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Memorial Sloan Kettering  
Cancer Center

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STRUCTURAL BIOLOGY PROGRAM

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## The Nikola Pavletich Lab

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Nikola P. Pavletich, PhD  
Stephen and Barbara Friedman Chair

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Our research group is interested in understanding, at the structural and mechanistic levels, the maintenance of genomic integrity and the control of cell growth, both of which figure prominently in cancer. In the area of growth control, our recent work is focused on the mTOR pathway that controls multiple aspects of cell growth and homeostasis. Our work on genomic integrity ranges from the Fanconi Anemia pathway, which responds to DNA interstrand crosslinks, to the ATR and ATM checkpoint kinases that coordinate the cell's response to replication stress and DNA double-strand breaks, respectively. Common to these genomic integrity pathways is eventual repair by homologous recombination, a process that has been a longstanding focus of our research.

## Research Projects

The Nikola Pavletich Lab

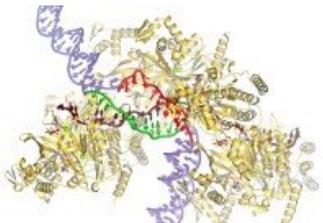
[Homologous Recombination and DNA repair](#)

[The Fanconi Anemia Pathway](#)

[The mTOR Pathway](#)



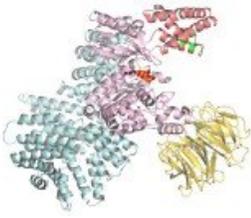
## Featured News



### [Wielding Powerful Imaging Tools, MSK Researchers Decipher Process of DNA Repair](#)

The high-resolution views provided by cryo-electron microscopy are helping scientists learn how proteins and DNA collaborate to repair broken DNA.

## IN THE LAB



### [A Recently Revealed Protein Structure Creates New Opportunities for Cancer Research and Drug Design](#)

In an eagerly awaited study, Memorial Sloan Kettering researchers report on the molecular structure of mTOR, a protein commonly mutated in cancer.

## HONORS



### [Two Memorial Sloan Kettering Investigators Named to National Academy of Sciences](#)

Structural Biology Program Chair Nikola P. Pavletich and immunologist Alexander Y. Rudensky have received one of the highest honors given to scientists working in the United States.

## Publications Highlights

[Yang H, Rudge DG, Koos JD, Vaidialingam B, Yang HJ, Pavletich NP. \(2013\). mTOR kinase structure, mechanism and regulation. Nature. 2013;497:217-223.](#)

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[Wang R, Persky N, Yoo B, Ouerfelli O, Smogorzewska A, Elledge SJ, Pavletich NP. \(2014\). Mechanism of DNA interstrand cross-link processing by repair nuclease FAN1. Science. 2014;346:1127-1130.](#)

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[Yang H, Jiang X, Li B, Yang HJ, Miller M, Yang A, Dhar A, Pavletich NP. \(2017\). Mechanisms of mTORC1 activation by RHEB and inhibition by PRAS40. Nature. 2017;552:368-373.](#)

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[Wang R, Wang S, Dhar A, Peralta C, Pavletich NP. \(2020\). DNA clamp function of the monoubiquitinated Fanconi anaemia ID complex. Nature. 2020;580:278-282.](#)

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[Yang H, Zhou C, Dhar A, Pavletich NP. \(2020\). Mechanism of strand exchange from RecA-DNA synaptic and D-loop structures. Nature. 2020;586:801-806.](#)

## People



### Nikola P. Pavletich, PhD

*Stephen and Barbara Friedman Chair*

The Pavletich laboratory studies the structural biology of pathways that control cell growth and maintain the integrity of the genome.

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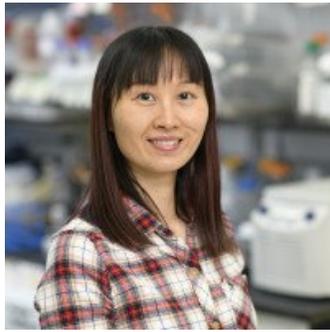
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Faculty



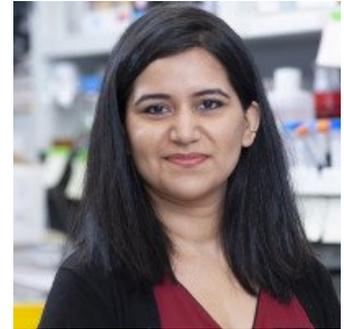
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Lab Affiliations  
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## Disclosures

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.

Nikola P. Pavletich discloses the following relationships and financial interests:

*No disclosures meeting criteria for time period*

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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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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