the practical application of scientific discoveries.

MSK requires doctors, faculty members, and leaders 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. Not all disclosed interests and relationships present conflicts of interest. MSK reviews all disclosed interests and relationships to assess whether a conflict of interest exists and whether formal COI management is needed.

Michael Overholtzer discloses the following relationships and financial interests:

No disclosures meeting criteria for time period

The information published here is a complement to other publicly reported data and 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.

This page and data include information for a specific MSK annual disclosure period (January 1, 2024 through disclosure submission in spring 2025). This data reflects interests that may or may not still exist. This data is updated annually.

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