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Michael Overholtzer, PhD
Dean, Gerstner Sloan Kettering Graduate School

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.

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Overholtzer Lab

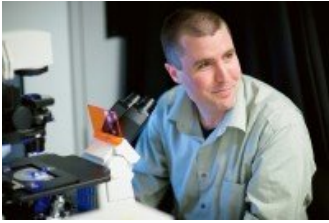
Featured News

IN THE NEWS



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

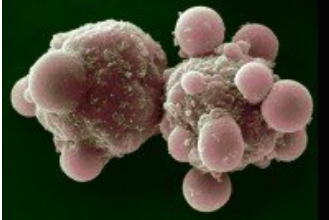
Cell biologist Michael Overholtzer will succeed DNA replication expert Ken Mariani.



[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.](#)

People



Michael Overholtzer, PhD

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

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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.

Michael Overholtzer discloses the following relationships and financial interests:

Elucida Oncology

Intellectual Property Rights

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