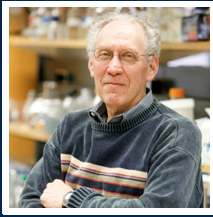


Unrepaired Broken Chromosomes Lead to Human Diseases such as Cancer



James Haber
Professor, Biology Director

CURRENT RESEARCH

Illuminating the ways that cells repair chromosome damage and avoid disease

From the time that we begin as a fertilized egg to having a body of 50 trillion cells, the DNA sequences of our chromosomes remain incredibly stable. This general problem, known as "genome stability," helps to promote health over the lifespan. In contrast, in diseases like cancer, cells exhibit very high levels of genome instability. Dr. James Haber, Professor of Biology and Director of the Rosenstiel Basic Medical Sciences Research Center at Brandeis University, uses yeast cells as a model organism to understand how cells accurately repair their broken chromosomes, but also what happens if these front-line repair processes fail. By studying yeast cells, where the both accurate and less precise repair mechanisms can be studied in much greater detail than in human cells, he and his team are identifying key steps in the process. It is then possible to evaluate human cells to find out how normal cells preserve chromosome integrity and what safeguards are lost in precancerous cells. Therefore, Dr. Haber's fundamental research and development of sophisticated tools is advancing science towards an understanding of how cells preserve chromosomes integrity and furthermore to provide models that can be implemented to prevent disease.

Dr. Haber's work is notable for the development of novel genetic and molecular biology assays to understand how DNA damage is repaired in living cells. The cell lines he has developed have been provided with no strings to more than 100 labs around the world. In fact, his collaborations with over 50 other labs during his career in addition to close mentorship of his talented undergraduate students, graduate students, and postdocs, have continually provided insights that have led to...

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AFFILIATION



Brandeis University

EDUCATION

- A.B., 1965 , Harvard University
- Ph.D., in Biochemistry, 1970 , University of California, Berkeley
- Postdoctoral Fellow, 1972 , University of Wisconsin

AWARDS

- Member US National Academy of Sciences
- Fellow, American Academy of Arts and Sciences
- Thomas Hunt Morgan Medal for Lifetime Achievement in Genetics (Genetics Society of America)
- NIH MERIT award
- John P. Guggenheim Fellowship

RESEARCH AREAS

Health & Wellness, Wellness, Aging Research

FUNDING REQUEST

Your contributions will support the continued research of Dr. James Haber, of Brandeis University, as he develops novel genetic and molecular biology assays to understand how DNA damage is repaired in living cells. Although Dr. Haber's work is funded by the National Institutes of Health, the development of novel immunological reagents are more expensive than his budget can support. Donations will fund the necessary \$25-50K/year required for each project. Larger donations would help the Rosenstiel Basic Medical Sciences Research Center at Brandeis acquire a super-fast and super-resolution microscope that costs \$750K. This microscope will enable his team to observe the DNA repair process in living cells in real time. Join in supporting research that will provide insights and continue to lead to advances of treatment in human disease!