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## The Dirk Remus Lab

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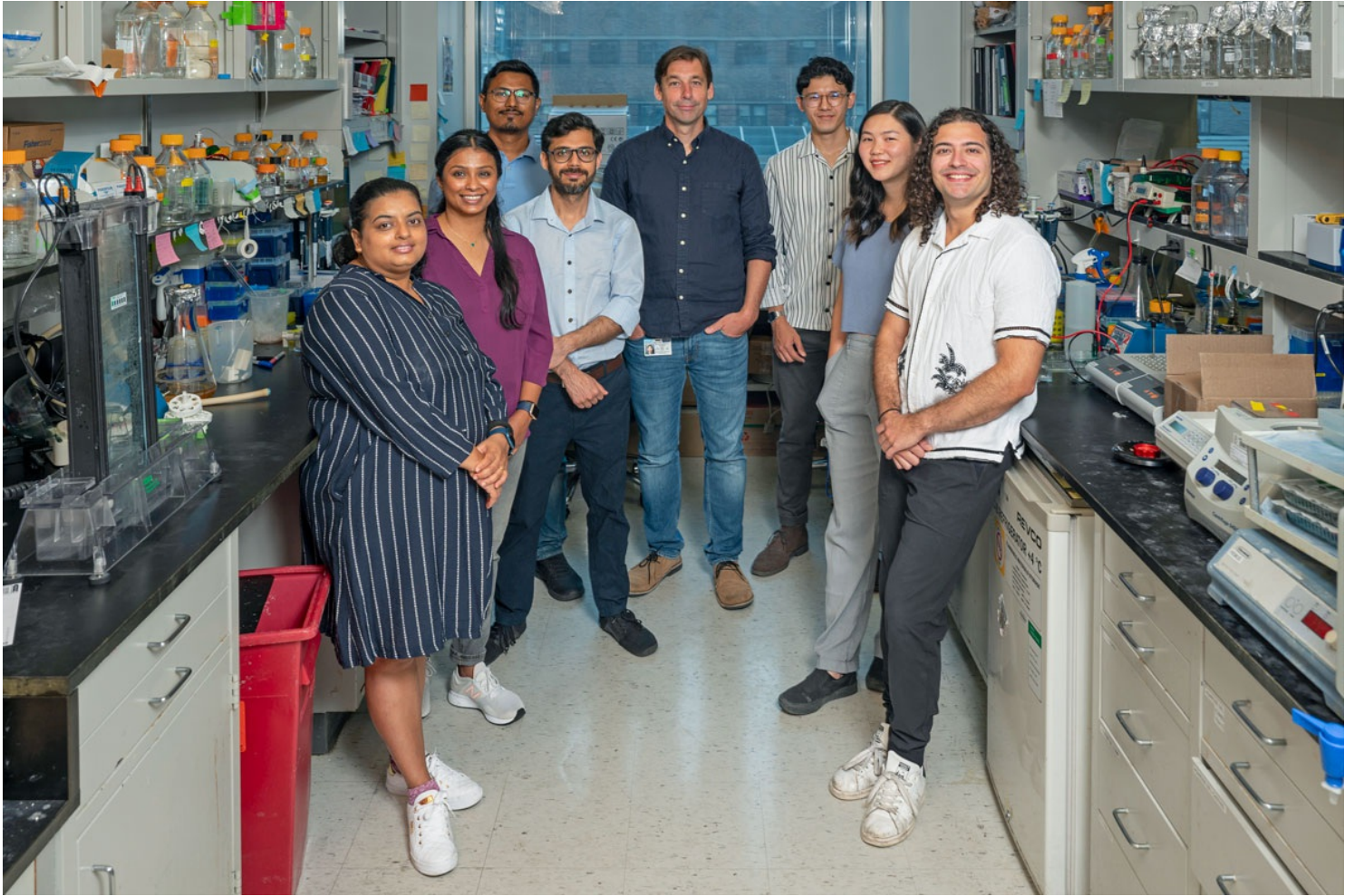
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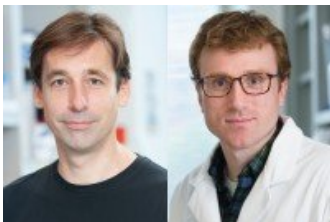
Dirk Remus, PhD

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We are interested in the mechanism of chromosome replication, a process that is highly conserved across eukaryotes and that involves the duplication of both the chromosomal DNA and its associated chromatin states. As chromosomes are the carriers of both the genetic and epigenetic information, faithful chromosome replication is of fundamental importance for genome maintenance during normal cell proliferation. Accordingly, defects in chromosome replication are a major driver of the genomic instability observed in cancer cells. To understand the molecular mechanisms by which eukaryotic cells carry out and monitor accurate genome replication we employ a fully reconstituted DNA replication system based on purified proteins from the budding yeast, *S. cerevisiae*. Research projects are focused on the mechanistic characterization of the DNA replication machinery, the mechanism of replication-coupled chromatin assembly, and the control of DNA replication by checkpoint genome surveillance pathways.

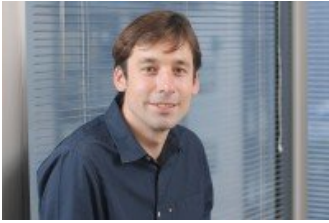


## Featured News



### [SKI Scientists Determine Structure of a DNA Damage 'First Responder'](#)

The results of this collaborative project overturn some conventional wisdom about how the DNA repair process works.



## [At Work: Molecular Biologist Dirk Remus](#)

Molecular biologist Dirk Remus studies how cells normally copy their DNA to better understand how the process goes wrong in cancer.

## Publications Highlights

[Multistep loading of a DNA sliding clamp onto DNA by replication factor C. Schrecker M, Castaneda JC, Devbhandari S, Kumar C, Remus D, Hite RK. Elife. 2022 Aug 8;11:e78253. doi: 10.7554/eLife.78253.](#)

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[CMG helicase activity on G4-containing DNA templates. Batra S, Devbhandari S, Remus D. Methods Enzymol. 2022;672:233-260. doi: 10.1016/bs.mie.2022.02.020. Epub 2022 Mar 25.](#)

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[Yeast ORC sumoylation status fine-tunes origin licensing. Regan-Mochrie G, Hoggard T, Bhagwat N, Lynch G, Hunter N, Remus D, Fox CA, Zhao X. Genes Dev. 2022 Aug 4. doi: 10.1101/gad.349610.122. Online ahead of print.](#)

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[A hypomorphic mutation in Pold1 disrupts the coordination of embryo size expansion and morphogenesis during gastrulation. Chen T, Alcorn H, Devbhandari S, Remus D, Lacy E, Huangfu D, Anderson KV. Biol Open. 2022 Aug 15;11\(8\):bio059307. doi: 10.1242/bio.059307. Epub 2022 Aug 8.](#)

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[Scherr MJ, Wahab SA, Remus D, Duderstadt KE. Mobile origin-licensing factors confer resistance to conflicts with RNA polymerase. Cell Rep. 2022 Mar 22;38\(12\):110531. doi: 10.1016/j.celrep.2022.110531.](#)


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## People



## Dirk Remus, PhD

Molecular biologist Dirk Remus investigates mechanisms of DNA replication in eukaryotic cells.  
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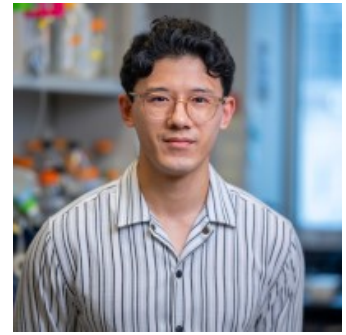
## Members



Juan  
Castaneda  
Graduate Student



Sumedha Dahal  
Research Scholar



Tenzing  
Dakpa  
Research Technician



Lucia Wang  
GSK Graduate Student

Lab Alumni  
+

Lab Affiliations  
+

## Achievements

Louis V. Gerstner, Jr. Young Investigator Award, Memorial Sloan Kettering Cancer Center (2011)

Long-Term Fellow, EMBO (2006)

## Open Positions

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## Get in Touch

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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.

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Dirk Remus discloses the following relationships and financial interests:

*No disclosures meeting criteria for time period*

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