Curriculum Vitae

Name: Jack W. Szostak

Address: Howard Hughes Medical Institute
Department of Molecular Biology
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Date of Birth: November 9, 1952 **Citizenship:** U.S.

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Education and Postdoctoral Training:

1972 B.S.	McGill University, Montreal, Canada (Cell Biology)
1977 Ph.D.	Cornell University, Ithaca, New York, (Biochemistry)
1977-1979	Research Associate, Cornell University (Biochemistry)

Appointments:

1979-1983	Assistant Professor, Sidney Farber Cancer Institute and Department of Biological Chemistry, Harvard Medical School
1983-1984	Associate Professor, Dana Farber Cancer Institute and Department of Biological Chemistry, Harvard Medical School
1984-1987	Associate Professor, Department of Genetics, Harvard Medical School.
1984-1987	Associate Molecular Biologist, Department of Molecular Biology, Massachusetts General Hospital
1988-	Professor, Department of Genetics, Harvard Medical School
1988-	Molecular Biologist, Department of Molecular Biology, Massachusetts General Hospital
1998-	Investigator, Howard Hughes Medical Institute
2000-	Alex Rich Distinguished Investigator, Department of Molecular Biology,

Massachusetts General Hospital

Awards and Honors:

1971	McGill University Scholarship
1971	Walter W. Ross III Memorial Scholarship
1972	Penhallow Prize in Botany, McGill University
1975	Andrew D. White Fellowship, Cornell University
1978	National Research Council of Canada Postdoctoral Fellowship
1994	National Academy of Sciences Award in Molecular Biology
1994	Jean Weigle Lecture, Université de Genéve
1995	William Rauscher Memorial Lecture, Rensselaer Polytechnic Institute
1996	Dolman Lectures and Award, University of British Columbia
1996	Louis Vuitton-Moet Hennesey 'Vinci of Excellence' Award
1997	Susan Swerling Memorial Lecture, Dana Farber Cancer Institute
1997	Hans Sigrist Prize, University of Bern, Switzerland
1998	Proctor and Gamble Lecturer, University of Illinois at Urbana Champaigne
1998	Alfred Burger Lecturer, Dept. of Chemistry, University of Virginia
1998	elected member of National Academy of Sciences
1998	Harvey Society Lecturer
1999	Fellow of New York Academy of Sciences
2000	Genetics Society of America Medal
2001	Capital Science Lecture, Carnegie Institution of Washington
2003	Harrison Howe Award, American Chemical Society, Rochester section
2004	Mendel Center Lecture, Mendel’s Abby, Brno, Czech Republic
2005	Visiting Fellow, Brasenose College and Astor Lecturer, Oxford University

Committee Assignments and Administrative Responsibilities:

1982	Site Visit Team, National Institutes of Health
1984	Presidential Young Investigator Review Panel
1985	National Science Foundation Review Panel
1986-1992	Program Director, Genetics of Cancer and Inherited Disease Training Grant, Harvard Medical School
1992	*ad hoc* member, NIH Molecular Biology Study Section
1992-1994	Subcommittee of Professors, Harvard Medical School
1992-1997	Committee on Senior Appointments, Massachusetts General Hospital
1993	Co-Chair, Nucleic Acids Gordon Conference
1994-present	Editorial Board, Chemistry and Biology
1995-1998	Editorial Board, RNA
1996	Co-Chair, 1996 Keystone Symposium on RNA
1996-1997	Preliminary Qualifying Exam Committee, Harvard Medical School
1997	NASA Exobiology Study Section
1997-present	Partners Committee on Senior Appointments
1997-1998	HMS Committee on Postdoctoral Fellows
1998	NRC of Canada Reallocation Exercise External Reviewer
1998	National Research Council Workshop on Size Limits of Microorganisms

2001	NIH Intramural Review Panel
2003-present	Co-Chair, National Research Council Committee on the Origin and Evolution of Life

Teaching:

1982	Biochemistry 201, Harvard Medical School
1983-1985	Yeast as a Host-Vector System in Microbiology and Molecular Genetics: Biotechnical Advances (organized by E.C.C. Lin)
1984-1986	Yeast Molecular Biology, Genetics 203 (with Fred Winston)
1988-1993	Macromolecular Structure and Enzyme Engineering, Genetics 213 (with C.Frederick)
1994	NATO Advanced Study Course on RNA, Spetses, Greece
1997-1998	Course Director, Genetics 201
1979- present	19 graduate students have completed Ph.D. theses in my laboratory.
2000- present	Harvard University Board of Tutors, Biochemical Sciences
2002	Invited lecturer, Agouron Inst. Sponsored Geobiology Course, Catalina Island
2005	Introductory lecture, RNA World Quarter Course

Major Research Interests:

1. The origin, early evolution and laboratory synthesis of life.
2. In vitro directed evolution of functional RNA, DNA and protein molecules.

Issued Patents

1. Rogers DT, Szostak JW. Strains Of Yeast With Increased Rates Of Glycolysis. U.S. Patent No. 5,268,285. Issued: December 07, 1993.

2. Szostak JW, Huizenga DE. DNA aptamers and catalysts that bind adenosine or adenosine-5'-phosphates and methods for isolation thereof. US Patent No. 5,631,146. Issued May 20, 1997.

3. Lizardi PM, Tyagi S, Landegren UD, Kramer FR, Szostak JW. Diagnostic assays and kits for RNA using binary probes and a ribozyme ligase. US patent No. 5,652,107. Issued July 29, 1997.

4. Szostak JW, Lorch JR, Wilson C. Self-modifying RNA molecules and methods of making. US Patent No. 5, 688,670. Issued Nov. 18, 1997.

5. Szostak JW, Cuenoud B, Huizenga DE. Catalytic DNA having ligase activity. US Patent No. 5,910,408. Issued June 8, 1999.

6. Szostak JW, Roberts RW, Liu R. Selection of proteins using RNA-protein fusions. US Patent No. 6,207,446. Issued Mar. 27, 2001.

7. Szostak JW, Roberts RW, Liu R. Libraries of protein encoding RNA-protein fusions. US Patent No. 6,214,553. Issued Apr. 10, 2001.

8. Huang Z, Szostak JW. Simple and efficient method to label and modify 3'-termini of RNA using DNA polymerase and a synthetic template with defined overhang nucleotides. US Patent No. 6,238,865. Issued May 29, 2001.

9. Szostak JW, Roberts RW, Liu R. Method for selection of proteins using RNA-protein fusions. US Patent No. 6,258,558. Issued July 10, 2001.

10. Szostak JW, Roberts RW, Liu R. Selection of proteins using RNA-protein fusions. US Patent No. 6,261,804. Issued July 17, 2001.

11. Szostak JW, Roberts RW, Liu R. Nucleic Acid-Protein Fusion Molecules and Libraries. US Patent No. 6,281,344. Issued Aug. 28, 2001.

12. Szostak JW, Roberts RW. RNA Antibody Fusions and their Selection. US Patent No. 6,518,018. Issued Feb. 11, 2003

13. Szostak JW, Wilson DS, Keefe AS. Streptavidin-binding peptides and uses thereof. US Patent No. 6,841,359. Issued Jan. 11, 2005

Bibliography:

1. Szostak JW, Sparkuhl J, Goldstein ME. Sexual induction in *Eudorina*: effects of light, nutrients and conditioned medium. J Phycol. 1973; 9:215-218.

2. Szostak JW. Specific binding of a synthetic oligonucleotide to the yeast Iso-1 cytochrome c mRNA and gene. Thesis. Ithaca, New York: Cornell University, 1977.

3. Szostak JW, Stiles JI, Bahl CP, Wu R. Specific binding of a synthetic oligonucleotide to yeast cytochrome c mRNA. Nature 1977; 265:61-63.

4. Szostak JW, Stiles JI, Tye B-K, Chiu P, Sherman F, Wu R. Hybridization with synthetic oligonucleotides. In: Wu R, ed. Methods in Enzymology, 68:Chpt. 29. New York, NY: Academic Press; 1979.

5. Szostak JW, Wu R. Insertion of a genetic marker into the ribosomal DNA of yeast. Plasmid 1979; 2:536-554.

6. Szostak JW, Wu R. Unequal crossing over in the ribosomal DNA of *Saccharomyces cerevisiae*. Nature 1980; 284:426-430.

7. Stiles JI, Szostak JW, Young AT, Wu R, Consaul S, Sherman F. DNA Sequence of a mutation in the leader region of the yeast Iso-1 cytochrome c mRNA. Cell 1981; 25:277-284.

8. Orr-Weaver TL, Szostak JW, Rothstein RJ. Yeast transformation: a model system for the study of recombination. Proc. Natl. Acad. Sci. USA 1981; 78:6354-6358.

9. Szostak JW, Blackburn EH. Cloning yeast telomeres on linear plasmid vectors. Cell 1982; 29:245-255.

10. Szostak JW. Evolutionary conservation of the structure of eucaryotic telomeres. Berkeley Workshop on Recent Advances in Yeast Molecular Biology, 1. 1982.

11. Rothstein RJ, Orr-Weaver TL, Szostak JW. Double strand breaks and genetic recombination. Berkeley Workshop on Recent Advances in Yeast Molecular Biology, 1. 1982.

12. Szostak JW. Structural requirements for telomere resolution. Cold Spring Harbor Symposium on DNA Structure. 1982; 43:1187-1194.

13. Ruby SW, Szostak JW, Murray AW. Cloning regulated yeast genes from a pool of LacZ fusions. Methods in Enzymology. 1982; 101:253-269.

14. Orr-Weaver TL, Szostak JW, Rothstein RJ. Genetic applications of yeast transformation with linear and gapped plasmids. Methods in Enzymology. 1982; 101:228-245.

15. Brown P, Szostak JW. Yeast vectors with negative selection. Methods in Enzymology. 1982; 101:278-290.

16. Sugawara NF, Szostak JW. The construction of specific chromosome rearrangements in yeast. Methods in Enzymology. 1982; 101:269-278.

17. Szostak JW. A rapid procedure for the construction of linear yeast plasmids. Methods in Enzymology. 1982; 101:245-252.

18. Szostak JW. Replication and Resolution of Telomeres in Yeast. Cold Spring Harbor Symp. Quant. Biol. 1983; Vol. XLVII, pp.-1187-1194.

19. Szostak JW. Telomeres in Yeast.in, "Gene Expression in Yeast. Proc. Alko yeast Symp. Helsinki 1983, ed. M. Korhola, E. Vaisanen. Foundation for Biotechnical and Industrial Fermentation Research 1 (1983): 115-126.

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