

**CURRICULUM VITAE**

**Phyllis R. Strauss**

**PRESENT ADDRESS** Biology Department  
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**DATE OF BIRTH** March 19, 1943      Worcester, Massachusetts

**CITIZENSHIP** USA

**EDUCATION**

1964 B.A. Pembroke College, Brown University, Providence, R.I.  
Chemistry degree awarded cum laude and with high honors for independent research in the senior year

1971 Ph.D. The Rockefeller University, New York, N.Y.  
Thesis title: Acriflavine resistance in the hemoflagellate, *Leishmania tarentolae* Thesis advisor: Dr. William Trager

**EMPLOYMENT**

1971- 1973 Research Fellow, Department of Physiology,  
Harvard Medical School, Boston, Massachusetts

1973 - 1978 Assistant Professor of Biology, Northeastern University

1978 - 1984 Associate Professor of Biology, Northeastern University

1981 Sabbatical: Guest Worker, National Cancer Institute

1984 - present Professor of Biology, Northeastern University

1987 Special Assignment to the Executive Vice President, Northeastern University

1988 Sabbatical: Visiting Scholar, Department of Biochemistry, Harvard University

1994 - 1995 Sabbatical: Senior Scientist, Sealy Center for Molecular Science,  
University of Texas Medical Branch-Galveston, Laboratory of Dr. Samuel H. Wilson

2001 Sabbatical 9/01-12/01 Professeur Invitee, Institut Gustav Roussy, Villejuif, France

2002 Sabbatical 1/02-9/02 Guest Researcher, National Institute of Environmental Health Sciences, Laboratory of Structural Biology

2010 Fulbright Research Scholar, Banaras Hindu University, Varanasi, India

## **FELLOWSHIPS AND HONORS**

1960-1964	Scholarship, Pembroke College in Brown University
1964-1971	Fellowship, The Rockefeller University
1971	Awarded NIH Postdoctoral Fellowship
1972	Massachusetts Heart Association Postdoctoral Fellow
1973	NIH Postdoctoral Fellow
1978- 1983	Research Career Development Award, DHHS
1986 - present	Matthews Distinguished Professor
2009-2010	Fulbright Research Fellow

## **EDITORIAL BOARDS**

2004-present	DNA Repair
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## **MEMBERSHIPS**

1964 - present	AAAS
1965	Sigma Xi
1967 - 1970	Lipid Club of New York
1967 - 2004	American Society of Protozoologists
1911 - 1987	New York Academy of Sciences
1972 - present	American Society of Cell Biologists
1977 - present	American Women in Science
1980 - 1987	American Association of Immunologists
1982 - 1987	NIH Alumni Association
1984 - present	American Society for Biochemistry and Molecular Biology
1986 - 1990	Society for Experimental Biology and Medicine
1998 - 2003	Radiation Research Society
2000 - present	American Chemical Society
2009- 2010	American Physiological Society
2013-2015	Environmental Mutagenesis and Genetics Society

## **GRANT REVIEW SERVICE**

NIH: Radiation Study Section: 6/01

Ad Hoc Reviewer: 11/02; 6/03; 5/04; 10/04; 2/11

NCI Manpower and Training Grants: 3/05

NSF: Ad hoc reviewer 1976-

Graduate Fellowship Evaluation Panel in Biochemistry and Biophysics, 2014, 2015

Graduate Fellowship Evaluation Panel in Biology

Department of Defense:

USDA Human Nutrition Center on Aging at Tufts University

Sealy Center for Molecular Science, Galveston TX

The Petroleum Research Fund,

Israel Cancer Research Fund: 2014, 2015

### ADVISORY COMMITTEES

National Institutes of Environmental Health Sciences, Veteran's Administration, Alberta Heritage Foundation, John Wiley & Sons, Publishers, Journal of Immunology, Journal of Medicinal Chemistry, Journal of Cell Biology, Canadian Journal of Biochemistry, Journal of Cellular Physiology, Biochemical Pharmacology, Experimental Cell Research, Biochimica Biophysica Acta, Biochemistry (Washington), United States Information Agency, Biotechniques, Cellular and Molecular Life Sciences, Nucleic Acids Research, FEMS Letters, Journal of Molecular Biology, Cancer Research, PLoS Genetics, Environmental Toxicology, PLoS Genetics

### ELECTED OFFICES

1988 - 1991	Council, American Society for Cell Biology
1990 - 1992	Faculty Senate, Northeastern University
2000 - 2001	Faculty Senate, Northeastern University
2000 - 2002	Full Professors Promotion Committee, College of Arts and Sciences
2004-2006	Full Professors Promotion Committee, College of Arts and Sciences
2005-2007	Faculty Senate, Northeastern University
2008-2009	College of Arts and Sciences Council Member
2008-2009	College of Arts and Sciences Council Agenda Committee Member
2010-2014	Faculty Senate, Northeastern University
2015-2018	College Council, College of Science, Northeastern University

### CONSULTANTSHIPS

1992	United States Information Agency
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### PROFESSIONAL EXPERIENCE

1963	Industrial research on synthetic fibers at Swedish Cellulose Industry's Central Laboratories, Stockholm, Sweden
1966	Lipid chemistry of <i>Neurospora crassa</i> . Physiologisch-Chemisches Institut auf der Universität, Köln, Germany
1967 - 1971	Thesis: Acriflavine resistance in the hemoflagellate, <i>Leishmania tarentolae</i>
1971 - 1973	Research Fellow, Harvard Medical School
1973 - 1978	Assistant Professor of Biology, Northeastern University
1979 - 1984	Associate Professor of Biology, Northeastern University
1981	Guest Worker, National Cancer Institute
1983	Consultant, National Cancer Institute
1984 - present	Professor of Biology
1986 - present	Matthews Distinguished University Professor
1987	Special assignment to the Executive Vice President, Northeastern University
1988	Visiting Scholar, Harvard University

1994 - 1995	Senior Scientist, University of Texas Medical Branch-Galveston
2001	Professeur Invitee, Institut Gustave Roussy, Villejuif, France
2002	Guest Researcher, National Institutes of Environmental Health Sciences
2011-2013	Director, Northeastern University Biochemistry Program
2014-2015	Director, Northeastern University Biochemistry Program

## DEPARTMENTAL COMMITTEES

1973 - 1975	Biology Student-Faculty Committee
1974 - 1978	Biology Undergraduate Advisory and Honors Committee, Chairperson
1974 - 1978	Biology Seminar Committee
1975, 1977	Search Committee, Physiology Co-Chairperson, 1977
1976 - 1978	Department Goals Committee
1976 - 1988	Cell Biology Track Committee, Chairperson
1978 - present	Tenure and Promotion Committee
1979 - 1987	Coordinator, Master of Science in Biology-Cell Biology, Biochemistry and Molecular Biology Track
1979 - 1980	Search Committee, Chairperson of Biology Department
1981 - 1983	Biology Department Executive Committee
1981 - 1983	Chairperson, Biology Colloquium Committee
1981 - 1986	Biochemistry Search Committee, Chairperson
1983 - 1987	Biology Department Curriculum Committee, Chairperson
1984 - 1987	Biology Department Graduate Committee
1984 - 1985	Biology Department Graduate Admissions Committee
1985 - 1987	Biology Department Graduate Standards Committee, Chairperson
1988 - 1992	Lowell Lectureship Committee
1990 - 1991	Lowell Lectureship Committee, Chairperson
1991 - 1992	Full Professor Promotion Committee, Chairperson
1992	Department Retreat Committee, Chairperson
1992 - 1993	Undergraduate Advising Committee, Head Honors Advisor
1992 - 1994	Graduate Recruitment Committee
1995 – 2001, 2011 -2013	Biochemistry Coordinating Committee, Chairperson
1998 - 2001	Graduate Recruitment Committee
1999 - 2000	Biology Department Graduate Committee
2002 – 2014	Library Liaison
2006 - 2009	PhD Qualifying Committee
2014	Ad hoc Committee to review undergraduate research opportunities, Chair

## COLLEGE COMMITTEES

1995 – 1997	Sabbatical and Leave Committee; Chair, 1996-1997
2000-2001	Full Professor Promotion Advisory Committee
2004-2006	Sabbatical and Leave Committee; Chair Full Professor Promotion Advisory Committee

2007-2009	College Council
2008-2009	Agenda Committee, College Council
2015-2018	College Council

## UNIVERSITY COMMITTEES

1975 - 1976	Interdepartmental Biochemistry Committee
1976	Academic Standing Committee of the College of Liberal Arts
1977 - 1984	University Radiation Safety Committee
1978 - 1980	University Council on Research and Scholarship
1978 - 1979	Chairperson, External Fact Finding Subcommittee of the Research Council
1978 - 1979	University China Committee
1979 - 1980	University Senate Blue Ribbon Committee on Library Development
1980	University Search Committee, Director of Office of Sponsored Programs
1981 - 1987	President's Planning Committee Chairperson, Planning Committee Taskforce on Science and Engineering
1983 - 1984	University Search Committee, Dean and Director of Libraries
1984 - 1987	University Council on Research and Scholarship, Research Planning Committee
1985 - 1986	Chairperson, Research Council Subcommittee on Graduate Education
1986 - 1987	Provost's Committee on Graduate Education
1990, 1991	Distinguished Professors' Selection Committee
1990 - 1991	Faculty Senate Committee on Admissions Policy, Chairperson
1991 - 1993	Faculty Senate Committee on Academic Policy, Chairperson
1992 - 1993	Strategic Planning Task Force on Graduate Education
1993	Review committee for Chair of Department of Sociology/Anthropology
1996 - 2001	Matthews Distinguished Professors, Coordinator
1996 - 2001	Matthews Scholars Selection Committee, Chair
1997 - 1999	Academic Policy Committee of the Faculty Senate, Chair
1999 - 2001	University Tenure Appeals Committee
1999	University Ad Hoc Appeals Committees-2 appeals
2000	Review Committee, Dean of Libraries
2000 - 2003	University Health and Safety Committee
2000 - 2001	Faculty Senate Committee on Admissions Policy
2002-2003	Faculty Senate Committee on Admissions Policy, Chair
2002-2004	University Undergraduate Honors Committee: Liaison for science fellowships
2005-2006	Faculty Senate Committee on Financial Affairs
2005-2006	Evaluation Committee, Chair of Pharmaceutical Sciences
2006-2008	Faculty Senate Committee on Undergraduate Life
2007-2008	Senate Evaluation Committee, Chair of Chemistry
2008-2009	Senate Evaluation Committee, Dean of Bouve College
2010-2012	Senate Academic Policy Committee, Chair
2012-2014	Senate Research Policy Committee
2014	Provost's Ad hoc Committee on Undergraduate Web Site Design

## OTHER

- 1976 Chairperson, platform session on "Cellular Immunobiology". First International Congress on Cell Biology, Boston, MA  
Invited participant, NSF sponsored symposium on, "Scientific Information Exchange"
- 1979 - 1981 Faculty Director, Northeastern University National Council
- 1981 Organizer, dinner session on "Unorthodox Approaches to Gene Regulation", Meeting of American Society of Cell Biologists
- 1981 - 1983 Public Policy Committee, American Society for Cell Biology
- 1985 Public Policy Committee, American Society for Cell Biology
- 1982 - present Scientists Advisory Group to U. S. House of Representatives, Barney Frank
- 1983 - 1984 Program Committee, American Society for Cell Biology
- 1984 Chairperson, mini-symposium on "Replication and the Nuclear Matrix", American Society for Cell Biology Organizer, three day meeting on "Nucleosides and Lymphocytes", October 1984, Henderson House, Northeastern University Sponsored by Office of Naval Research
- 1986 Organizer, special interest subgroup on "Macromolecular Assemblies in Replication", American Society for Cell Biology, 1986 meetings
- 1987 Co-organizer (with Nicholas Dainiak), one day meeting on "Topoisomerases and Cell Differentiation", St. Elizabeth's Hospital of Boston, Sponsored by Leukemia Society
- 1987, 1989 NSF Predoctoral Awards Review Panel
- 1990 NSF Predoctoral Awards Review Panel
- 1987, 1988 Program organizer, summer program for minority high school students supported by Pew Memorial Trust through Howard University
- 1988 - 1990 Editor (with S. Wilson) for "The Eukaryotic Nucleus: Molecular Biochemistry and Macromolecular Assemblies", Telford Press, N.J. Published January, 1990
- 1990 1990 Sponsor, high school teacher summer intern, James McLaren  
Chairperson, special interest subgroup "Trypanosomes: recent advances in cell and molecular biology", American Society for Cell Biology, San Diego  
Panel member, National Science Foundation Review Panel, Faculty Awards for Women
- 1991-1992 Member, Local Arrangements Committee, American Society for Cell Biology  
Program Organizer, "Biochemistry and Molecular Biology for the Twenty-first Century--An Outreach Program to Teachers of Biology and Chemistry," run through the Department of Biology, Northeastern University
- 1992-1993 Co-chair (together with Benjamin Kammer) of the Congressional #4 District Political Action Committee sponsored jointly by the American Society for Cell Biology, Biophysical Society and the American Society for Biochemistry and Molecular Biology
- 1993 Panelist, Women in Science Night, Peabody High School, 3/93  
Presenter, North Shore Science Supervisors' Association, 3/93
- 1995 Review panel, Gulf War Syndrome, Department of Defense
- 1997 - 1999 Ford Hall Forum Advisory Board
- 1998 NSF Predoctoral Awards Review Panel

2000	NSF Predoctoral Awards Review Panel
2010	Co-organizer, DNA Repair, Genome Instability, and Carcinogenesis, Banaras Hindu University, Varanasi UP India
2011	Effectively Working with the Media. ADVANCE (Northeastern University workshop)
2006 – 2016	Goldwater Scholarship Director, Northeastern University

## GRANTING HISTORY, OVERVIEW

Since establishing my laboratory in 1974, the work has been funded at various times by the National Institutes of Health, the National Science Foundation, the Office of Naval Research, the American Cancer Society, the World Health Organization, the Research Corporation, Aid for Cancer Research, The Mathers Foundation and Northeastern University. Currently the laboratory is closed for lack of funding.

## PUBLICATIONS

1. Malkin, L.I., Gross, P.R. and Romanoff (**Strauss**), P. 1964 Polyribosomal protein synthesis in fertilized sea urchin eggs: the effect of actinomycin D treatment. *Dev. Biol.* 10: 378-394.
2. **Strauss**, P.R., 1971 Resistance to purified acriflavine in *Leishmania tarentolae*. *Nature* 230: 49-50.
3. **Strauss**, P.R., 1971 The effect of homologous rabbit antiserum on the growth of *Leishmania tarentolae* - a fine structure study. *J. Protozool.* 18: 147-156.
4. **Strauss**, P.R., 1972 Acriflavine resistance in the hemoflagellate *Leishmania tarentolae*. *J. Cell Bio.* 53: 312-334.
5. **Strauss**, P.R. and Berlin, R.D., 1972 The effects of serum on membrane transport. 1. Separation and preliminary characterization of factors which affect lysine and adenosine transport in rabbit alveolar macrophages. *J. Exp. Med.* 137: 359-368.
6. **Strauss**, P.R., 1974 The effect of serum on membrane transport. II. Serum and the stimulation of adenosine transport, a possible mechanism. *J. Cell Bio.* 60: 571-585.
7. **Strauss**, P.R., Sheehan, J.F. and Kashket, E.R., 1976 Membrane transport by murine spleen cells. I. A rapid sampling technique for cells in suspension. *J. Exp. Med.* 144: 1009-1021.
8. **Strauss**, P.R., Sheehan, J.F. and Kashket, E.R., 1977 Membrane transport by murine spleen cells. II. Nucleoside uptake and transport after in vivo mitogen stimulation. *J. Immunol.* 118: 1328-1334.

9. Pofit, J.F. and **Strauss**, P.R., 1977 Membrane transport by rabbit lung macrophages in suspension and adherent to glass. *J. Cellul. Physiol.* 92: 249-256.
10. **Strauss**, P.R., Sheehan, J.M. and Kashket, E.R., 1977 Differential alteration of membrane transport in non-adherent spleen cells from Con-A stimulated mice. In: Regulatory Mechanisms in Lymphocyte Activation. Lucas, D., ed. Academic Press. pp. 435-437.
11. **Strauss**, P.R., 1979 Regulation of membrane transport in rabbit lung macrophages. III. Serum and the depression of lysine transport. *Am. J. Physiol.* 236: C111 - C116.
12. **Strauss**, P.R., Ecker, V.L. and Supple, E., 1979 Further characterization of the thymidine containing macromolecular material from mouse spleen cell surface. In: The Molecular Basis of Immune Cell Function. Kaplan, J.G. ed., Elsevier/North Holland. pp. 429-431
13. **Strauss**, P.R., Sheehan, J.M. and Taylor, J., 1980 Membrane transport by murine spleen cells. III. Nucleoside transport by cells from AKR mice. *Can. J. Biochem.* 58: 1405-1413.
14. **Strauss**, P.R., 1981 Quantitation of solute uptake and membrane transport by mononuclear phagocytes. In: Methods for Studying Mononuclear Phagocytes. Adams, D. and Edelson, P. ed. Academic Press, New York. pp. 909-924.
15. Barker, R.W., O'Shea, P.A. and **Strauss**, P.R., 1981 Adherence of murine T cells to solid substrata in the absence of serum. *J. Cellul. Physiol.* 109: 243-251.
16. **Strauss**, P.R., Andrutis, A.T., Leong, S., Nickeson, S. and Supple, E., 1984 Characterization of rapidly labeled detergent-soluble DNA in murine splenocytes. *Biochemistry (Wash.)* 23: 915-921.
17. **Strauss**, P.R., Banerjee, P.T., LaGree, K.A. and Mui, S.C., 1984 Kinetics of thymidine incorporation into detergent-soluble (DS) DNA of mouse lymphocytes. *Proc. Natl. Acad. Sci. (USA)* 81: 7056-7060.
18. **Strauss**, P.R., 1985 Incorporation of [<sup>3</sup>H] nucleosides and [3H] deoxynucleosides into detergent soluble DNA. *Proc. Soc. Exp. Biol. Med.* 179: 487-491.
19. **Strauss**, P.R., Henderson, J.F. and Goodman, M.G., 1985 Nucleosides and lymphocytes - an overview. *Proc. Soc. Exp. Biol. Med.* 179: 413-418.
20. **Strauss**, P.R., 1986 Lymphocytes and lymphocyte lines secrete adenosine deaminase. In: Purine Metabolism in Man-V. Nyhan, W.L., Thompson, L.F. and Watts, R.W.E., eds., Plenum Press, New York. pp. 275-282.
21. Zhang, L.H., Mui, S.C., Todt, J.T. and **Strauss**, P.R., 1986 A role for topoisomerases in the release of DNA into the detergent soluble fraction of eukaryotic cells. *Proc. Natl. Acad. Sci. (USA)* 83: 5871-5874.
22. Dainiak, N., Kreczko, S. and **Strauss**, P.R., 1987 Suppression of human erythropoiesis



- by inactivation of topoisomerases. In: The Inhibitors of Hematopoiesis. Ed. A. Najman, M. Guignon, et al. Colloque INSERM/John Libbey Eurotext Ltd. Vol. 162: pp. 93-99.
23. LaGree, K.A., Lee, A.T., Stetten, G. and **Strauss, P.R.**, 1988 The human Jurkat (FHCRC- 11) cell line is heterogeneous in ploidy and cell size and releases detergent-soluble DNA, *Exptl. Hematol.* 16: 686-690.
24. Dainiak, N., Riordan, M.A., **Strauss, P.R.**, Feldman, L. and Kreczko, S. 1988. Contractile proteins participate in release of erythroid growth regulators from mononuclear cells. *Blood.* 72: 165-171.
25. Dainiak, N., Kieczko, S., Hanspal, M. and **Strauss, P.R.**, 1989 DNA topoisomerase inhibitors block erythropoiesis and delay hemoglobinization in vitro. *J. Cellul. Physiol.* 138: 89-96.
26. **Strauss, P.R.** and Wang, J.C., 1990 The TOP 2 gene of *Trypanosoma brucei*. A single copy gene that shares extensive homology with other TOP 2 genes encoding eukaryotic topoisomerase II. *Molecular Biochemistry Parasitol.* 38: 141-150.
27. **Strauss, P.R.**, 1990 Dynamic hierarchies of chromatin organization and small soluble DNA--An Overview. In: The Eukaryotic Nucleus: Molecular Biochemistry and Macromolecular Assemblies. Eds., P.R. Strauss and S. Wilson, Telford Press. pp.659- 686
28. **Strauss, P.R.**, 1990 Topoisomerase inhibitors suppress release of globin sequences into small soluble DNA of erythroblasts. In: The Biology of Hematopoiesis. Eds., N. Dainiak and Alan R. Liss, New York. pp. 249-256.
29. **Strauss, P. R.** 1992 Use of filtron microcentrifugation devices for concentration of DNA polymerases *Filtron Facts*, Winter 1993.
30. **Strauss, P. R.** 1995 Use of Filtron Mini Ultrasette laminar flow device and Filtron Microsep centrifugal concentrators in the early stages of purification of DNA polymerases *Biotechniques* 18: 159-160.
31. **Strauss, P. R.**, Bhargava, S., Jyawook, S., James, B. and Osterhoudt, N. 1996 Preliminary identification and characterization of DNA polymerases from *Trypanosoma brucei* Manuscript in preparation
32. Bai, X.-H. and **Strauss, P.R.** 1996 The relationship of cell cycle and transcriptional activation to release of small-soluble DNA in Chinese hamster ovary cells. Manuscript in preparation
33. Chyan, J., **Strauss, P. R.**, Wood, T. and Wilson, S. 1996 Identification of novel mRNA isoforms for human DNA polymerase  $\beta$  DNA and *Cell Biology* 15: 653-659.
34. **Strauss, P. R.**, Beard, W., Patterson, T.A. and Wilson, S. H. 1997 Substrate binding by human apurinic/aprimidinic endonuclease indicates a Briggs-Haldane mechanism *J. Biol.*

Chem. 272: 1302-1307.

35. **Strauss**, P. R. and Holt, C. M. 1998 Domain mapping of human apurinic/aprimidinic endonuclease: Structural and functional evidence for a disordered amino terminus and a tight globular carboxyl domain J. Biol. Chem. 273: 14435-14441.
36. Prasad, R., Beard, W.A., **Strauss**, P.R. and Wilson, S.H. 1998 Human DNA polymerase  $\beta$  deoxyribose phosphate lyase: substrate specificity and catalytic mechanism J. Biol. Chem. 273: 15263-15270.
37. Lucas, J.A., Masuda, Y., Bennett, R.A.O., Strauss, N.S. and **Strauss**, P.R. 1999 Single turnover analysis of mutant human apurinic/aprimidinic endonuclease Biochemistry 38, 4958-4964.
38. Budil, D.E., Kolaczowski, S.V., Perry, A., Varaprasad, C., Johnson, F. and **Strauss**, P.R. 1999 Anisotropic dynamics and local ordering in a spin-labeled oligonucleotide observed by 220 GHz EPR spectroscopy Biophys. J. 78, 430-438.
39. Carey, D. and **Strauss**, P.R. 1999 Human apurinic/aprimidinic endonuclease is processive Biochemistry 38, 16553-16560.
40. Wiesel, P., Foster, L.C., Pellacani, A., Layne, M.D., Hsieh, C.-M., Huggins, G.S., **Strauss**, P.R., Yet, S.-F. and Perrella, M.A. 2000 Thioredoxin facilitates the induction of heme oxygenase 1 in response to inflammatory mediators J. Biol. Chem. 275, 4840-4846.
41. **Strauss**, P.R. and O'Regan, N.E. 2001 Abasic site repair in higher eukaryotes In: DNA Damage and Repair vol 3 Ed. Nickoloff, J.A. and Hoekstra, M.F. Humana Press, Totowa NJ pp. 43 - 86.
42. Mckenzie, A.J. and **Strauss**, P.R. 2001 Oligonucleotides with bistranded abasic sites interfere with substrate binding and catalysis by human apurinic/aprimidinic endonuclease Biochemistry 40, 13254-13261.
43. Kolaczowski, S.V., Perry, A., Mckenzie, A., Johnson, F., Budil, D.E. and **Strauss**, P.R. 2001 A spin-labeled abasic DNA substrate for AP endonuclease. Biochem. Biophys. Res. Commun.. 288, 722-726.
44. Mckenzie, A.J. and **Strauss**, P.R. 2003 A quantitative method for measuring protein phosphorylation Analyt. Biochem. 313, 9-16.
45. Mundle, S.T., Fattal, M.H., Melo, L.F., Coriolan, J.D. and **Strauss**, P.R. 2004 Novel role of tyrosine in catalysis by human AP endonuclease 1 DNA Repair 3, 1447-1455.
46. Wang, Y., Shupenko, C.C., Melo, L.F. and **Strauss**, P.R. 2006 A DNA repair protein involved in heart and blood development Molecular Cell Biology 26, 9083-9093.

47. Melo, L., Mundle, S., Fattal, M., O'Regan, N.O. and **Strauss, P.R.** 2007 Role of active site tyrosines in dynamic aspects of DNA binding by AP endonuclease DNA Repair 6, 374-382.
48. Guikema, J.E., Linehan, E.K, Tsuchimoto, D., Nakabeppu, Y., **Strauss, P.R.**, Stavnezer, J. and Schrader, C.E. 2007 APE-1 and APE-2 dependent DNA breaks in immunoglobulin class switch recombination J. Exp. Med. 204, 3017-3026. Erratum in: J. Exp. Med. 204, 3295, 2007.
49. Abyzov, A., Uzun, A., **Strauss, P.R.**, and Ilyin, V.A. 2008 An AP endonuclease 1-DNA polymerase  $\beta$  complex: Theoretical prediction of interaction pLoS Computational Biology 4, e1000066
50. Mundle, S.T., Delaney, J.C., Essigmann, J.M. and **Strauss, P.R.** 2009 Enzymatic mechanism of human apurinic/apyrimidinic endonuclease on a tetrahydrofuran-containing substrate Biochemistry 48, 19-26.
51. Fortier, S.F., Yang, X.J., Wang, Y., Bennett, R.A. and **Strauss, P.R.** 2009 Base excision repair in developing zebrafish: functional evidence for polymerase switching and multiple AP endonucleases Biochemistry 48, 5396-5404.
52. Kanazhevskaya, L.U., Koval, V.K., Zharkov, D., **Strauss, P.R.** and Fedorova, O.S. Conformational transitions in human AP endonuclease 1 and its active site mutant during abasic site repair 2010 Biochemistry 49, 6451-6461.
53. Pei, D.S., Yang, X.J., Liu, W., Guikema, J.E.J., Schrader, C.E. and **Strauss, P.R.** 2011 A DNA repair protein (AP endonuclease 1) regulates DNA polymerase  $\beta$  through Creb1 Nucleic Acids Res. 39, 3156-3165.
54. Jaiswal, A.S., Armas, M.L., Izumi, T, **Strauss, P.R.** and Narayan, S. 2012 Adenomatous polyposis coli interacts with flap endonuclease 1 to block its nuclease entry and function Neoplasia 14, 495-508.
55. Pei, D.S. and **Strauss, P.R.** 2013 Zebrafish as a model system to study DNA damage and repair. Mutation Res. 743-744:151-159.
56. Moore, S.P.G., Toomire, K.J. and **Strauss, P.R.** 2013 DNA modifications repaired by BER are epigenetic. DNA Repair 12, 1152-1158.
57. Moore, S.P.G., Kruchten, J., Toomire, K.J. and **Strauss, P.R.** 2016 Moore, S.P.G., Kruchten, J., Toomire, K.J. and **Strauss, P.R.** 2015 Transcription factors and DNA repair enzymes compete at damaged promoter sites J. Biol. Chem. 291, 5452-5460.
58. Mundle, S.T., de los Santos, C., Guo, J., Makriyannis, A. and **Strauss, P.R.** 2015 NMR spectroscopy of Tyr<sup>171</sup> in the active site of human apurinic/apyrimidinic endonuclease Manuscript in revision.
59. Pei, D.S., Liu, W., Xia, P.P. and **Strauss, P.R.** 2016 A DNA repair protein (AP endonuclease 1) regulates the response to oxidative stress and neuron development Manuscript submitted.

## INVENTIONS

1. DNA polymerases of hemoflagellates as drug targets Filed 5/93
2. Polynucleotides as inhibitors of DNA metabolizing enzymes  
Disclosure filed 9/95  
Patent application filed 11/95

## BOOKS REVIEWED

1. Dustin, P. Microtubules. Springer-Verlag, Berlin, Heidelberg and New York. 1978.  
Reviewed for J. Medicinal Chem. 22: 1433, 1979.
2. Heinz, E. Mechanics and Energetics of Biological Transport. Springer-Verlag, Berlin, Heidelberg and New York. 1978. Reviewed for Quart. Rev. Biol. 55: 64, 1980.

## ABSTRACTS (partial list)

1. **Strauss**, P.R., Effect of antiserum on the fine structure of *Leishmania tarentolae*. Second Int. Congress Parasitol. J. Parasitol. 56 (pt. 2): 332, 1970.
2. **Strauss**, P.R. EM autoradiographic distribution of [<sup>3</sup>H]-acriflavin in the hemoflagellate, *Leishmania tarentolae*. Am Soc. Cell Bio. 1971.
3. **Strauss**, P.R. and Berlin, R.D., Effects of serum on membrane transport in rabbit alveolar macrophages. Am. Soc. Cell Bio. 1972.
4. **Strauss**, P.R., Serum and the stimulation of adenosine transport. Am. Soc. Cell Bio. 1973.
5. **Strauss**, P.R., Sheehan, J.F. and Kashket, E.R., Transport of non-electrolytes by murine lymphocytes. Tenth Leukocyte Conference, Amsterdam, 1975.
6. Pofit, J. and **Strauss**, P.R. Membrane transport by cells in suspension and monolayer. Am. Soc. Cell Biol. 1975.
7. Kashket, E., Limantani, G., Picco, R., Sheehan, J. and **Strauss**, P.R., Accumulation of [<sup>3</sup>H]-thymidine compared to apparent DNA synthesis in lymphocytes. Int. Congr. Cell Bio. 1976.
8. Goldberg, D.G., Langreth, S. and **Strauss**, P.R. Regulation of lysine and phenylalanine transport.. Int. Congr. Cell Bio. 1976.
9. Kashket, E., Sheehan, J. and **Strauss**, P.R. Differential alteration of membrane transport in non-adherent spleen cells from Con-A stimulated mice. Eleventh leukocyte Conference. 1976.
10. **Strauss**, P.R. and Daub, E. [<sup>3</sup>H]-thymidine is incorporated into macro-molecular material which is not DNA. ICN-UCLA Symposium on Cell Surface Carbohydrates and Biological Recognition. 1977.
11. Sawyer, N., **Strauss**, P.R. and Tomkinson, K., Effect of K<sup>+</sup> and Ca<sup>++</sup> on nucleoside transport in lymphocytes. Am. Soc. Cell Bio. 1977.
12. Taylor, J. and **Strauss**, P.R., Nucleoside transport by AKR spleen cells. New Eng. Rgnl. Immunol. Conf. 1977.
13. Barker, R. and **Strauss**, P.R. Some murine T cells adhere to glass in the absence of serum. Am. Soc. Cell Bio. 1978.

14. **Strauss**, P.R., Ecker, V.L. and Supple, E., Further characterization of the thymidine containing macromolecular material from mouse spleen cell surface. Thirteenth Leukocyte Conference. 1979.
15. **Strauss**, P.R. and Taylor, J., Non-adherent spleen cells from unstimulated AKR mice transport thymidine in addition to adenosine. XI International Congress of Biochemistry, 1979.
16. Dorney, E. and **Strauss**, P.R., Lack of correlation between [<sup>3</sup>H]-thymidine accumulation and cell division in a murine thymoma line, S-49. Am. Soc. Cell Bio. 1979.
17. O'Shea, P. and **Strauss**, P.R., Serum contains factors including fibronectin that prevent murine thymocyte adherence. Int. Congr. Cell Bio. 1980.
18. **Strauss**, P.R., Nickeson, S.N. and Patrovic, L.C., Murine spleen cells and murine thymoma cells secrete adenosine deaminase. Am. Soc. Cell Bio. 1980.
19. **Strauss**, P.R., Supple, E. and Schwalbe, J., Cytoplasmic incorporation of [<sup>3</sup>H]-thymidine in murine splenocytes. ICN-UCLA Symposium. 1981.
20. Vincellet, V. and **Strauss**, P.R., Adenosine transport in wild type (WT) and kinase deficient (KD) thymoma (S49) cells. Fed. Amer. Soc. Exper. Biol. 1981.
21. **Strauss**, P. R., Kennedy, D.W. and Yamada, K.M., A new subclass of integral membrane proteins. Am. Soc. Cell Biol. 1982.
22. **Strauss**, P.R., Andrutis, A., Nickeson, S. and Supple, E., Rapidly labeled cytoplasm associated DNA. Fifteenth Annual Leukocyte Culture Conference. 1982. Immunobiology 163: 111.
23. **Strauss**, P.R., LaGree, K.A. and Mui, S.C., Pulse labeling of metabolically active detergent soluble DNA. Am. Soc. Cell Biol. 1983.
24. Andrutis, A.T. and **Strauss**, P.R., Cell cycle dependence of [<sup>3</sup>H]-thymidine incorporation into metabolically active detergent soluble DNA from a human T cell (Jurkat) line. Fed. Amer. Soc. Exper. Biol. 1984.
25. Stetten, G., Andrutis, A.T. and **Strauss**, P.R., The human Jurkat T cell line is hypotetraploid. Third Int. Congress Cell Biol. 1984.
26. **Strauss**, P.R., LaGree, K.A. and Mui, S.C., Is detergent soluble DNA related to nucleosomes? Am. Soc. Cell Biol. 1984.
27. Zhang, L.H., Mui, S.C., Todt, J.T. and **Strauss**, P.R., Topoisomerase II is required for synthesis and turnover of detergent soluble (DS) DNA. Am. Soc. Cell Biol. 1985.
28. **Strauss**, P.R. and Bodnar, J.W., Adenovirus makes detergent soluble DNA late in infection. ICN-UCLA. 1986
29. Palome, E.M. and **Strauss**, P.R., Detergent soluble (DS) DNA can be generated from murine splenocytes using a variety of disruptive agents. Am. Soc. Biol. Chem. 1986.
30. **Strauss**, P.R. and Mazaika, T.J., Topoisomerases (topo) inhibitors alter micrococcal nuclease (MNase) induced release of nucleosomes. Am. Soc. Cell Biol. 1986.
31. **Strauss**, P.R., Zhang, L.H. and Pommier, Y., Detergent soluble (DS) DNA contains tightly bound protein. Cold Spring Harbor. 1986.
32. Dainiak, N., Kreczko, S. and **Strauss**, P.R., Topoisomerases are active in human erythropoiesis in culture. Blood 68: 140a, 1986.
33. Dainiak, N., Kreczko, S. and **Strauss**, P.R., Cultured dysplastic bone marrow progenitors are hypersensitive to the effects of topoisomerase inactivation. Exptl. Hematol. 15: 544, 1987.
34. **Strauss**, P.R., Detergent soluble DNA and active transcription. Cold Spring Harbor Symposium on Eukaryotic DNA Replication, 1987.
35. **Strauss**, P.R., Detergent soluble DNA is enriched in sequences actively being transcribed. J. Cell Biol. 103: 42a, 1987.

36. Bai, X.-H. and **Strauss**, P.R. Release of detergent soluble DNA in Chinese hamster ovary (CHO) cells is cell cycle dependent. *J. Cell Biol.* 107: 77a, 1988.
37. Fallon, J.R. and **Strauss**, P.R. Inhibition of topoisomerase I increases the release of actively transcribed genes from chromatin. *J. Cell Biol.* 107: 313a, 1988.
38. **Strauss**, P.R. and Wang, J.C., Topoisomerase II from *T. brucei*. *J. Cellul. Biochem. Suppl.* 13E: 86, 1989.
39. Bai, X.-H. and **Strauss**, P.R., Small-sol (sm-sol) DNA released from dividing Chinese hamster ovary (CHO) cells is enriched in transcriptionally active sequences and depleted in origins of replication and matrix attachment regions. *J. Cell Biol.* 109: 145a, 1989.
40. Busquets-Turner, L., Lee, H.-L. and **Strauss**, P. R. Expression of trypanosome DNA topoisomerase II(topo 11) in yeast *J. Cell Biol.* 111: 502a, 1990.
41. **Strauss**, P. R., Lee, H.-L. and Busquets-Turner, L. Trypanosome DNA topoisomerase II complements yeast DNA type H topoisomerase in a temperature-sensitive yeast strain.
42. **Strauss**, P. R. *Memorias do Inst. Oswaldo Cruz* 85 Suppl. 1: 43, 1990.
43. **Strauss**, P. R. A DNA polymerase beta activity from the ancient eukaryote *Trypanosoma brucei* *J. Cell Biol.* 115: 87a, 1991.
44. **Strauss**, P. R. Further characterization of DNA polymerase activities from the ancient eukaryote, *Trypanosoma brucei* *Mol. Biol. Cell* 3,135a, 1992.
45. **Strauss**, P. R., Bergman, K. and Knowles, A. Analysis of high school teacher needs for molecular biology/biotechnology enhancement in Massachusetts Mass/ Assoc. Science Supervisors, 1993.
46. **Strauss**, P. DNA polymerase P from *Trypanosoma brucei*: Extreme sensitivity to berenil (diminazene ceturate) *FASEB J.* 7, A1291, 1993.
47. **Strauss**, P. R., Bergman, K., and Knowles, A. Assessment of needs for molecular biology/biotechnology enhancement for high school teachers *Natnl. Assoc. Biol. Teachers*, 1993.
48. Polan, B. A. and **Strauss**, P. R. A simple methodology for teaching enzyme concepts to high school students *Natnl. Assoc. Biol. Teachers*, 1993.
49. Bhargava, S., Jyawook, S. and **Strauss**, P. R. Activity gel analysis of DNA polymerase from *Trypanosoma brucei* *FASEB J.* 8, A1393, 1994.
50. Bhargava, S. and **Strauss**, P. R. Effect of berenil (diminazene acetate) on DNA polymerase activities from *Crithidia fasciculata* *FASEB J.* 9, A1398, 1995.
51. **Strauss**, P. R. Small DNA polymerases of *Trypanosoma brucei* *J. Cellul. Biochem.* 21A, 304, 1995.
52. **Strauss**, P., Beard, W. and Wilson; S. Use of a novel inhibitor in transient-state kinetic studies of human apurinic/aprimidinic endonuclease *FASEB, J.* 10, A1102, 1996.
53. Bhargava, S. and **Strauss**, P. R. Isolation, partial purification and characterization of reverse transcriptase activity from *Crithidia fasciculata* *J. Cellul. Biochem.* 7, 162a, 1996.
54. Lucas, J.A., Masuda, Y., Bennett, R.A.O. and **Strauss**, P.R. Two key aspartate residues in human AP endonuclease (AP endo) are involved in substrate binding and catalysis *FASEB J.* 11, A 1192, 1997.
55. Prasad, R., Beard, W., **Strauss**, P.R. and Wilson, S.H. Studies of human DNA polymerase B dRP lyase activity on abasic site DNA and AP endonuclease incised abasic site DNA *FASEB J.* 12, A1352, 1998.
56. **Strauss**, P.R. and Mckenzie, J.A. Bistranded abasic sites directly opposite each other interfere with abasic site recognition and binding by human AP endonuclease (AP endo) *FASEB J.* 12, A1352, 1998.

57. Carey, D.C. and **Strauss, P.R.** Apurinic/aprimidinic endonuclease (AP endo) is quasi processive *FASEB J.* 13, A1452, 1999.
58. Fattal, M.H. and Strauss, P.R. Substrate binding to AP endonuclease (AP endo) by EMSA and single turnover kinetics *FASEB J.* A1440, 2000.
59. Wang, Y., Shupenko, C. and **Strauss, P.R.** Genomic structure of apurinic/aprimidinic endonuclease (AP endo) gene in zebrafish (*Danio rerio*) *FASEB J.* 18, C147, 2004.
60. Mundle, S., Fattal, M. and **Strauss, P.** Novel role for tyrosine in catalysis of apurinic/aprimidinic endonuclease (AP endo) *FASEB J.* 18, C135, 2004.
61. Melo, L.F., O'Regan, N.E., Fattal, M.H. and **Strauss, P.R.** Comparison of substrate binding by EMSA and single turnover kinetics: recognition of DNA by Tyr<sup>171</sup> in AP endonuclease *FASEB J.* 18, C134, 2004.
62. Wang, Y., Melo, L.F. and **Strauss, P.R.** Zebrafish contain two genes and two mRNAs for AP endonuclease 1 *Mol. Biol. Cell* 16, 133a, 2005.
63. Mundle, S.T. and **Strauss, P.R.** Physical evidence for tyrosine171 of AP endonuclease in interaction with abasic site containing DNA *FASEB J.* 20, C 2006.
64. Wang, Y., Shupenko, C. and **Strauss, P.R.** Repair of DNA damage during zebrafish embryogenesis *Mol. Biol. Cell.* 17, In press.
65. Abyzov, A., Uzun, A., **Strauss, P.R.** and Ilyin, V. 2007 Prediction of interacting complex of APEX1 and pol-β *Protein Society* 2007.
66. Mundle, S., Delaney, J.C., Essigmann, J.M. and **Strauss, P.R.** Enzymatic mechanism of human Apurinic/aprimidinic endonuclease on a tetrahydrofuran-containing substrate *FASEB J.* 836.5 2009.
67. Fortier, S. Wang, Y., Yang, X., Bennett, R.A.O and **Strauss, P.R.** Evidence for polymerase class switching in zebrafish *FASEB J.* 836.18 2009.
68. Pei, D.S., Yang, X.J., Liu, W., Guikema, J.E.J., Schrader, C.E., and **Strauss, P.R.** 2010 A novel regulatory circuit in base excision repair involving AP endonuclease 1, Creb1 and DNA polymerase β *Am. Soc. Cell Biol.*
69. Moore, S.P.G, Toomire, K.J. and **Strauss, P.R.** 2013 When It Comes to Oxidative Damage, What Comes First: Repair or Transcription? *Environmental and Molec. Mutagenesis* 54S1 P35 DOI: 10.1002/em.21814
70. **Strauss, P.R.**, Toomire, K. and Moore, S.P.G. 2013 DNA Damage Repaired by the Base Excision Repair Pathway Is Epigenetic *The FASEB Journal.* 2013;27:969.2
71. **Strauss, P.R.** 2014 DNA Repair in Early Embryogenesis: More and Less than You Think *Environmental and Molec. Mutagenesis*
72. Hecox-Lea, B., **P.R. Strauss** and D.B. Mark Welch. 2014. Evolution of enhanced oxidative stress response in bdelloid rotifers. *Society for Molecular Biology and Evolution Annual Conference.* San Juan, PR.
73. Moore, S.P.G., Kruchten, J., Toomire, K. and **Strauss, P.R.** 2014 Glycosylases and transcription factors are frenemies *Mutagenesis Gordon Conference, Girona, Spain*
74. Dobosh, B., Kaplan, Moore, S.P.G. and **Strauss, P.R.** *The FASEB Journal* vol. 29 no. 1 Supplement 879.17 2015

## OTHER

Saito, T., 1984, "Professor Phyllis Strauss spoke at the Women's Dormitory," *Kawasaki Medical School Parents Association Bulletin* Fall Issue.

2010 Co-organizer, Conference on DNA repair, genomic instability and cancer, Varanasi India

**INVITED LECTURES**

- 1972 Strangeways Laboratories, Cambridge, England  
Department of Botanical Science, University of Tokyo
- 1973 Department of Immunology, Tufts Medical School  
Department of Cellular Immunology, The Rockefeller University  
Department of Biology, MIT  
Department of Biology, Northeastern University
- 1975 Department of Immunology, Robert Breck Brigham Hospital  
Department of Biochemistry, Boston University School of Medicine  
Department of Microbiology, Boston University School of Medicine
- 1976 Department of Biology, Northeastern University  
Department of Microbiology, Boston University School of Medicine
- 1977 Department of Cell Biology, Boston University  
Department of Immunology, Harvard Medical School  
College of Pharmacy, Northeastern University  
Department of Microbiology, Boston University School of Medicine  
Gordon Conference on Nonventilatory Functions in Lung Metabolism
- 1978 Laboratory of Radiobiology, University of California Medical School at San Francisco  
Mt. Desert Island Biological Laboratories  
Frontiers in Scholarship, Northeastern University  
Department of Physiology, University of Vermont
- 1979 Department of Microbiology, Boston University School of Medicine  
Wheaton College  
Department of Microbiology, University of California at San Francisco  
Center for Chemical Biodynamics, University of California at Berkeley
- 1980 Boston Membrane Club  
University of Miami Medical Center, Pulmonary Division  
CIBA-Geigy, Basel, Switzerland  
University of Strathclyde, Glasgow, Scotland
- 1981 Laboratory of Molecular Biology, National Institutes of Health  
Laboratory of Biochemistry, National Institutes of Health  
Howard University
- 1982 Glasgow University, Glasgow, Scotland



- Department of Biology, Northeastern University
- 1984 Northeastern University  
ONR Immunological Defense Investigators Meeting  
Department of Pharmacology, Kawasaki Medical School, Kurashiki, Japan  
Department of Biophysics, Kyoto University, Kyoto, Japan  
Chromatin Workshop, Tokyo, Japan
- 1985 Department of Biology, The Johns Hopkins University  
Department of Radiobiology, University of California at San Francisco Medical School
- 1986 Department of Biochemistry and Biophysics, Oregon State University  
Laboratory of Molecular Pharmacology, National Cancer Institute, National Institutes of Health
- 1987 Conference on Topoisomerases and Differentiation, St. Elizabeth's Hospital  
Department of Hematology, St. Elizabeth's Hospital of Boston  
Department of Biology, Worcester Polytechnic Institute, Worcester, MA
- 1988 Department of Biology, North Carolina Agricultural and Technical, Greensboro, NC
- 1989 Department of Tropical Public Health, Harvard School of Public Health  
Fifteenth Annual Frederick Stohlman, Jr. M.D. Memorial Symposium: An International Symposium on the Biology of Hematopoiesis  
New England Biolabs, Beverly, MA
- 1990 Institut Pasteur, Paris, France  
Institut Gustave Roussy, Villejuif, France
- 1992 Department of Hematology, New England Deaconess Hospital, Boston MA
- 1993 Northeastern University, Department of Biology
- 1994 Sealy Center for Molecular Science, University of Texas Medical Branch at Galveston, Galveston, TX
- 1995 Department of Physiology and Biochemistry, University of Pisa, Pisa, Italy  
Department of Molecular Toxicology, Harvard School of Public Health
- 1996 Department of Biology, Northeastern University  
Boston Repair and Mutagenesis Society  
First Department of Pathology, Hiroshima Medical School  
Department of Molecular Biology, Okayama Medical School
- 1997 Lawrence/Livermore Laboratories  
Department of Physics, Northeastern University

- Boston Repair and Mutagenesis Society
- 1998 Pentose Pharmaceuticals, Cambridge MA  
Department of Cardiovascular Physiology, Harvard School of Public Health
- 1999 Department of Biochemistry, University of New Hampshire  
Boston Repair and Mutagenesis Society
- 2000 Department of Pharmacology, SUNY Stonybrook  
Department of Biochemistry, University of North Dakota Medical School  
Department of Pharmacology, Strathclyde University, Glasgow Scotland  
NESOT Annual Meeting, Groton CT
- 2001 Department of Chemistry, University of Utah  
Institut Gustav Roussy, Villejuif, France  
Istituto Superiore di Sanita, Rome, Italy
- 2002 Laboratory of Structural Biology, National Institute of Environmental Health Sciences  
Laboratory of Pulmonary Biology, National Institute of Environmental Health Sciences
- 2003 Boston Repair and Mutagenesis Society
- 2004 International Conference “Chemical & Biological Problems of Proteomics”  
(CBPP-2004) Novosibirsk, Russia  
Institut Gustav Roussy, Villejuif, France  
DNA Repair and Mutagenesis: From Molecular Structure to Biological Consequences,
- 2005 Boston Repair and Mutagenesis Society  
Department of Molecular Genetics and Microbiology, University of Massachusetts Medical  
Massachusetts General Hospital, Facilities Committee  
Centre of Molecular Biology and Neuroscience University of Oslo National Hospital,  
Trondheim, Norway
- 2006 Boston Repair and Mutagenesis Society
- 2007 Peking Union Medical College, Beijing China  
Shanghai Institute for Molecular Biology, Shanghai China  
Kawasaki Medical School, Kurashiki Japan  
Tsukuba University, Tsukuba Japan  
Boston Repair and Mutagenesis Society
- 2008 Gordon Conference, DNA Damage Repair and Mutagenesis, Ventura CA  
The Forsyth Institute, Boston MA  
New England Bio Labs, Beverly MA  
Rhode Island College, Providence RI  
Dana Farber, Boston, MA

Northeastern University Biology Club, Boston, MA

- 2009 Department of Zoology, Banaras Hindu University, Varanasi, India  
Course on Cell and Molecular Biology, Department of Zoology, Benaras Hindu University,  
Varanasi India  
Vascular Biology Program, Childrens Hospital, Boston , MA  
Boston Repair and Mutagenesis Society
- 2010 Department of Biochemistry, Indian Institute of Science, Bengaluru India  
Conference on DNA repair, genomic instability and cancer, Varanasi India  
Fulbright Conference, Udaipur, India
- 2012 Department of Biochemistry, Tufts University Medical School, Boston MA  
Woods Hole Oceanographic Institute, Woods Hole, MA  
Gordon Conference, Ventura CA
- 2013 Department of Chemistry, Brown University, Providence RI
- 2014 Environmental Mutagenesis and Genomics Society, Orlando FL  
DNA Repair and Mutagenesis Group, MIT

#### **PAPERS PRESENTED**

- 1970 Second International Congress of Parasitology, Washington, D.C.
- 1971 International Congress of Trypanosomatidae, Brussels
- 1975 American Society for Cell Biology, San Juan
- 1976 International Congress of Cell Biology (2 presentations), Boston  
Eleventh Annual Leukocyte Conference, Tucson
- 1976 New England Regional Conference on Immunology, Woods Hole, MA
- 1977 ICN Conference on Cell Surface Carbohydrates and Recognition, Keystone, Colorado
- 1978 American Society for Cell Biology, San Antonio
- 1979 Thirteenth Annual Leukocyte Conference, Ottawa  
Eleventh International Congress of Biochemistry, Toronto
- 1980 Second Annual International Congress for Cell Biology, Berlin  
American Society for Cell Biology, Cincinnati
- 1981 ICN-UCLA Conference on Cellular Recognition, Keystone, Colorado  
American Society for Cell Biology, Anaheim

- 1982 American Society for Cell Biology, Baltimore
- 1983 American Society for Cell Biology, San Antonio
- 1984 Third International Congress of Cell Biology, Tokyo  
American Society for Cell Biology, Kansas City  
Conference on Nucleosides and Lymphocytes, Weston, MA
- 1985 Fifth International Symposium on Human Purine and Pyrimidine Metabolism, La Jolla,  
CA
- 1986 ICN-UCLA Conference on DNA Replication, Park City, Utah  
American Society for Cell Biology, Washington, DC (2 presentations)
- 1987 Cold Spring Harbor Symposium on Eukaryotic DNA Replication  
American Society for Cell Biology, St. Louis, MO
- 1989 American Society for Cell Biology, San Francisco, CA (2 presentations)  
ICN-UCLA Conference on Molecular Parasitology, Keystone, CO  
American Society for Cell Biology, Houston
- 1990 American Society for Cell Biology, San Diego, CA  
Reuniao anual de pesquisa basica em. doence de Chagas, Caxambu, Brasil
- 1991 American Society for Cell Biology, Boston, MA
- 1993 American Society for Biochemistry and Molecular Biology, San Diego  
Massachusetts Association of Science Supervisors, Worcester, MA  
Gordon Conference on Cellular Aspects of Parasitism, New London, NH  
National Science Teachers Association, Boston, MA
- 1994 American Society for Biochemistry and Molecular Biology, Washington, DC  
Molecular Parasitology Conference, Woods Hole, MA
- 1995 Keystone Symposium, Repair and Processing of DNA Damage, Taos, NM  
Fidelity in DNA Replication and Repair, Wrightsville Beach, North Carolina
- 1996 American Society for Biochemistry and Molecular Biology, New Orleans  
Gordon Conference on DNA Alteration in Transformed Cells, Tilton, NH
- 1997 Gordon Conference on DNA Repair, Ventura, CA  
International Congress of Biochemistry, San Francisco
- 1998 American Society for Biochemistry and Molecular Biology Washington, DC  
Gordon Conference on Mutagenesis, Plymouth, NH

- 1999 Gordon Conference on DNA Repair, Ventura, CA  
Penn State Conference on Chromatin Structure
- 2000 Gordon Conference on DNA Damage, Ventura, CA  
Gordon Conference on DNA Repair, Oxford, England
- 2002 Gordon Conference, Ventura, CA
- 2003 Gordon Conference, Ventura, CA
- 2004 American Society for Biochemistry and Molecular Biology, Boston, MA (3 presentations)  
DNA Repair and Mutagenesis, Southampton Bermuda (2 presentations)
- 2006 DNA Repair and Mutagenesis Gordon Conference, Ventura CA  
International Zebrafish Congress, Madison WI
- 2007 Keystone Conference, DNA Repair, Breckenridge CO  
Protein Society, Boston MA Prediction of interacting surfaces with AP endonuclease
- 2008 Gordon Conference, Ventura CA (2 presentations)
- 2009 American Society of Biochemistry and Molecular Biology (2 presentations)
- 2010 Gordon Conference
- 2011 Gordon Conference, Ventura CA
- 2012 Gordon Conference, Ventura CA Invited speaker  
Gordon Conference, Salve Regina College, Newport, RI
- 2013 Environmental Molecular and Genomics Society, Monterey CA
- 2014 Gordon, Conference, Girona, Spain  
Environmental Molecular and Genomics Society, Orlando FL
- 2015 Gordon Conference, Ventura CA

#### **WORKSHOPS ATTENDED**

- 1985 Carolina Workshops: Molecular Genetics -Chromosome Structure and Function
- 2015 Teaching Biochemistry in the Modern Classroom

#### **GRANTS AWARDED AS PRINCIPAL INVESTIGATOR**

- 1974 Massachusetts Cancer Society, 1 year  
National Science Foundation, 2 years (not accepted)  
American Cancer Society, 2 years
- 1976 National Science Foundation, 2 years
- 1978 National Science Foundation, 3 years  
National Institutes of Health, 3 years  
National Institutes of Health Research Career Development Award, 5 years
- 1981 Northeastern University Biomedical Support
- 1982 Research and Scholarship Development Fund, Northeastern University  
Office of Naval Research, 2 years  
Office of Naval Research, Acceleration
- 1983 Northeastern University Biomedical Support  
Office of Naval Research
- 1984 Office of Naval Research
- 1985 Research and Scholarship Development Fund, Northeastern University  
Northeastern University Biomedical Support
- 1986 Research and Scholarship Development Fund, Northeastern University  
Distinguished Professor Fund, Northeastern University  
Research Corporation
- 1987 Distinguished Professor Fund, Northeastern University
- 1988 Northeastern University Biomedical Support
- 1989 World Health Organization
- 1990 Northeastern University Biomedical Support (two awards)
- 1991 Research and Scholarship Development Fund, Northeastern University
- 1992 Undergraduate Initiatives Fund, College of Arts and Sciences, Northeastern University  
(K. Bergman and A. Knowles, Co-principal. Investigators)
- 1993 Northeastern University Biomedical Support  
World Health Organization
- 1994 World Health Organization

- 1996 Patent Development Fund, Northeastern University
- 1997 National Institutes of Health, 3 years  
Provost's Fund, Northeastern University
- 1998 Pentose Pharmaceuticals, 1 year  
National Institutes of Health, Innovative Supplement, 1 year
- 2001 National Institutes of Health, 4 years  
National Institutes of Health, Collaborative Supplement, 2 years
- 2002 National Institutes of Health, Supplement
- 2006 National Institute of Health, 2 years
- 2007 Aid for Cancer Research, Equipment award
- 2008 The G. Harold and Leila Y. Mathers Foundation, 3 years
- 2009 Fulbright-Nehru Research Fellow
- 2010 Aid for Cancer Research, Fellow award for Ben Snow
- 2011 Aid for Cancer Research Fellow, award for Ben Snow
- 2012 Aid for Cancer Research Fellow, award Stephen P.G. Moore
- 2013 Aid for Cancer Research Fellow, award for Stephen P.G. Moore
- 2014 Aid for Cancer Research Fellow, award for Stephen P.G. Moore

**GRANTS AWARDED AS CO-PRINCIPAL INVESTIGATOR**

- 1985 Northeastern University Biomedical Support (R. Marsh, Principal Investigator)
- 1987 Leukemia Society (N. Dainiak, Principal Investigator)
- 1990 National Science Foundation (J. Witman, Principal Investigator)

## RESEARCH INTERESTS

My group is currently interested in the role played by oxidative damage and its repair in early embryogenesis. In particular, we study two enzymes in the base excision repair pathway, which is responsible for repair of oxidative damage to DNA: AP endonuclease and DNA polymerase  $\beta$ . The former, an early embryonic lethal in the knockout mouse, is responsible for making a specific cleavage in an abasic site generated during the removal of many oxidative DNA lesions and also during the removal of uracil in DNA. The latter is the non-replicative polymerase that then removes the resulting deoxyribose phosphate from the cleaved abasic site. Mice that are homozygous null for DNA polymerase  $\beta$  die within 24 hours after birth. Much is known about base excision repair and these enzymes in cultured cells and adult tissue but almost nothing is known in early embryogenesis.

To study base excision repair in early embryogenesis, we turned to the zebrafish system, where we have characterized the pathway and quantified the various proteins. We have published results showing that full knock-down of AP endonuclease in zebrafish results in death at or shortly after the midblastula transition, the equivalent of early gastrulation in mice. In contrast, embryos with reduced amounts of AP endonuclease have dysmorphic hearts, extreme anemia, abnormal notochords and abnormal brains. This grouping of abnormalities has not been demonstrated previously. These results were placed in context when we showed that AP endonuclease regulates expression and *protein* levels of the well-known transcription factor, *Creb1*, and its binding partners required for normal neurogenesis and heart development.

The study of DNA polymerase  $\beta$  in zebrafish embryos has also led to several surprises, not the least of which is that this protein (but not its mRNA) is apparently missing in unfertilized zebrafish eggs and early stage embryos. However, we now have preliminary data indicating that there is a truncated form in early stage embryos. If confirmed, this observation is very striking, as the presumption has always been that all eukaryotic cells have the canonical form. Following that observation will be the project at the upcoming sabbatical at National Institute of Environmental Science.



**TEACHING EXPERIENCE****GRADUATE LEVEL**

1973 - 1979	Cell Biochemistry and Biophysics
1982	Cell Biochemistry and Biophysics
1973	Seminar: Advanced Parasitology
1974, 1976	Seminar: Membrane Biochemistry
1975	Seminar: Cyclic Nucleotides
1977	Seminar: Bioenergetics
1978	Seminar: Macrophages
1980	Seminar: Purines and Pyrimidines
1981	Seminar: Cell Shape, Adherence and Motility
1983	Seminar: Topics in Cellular Biochemistry
1983 - 1985	General Biochemistry I (undergraduate/graduate level)
1989 - 1993, 1996	General Biochemistry I (undergraduate/graduate level)
1996,1997	Cell and Molecular Biochemistry (graduate/upper undergrad level)
1986,1989,1991	Current Topics in Cell Biology
1986	Seminar: Eukaryotic Replication
	Seminar: Erythropoiesis and Red Cell Structure
1987	Graduate Biochemistry III, Course Coordinator
1984 - 1987	Laboratory Rotations
1989 - 1992	Laboratory Rotations
1995 - 2000	Laboratory Rotations
1989, 1991 - 1993	Graduate Biochemistry III (molecular biology) for Pharmacy and Allied Health
1990	Seminar: The Eukaryotic Nucleus
1996, 1998 - 2000	Advanced Topics in Molecular Biology (DNA Repair)
1996 - 1998	Graduate Biochemistry III (Cell Biochemistry)
1998 - 2000	Advanced Biochemistry Laboratory
2001- 2003	General Biochemistry I (undergraduate/graduate level)
2005, 2007,2008	Advanced Topics in Molecular Biology (DNA Repair)
2009	Research Problem Solving
2011-2014, 2016	Research Problem Solving, Ethics and Communication

**UNDERGRADUATE, UPPER LEVEL**

1973, 1974	Advanced Parasitology
1977, 1978,	Cell Biochemistry and Physiology
1980, 1983, 1985	Cell Biochemistry and Physiology
1994, 1995, 1997	Senior Seminar
1999, 2000	Senior Seminar
2005	Molecular Cell Biology
2015	General Biochemistry

**UNDERGRADUATE INTRODUCTORY**

1975 - 1977 Human Biology (Freshman nurses)  
1995 Freshman Seminar  
2006-2008, 2010-2016 Inquiries for entering freshman with advanced placement credit (Specific topic: the science behind and the ethical issues involved in the human genome project)

**OTHER**

1965-1966 Teaching Assistant, The New School, New York City  
1968-1969 Lecturer in Endocrinology, The Rockefeller University Summer Biology Program for disadvantaged high school students  
1970 Advisor for the senior thesis of a high school student. Thesis topic: The arginine requirement of *Leishmania tarentolae*  
1987, 1988 Director and organizer for minority fellowship program for high school students, supported by Pew Memorial Trust through Howard University  
1990 Mentor, high school teacher summer intern, supported by NSF  
1992 Summer Institute for High School Teachers of Biology and Chemistry  
2004 Mentor for two high school teachers through an NSF sponsored program to the Department of Education  
2006-present Goldwater Representative, Northeastern University Established Goldwater review process for Northeastern in 2006, chaired faculty review committee to select nominees  
2011 Brighton High School, Presentation "All about India"  
2012, 2013 Judge, Metrowest Jewish Day School, Framingham, MA

**STUDENTS ADVISED****GRADUATE STUDENTS**

Year Thesis Undertaken	Name	Publication(s)
1974	J. Pofit	J. Cell Biol. <u>67</u> : 338a, 1975 J. Cellul. Physiol. <u>92</u> : 249, 1977
1977	D. Goldberg	J. Cell Biol. <u>70</u> : 394a, 1976
1976	K. Tomkinson N. Sawyer	J. Cell Biol. <u>75</u> : 102a, 1977 J. Cell Biol. <u>75</u> : 102a, 1977
1977	J. Taylor	Canad. J. Biochem. <u>58</u> : 1405, 1980
1978	R. Barker	J. Cell Biol. <u>79</u> : 93a, 1978 J. Cellul. Physiol. <u>109</u> : 243, 1981
1979	P. O'Shea V. Vincellette	J. Cellul. Physiol. <u>109</u> : 243, 1981 None
1984	L.H. Zhang	J. Cell Biol. <u>101</u> : 460a, 1985 Proc. Natl. Acad. Sci. (USA). <u>83</u> : 5871, 1986
1985	E. Palome X.-H. Bai	Fed. Proc. <u>45</u> : 1785, 1986 J. Cell Biol. <u>107</u> : 77a, 1988 J. Cell Biol. <u>109</u> : 145a, 1989
1987	J. R. Fallon	J. Cell Biol. <u>107</u> : 313a, 1988
1990	E. Busquets-Turner	J. Cell Biol. <u>111</u> : 502a, 1990 Memorias do Inst. Oswaldo Cruz <u>85</u> , Suppl. 1: 43, 1990
1991	K. Paul	None
1993	S. Bhargava	FASEB J. <u>8</u> : A1393, 1994 FASEB J. <u>9</u> : A1398, 1995
1994	S. Jyawook	FASEB J. <u>8</u> : A1393, 1994
1996	C. Reeves	None
1997	D. Carey	FASEB J. <u>13</u> : A1452, 1999 Biochemistry <u>38</u> : 16553-16560, 1999

1998	J.A. Mckenzie	FASEB J. <u>12</u> , A1352, 1998 Biochemistry <u>40</u> , 13254-13261, 2001 FASEB J. Analytical Biochemistry <u>313</u> , 9-16, 2003
1999	S. Mundle	FASEB J. <u>18</u> : C135, 2004 Fulbright Scholar, 2001-2002 DNA Repair <u>3</u> : 1447-1455, 2004 Two manuscripts submitted
	M. Fattal	FASEB J. <u>14</u> : A1440, 2000 FASEB J. <u>18</u> : C134, 2004 FASEB J. <u>18</u> : C135, 2004 DNA Repair <u>3</u> : 1447-1455, 2004 DHA Repair <u>6</u> : 374-382, 2007
2000	C. Shupenko	FASEB J. <u>18</u> : C147, 2004 Mol. Cell Biol. 26, 9083-9093
2005	X-J Yang	Biochemistry 48, 5396-5404. Nucleic Acids Res. 39, 156-3165, 2011
2008	T. Moccia P.Ganguly	None None
2009	B. Snow	None
2010	V. Krishnan Bette Hecox-Lea	None None
2013	Stephen P.G. Moore	Moore, S.P.G., Toomire, K.J. and <b>Strauss, P.R.</b> 2013 DNA modifications repaired by BER are epigenetic. DNA Repair 12, 1152-1158. Environmental and Molec. Mutagenesis 54S1 P35 EMGS Travel award, 2013 Moore et al. J. Biol. Chem. 291, 5452-5460

#### **UNDERGRADUATE HONORS STUDENTS (P. Strauss as honors advisor)**

1975	R. Picco	J. Cell Biol. <u>70</u> : 256a, 1976
1976	P. Blanchard	None
1979	E. Dorney	J. Cell Biol. <u>83</u> : 13a, 1979

1980	S. Nickeson	Immunobiology <u>163</u> : 111, 1982 Biochemistry (Wash.) <u>23</u> : 915, 1984
1982	A. Lee-Andrutis	Immunobiology 163: 111, 1982 Biochemistry (Wash.) <u>23</u> : 915, 1984 Fed. Proc. <u>43</u> : 1996, 1984 Third Int. Congress Cell Biology, 1984 Exptl. Hematol. <u>16</u> : 616, 1988
1982	K. Lagree	J. Cell Biol. <u>97</u> : 113a, 1983 J. Cell Biol. <u>99</u> : 9a, 1984 Proc. Natl. Acad. Sci. (USA). <u>81</u> : 7056, 1984 Exptl. Hematol. <u>16</u> : 616, 1988
1983	S. Mui	J. Cell Biol. <u>97</u> : 113a, 1983 J. Cell Biol. <u>99</u> : 9a, 1984 Proc. Natl. Acad. Sci. (USA) <u>81</u> : 7056, 1984 J. Cell Biol. <u>101</u> : 450a, 1985 Proc. Natl. Acad. Sci. (USA) <u>83</u> : 5871, 1986
1996	C. Holt	J. Biol. Chem. <u>273</u> : 14435 1998
1996	J. Lucas	FASEB J. <u>11</u> : A1 193, 1997 Biochemistry <u>38</u> : 4958-4964
1997	K. Rowland	None
2000	J. Coriolan	Matthews Scholar DNA Repair <u>3</u> : 1447-1455, 2004
2003	J. Lewis	NIH minority fellow
2007	E. Dongyoon Lee	Gladys Brooks Scholar, 2007-2008
2007	S. Soucek	None
2007	S. Fortier	Matthews Scholar, 2007-2008 ASBMB travel award for abstract to be presented from podium, 2009 ASBMB first prize in poster competition, 2009 Biochemistry 48, 5396-5404.
2009	S. Criscione	Goldwater Scholar
2009	J. Cumplido	NIH minority fellow

2010	M. O'Connor	None
2011	E. Yakaboski K. Toomire	None DNA Repair 2013 DNA Repair 12, 1152-1158. Environmental and Molec. Mutagenesis 2014 54S1 P35 DOI: 10.1002/em.21814 Manuscript accepted pending revision
2012	T. Estabrook	Schaefer Fellow
2013	M. McGill R. Fontana S. Kaplan	None None None
2014	J. Kruchten B. Dobosh M. Dimaestro N. Kaplan	Manuscript accepted pending revision None None None
2015	V. Diaz B. Dobosh	None None