

- 1) **NAME** Arthur Landy
- POSITION** University Professor & Professor of Medical Science
- DEPARTMENT** Molecular Biology, Cell Biology & Biochemistry
- 2) **HOME ADDRESS** 1 Nayatt Road  
Barrington, RI 02806
- 3) **EDUCATION** Amherst College, cum laude, B.A., 1961  
(Biology/Chemistry)  
University of Illinois, Ph.D., 1966  
Microbiology & Biochemistry  
(adviser: Sol Spiegelman)

**Thesis Title:** Transcription Following Mutant and Wild Type Phage Infections

#### 4) PROFESSIONAL APPOINTMENTS

Weizmann Institute Visiting Scholar	2/66 - 3/66
Postdoctoral Fellow MRC Laboratory of Molecular Biology Cambridge, England (Laboratory of Sidney Brenner and Francis Crick)	4/66 - 12/68
M.I.T. "Guest Appointment" (with H. Gobind Khorana)	1974 - 1975
Faculty Research Associate American Cancer Society	1975 - 1981
Assistant Professor, Brown University	1969 - 1974
Associate Professor, Brown University	1974 - 1977
Professor of Medical Science Division of Biology & Medicine Section of Molecular, Cell and Developmental Biology	1977 - present
University Professor, Brown University	1990 – present
American Cancer Society Advisory Board: Nucleic Acids and Protein Synthesis,	1978 - 1983
Associate Editor, Cell	1979 - 1985
The University Research Council	1981 - 1986
Recombinant DNA Advisory Committee (RAC), Natl. Inst. Health	1981 - 1986
Biochemical Genetics Study Section, Natl. Inst. Health	1987 – 1991
Natl. Inst. Health Reviewers Reserve	1991 - present

## 5) COMPLETED PUBLICATIONS

### CHAPTERS IN BOOKS

Kupper,H., Contreras,R., Khorana,H.G., and Landy,A. (1976). The tyrosine tRNA promoter. In **RNA Polymerase**, R.Losick and M.Chamberlin, eds. (New York: Cold Spring Harbor Laboratory), pp. 473-484.

Sekiya,T., Takeya,T., Contreras,R., Kupper,H., Khorana,H.G., and Landy,A. (1976). Nucleotide sequences at the two ends of the *E. coli* tyrosine tRNA genes and studies on the promoter. In **RNA Polymerase**, R.Losick and M.Chamberlin, eds. (New York: Cold Spring Harbor Laboratory), pp. 455-472.

Rossi,J.J., Egan,J., Berman,M.L., and Landy,A. (1979). The *E. coli* tRNA<sup>Tyr</sup> gene clusters: organization and structure. In **Transfer RNA**, J.Abelson, P.Schimell, and D.Soll, eds. (New York: Cold Spring Harbor Laboratory), pp. 221-244.

Rossi,J.J., Egan,J., Berman,M.L., and Landy,A. (1980). The *E. coli* tRNA<sup>Tyr</sup> gene clusters: organization evolution and transcription. In **RNA Polymerase, tRNA and Ribosomes**, S.Osawa, H.Ozeki, H.Uchida, and T.Yura, eds. (Japan: University of Tokyo), pp. 185-208.

Weisberg,R. and Landy,A. (1983). Site-specific recombination in phage lambda. In **Lambda II**, F.W.Stahl, J.Roberts, and R.A.Weisberg, eds. (New York: Cold Spring Harbor Laboratory), pp. 211-250.

Thompson,J.F., Moitoso de Vargas,L., Nunes-Düby,S.E., Pargellis,C., Skinner,S.E., and Landy,A. (1987). Effect of mutations in the P2 Int binding site of bacteriophage lambda. In **Mechanisms of DNA Replication and Recombination**, T.Kelly and R.McMacken, eds. (New York: Alan R. Liss, Inc.), pp. 735-744.

Thompson,J.F., Mark,H.F., Franz,B., and Landy,A. (1988). Functional and structural characterization of stable DNA curvature in lambda attP. In **DNA Bending and Curvature**, W.K.Olson, M.H.Sarma, R.H.Sarma, and M.Sundaralingam, eds. (Guilderland, NY: Adenine Press), pp. 119-128.

Thompson,J.F. and Landy,A. (1989). Regulation of lambda site-specific recombination. In **Mobile DNA**, D.E.Berg and M.M.Howe, eds. (Washington, D.C.: American Society for Microbiology), pp. 1-22.

Franz,B. and Landy,A. (1990). Features of Int-mediated resolution of Holliday junctions derived from  $\lambda$  att site DNA. In **Human genome initiative and DNA recombination**, R.H.Sarma and M.Sarma, eds. (New York: Adenine Press), pp. 183-192.

Azaro,M.A. and Landy,A. (2002).  $\lambda$  Int and the  $\lambda$  Int family. In **Mobile DNA II**, N.L.Craig, R.Craigie, M.Gellert, and A.Lambowitz, eds. (Washington, DC: ASM Press), pp. 118-148.

## REFEREED JOURNAL ARTICLES

- Landy, A., Abelson, J., Goodman, H., and Smith, J.D. (1967). The specific hybridization of tyrosine transfer RNA with DNA from a transducing phage  $\phi 80$  carrying the amber suppressor gene *suIII*. **J. Mol. Biol.** 29, 457-471.
- Smith, J.D., Abelson, J.N., Goodman, H., Landy, A., and Brenner, S. (1967). Amber suppressor transfer ribonucleic acid. **F. E. B. S.** 37-51.
- Goodman, J., Abelson, J., Landy, A., Brenner, S., and Smith, J.D. (1968). Amber suppression: a nucleotide change in the anticodon of a tyrosine transfer RNA. **Nature** 217, 1019-1024.
- Landy, A. and Spiegelman, S. (1968). Exhaustive hybridization and its application to an analysis of the ribonucleic acid synthesized in T4-infected cells. **Biochem.** 7, 585-591.
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- Lozerson, H.A., Szybalski, W., Landy, A., Abelson, J., and Smith, J.D. (1969). Orientation of transcription for the amber suppressor gene *suIII* as determined by hybridization between tyrosine tRNA and the separated strands of transducing coliphage  $\phi 80$  *suIII*. **J. Mol. Biol.** 39, 239-243.
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- Goodman, H.M., Abelson, J.N., Landy, A., Zadrazil, S., and Smith, J.D. (1970). The nucleotide sequences of tyrosine transfer RNAs of *Escherichia coli*. **Eur. J. Biochem.** 13, 461-483.
- Russell, R.L., Abelson, J.N., Landy, A., Gefter, M.L., Brenner, S., and Smith, J.D. (1970). Duplicate genes for tyrosine transfer RNA in *Escherichia coli*. **J. Mol. Biol.** 47, 1-13.
- Landy, A., Ross, W., and Foeller, C. (1973). Generation of DNA fragments by enzymatic cleavage at sites sensitive to denaturation. **Nucl. Acids Res.** 299, 264-272.
- Myers, D. and Landy, A. (1973). The role of host RNA polymerase in P1 phage development. **Viol.** 51, 521-524.
- Landy, A., Ruedisueli, E., Robinson, L., Foeller, C., and Ross, W. (1974). Digestion of deoxyribonucleic acids from bacteriophage T7,  $\lambda$  and  $\phi 80$  with site-specific nucleases from *Hemophilus influenzae* strain Rc and strain Rd. **Biochem.** 13, 2134-2142.
- Landy, A., Foeller, C., and Ross, W. (1974). DNA fragments carrying the genes for tRNA/TyrI. **Nature** 249, 738-742.
- Landy, A., Olechowski, E., Ross, W., and Reiness, G. (1974). Isolation of a functional *lac* regulatory region. **Mol. Gen. Genet.** 133, 273-281.

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Kupper,H., Contreras,R., Landy,A., and Khorana,H.G. (1975). Promoter-dependent transcription of tRNA<sub>I</sub><sup>Tyr</sup> genes using DNA fragments produced by restriction enzymes. **Proc. Natl. Acad. Sci. USA** 72, 4754-4758.

Mitra,S., Zubay,G., and Landy,A. (1975). Evidence for the preferential binding of the catabolite gene activator protein (CAP) to DNA containing the lac promoter. **Biochem.** 67, 857-863.

Mowbray,S.L., Gerbi,S., and Landy,A. (1975). Levels of order in highly repeated bovine DNA. **Nature** 253, 367-370.

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Sekiya,T., Contreras,R., Kupper,H., Landy,A., and Khorana,H.G. (1976). *Escherichia coli* tyrosine transfer ribonucleic acid genes. **J. Biol. Chem.** 251, 5124-5140.

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Robinson,L.H. and Landy,A. (1977). HindII, HindIII, and HpaI restriction fragment maps of the left arm of bacteriophage  $\lambda$  DNA. **Gene** 2, 33-54.

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Hoess,R.H. and Landy,A. (1978). Structure of the  $\lambda$  *att* sites generated by int-dependent deletions. **Proc. Natl. Acad. Sci. USA** 75, 5437-5441.

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- Ross,W., Landy,A., Kikuchi,Y., and Nash,H. (1979). Interaction of Int protein with specific sites on  $\lambda$  *att* DNA. **Cell** 18, 297-307.
- Rossi,J.J. and Landy,A. (1979). Structure and organization of the two tRNA<sup>Tyr</sup> gene clusters on the *E. coli* chromosome. **Cell** 16, 523-534.
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- Hoess,R.H., Foeller,C., Bidwell,K., and Landy,A. (1980). Site-specific recombination functions of bacteriophage  $\lambda$ : DNA sequence of regulatory regions and overlapping structural genes for Int and Xis. **Proc. Natl. Acad. Sci. USA** 77, 2482-2486.
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- Landy,A., Hsu,P.-L., Ross,W., and Buraczynska,M. (1980). Site-specific recombination in bacteriophage  $\lambda$ : structural analyses of reactive DNA sequences. **Am. J. Trop. Med. Hyg.** 29, 1099-1106.
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Leong,J., Nunes-Düby,S., Oser,A.B., Lesser,C., Youderian,P., Susskind,M.M., and Landy,A. (1986). Structural and regulatory divergence among the site-specific recombination genes of lambdoid phage. **J. Mol. Biol.** 189, 603-616.

Thompson,J.F., Waechter-Brulla,D., Gumport,R.I., Gardner,J.F., Moitoso de Vargas,L., and Landy,A. (1986). Mutations in an integration host factor-binding site: effect on lambda site-specific recombination and regulatory implications. **J. Bacteriol.** 168, 1343-1351.

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- Thompson,J.F. and Landy,A. (1988). Empirical estimation of protein-induced DNA bending angles: Applications to lambda site-specific recombination complexes. **Nucl. Acids Res.** 16, 9687-9705.
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Azaro,M.A. and Landy,A. (1997). The isomeric preference of Holliday junctions influences resolution bias by  $\lambda$  integrase. **EMBO J.** 16, 3744-3755.

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Hazelbaker, D., Azaro, M. A. and Landy, A. (2008) A biotin interference assay highlights two different asymmetric interaction profiles for  $\lambda$  integrase arm-type binding sites in integrative versus excisive recombination. **J. Biol. Chem.** *283*, 12402-12414.

Warren, D., Laxmikanthan, G., and Landy, A. (2008). A Chimeric Cre Recombinase with Regulated Directionality. **Proc. Natl. Acad. Sci. USA** *47*, 18278-18283.

Matovina, M., Seah, N., Hamilton, T., Warren, D., and Landy, A. (2010). Stoichiometric incorporation of base substitutions at specific sites in supercoiled DNA and supercoiled recombination intermediates. **Nucl. Acids Res.** *38*, e175.

Warren, D., Laxmikanthan, G., Landy, A., (2013). Integrase Family of Site-Specific Recombinases. **Brenner's Encyclopedia of Genetics, 2<sup>nd</sup> edition** (in press)

## 6. RESEARCH GRANTS

Name of Funding Agency and grant number: NIH - GM33928-26

Title of Grant: Recombination Intermediates: Mechanisms in Resolution

Total Period of Grant: 1985 – 2012

Current Award: 1/1/08 – 12/31/12

Principal Investigator: Arthur Landy

Total Award Amount (current project): \$2,271,015.00

Name of Funding Agency and grant number: NIH - GM 62723-32

Title of Grant: Mechanisms of Site-Specific Recombination

Total Period of Grant: 1977 – 8/31/2013

Current Award 9/1/09 – 8/31/2013

Principal Investigator: Arthur Landy

Total Award Amount (current project): \$2,478,520

Name of Funding Agency and grant number: NIH – GM033928-24S1

Title of Grant: Recombination Intermediates – Properties and Processing

Total Period of Grant: 9/1/2009 – 8/31/2011

Current Award: 9/1/2009 – 8/31/2011

Principal Investigator: Arthur Landy

Total Award Amount (current project): \$363,740

## 7) SERVICE

### (i) TO THE UNIVERSITY

1982-1983

Concentration Advisor  
Graduate Admissions Committee  
BioMedical Sciences Library Committee  
University Research Council

## Medical Council

1983-1984

BioMedical Sciences Library Committee  
Concentration Advisor  
Graduate Program Molecular & Cell Biology Advis. (Comm.)  
University Research Council  
Medical Council

1984-1985

Biomedical Sciences Library Committee  
Concentration Advisor  
Graduate Program Molecular & Cell Biology Advis. Comm.  
Graduate Program Seminar Comm., Co-Chairman  
University Research Council

1985-1986

Biology Concentration Advisor  
University Research Council  
Graduate Program Seminar Committee  
Co-Chairman Graduate Program Seminar Committee  
Virology Position Search Committee  
Biosafety Committee

1986-1987

Biology Concentration Advisor  
Graduate Program M.C.B. Advisory Committee  
Graduate Program Admissions Committee  
Biochemistry Position Search Committee  
Biosafety Committee

1987-1988

Campus Planning Committee  
Biosafety Committee  
Graduate Program Admissions Committee  
Graduate Program MCB Advisory Committee  
Biology Concentration Advisor

1988-1989

Campus Planning Committee  
Biosafety Committee  
Asst. Director, MCB Graduate Program  
Graduate Program Admissions Committee  
Graduate Program MCB Advisory Committee  
Biology Concentration Advisor

1989-1990

Campus Planning Committee  
Biosafety Committee

Asst. Director, MCB Graduate Program  
Admissions Committee, MCB Graduate Program  
Advisory Committee, MCB Graduate Program  
Faculty Search Committee for Chairman of Pharmacology  
Faculty Search Committee for Virologist  
Biology Concentration Advisor

1990-1991

Asst. Director, MCB Graduate Program  
Biosafety Committee  
Advisory Committee, MCB Graduate Program and Training Grant  
Faculty Search Committee for Molecular Genetics Position  
Faculty Search Committee for Pharmacologist  
Biology Concentration Advisor

1991-1992

Asst. Director, MCB Graduate Program  
Biosafety Committee  
Advisory Committee, MCB Graduate Program and Training Grant  
Faculty Search Committee for Molecular Genetics  
Faculty Search Committee for Pharmacology  
Faculty Search Committee for Artificial Organs, Biomaterials and Cellular Technology  
Biology Concentration Advisor  
UTRA/Odyssey Selection Committee

1992-1993

Asst. Director, MCB Graduate Program  
Biosafety Committee  
Advisory Committee, MCB Graduate Program and Training Grant  
Faculty Search Committee for Chair of Medicine  
Faculty Search Committee for Pharmacology  
Undergraduate Biology Concentration Advisor

1993-1994

Director, MCB Graduate Program  
Biosafety Committee  
Advisory Committee, MCB Graduate Program and Training Grant  
Faculty Search Committee for Chair of Medicine  
Faculty Search Committee for Pharmacology  
Undergraduate Biology Concentration Advisor

1994-1995

Director, MCB Graduate Program  
Biosafety Committee  
Advisory Committee, MCB Graduate Program and Training Grant  
Dean's Strategic Planning Committee  
Undergraduate Biology Concentration Advisor

1995-1996

Director, MCB Graduate Program  
Biosafety Committee

Advisory Committee, MCB Graduate Program and Training Grant  
Dean's Strategic Planning Committee  
Undergraduate Biology Concentration Advisor

1996-1997

Although I was on sabbatical leave during this year I continued to serve as an Undergraduate Biology Concentrator and on several Prelim/Thesis committees

1997-1998

Faculty Facilitator on Pluralism and Diversity for Freshman Class of 2001  
University Biosafety Committee  
Faculty Advisory Committee on Endowed, Named and University Professorships  
Undergraduate Biology Concentration Advisor

1998-1999

University Biosafety Committee  
Faculty Advisory Committee on Endowed, Named and University Professorships  
Biomed UTRA Advisory Committee  
Biomed Undergraduate Prize Committee  
Biomed Architectural Committee  
MCB Faculty Search Committee  
Undergraduate Biology Concentration Advisor

1999-2000

University Bio-Safety Committee  
University Committee on Endowed, Named and University Professorships  
Departmental Search Committee for Molecular Geneticist (hired Mike McKeown)  
Undergraduate Biology Concentration Advisor

2000-2001

Life Science Building Planning Committee  
University Biosafety Committee  
Departmental Search Committee (Chair) for Molecular Geneticist (hired Jeffery Singer)  
Undergraduate Biology Concentration Advisor

2001-2002

Life Science Building Planning Committee  
University Biosafety Committee  
Undergraduate Biology Concentration Advisor

2002-2003

Life Science Building Planning Committee  
University Biosafety Committee  
Undergraduate Biology Concentration Advisor

2003-2004

Life Science Building Planning Committee  
University Biosafety Committee  
Departmental Search Committee (Chair) for X-ray Crystallographer (hired Gerald Jogl)  
Undergraduate Biology Concentration Advisor

2004-2005

Life Science Building Planning Committee  
University Biosafety Committee  
Undergraduate Biology Concentration Advisor  
University Conflict of Interest Committee  
Reviewer for University Seed Fund Awards  
Chair, Tenure and Promotions Committee, Department of Molecular Biology,  
Cell Biology & Biochemistry

2005-2006

Life Science Building Planning Committee  
University Biosafety Committee  
Undergraduate Biology Concentration Advisor  
University Conflict of Interest Committee  
Tenure Policy Review Committee

2006-2007

University Biosafety Committee  
Undergraduate Biology Concentration Advisor  
University Conflict of Interest Committee  
Tenure Policy Review Committee  
Freshman Advisor  
Chair, Dept. Promotions Committee

2007-2008

University Biosafety Committee  
Undergraduate Biology Concentration Advisor  
University Conflict of Interest Committee  
Tenure Policy Review Committee  
Chair, Dept. Promotions Committee  
Sophomore Advisor  
Proposal Review Committee for V.P. for Research  
Director – Equipment Maintenance Facility

2008-2009

University Biosafety Committee  
Undergraduate Biology Concentration Advisor  
University Conflict of Interest Committee  
Tenure Policy Review Committee  
Chair, Dept. Promotions Committee  
Sophomore Advisor  
Director – Equipment Maintenance Facility

2009-2010

University Biosafety Committee  
Undergraduate Biology Concentration Advisor  
University Conflict of Interest Committee  
Chair, Dept. Promotions Committee  
Freshman Advisor  
Sophomore Advisor  
Workshop Participant: TPAC for Junior Faculty; Navigating the Publication Process  
Director – Equipment Maintenance Facility  
Campus Planning and Advisory Board  
Search Committee for Chair of Microbiology, Molecular Biology & Immunology

2010-2011

University Biosafety Committee  
Undergraduate Biology Concentration Advisor  
University Conflict of Interest Committee  
Chair, Dept. Promotions Committee  
Freshman Advisor  
Sophomore Advisor  
Workshop Participant: TPAC for Junior Faculty; Navigating the Publication Process  
Director – Equipment Maintenance Facility  
Campus Planning and Advisory Board  
Search Committee for Chair of Microbiology, Molecular Biology & Immunology

2011-2012

University Biosafety Committee  
Undergraduate Biology Concentration Advisor  
University Conflict of Interest Committee  
Chair, Dept. Promotions Committee  
Freshman Advisor  
Sophomore Advisor  
Workshop Participant: TPAC for Junior Faculty; Navigating the Publication Process  
Director – Equipment Maintenance Facility  
Campus Planning and Advisory Board

2012-2013

Undergraduate Biology Concentration Advisor  
University Conflict of Interest Committee  
Chair, Dept. Promotions Committee  
Freshman Advisor  
Sophomore Advisor  
Workshop Participant: TPAC for Junior Faculty; Navigating the Publication Process  
Director – Equipment Maintenance Facility  
Campus Planning and Advisory Board

**(ii) TO THE PROFESSION**



American Cancer Society Advisory Board: Nucleic Acids and Protein Synthesis, 1978 - 1983  
Associate Editor, Cell, 1979 - 1985  
The University Research Council, 1981 - 1986  
Recombinant DNA Advisory Committee (RAC), Natl. Inst. Health, 1981 - 1986  
Medical Council, 1982 - 1985  
Nucleic Acids Gordon Research Conference, Vice Chairman 1982; Chairman, 1983  
Biochemical Genetics Study Section, Natl. Inst. Health, 1987 – 1991  
Natl. Inst. Health Reviewers Reserve, 1991 – 2010  
Chair, Special Emphasis Panel, Bacterial Pathogenesis Study Section 2006  
Nat Sternberg Microbiology Prize Committee

**(iii) TO THE COMMUNITY**

Board of Governors, Gordon School, 1976 - 1979

**8) ACADEMIC HONORS**

University Professor, 1990 – present

**FELLOWSHIPS**

NATO Postdoctoral Fellowship	4/66 - 3/67
U.S.P.H.S. Postdoctoral Fellowship	4/67 - 12/67
American Cancer Society Fellowship	1/68 - 12/68

**HONORARY SOCIETIES**

American Academy of Arts and Sciences, 1994 – present  
American Assoc. of Advancement of Sciences, Fellow 1982 - present  
American Academy of Microbiology, 1999 - present  
National Academy of Sciences, 1999 – present

**9) TEACHING Courses**

Teaching from 98-00 (listed on previous CVs without year/semester)  
Advanced Molecular Biology  
General Biochemistry  
Medical Biochemistry  
Medical Microbiology  
Introductory Genetics  
Molecular Genetics  
Current Topics in Molecular Biology and Biochemistry

2000 (fall)  
Bio-47 Genetics

2001 (fall)

Bio-47 Genetics

2002 (fall)

Bio-47 Genetics

2005 (fall)

Bio-221: Current Topics in Biochemistry and Molecular Biology

### **Thesis Committees**

2002 – (7)

Hilliary Creely  
Jennifer Carr  
Aarthi Ashok  
Mariana Leguia  
Timothy Messitt  
Brenda O’Connell  
Caroline Savery

2003 – (13)

Jennifer Carr  
Andrew Castiglioni  
Hilliary Creely  
Michael Foulk  
Tracy Kress  
Mariana Leguia

2003 – (13) continued

Kate Manley  
Timothy Messitt  
Brenda O’Connell  
Joao Paulo  
Umut Sahin  
Caroline Savery  
Amy Whiting

2004 – (12)

Jennifer Carr  
Andrew Castiglioni  
Hilliary Creely  
Michael Foulk  
Mariana Leguia  
Kate Manley  
Timothy Messitt  
Joao Paulo

Umut Sahin  
Amy Whiting  
Christina Sowards  
Alec DeSimone

2005 – (12)

Jennifer Carr  
Andrew Castiglioni  
Hilliary Creely  
Michael Foulk  
Mariana Leguia  
Kate Manley  
Timothy Messitt  
Joao Paulo  
Eric Gustafson  
Amy Whiting  
Christina Sowards  
Alec DeSimone

2006 – (12)

Michael Foulk  
Kate Manley  
Timothy Messitt  
Joao Paulo  
Eric Gustafson  
Amy Whiting  
Christina Sowards  
Alec DeSimone  
Hua Li  
Hasan Demirci  
David Critton  
Barbara Danchek

2007 – (8)

Joao Paulo  
Eric Gustafson  
Christina Sowards  
Alec DeSimone  
Hua Li  
David Critton  
Barbara Danchek  
Bill Holmes

2008 – (7)

Eric Gustafson  
Christina Sowards  
Alec DeSimone  
Hua Li  
David Critton  
Barbara Danchek

Bill Holmes

- 2009 – (6)     Christina Sowards  
                  Alec DeSimone  
                  Hua Li  
                  David Critton  
                  Barbara Danchek  
                  Bill Holmes
- 2010 – (2)     Bill Holmes  
                  Jennifer Davis (Chemistry)
- 2011 – (2)     Bill Holmes  
                  Jennifer Davis (Chemistry)
- 2012 – (2)     Bill Holmes  
                  Dorothy Koveal  
                  Jennifer Davis (Chemistry)