

VIRGINIA ARAXIE ZAKIAN

Curriculum Vitae

PRESENT POSITION AND ADDRESS

Harry C. Wiess Professor in the Life Sciences
Department of Molecular Biology
Princeton University
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CITIZENSHIP: U.S.A.

RESEARCH INTERESTS

Telomeres, DNA helicases, Replication fork progression, Chromosome stability, Genome integrity

EDUCATION, RESEARCH EXPERIENCE, AND PROFESSIONAL POSITIONS

A.B. 1970, Cornell University, College of Arts and Sciences, Ithaca, NY (Phi Beta Kappa, 1969; cum laude in Biology; distinction in all subjects; research *Xenopus* development, with Dr. A.W. Blackler).
Ph.D. 1975, Yale University, Dept. of Biology (with Dr. Joseph G. Gall, DNA replication in *Drosophila*; NDF pre-doctoral fellowship).
Postdoctoral Fellow 1975-76, Princeton University, Dept. of Biochemistry (with Dr. Arnold J. Levine, Replication of Adeno and SV40 viruses; NIH post doctoral fellowship)
Postdoctoral Fellow 1976-78, University of Washington, Dept. of Genetics (with Dr. Walton L. Fangman, DNA replication in yeast; NIH post doctoral fellowship)
Assistant Member 1979-83, Fred Hutchinson Cancer Research Center, Basic Sciences
Associate Member 1984-1987, Fred Hutchinson Cancer Research Center, Basic Sciences
Member 1987-1995, Fred Hutchinson Cancer Research Center, Basic Sciences (tenured position)
Affiliate Faculty 1979-1995, U. of Washington (Depts. of Genetics and Pathology)
Professor, Department of Molecular Biology, Princeton University, July 1995- to date
Harry C. Wiess Professor in the Life Sciences, Princeton University, July 2000- to date

FELLOWSHIPS AND CURRENT RESEARCH SUPPORT

NSF Undergraduate Fellow, University of Pennsylvania (Summer 1968), Cornell University (Summer 1969)
NSF Pre-doctoral Fellowship (1970-73); NSF Fellowship, Experimental Embryology, Bermuda Biological Station (Summer 1971)
NIH Postdoctoral Fellowship (1975-78) (declined fellowships from American Can Soc, Anna Fuller Soc)
NIH DNA Replication and Chromosome Structure in Yeast, RO1 GM26938 (1979-2017) (3% priority score in 2013 renewal review) (Merit award status, 5/00-09)
NIH Structure and Behavior of Yeast Telomeres, RO1 GM43265 (1990-2016) (4% priority score in 2012 review)
NIH Telomere maintenance and replication fork progression in yeast and human cells 1R35GM118279, (MIRA), 7/6/16-6/30/21

HONORS

Fellow, American Academy for the Advancement of Science, elected 1992
Fellow, American Academy of Microbiology, elected 1993
Travel Fellowship, Ministry of Education, Japan, 1993
American Society of Cell Biology, Women in Cell Biology, Senior Woman Award, 1995
Distinguished Lecture Series, NIEHS, 1997
June Wood Lecture, Indiana University, 1997
Blaffer Seminar, University of Texas M.D. Anderson Cancer Center, 1997
Elkin Distinguished Lectureship, Winship Cancer Center, Emory University, 1999
Harold Varmus' NIH Wednesday Afternoon Lectureship, 1999
Merit Award, NIGMS of the National Institutes of Health, 5/00- 11/09
Distinguished Lecture, Lawrence Berkeley National Laboratory, Life Sciences Division, 2003

Honors Program Lecture, NYU School of Medicine, 2004
 Second Annual Athena Lecture, Royal Society, London, 2005
 Keynote Speaker, Kyoto Japan, Gender Equality Workshop, 2006 (cancelled)
 Wall of Fame, Upper Darby Sr HS, Upper Darby PA, 2006
 Danny Kaye Lecture, St. Jude's, Memphis, 2008
 Keynote Speaker, College of NJ, Advancement program Symposium, 2010
 Barnum Museum Lecture, Tufts University, 2011
 President's Lecture series, Princeton U, 2011
 Leading Edge Lecture, City of Hope, 2012
 Keynote speaker, Anat Krauskopf Symposium, Tel Aviv IS, 2012
 Magni Lecture, Milan Italy, 2012
 National Institutes of Aging, Speaker Annual NIA IRP Postbac Day, 2013
 Diamonds are Forever: Celebrating First 75 Years, Princeton Adult School, 2013
 Keynote speaker, Annual meeting Swedish Society Biochemistry, Biophysics and Molecular Biology, Marstrand, Sweden, 2014
 Keynote speaker, GRS for Gordon Res Conf., Chromosome Dynamics, 2015
 Keynote speaker, EMBO workshop, Telomere chromatin and telomere fragility, Singapore, 2015
 Featured speaker, EMBO conference Telomeres, Telomerase and Disease, Brussels, Belgium, 2016

SERVICE: NATIONAL INSTITUTES OF HEALTH (NIH)

Member NIH Biomedical Sciences Microbial Genetics Study Section, 1991-1995
 National Institutes of Health Reviewers Reserve, 1995-1999
 Member, National Advisory General Medical Sciences Council, 2004-09
 Member National Cancer Institute (NCI) Board of Counselors for intramural programs in Basic Science, 2011-2016
 NIGMS Council, Subcommittee, Division Gen. and Dev. Bio., 1998
 NIH Advisory group on Non-mammalian model organisms, co-chair yeast sub-group, 1999
 Panel on Scientific Boundaries for Review: redesign study sections in development and aging, 2001
 Co-chair, Evaluation of NIH MORE (Minority Opportunities Research) programs 2005-06
 Strategic planning conference for NIGMS five-year plan (chair of increasing minorities sub-group), 2007
 NIGMS Council standing committee on Training and Faculty Development, 2007-09
 Co-chair site visits NCI Labs of: Biochemistry, 2011; Receptor Biology and Gene Expression, 2012; Gene Regulation and Chromosome Biology, 2013; Subgroup of Receptor Biology and Gene Expression, 2014; Biochemistry, 2015

ADDITIONAL GRANT REVIEWING:

Member, Microbiology and Virology Study Section, American Cancer Society, 1985-89
 Reviewer, Human Frontier Science Program, 1995-
 Damon Runyon Cancer Research Foundation, Scientific Advisory Board, 1999-03
 Reviewer HHMI Canada/Latin America Competition, 2001
 Member, HHMI Review of Research Training Fellowships for Medical Students, 2002-04
 HHMI, Review Gilliam Fellowships for Advanced Study awards, 2011

SERVICE AND MEMBERSHIP IN PROFESSIONAL SOCIETIES/AFFILIATIONS:

American Society of Cell Biology (Program Committee 1980, 1995; Resource Bureau, Women in Cell Biology, 1997-; Membership Committee 1981-83; Education Committee 1986-89; Awards Committee 2001; Young Investigator Awards Committee, 2007; Council 2009-12; Chair, Early Career Award Selection Committee, 2010)
 American Society for Microbiology (Raymond W. Sarber Award Selection Committee, 1996-1999; Eli Lilly and Company Research Award Selection Committee, 2000- 03)
 Genetics Society of America (nominating Committee 1983; Board of Directors, 1997-9)

National Yeast Committee (1985-89)
 NY Academies of Sciences, advisory panel, women in science and engineering, 2004
 AAAS: Electorate Nominating Committee of the Section on Biological Sciences, 2004-07; Secretary
 Section G, Biological Sciences, 2005
 Rosalind Franklin Society, (interdisciplinary/international society to promote women in science),
 founding board 2007-
 American Women in Science
 Member, Cancer Institute of NJ, 2010-

ADDITIONAL SERVICE:

Editor/Associate Editor/Editorial Board: Plasmid (1986-1990), Chromosoma (1990-2010), J. Exptl.
 Zoology (1991-1996), Trends in Cell Biology (1991-1997), Molecular and Cellular Biology (1992-
 98), Genes to Cells (1994-98), Molecular Cell (1997-2002), Molecular Biology of the Cell (1999-
 2003), DNA Repair (2004-), FEBS Journal (2009-11); Editorial Board, Current Opinion in Genetics
 and Development.
 Member, President's Council of Cornell Women (PCCW), 2001- 11 (advisory group to Cornell President
 on women's issues)
 Faculty 1000 Biology, 2009-13
 Advisory Committee, Memorial Sloan Kettering Cancer Center Graduate program, 2014-
 Scientific Advisory Board Center for Chromosome Stability, Copenhagen, Denmark, 6/15-
 Cancer Research UK Quinquennial Review, 12/16
 Participant, HHMI and Burroughs Wellcome Mentoring workshop, 4/16
Meeting organization:
 Program Committee for 1986, 1987, and 1989 Yeast Genetics and Molecular Biology Meeting
 Co-organizer, Seattle Area Yeast Meetings, 1985-1987
 Co-organizer, American Society of Cell Biology 1989 Summer Symposium "Chromosome Structure and
 Segregation"
 Co-organizer, Gordon Conference, Plasmid and Chromosome Dynamics; 1995, 1997
 Programming Consultant, Keystone Symposia, 2002, 2003, 2005-6
 Co-organizer, 2007 and 2010 AACR Telomerase and Cancer Meeting
 Co-organizer 2009, 2011, 2013 CSH Telomere Meetings
 Co-organizer 2012, FASEB Yeast Chromosome dynamics meeting
 Co-organizer 2013, Joe Gall 85th birthday symposium
 Co-organizer DNA Replication, Recombination and Repair Theme 2014 American Society Biochemistry
 and Molecular Biology meeting
Institutional Reviews:
 University of Colorado, Molecular, Cell, & Developmental Biology Department, 2003
 Dr. S. Jackson, Wellcome Trust/Cancer Research UK, Institute Cancer & Dev. Biology, Cambridge, 2004
 Dr. R. Lahue, Science Foundation of Ireland, National U of Ireland at Galway, Ireland, 2009
 Trinity College, Dublin, Ireland, School Genetics and Microbiology, 2010
 Institute Basic Sciences, Seoul Korea, 2014
 Site Visit Member CRUK/MRC Oxford Institute Radiation Oncology for Dr. M. Tarsounas 12/16,
External PhD Reviews:
 Megan van Overbeek, Rockefeller University, 2008
 Rebecca Burgess, 2009, Columbia Medical School, Genetics
 Pranav Oza, U of MA Medical School, 2010
 Hugo Almeida, Instituto de Tecnologia Química e Biológica, Universidade Nova de Lisboa Portugal,
 6/13

PRINCETON UNIVERSITY SERVICE:

Head, President's Task force on the Status of Women in Science and Engineering; Strategy to attract and retain highly talented women faculty in the natural sciences and engineering, 2001- 2003
 Member, University wide Target of Opportunity Search Committee to increase diversity of faculty, 2003-06, 2007-08
 Representative to Nine Universities, Gender Equity Analysis 2003-04
 Member, University-wide Faculty Advisory Committee on Appointments and Advancements (C3), 2012-13
 Churchill Scholarship Selection committee, 1997-2001
 Minority student freshman mentor, 1997-98
 Member panel on NIH, university Research Board, 2004
 Council of the Princeton University Community (CPUC), 2003-09; Executive Committee, 2008-09
 Faculty Committee on Policy, 2008-09
 Affiliate faculty, Princeton University, Program in Gender and Sexuality Studies, 2010-
Talks: Alumni University, 1997, 2010; Alumni Studies Program, 1998; HHMI sponsored summer program for high school teachers (2005, 12; 13); Tiger talk, high school students (2006); President's Lecture series, 2011; Moderator, 2011 Reunions Panel on Women in Science; Diversity on Campus, Practices, Policies and Culture, 12/12.

PRINCETON DEPARTMENT OF MOLECULAR BIOLOGY SERVICE:

Executive Committee, Department of Molecular Biology, 1995 – 2004.
 Molecular biology Graduate Student Admissions Committee, 1996- 2011.
 Head seminar program, 1996; 2000-02
 Departmental Search Committees: 1996, 1998, 2008-9
 Assistant Professor Liaison, 1996- 2010
 Departmental graduate student recruiting reorganization committee, 1998
 Departmental Retreat re-organization committee, 1998
 Departmental Tenure Review committee, 2001
 Departmental seminar reorganization committee, 2002
 Review departmental mentoring program
 Head, Molecular biology graduate student recruiting, 1998-2000
 Advisor, Molecular Biology undergraduates interested in graduate school, 1998- 2012
 Annual review of junior faculty: 1997, 1999, 2003, 2004, 2005, 2006, 2007, 2008, 2011, 2012, 2014
 Multiple tenure and full professor promotion committees
 Chair, Princeton MD-PhD program, 2012-2015
 Member, Innovation in Funding committee, 2014-
 Chair, Molecular Biology Postdoctoral Program, 2015-

PRINCETON UNIVERSITY TEACHING:

Eukaryotic Chromosome Structure, MOL BIO 540, Princeton University, 1996-7
 Eukaryotic molecular genetics, MOL BIO 506 Princeton University, 1999- 2004
 Lectures in Cancer Biology, 2000-2005; Lecture WOM393, Seminar on Gender and Science 2003
 Genome Integrity and Human Disease MOL BIO 440, 2005- present

RECENT INVITED TALKS (2012 to date)

2012: Telomere dynamics, Keynote speaker, Israel, 1/12; Gordon Conference, DNA Damage, Mutation & Cancer, Ventura CA, 03/12; EMBO Workshop Recombination Mechanisms and Genome Instability, Jerez de la Frontera, Spain, Session chair and speaker; 05/12; Co-chair FASEB Yeast chromosome structure and cell cycle, 7/12; Session Chair, GSA Yeast Genetics and Molecular Biology Mtg, 8/12; EMBO meeting Telomeres and the DNA Damage Response, Isle sur la Sorgue, France, 10/12; Seminars: Salk Institute 2012; Beckman Research Institute of the City of Hope, 2012; Fred Hutchinson Cancer Res.

Cen; Taiwan, Institute Molecular Biology Academia Sinica and National Taiwan U of 4/12; Cornell U, 9/12; NYU, Biology 10/12; 2012 Magni Lecture, Milan IT, 10/12

2013: FEBS/EMBO Genetic instability and consequences, Armenia (cancelled); Session chair and speaker, Keystone DNA Replication and Recombination meeting, Banff Canada, 3/13; American Society for Biochemistry and Molecular Biology, ASBMB, Annual Meeting plenary lecture and session chair, 4/13; Joe Gall 85th birthday symposium, 4/13; CSH telomere meeting, 5/13; 2013 Chromosome Dynamics Gordon Conference, Session chair and speaker, 5/13, Il Ciocco, Italy; 4th International Meeting on Quadruplex Nucleic Acids, Singapore, 5/13 (declined); FASEB Genetic Recombination and Genome Rearrangements, CO 7/13; Helicases and nucleic acid translocases, Cambridge U, UK, 8/13; Session chair and speaker CSH DNA replication meeting (declined); NYAS, speaker 10/13; Seminars: National Institutes of Aging, Speaker Annual NIA IRP Postbac Day, April 2013; Seminar Gulbenkian foundation, Portugal, 6/13; Stanford U 13 Chemical and Systems Biology 6/13, U Texas, Austin 9/13; NYU Genomics 9/13; University of PA, 10/13; Cancer Institute NJ 12/13

2014: 1st Institute Basic Science Molecular Biology Symposium, Seoul, Korea, 2/14; organizer and speaker DNA Replication, Recombination and Repair Theme of 2014 ASBMB meeting; CSH Cell Cycle Meeting, Session chair and speaker, 5/14 (declined); ABCAM “Mechanisms of Recombination: 50th Anniversary Meeting of the Holliday Model”, Alicante Spain, 5/14 (cancelled due to illness); DNA metabolism Symposium, Wenner-Gren Center, Stockholm, Sweden, 5/14 (declined); Life Science Symposium 2014 Understanding and countering the causes of ageing Leiden, The Netherlands, 5/14 (declined); GRC: Mutagenesis: Changes to the Genetic Landscape, Catalonia, Spain, 6/14; FASEB Yeast chromosome structure replication and segregation, 7/14; Speaker, CINJ mini-symposium Metabolic regulation of DNA damage and repair 8/14; CSH guest lecturer yeast course, 8/14; Keynote speaker, Annual meeting Swedish Society Biochemistry, Biophysics and Molecular Biology, Marstrand, Sweden, 9/14 and Panel member, Scientific Careers; Plenary speaker and session leader, DNA Replication as a Source of DNA Damage: From Molecules to Human Health, Casablanca, Morocco, 9/14; Session leader and speaker, When RNA meets DNA: on the road to genome instability, Baeza, Spain, 11/14; Seminars: U of WA, Genome Sciences, 2/14; Emory U 10/14; U of Toronto, 10/14

2015: Session chair and speaker CSH Telomere meeting, 5/15; 80th Cold Spring Harbor Laboratory Symposium on Quant Biol on 21st Century Genetics, 5/15; Quadruplex Meeting, 5/15, Bordeaux, France (declined); Keynote speaker, GRS for Chromosome Dynamics GRC, 6/15; Session chair, Chromosome Dynamics GRC, 6/15; speaker, FASEB conference on Genetic Recombination and Genome Rearrangements, 7/15; Session chair and speaker, FASEB Helicase meeting, 7/15; Session chair and speaker, CSH DNA Replication and Genome Integrity Meeting, 9/15; EMBO Workshop on Telomeric Chromatic and Telomere Fragility, Singapore, 12/15; Seminars: Stowers Institute, 9/15

2016: featured speaker, EMBO conference Telomeres, Telomerase and Disease, 4/16; At the intersection of DNA replication and genome maintenance, International Centre for Genetic Engineering and Biotechnology Trieste Italy 6/16, FASEB Yeast Chromosome Structure, Replication and Segregation (declined), 7/16; Session chair and speaker, FASEB Dynamic DNA Structures in Biology”, 7/16; Gordon Conference Hong Kong, Genomic Instability, 7/16 (declined); 2016 Cold Spring Harbor Asia Conference, Telomeres and telomerase, Suzhou, China 9/16 (declined); Administration of the President of Armenia: Armenian scientists in the diaspora, 9/16 (declined); **Seminars:** Yerevan State U; Institute of Molecular biology of NAS, Armenia 5/16 (invited by Armenian National Young Scientists’ Program under the auspices of the President of the Republic of Armenia); U of Michigan, Mol. Cell. and Dev. Biology, 9/16; U of Basel, grad school lecture on telomeres in the Functional organization of the Cell Nucleus, 11/16; Friedrich Miescher Institute for Biomedical Research, Basel Switzerland. 11/16.

2017: Keystone Symposia on Genomic Instability and DNA Repair/DNA Replication and Recombination, 4/17; Gordon Conference Chromosome Dynamics, Barga IT 5/17; Nucleic Acids Gordon Conference 6/17; FASEB conference on Genetic Recombination and Genome Rearrangements, 7/17; **Seminars:** Center for Integrative Genomics of the University of Lausanne, Switzerland, 3/17; Department of Microbiology and Immunology Columbia University, 1/17; Center for Integrative Genomics of the

University of Lausanne, Switzerland, 3/17; Yale University, Department of Cell Biology 5/17;
Department Biological Sciences, Vanderbilt U 4/17

POST-DOCTORAL TRAINEES FROM ZAKIAN LAB: (*under represented minority)

1. Gunther Roth, PhD 1977 at U. of Munich with Dr. K. Moritz; post doc 1980-82, supported by Deutsch Forschungsgemeinschaft, 1980-82; tenured faculty, Institut fur Genetik, Freie U., Berlin.
2. Ginger M. Dani (Reddington), PhD 1980 at U. of Minnesota with Dr. T.C. Spelsberg; post doc 1981-85; ACS fellowship, 1983-85; Vice President of Operations, DiagXotics, Wilton, CT.
3. Michael N. Conrad, PhD 1982 at U. of Iowa with Dr. C.S Newlon; postdoc 1982-90; supported by ACS 1983-85; Senior Research Scientist; Oklahoma Medical Research Foundation, Oklahoma City, OK.
4. Rosemary Sweeney, PhD 1982 at U. of Colorado with Dr. L. Gold; postdoc 1983-86; supported by NIH Training Grant "Genetic Approaches to Aging"; Senior Counsel, Amgen.
5. Daniel E. Gottschling, PhD 1984 at U. of Colorado with Dr. T. Cech; postdoc 1984-89; supported by ACS, NIH fellowships, 87-89; Faculty U of Chicago, 89-96; tenured faculty, Division of Basic Sciences, Fred Hutchinson Cancer Res. Cen.
6. Kurt W. Runge, PhD 1984 at MIT with Dr. P.W. Robbins; postdoc 1985-93, supported by ACS and NIH fellowships 1985-88; tenured faculty, Cleveland Clinic, 8/93 to date.
7. Raymund Wellinger, PhD 1986 at Swiss Institute for experimental Cancer Research, Lausanne with Dr. H. Diggelmann; postdoc 1986-93; supported by a grant from the Swiss National Science Foundation, 1986-89; tenured professor and named chair, Sherbrooke U., 2/94.
8. Sy-Shi Wang, PhD 1988 at UMDNJ Medical School with Dr. M. Brandriss; postdoc 1988-91, supported by Jane Roberts Taylor Guild Fellowship, 1988-89; Executive Director, Clinical Operations, Acucela Inc.
9. Jeffrey Stavenhagen, PhD 1989 at Columbia U with Dr. D. Robins; postdoc 1990-96; supported by NIH Postdoctoral Fellowship, 1990-1993; faculty, Dayton U 7/96-00; Head of Biologics Department, H. Lundbeck A/S, Denmark.
10. Vincent Schulz, PhD 1990 at U. of Wisconsin with Dr. W. Reznikoff; postdoc 1990-96, supported by NIH training grant to the University of Washington (1990-92); ACS postdoctoral fellowship (1993-95); project leader and staff scientist Genaissance Pharmaceuticals; Associate Research Scientist, Yale U School of Medicine.
11. Jing-Jer Lin, Ph.D. 1992 at U. of North Carolina with Dr. A. Sancar; postdoc 7/92-7/96; supported by Damon Runyon-Walter Winchell postdoctoral fellowship; tenured and chair Biochemistry, National Taiwan University College of Medicine, Taiwan.
12. Ellen Monson, PhD 1993 at UC San Diego with Dr. D. Helinski; postdoc 5/94-12/99; NIH postdoctoral fellowship; Senior Vice President, Bexion Pharmaceuticals.
13. Robert Corell, PhD 1990 at Dartmouth College with Dr. R. Gross; postdoc 5/94-8/96; high school chemistry teacher, Princeton, NJ.
14. Derik de Bruin, PhD 1993 at Cornell U Grad. School of Med. Sci. with Dr. J. Ravetch; postdoc 9/94-7/97; ACS postdoctoral fellowship; Senior Research Analyst, Bank of America/Merrill Lynch.
15. Catherine Freudenreich, PhD 1994 at Duke U with Dr. K. Kreuzer; postdoc 7/95-6/99; NIH postdoctoral fellowship; tenured Professor, Tufts U.
16. Charles Epstein, PhD 1993 at Rockefeller U with Dr. Fred Cross; postdoc 8/95-8/96; Damon-Runyon and NIH postdoctoral fellowship; Team Leader, Epigenomics, Broad Institute.
17. Haiyan Qi, PhD 1996 at New York Medical College with Dr. Yuk Ching Tse-Dinh; postdoc 7-96-01, supported by NIH training grant 11/96- 3/98, NIH postdoctoral fellowship, 4/98-10/98, DOD Breast cancer postdoctoral fellowship 10/98-01; Researcher, Wuxi Hegu Pharmaceuticals.
18. Andrew Taggart, PhD 1996 at Pennsylvania State U. with Dr. F. Pugh; postdoc, 9/96-03; Susan G. Komen Breast Cancer Foundation postdoctoral fellowship; Senior investigator, Novartis.

19. Andreas Ivessa, PhD 1996 at U of Technology, Graz, Austria with Dr. S. Kohlwein; postdoc 1/97-10/04; Erwin Schrodinger postdoctoral fellowship, Leukemia & Lymphoma Society Special Fellow Award, 7/01-6/04; faculty, UMDNJ.
20. John (Shu-Chun) Teng, PhD 1996 at Rutgers U. with Dr. Abram Gabriel; postdoc 1/97-7/00, DOD Breast cancer postdoctoral fellowship; tenured faculty, Department Microbiology, National Taiwan University, Taiwan.
21. Jin-Qiu Zhou, PhD 1997 at U of Miami School of Medicine with Drs. A. So and K. Downey; postdoc 7/98 –8/01; tenured Professor Chinese Academy of Sciences, Max Planck Insitute, Shanghai China.
27. Yasumasa Tsukamoto, PhD at U of Tokyo 1997 with Dr. H. Ikeda; post doc 10/98 –3-01, fellowship from Japan Society for Promotion of Science; faculty Iwate College of Nursing, Japan.
28. Brian Lenzmeier, PhD 1998 at Colorado State U with Dr. J. Nyborg; 1/99-03, ACS postdoctoral fellowship; tenured faculty Biology Buena Vista U.
29. *Leticia Vega, PhD 1998 at MIT with Dr. F. Solomon; post doc 2/99- 12/04; Helen Hay Whitney postdoctoral fellowship; tenured faculty Barry U.
30. Rong Jiang, PhD 1997 at Columbia U with Dr. M. Carlson; Damon Runyon postdoctoral fellowship, 5/99- 10/00; Wall St.
31. Maria Mateyak, PhD 2000 at Brown U with Dr. J. Sedivy; postdoc 9/00- 7/07, Damon Runyon postdoctoral fellowship; Research Teaching Specialist, UMDNJ.
32. Timothy Fisher, PhD 2002 at Albert Einstein College of Medicine with Dr. V. Prasad; postdoc 3/02-7/05, NIH cancer training grant 02-03, Leukemia & Lymphoma Society Postdoctoral fellowship; Global Lead, Immuno-Oncology / Oncology, Search & Evaluation at Bristol-Myers Squibb.
33. Jean-Baptiste Boule, PhD 2002 at Universite Paris with Dr. Francois Rougeon; post doc 5/02-11/07, Fellowship Assoc. de la Recherche Contre le Cancer, NJCCR postdoctoral fellowship; Research Scientist, National Museum of Natural History, Paris.
34. Benjamin Wardleworth, PhD 2002 at Dundee U with Dr. Malcolm White; post doc 7/02-6/04, Wellcome International Research fellowship; in 2011: chartered accountant PwC
35. Michelle Sabourin, PhD 2001 at Vanderbilt U with Dr. N. Osheroff; post doc 7/02- 4/08; NIH postdoctoral fellowship; Staff Scientist, Life Technologies.
36. Stephen Dunaway, PhD 2004 at Rutgers U with Dr. N. Walworth; post doc 2/04-05; supported by NCI training grant; NJ Commission on Cancer Research postdoctoral fellowship; tenured faculty, Drew U.
37. Sarah Aubert, PhD 2004 at Texas A&M with Dr. F. Raushel; postdoc 9/04-1/09; Researcher, Janssen R&D.
38. Chris Webb, PhD 2004 at Case Western U with Dr. J. Wise; post doc 10/04- 12; NIH and American Cancer Society postdoctoral fellowships; staff scientist Zakian lab, 2013-
39. *Creighton Tuzon PhD 2004 at U of Colorado Health Sciences Center with Dr. J. Cooper; post doc 11/04-8/09; NSF postdoctoral fellowship; named ACS postdoctoral fellowship; Research Associate, U of Southern California.
40. Xi Ai, PhD 2004 at Ohio State U with Dr. Mark Parthun; post doc 6/05-1/07; Associate Principle Scientist, Merck Research Labs
41. Iris Cheung, PhD 2005 at U British Columbia with Drs. A. Rose and P. Lansdorp; post doc 8/05-08; Canadian Institutes of Health Research (CIHR) postdoctoral fellowship, Next-Generation Sequencing Specialist, Eurofins MWG Operon; as on 2015: Business development manager Dalton Pharma Services.
42. Yun Wu, PhD 2006 at U of CA Davis with S. Kowalczykowski; post doc 2006-12, Damon-Runyon Postdoctoral fellowship; Scientist, Pharmaceutical Sciences, Protein Potential LLC.
43. Katrin Paeschke, PhD 2006 at U Witten, Germany with Dr. H. Lipps; post doc 2007-12; Deutsche Forschung Gesellschaft postdoctoral fellowship, NJCCR postdoctoral fellowship; received one of two Emmy Noether Award from the DFG (Deutsche Forschungsgemeinschaft); support as independent investigator for five years at any German university, junior group leader, Department of Biochemistry, University of Wuerzburg

44. Nasim Sabouri, PhD 2008 at Medical Biochemistry and Biophysics, Umeå U Sweden with Dr. Erik Johansson; post doc 2008-12, Wennergren fellowship, Svenska Sällskapet för Medicinsk Forskning (SSMF, Swedish society for medical research); tenure track faculty, Medical Biochemistry and Biophysics, Umeå U, Sweden
45. Matthew Bochman, PhD 2008 at U of Pittsburgh with Dr. A. Schwacha; post doc: 1/09-7/13, American Cancer Society postdoctoral fellowship, tenure track faculty Indiana U, 8/13-
46. Chi-Fu Chen, PhD 2010 at Rutgers U with Dr. S. Brill; post doc 2/11- ; NJCCR postdoctoral fellowship, 12/12-11/14
47. Kah Wai Lin, MD, PhD; PhD in 2012 at Karolinska Institute Sweden with Dr. S. Souchelnytskyi; postdoc 4/12-4/16; self-employed.
48. Phong Lan Thao Tran, PhD 2012 at ARNA Lab-INSERM, Institut Européen de Chimie et Biologie, France with Dr. Jean-Louis Mergny; postdoc, 9/12-, EMBO long term fellowship, 9/12-14, NJCCR post-doctoral fellowship, 2015-17.
49. Lindsey Williams, PhD 2012 at U of WA with Dr. B. Preston; post doc fellow, 5/13-5/15; Scientist, Ariosa Diagnostics.
50. Cindy Follonier, PhD 2012 at Institute of Molecular Cancer Research. U of Zurich, Switzerland with Dr. Massimo Lopes; post doc, 5/13- , EMBO long term fellowship, 13-15; Swiss NSF fellowship, 8/15-7-17
51. *Thomas Pohl, PhD 2013 at U of WA with Dr. B. Brewer; post doc, 1/14- ; Ford Foundation post doctoral fellowship; Burroughs Wellcome Postdoctoral enrichment program; finalists for Life Science Research Foundation grant

GRADUATE STUDENTS TRAINED IN ZAKIAN LAB (*under-represented minority)

1. Ann F. Pluta, Graduate Student in Pathology at U. of Washington supported by Molecular Training in Cancer Research, training grant: post doc with Dr. W. Earnshaw, Johns Hopkins U (88-95); Scientific Communications Editor, NCI.
2. Jocelyn Wright, Graduate Student Pathology U. of Washington, 1988-93; postdoc 1993-97 with Dr. E. Krebs, U. of Washington; Freelance Science Writer, bio-link.org.
3. Lisa Sandell, Graduate student Pathology U. of Washington, 1989-94; postdoc 1994-04 with Dr. S. Tilghman, Princeton U; tenure track faculty U of Louisville.
4. Emily Wiley, Graduate Student Pathology, U. of Washington, 1991-96; post doc, D. Allis, U of Rochester, 10/96-00; tenured faculty Joint Science Program Claremont Colleges.
5. Brenda Bourns, Graduate Student Pathology, U. of Washington, 1992-97; post doc 1998 with Dr. A. Clowes, U of WA; faculty Seattle University.
6. Satkunanathan Balakumaran, Graduate Student, Interdisciplinary Molec. Cell. Biol. Program, U. of Washington, 1993-95; Graduate Student, Princeton U., 1995-00; post doc Dr. H. Willard, Duke U; Research Scientist, Duke Medical Center.
7. Mary Kate Alexander, graduate student, Princeton U 6/97-9/02; Howard Hughes graduate fellowship; post doc B. Panning, UCSF; Senior Research Associate, Microbial Pathogenesis, Genentech.
8. Wai-Hong Tham, graduate student, Princeton U 6/97-8/01; Princeton U teaching award; post doc with A. Amon, MIT; tenure track faculty, Walter and Eliza Hall Institute of Medical Research.
9. Jessica Bessler, graduate student, Princeton U 6/99 -1/03; Pre-doctoral fellowship, NJ Commission on Cancer Research, 7/01-6/03; post doc with A. Villeneuve, Stanford U; 9/10 Associate Scientific Director, Health Interactions.
10. *Jorge Torres, graduate student, Princeton U 6/99 -12/03; Princeton U teaching award; post doc Genentech, tenure track faculty Department Biochemistry UCLA
11. Lara Goudsouzian, graduate student, Princeton U, 9/00 to 11/05; faculty Raritan Valley Jr. College
12. Michelle Mondoux, graduate student, Princeton U, 6/01-5/07; NSF predoctoral fellow; Thomas J. Silhavy award. Princeton U teaching award; post doc NIH M. Krause; tenure track faculty, College of the Holy Cross.

13. Stefan Pinter, graduate student, Princeton U., 6/02-1/08; Susan G. Komen Breast Cancer Foundation predoctoral fellowship; post doc Jeannie Lee, Harvard Med School.
14. Kathleen Daumer, graduate student Princeton U, 6/02-4/07; NJ Commission on Cancer Research pre-doctoral fellowship, Princeton U teaching award, Systems Engineer, AT&T Government Solutions.
15. Anna Azvolinsky, graduate student Princeton U, 6/04-11/09; post doctoral fellow, John Petrini, Sloan Kettering; 2011: free-lance science journalist
16. Jane Phillips, graduate student Princeton U, 6/04-5/09, 2005 Princeton U teaching award; NJCCR pre-doctoral fellowship, 2006-08; Associate Medical Director, Complete Healthcare Communications.
17. Marina Paul, graduate student, Princeton U, 11/06-9/10; Senior Medical Editor, Elsevier.
18. Karin Rainey McDonald, graduate student Princeton U, 5-07-9/12; NJCCR pre-doctoral fellowship
19. Jean Suh McGee, MD-PhD, 7/07-8/10, NJCCR fellowship; NIH fellowship; 2013: residency dermatology Boston U.
20. Jennifer Stundon, MD-PhD, 8/09 -3/14, NIH fellowship; medical school
21. Shelly Lim, Princeton U graduate student, 6/10-9/15, post doc Sloan Kettering
22. *Patricia Daniela Garcia, Princeton U graduate student, 6/12-
23. *Carly Geronimo, Princeton U graduate student, 6/13-; NSF pre-doctoral fellow
24. *Kinnari Matheson, Princeton U graduate student, 12/14- (co-mentored with Dr. A. Gammie)

UNDERGRADUATE RESEARCH STUDENTS TRAINED IN ZAKIAN PRINCETON LAB

(Unless otherwise indicated from Princeton U; * under-represented minority):

1. Taryn Phippen, 1996, "An analysis of recombination between internal tracts of yeast telomeric DNA"; PhD, Cell and Molecular biology, U of WA
2. Sara M. Kantrow, 1997, "The triplet repeat CTG can expand in yeast and increases direct repeat recombination in a length dependent manner; NJCCR Summer Fellowship, graduated with highest honors; Phi Beta Kappa, awarded McCracken Senior Thesis Prize for inventiveness and technical accomplishment; Vanderbilt Medical School
3. Andrew M. Smith, 1997, "An Examination of protein-telomere interactions *in vivo* using a one hybrid-system; Phi Beta Kappa, graduated with high honors; Northwestern Medical School
4. Heather H. Cheng, 1998, "A screen to find genes that affect the stability and fragility of CTG trinucleotide repeats; NJCCR Summer Fellowship; MD-PhD U of WA
5. Jonah S. Marshall, 1998; "Testing *in vitro* and *in vivo* protein-protein interactions of the RRM3 and PIF1 helicases; U Rochester Medical School
6. Claire Dunne, 1999; "An investigation of the role of Cdc13p at the telomere in *S. cerevisiae*"; graduated with honors; MD-PhD at Cornell Medical.
7. Bradley (Scott) McCowan, 1999; "Characterization of the role of *RIF1* and *RIF2* in telomere formation in *Saccharomyces cerevisiae*"; graduated with honors, Squibb and Sons Senior Thesis prize, class day speaker; Emory Medical School.
8. Amy D. Vassalotti, 2000; "Screening for genes associated with CTG trinucleotide repeat fragility and instability in yeast"; teacher with Americorp, Harvard School Public Policy
9. Jason Chang, 2000; "Characterization of roles of *RIF1*, *RIF2*, *RAD50*, and *RAD51* in survivor formation in telomerase-minus *Saccharomyces cerevisiae*"; graduated with high honors; NYU Med. School.
10. Joanna Byar, 2001; "Purification and characterization of recombinant yeast Pif1p"; grad stud, NYU
11. Alfred Garfall, 2002; "Mutational analysis of Rrm3p, a helicase that affects replication of ribosomal DNA and telomeres"; graduated with honors; NYU medical school.
12. Alicia Jacob-Zysman, 2003; Identification and characterization of interactors with Rrm3p; U of Rochester Med School.
13. Jillian Godfrey, 2004; Determination of the relationship between peripheral localization, gene silencing, and telomere length in *S. cerevisiae*, Associate consultant, Trinity Partners, Boston MA

14. Lauren Marlowe, 2004; Characterization of RIF1 and RIF2 in telomere length regulation and DNA damage response; graduated with high honors; NIH Academy fellowship program; U PA med school
15. *Tolu Onigbanjo, 2005; The role of Pif1p in exacerbating telomere end protection in *S. cerevisiae*; tenure track faculty NJCCR Summer Fellowship; George Washington U medical school
16. Adam Castaño, 2005; The end is near: the role of the Cdc13p-Stn1p-Ten1p complex in telomere length regulation and chromosome end protection; NIH Academy fellowship program; U of MI medical school.
17. Nazli Sedighi Hashjin, 2006, visiting student from Karolinska Institute, graduate student Sweden
18. Amy Wasterlain, 2007, NJCCR Summer Fellowship, graduated with high honors, Consultant NYC
19. *Sandra Nweke, Dillard University, worked in lab summer 2006, part of PCCM (Princeton Center for Complex Materials) REU (Research Experiences for UG) program
20. Keren Glinert, 2008, NJCCR Summer Fellowship, working as lab tech U of Chicago
21. *Annika Windon, 2008, Minority Supplement to NIH grant, Role of Stn1p and Ten1p in telomere protection in *S. cerevisiae*, Meharry Medical School
22. Jeremy Amon, Princeton U 2009, NJCCR fellowship, NSF fellow in Graduate School U of CA at Berkeley
23. *DeMario Butts, Morehouse class 2010, worked in lab summer 2008
24. *Christian Windon, Princeton U 2010, medical school
25. *Amir-Arsalan Safaai-Jazi, Virginia Tech, summer 2011
26. *Joanna Blanco, St. Peters College, class of 2012, summer student
27. Colleen Judge, Princeton U, class 2011, graduated with high honors, Sigma chi; Research Tech. Medical School
28. *Patricia Daniela Garcia, UTEP, class 2011, summer student 2010; graduate student Princeton U
29. *Jonathan Jackson, Princeton U, class of 2013, Research tech
30. Daniel Cohen, class of 2013, graduated magna cum laude, working in business
31. *Aleeson Eka, class of 2014, U of PA, MS program
32. Greg Kazarian, class of 2014, graduated with high honors, Sigma Chi; working as consultant
33. Jeffrey Wu, class of 2015
34. Linda Vo, class of 2015
35. *Elshaddai Ephrem, class of 2016, graduated with honors, Department Thesis Prize
36. Emilee Tu, Class of 2016, graduated with honors
37. Adam Wang, Class of 2018

VISITING SCIENTISTS

1. Dr. Gunther Roth, Institut fur Genetik, Freie U., Berlin; Summer 1984.
2. Dr. James L. Hartley, Staff Scientist Bethesda Research Laboratory; Summer 1984.
3. Dr. Bjarne Juul Bonven, Assistant professor U. of Aarhus, Aarhus, Denmark; 12/90 - 12/91.
4. Dr. Motoko Shibamura, Department of Microbiology, Showa U., Tokyo, Japan; 8/94-3/95
5. Dr. Yoshinori Yamashita, Tokyo Research Labs, Kyowa Hakko Kogyo Co., 9/95-1997
6. Visiting graduate student Enea Di Domenico, from Dr. F. Ascenzioni, Development and Cellular Biology, University of Rome, Italy, 4/08-; U of Oxford, 2015
7. Visiting graduate student, Anna Traczyk, PhD candidate NTU School of Biological Sciences, Singapore, 2016

PUBLICATIONS

1. Zakian VA. (1976) Electron microscopic analysis of DNA replication in *Drosophila virilis*. *J. Mol. Biol.* **198**: 305-331.
2. Zakian VA, Brewer BJ and Fangman WL. (1979) Replication of each copy of the yeast 2 micron DNA plasmid occurs during the S phase. *Cell* **17**: 923-934.

3. Brewer BJ, Zakian VA and Fangman WL. (1980) Replication and meiotic transmission of yeast ribosomal RNA genes. *Proc. Natl. Acad. Sci. USA* **77**: 6739-6743. PMC350364
4. Brewer BJ, Zakian VA, Nelson RG and Fangman WL. (1981) Replication and inheritance of the ribosomal RNA genes and the 2 μ m plasmids. In: *Molecular genetics in yeast*. von Wettstein D, Friis J, Kielland-Brandt M, Stenderup A, eds. Copenhagen: Munksgaard, pp. 21-34.
5. Rabek J, Zakian VA and Levine AJ. (1981) The SV40 A-gene product suppresses the adenovirus H5ts125 defect in DNA replication. *Virology* **109**: 290-302.
6. Zakian VA. (1981) The origin of replication from *Xenopus laevis* mitochondrial DNA promotes high frequency transformation of yeast. *Proc. Natl. Acad. Sci. USA* **78**: 3128-3132. PMC319513
7. Zakian VA, Wagner DW and Fangman WL. (1981) Yeast double-stranded RNAs are synthesized during the G1 phase but not the S phase of the cell cycle. *Mol. Cell. Biol.* **1**: 673-679. PMC369347
8. Fangman WL and Zakian VA. (1982) Genome structure and replication. In: *The molecular biology of the yeast *Saccharomyces cerevisiae**. Broach J, Jones E, Strathern J, eds. Cold Spring Harbor, NY, pp. 27-58.
9. Zakian VA and Kupfer DM. (1982) Replication and segregation of an unstable plasmid in yeast. *Plasmid* **8**: 15-28.
10. Zakian VA and Scott JF. (1982) Construction, replication and chromatin structure of TRP1 RI Circle: A multiple copy synthetic plasmid derived from yeast chromosomal DNA. *Mol. Cell. Biol.* **2**: 221-232. PMC369780
11. Dani GM, Pluta AF and Zakian VA. (1983) Termini from macronuclear DNA of ciliated protozoans can provide telomere function for yeast plasmids in mitosis and meiosis. In: *Mechanisms of DNA replication and recombination*. Cozzarelli NR, ed. UCLA Symp Molec. Cell. Biol., Vol. 10. NY: AR Liss, pp. 553-562.
12. Dani GM and Zakian VA. (1983) Mitotic and meiotic stability of linear plasmids in yeast. *Proc. Natl. Acad. Sci. USA* **80**: 3406-3410. PMC394052
13. Roth GE, Blanton HM, Hager LJ and Zakian VA. (1983) Isolation and characterization of sequences from mouse chromosomal DNA with ARS function in yeast. *Mol. Cell. Biol.* **3**: 1898-1908. PMC370056
14. Zakian VA. (1983) Control of chromosome behaviour in yeast. *Nature* **305**: 275.
15. Pluta AF, Dani GM, Spear BB and Zakian VA. (1984) Elaboration of telomeres in yeast: Recognition and modification of termini from *Oxytricha* macronuclear DNA. *Proc. Natl. Acad. Sci. USA* **81**: 1475-1479. PMC344859
16. Zakian VA. (1984) Architecture of interphase nuclei. *Nature* **308**: 406.
17. Zakian VA. (1985) Nuclear structure. Taken with a grain of salt. *Nature* **314**: 223-224.
18. Zakian VA, Blanton HM and Dani GM. (1985) Formation and stability of linear plasmids in a recombination deficient strain of yeast. *Curr. Genet.* **9**: 441-445. PMID: 3916729
19. Zakian VA, Blanton HM, Wetzel L and Dani GM. (1986) A size threshold for yeast chromosomes: Generation of telocentric chromosomes from an unstable minichromosome. *Mol. Cell. Biol.* **6**: 925-932. PMC367593
20. Gottschling DE and Zakian VA. (1986) Telomere Proteins: Specific recognition and protection of natural termini of *Oxytricha* macronuclear DNA. *Cell* **47**: 195-205. PMID: 3094961

21. Zakian VA, Blanton HM and Wetzel L. (1986) Distribution of telomere-associated sequences in yeast. In: *Extrachromosomal Elements in Lower Eukaryotes*. R Wickner, A Hinnebusch, L Mets, A Labinowitz, IC Gunsalus, A Hollaender, eds. Plenum Press, NY, pp. 493-498. PMID:3551920
22. Zakian VA. (1987) Ciliates. *Science* **237**:305 (Book review).
23. Conrad MN and Zakian VA. (1988) Plasmid associations with residual nuclear structures in *Saccharomyces cerevisiae*. *Curr. Genet.* **13**: 291-297. PMID: 2839303
24. Zakian VA and Blanton HM. (1988) Distribution of telomere-associated sequences on natural chromosomes in *Saccharomyces cerevisiae*. *Mol. Cell. Biol.* **8**: 2257-2260. PMC363413
25. Gottschling DE and Zakian VA. (1988) DNA-protein interactions in macronuclear DNA. *Advances in Cell Biol*, Vol. 2 (K.R. Miller, ed.) pp. 291-307.
26. Sweeney R and Zakian VA. (1989) Extrachromosomal elements cause a reduced division potential in *nib1* strains of *Saccharomyces cerevisiae*. *Genetics* **122**: 749-757. PMC1203751
27. Wellinger RJ and Zakian VA. (1989) Lack of positional requirements for autonomously replicating sequence elements on artificial yeast chromosomes. *Proc. Natl. Acad. Sci. USA* **86**: 973-977. PMC286601
28. Pluta AF and Zakian VA. (1989) Recombination occurs during telomere formation in yeast. *Nature* **337**: 429-433. PMID:2536898 (full length article; news and views in same issue)
29. Runge K and Zakian VA. (1989) Introduction of extra telomeric DNA sequences into *Saccharomyces cerevisiae* results in telomere elongation. *Mol. Cell. Biol.* **9**: 1488-1497. PMC362565
30. Wang S-S, Pluta AF and Zakian VA. (1989) DNA sequence analysis of newly formed telomeres in yeast. In: *Mechanisms of Chromosome Distribution and Aneuploidy* (M.A. Resnick and B.K. Vig, eds). Alan R. Liss, NY pp. 81-89. PMID: 2626440
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32. Zakian VA. (1990) *Saccharomyces cerevisiae*: Structure and behavior of natural and artificial chromosomes. CRC Press. In: *Chromosomes: Eukaryotic, Prokaryotic and Viral* Vol II (K.W. Adolph, ed) pp. 105-128.
33. Zakian VA, Runge K and Wang S-S. (1990) How does the end begin? Formation and maintenance of telomeres in ciliates and yeast. *Trends Genet.* **6**: 12-16. PMID: 2183413
34. Wang S-S and Zakian VA. (1990) Telomere-telomere recombination provides an express pathway for telomere acquisition. *Nature* **345**: 456-458. PMID: 2111466
35. Runge KW and Zakian VA. (1990) Properties of the transcriptional enhancer in *Saccharomyces cerevisiae* telomeres. *Nucleic Acids Res.* **18**: 1783-1787. PMC330596
36. Wang S-S and Zakian VA. (1990) Sequencing of *Saccharomyces* telomeres cloned using T4 DNA polymerase reveals two domains. *Mol. Cell. Biol.* **10**: 4415-4419. PMC361005
37. Gottschling DE, Aparicio DM, Billington BL and Zakian VA. (1990) Position effect at *S. cerevisiae* telomeres: reversible repression of Pol II transcription. *Cell* **63**: 751-762. PMID: 2225075
38. Conrad MN, Wright J, Wolf A and Zakian VA. (1990) RAP1 protein interacts with yeast telomeres *in vivo*: Overproduction alters telomere structure and decreases chromosome stability. *Cell* **63**: 739-750. PMID: 2225074
39. Runge KW, Wellinger RJ and Zakian VA. (1991) Effects of excess centromeres and excess telomeres on chromosome loss rates. *Mol. Cell. Biol.* **11**: 2919-2928. PMC360116

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42. Wright JH, Gottschling DE and Zakian VA. (1992) *Saccharomyces* telomeres assume a non-nucleosomal chromatin structure. *Genes Dev.* **6**: 197-210. PMID:1737616
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45. Runge KW and Zakian VA. (1993) *Saccharomyces cerevisiae* linear chromosome stability (*lcs*) mutants increase the loss rate of artificial and natural linear chromosomes. *Chromosoma* **102**: 207-217; PMID: 8458255
46. Wellinger RJ, Wolf A and Zakian VA. (1993) *Saccharomyces* telomeres acquire single-strand TG₁₋₃ tails late in S phase. *Cell* **72**: 51-60. PMID: 8422682
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50. Sandell LL and Zakian VA. (1993) Loss of a yeast telomere: arrest, recovery and chromosome loss. *Cell* **75**: 729-739. PMID: 8242745
51. Schulz VP and Zakian VA. (1994) The *Saccharomyces PIF1* DNA helicase inhibits telomere elongation and *de novo* telomere formation *Cell* **76**: 145-155. PMID: 8287473
52. Stavenhagen J and Zakian VA. (1994) Internal tracts of telomeric DNA act as silencers in *Saccharomyces cerevisiae*. *Genes Dev.* **8**: 1411-1422. PMID: 7926741
53. Sandell LL, Gottschling, DE, and Zakian VA. (1994) Transcription of a yeast telomere alleviates telomere position effect without affecting chromosome stability. *Proc. Natl. Acad. Sci. USA* **91**: 12061-12065. PMC45376
54. Lin J-J and Zakian VA. (1994) Isolation and characterization of two *Saccharomyces cerevisiae* genes that encode proteins that bind to (TG₁₋₃)_n single strand telomeric DNA *in vitro*. *Nucleic Acids Res.* **22**: 4906-4913. PMC523755
55. Long S and Zakian VA. (1994) Women in Biomedicine: Encouragement. *Science* **263**: 1357-1358. (letter co-signed by 65 women scientists)
56. Wiley E and Zakian VA. (1995) Extra telomeres, but not internal tracts of telomeric DNA, reduce transcriptional repression at *Saccharomyces* telomeres. *Genetics* **139**: 67-79. PMC1206349

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63. Wellinger RJ, Etier K, Labreque P and Zakian VA. (1996) Evidence for a new step in telomere maintenance. *Cell* **85**: 423-433. PMID: 8616897
64. Runge KW and Zakian VA. (1996) *TEL2*, an essential gene required for telomere length regulation and telomere position effect in *Saccharomyces cerevisiae*. *Mol. Cell. Biol.* **16**: 3094-3105. PMC231304
65. Lin JJ and Zakian VA. (1996) Analysis of *Saccharomyces cerevisiae* telomeres *in vitro*. In Proceedings on Chromosome Segregation and Aneuploidy (A. Abbondandolo, B.K. Vig and R. Roi, Eds). IST. pp. 164-171.
66. Schulz VP, Zakian VA, Ogburn CE, McKay J, Jarzebowicz AA, Edland SD, and Martin, GM. (1996) Accelerated loss of telomeric repeats may not explain accelerated replicative decline of Werner syndrome cells. *Hum. Genet.* **97**: 750-754 PMID: 8641691
67. Zakian VA. (1996) Structure, function and replication of *Saccharomyces cerevisiae* telomeres. *Annu. Rev. Genet.* **30**:141-172. PMID: 8982452
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- the *PIF1* sub-family of DNA helicases (*co first authors). *Mol. Biol. Cell.* **13**: 2180-2191. PMC: 117634
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Patents:

"Modulation of *PIFI*-type helicases", Serial #08/086,993; filed 7/93; issued 1/95; V. Zakian and V. Schulz, co-inventors;

"Telomere maintenance assays", Serial #6025135; filed 5/97; issued 2/00; R. Wellinger and V. Zakian, co-inventors