

CURRICULUM VITAE

Samuel H. Wilson

Place of Birth: U.S.A.

Married - 2 children (grown)

Education:

| | | |
|------|-------------------------|--------------------------|
| 1961 | A.B. (Chemistry) | University of Denver |
| 1968 | M.D. | Harvard University |
| 1968 | Postdoctoral Fellowship | Dartmouth Medical School |
| 1970 | Postdoctoral Fellowship | NIH |

Professional Employment:

| | |
|----------------|---|
| 1996 - Present | Chief, DNA Repair and Nucleic Acid Enzymology Section, Laboratory of Structural Biology, NIEHS, NIH |
| 2007 - 2009 | Acting Director, National Institute of Environmental Health Sciences (NIEHS), NIH, & National Toxicology Program |
| 1996 - 2007 | Deputy Director, NIEHS, NIH, & National Toxicology Program |
| 1991 - 1996 | Founding Director, Sealy Center for Molecular Science, The University of Texas Medical Branch (UTMB) and Director, Centennial Center for Environmental Toxicology, UTMB |
| 1986 - 1992 | Chief, Nucleic Acid Enzymology Section, Laboratory of Biochemistry, National Cancer Institute (NCI), NIH |
| 1970 - 1992 | Research Scientist, Laboratory of Biochemistry, NCI, NIH |
| 1968 - 1992 | US Public Health Service Commissioned Corps, Retired (January 1992) Medical Director (06) |
| 1968 - 1970 | Postdoctoral Fellow (Research Associate) Laboratory of Biochemical Genetics (Advisor - Marshall Nirenberg), National Heart Institute, NIH |
| 1967 - 1968 | Postdoctoral Fellow, Department of Biochemistry (Advisor- Mahlon Hoagland), Dartmouth Medical School |
| 1964 - 1966 | Student Research Associate, Department of Bacteriology and Immunology (Advisor - Mahlon Hoagland), Harvard Medical School |
| 1961 - 1962 | Graduate Fellow, Department of Chemistry (Advisors - J.J. Schmidt - Colerus and J.A. Krimmel), Denver Research Institute, Univ. of Denver |

Awards & Lectures: (since 2000)

| | |
|------|--|
| 2008 | Robert S. Harris Lecturer, Massachusetts Institute of Technology |
| 2008 | Abelson Lecturer, Washington State University |
| 2008 | Keynote Speaker, MD Anderson Cancer Center, DNA Repair Symposium |
| 2007 | Keynote Speaker, North Carolina Regional Conference on Genome Stability |
| 2005 | NIH Merit Award (Strategic Planning) |
| 2005 | NIH Merit Award (Gulf Coast Hurricane Response) |
| 2005 | Plenary Lecturer, 9 th International Conference on Environmental Mutagens |
| 2005 | Keynote Speaker, Genetic Toxicology Gordon Research Conference |
| 2004 | NIH Merit Award (Leadership as Deputy Director, NIEHS) |
| 2003 | NIEHS "Scientist of the Year 2003" and Science Day Speaker |
| 2003 | Keynote Speaker, EU-US Conf. on DNA Damage Induced Stress Responses |

2003 Keynote Speaker, Toxicogenomics Gordon Research Conference
 2003 Keynote Speaker, The American Chemistry Council Long-Range Research Initiative (ACC-LRI) First Annual Science Meeting
 2002 Keynote Speaker, Mutagenesis Gordon Research Conference
 2002 21st William B. Kinter Lecturer, Mount Desert Island Biol. Lab. Symposium
 2002 NIH Director's Award (Toxicogenomics)
 2002 Keynote Speaker, New York Medical College, Annual Research Forum
 2001 NIH Merit Award (Toxicogenomics)
 2001 Keynote Speaker, Mouse Genomics Consortium Workshop
 2001 Keynote Speaker, 11th Annual Howard Hughes Medical Institute Environmental Conference
 2001 Keynote Speaker, Genetic Toxicology Gordon Research Conference
 2001 Keynote Speaker, 3rd Annual Midwest DNA Repair Symposium
 2000 Keynote Speaker, Toxicology Gordon Research Conference
 2000 NIH Director's Award, Advanced Research Cooperation in Environmental Health (ARCH) Program

Graduate Student Advisor/Thesis Research Supervisor:

Degree in 1978 W. Zellmer, Dept. of Zoology, Auburn University
 Degree in 1978 E.W. Bohn, Dept. of Chemistry, American University
 Degree in 1985 J. Swack, Dept. of Biochemistry, George Washington University
 Degree in 1997 T. Molina, Dept. of Human Biological Chemistry and Genetics, UTMB
 Degree in 2007 N. Palma, Dept. of Cellular Biology, University of Seville, Spain

Member Ph.D. Thesis Defense or Advisory Committee:

2002, T. Fisher, Dept. of Microbiology and Immunology, Albert Einstein College of Medicine;
 2001, L. Chen, Dept. of Molecular Medicine, Institute of Biotechnology, University of Texas Health Science Center (San Antonio); 2000, B.-Q. Li, Dept. of Biochemistry and Molecular Biology, University of Miami; 1997, A.G. McNees, Dept. of Human Biological Chemistry and Genetics (HBC&G), UTMB; 1997, X.-Q. Zhou, Department of Cellular and Structural Biology, University of Texas Health Science Center (San Antonio); 1996, Q. Xie, Dept. of HBC&G, UTMB; 1996, B. Ponnaiya, Dept. of HBC&G, UTMB; 1996, T.K. Varma, Dept. of HBC&G, UTMB; 1995, S. F. Anderson, Dept. of Molecular Biophysics and Biochemistry, Yale University; 1995, N. Deane, Dept. of Microbiology, UTMB; 1992, R. Anderson, Dept. of Biochemistry, Baylor College of Medicine; 1991, M. Delahunty, Dept. of Chemistry, Univ. of Maryland Baltimore County; 1987, H. Al-Khatib, Dept. of Biochemistry, Georgetown University; 1986, B. Merrill, Dept. of Molecular Biophysics and Biochemistry, Yale University; 1985, A. Lambrianidou, Dept. of Biochemistry, Georgetown University; 1984, W. Albert, Institute of Biochemistry, University of Wurzburg; 1980, M. Vinocour, Dept. of Biochemistry, University of Arizona.

Postdoctoral Fellows and Research Associates:

2007-present, M. Heacock; 2005-present, A Masaoka; 2003-present, Y. Liu; 2003-present, K. Asagoshi; 2002-2006, E. Braithwaite; 2005, E. Speina; 2002-2003, C. Cistulli; 1998-2003, M. Ghosh; 1993-2002, R. Sobol; 1992-1999, 2001-2002, D. Srivastava; 1997-2001, B. Vande Berg; 1999-2000, D. Kolpachtchikov; 1999-2000, G. Belova; 1997-2000, A. Robertson; 1998-1999, J.

Krahn; 1992-1999, X.-P. Yang; 1994-1996, J. Chyan; 1992-1996, R. Singhal; 1991-1996, F. He; 1991-1996, K.-H. Chen; 1991-1996, S. Narayan; 1990-1995, M. Jaju; 1991-1994, R. Prasad; 1992-1993, R. Kim; 1991-1993, H. Idriss; 1991-1993, R. Goel; 1990-1992, W. Beard; 1989-1991, J. Casas-Finet; 1989-1991, S.-J. Kim; 1989-1991, A. Kumar; 1989-1991, E. Englander; 1987-1991, J. Abbotts; 1986-1991, S. Widen; 1988-1990, C. Majumdar; 1987-1990, P. Kedar; 1985-1987, P. Kumar; 1984-1987, D. Sen Gupta; 1984-1987, F. Cobianchi; 1982-1984, A. Hazra; 1981-1984, E. Karawya; 1980-1984, P. Becerra; 1979-1984, S. Detera; 1979-1984, K. Tanabe; 1980-1983, S. Planck; 1977-1980, Y.-C. Chen; 1978-1979, T. Marshall; 1975-1976, M. Sivarajan; 1972-1975, A. Matsukage.

Sabbatical/Senior Laboratory Associates:

2006-present, M. Carrozza; 2002-present, V. Poltoratsky; 2001-present, V. Batra; 1999-present, P. Kedar; 1997-present, J. Horton; 1994-present, R. Prasad; 1992-present, W. Beard; 2006-2007, Z. Zhang; 1994-1995, 1999-2000, 2001-2002, O. Lavrik; 1995-1996, and 2002, P. Strauss; 2000-2002, S.-J. Kim; 2001, H. Idriss; 1999, 2000, S. DeLauder; 1997, A. Slesarev; 1990, F. Cobianchi; 1985, K. Tanabe; 1984-1990, B.Z. Zmudzka.; 1984 and 1988, A. Matsukage.

National Peer-Review Activities: (excluding journal reviews, since 2000)

2008 - 2011 Editorial Board, *Nucleic Acids Research*
2006 - present Editorial Board, *Mechanisms of Ageing and Development*
2003 - 2008 Associate Editor, *DNA Repair*
2001 - 2003 Editorial Board, *DNA Repair*
1999 - 2006 Editorial Board, *Annual Review of Medicine*
1997 - 2008 Editorial Board, *Environmental Health Perspectives*
1996 - 2002 Editorial Board, *The Journal of Biological Chemistry*

National Committees and Other Activities Outside NIH: (since 2000)

2007 - 2008 Co-Chair, 3rd Biannual US-EU/EU-US DNA Repair Meeting
2007 Organizing Committee NAS/IOM The Institute of Medicine's Roundtable on Environmental Health Sciences, Research, and Medicine (EHSRT) Workshop, Environmental Health, Energy, and Transportation, Washington, DC
2007 Vice-Chair, Genetic Toxicology Gordon Research Conference, Oxford, UK
2007 Co-Chair, 3rd Biannual Japan-US/US-Japan DNA Repair Meeting
2005 Co-Chair, 2nd Biannual EU-US DNA Repair Meeting, Erice, Sicily
2004 - present Member, Scientific Advisory Board, Flight Attendant Medical Research Institute (FAMRI) Center, Weizmann Institute of Science, Rehovot, Israel
2004 Co-Chair, 2nd Biannual Japan-US/US-Japan DNA Repair Meeting, Honolulu, HI
2003 - 2009 Vice-Chair and Chair, respectively, Genetic Toxicology Gordon Research Conference, Oxford, UK
2003 - 2007 Director (2003), Scientific Advisory Board (2004-2007), Radiation Effects Research Foundation (Cooperative Japan-United States Research Organization), Hiroshima, Japan
2003 - 2005 Program Committee, 9th International Conference on Environmental Mutagens, San Francisco, CA
2003 Co-Chair, Biannual US-EU/EU-US DNA Repair Meeting, Leesburg, VA

- 2003 Annual Meeting EMS, Miami, FL, May 2003, Symposium Co-Chair
- 2002 Scientific Advisory Board – Program on Structural and Cell Biology of DNA Repair, Lawrence Berkeley National Laboratory, Berkeley, CA
- 2002 Scientific Advisory Committee (*ad hoc*), CIIT, RTP, NC
- 2002 Co-Chair, Marshall Nirenberg Symposium, Natcher Center, NIH, Bethesda, MD
- 2002 Co-Chair, 1st Biannual Japan-US/US-Japan DNA Repair Meeting, Sendai, Japan
- 2000 - 2001 Member, American Society for Biochemistry and Molecular Biology (ASBMB) Council
- 1997 - 2001 Vice-Chair and Chair, respectively, Mammalian DNA Repair Gordon Research Conference
- 1997 - 2000 Co-Organizer and Co-Chair, Base Excision Repair 2000 Workshop, Galveston, TX
- 1994 - 2000 Scientific Advisory Panel - The Flinn Foundation, Phoenix, AZ

Invited Laboratory Research Presentations (since 2000):

- 3rd Biannual US-EU DNA Repair Meeting, Galveston, TX, February 2009
- Gordon Research Conference, Oxford, UK, July 2008
- 2nd International Genome Dynamics in Neuroscience Conference, Pacific Grove, CA, June 2008
- Washington State University, Pullman, WA, April 2008
- R.D. Wells Symposium, Houston, TX, April 2008
- NIH Videoconference on the History of DNA Repair, Transforming Technologies Along the Way: A Story About Pol β and BER, Research Triangle Park, NC, June 2007
- Gordon Research Conference, Oxford, UK, August 2007
- 3rd Japan-US DNA Repair Meeting, Sendai, Japan, May 2007
- Rutgers University, Piscataway, NJ, March 2007
- Gordon Research Conference, Ventura, CA, February 2007
- Conference on Xeroderma Pigmentosum and Other Diseases of Human Premature Aging and DNA Repair: Molecules to Patients, National Conferences Center, Landsdowne, VA, September 2006
- XIII International Congress of the Free Radical Society International Meeting, Davos, Switzerland, August 2006
- Erling Seeberg Symposium on DNA Repair, Bodø and Henningsvær, Lofoten, Norway, May 2006
- American Society Biochemistry and Molecular Biology Annual Meeting, San Francisco, CA, April 2006
- Mayo Clinic, Rochester, MN, February 2006
- 2nd Biannual EU-US DNA Repair Meeting, Erice, Sicily, November 2005
- NIEHS Center for Rodent Genetics Conference, Research Triangle Park, NC, October 2005
- Ohio State University, Columbus, OH, October 2005
- Gordon Research Conference, Newport, RI, June 2005
- FAMRI Symposium, Weizmann Institute, Rehovot, Israel, March 2005
- Keystone Symposium, Taos, NM, March 2005
- American Society of Microbiology Conference on DNA Repair and Mutagenesis, Bermuda, November 2004

Dale W. Mosbaugh Symposium on Genetic Toxicology and DNA Repair, Corvallis, OR,
October 2004
American Chemical Society National Meeting, Philadelphia, PA, August 2004
Forbeck Forum, Hilton Head Island, SC, November 2003
Sixth Annual Jack B. Little Symposium, Boston, MA, October 2003
1st Biannual US-EU DNA Repair Meeting, Leesburg, VA, October 2003
Gordon Research Conference, Oxford, UK, August 2003
Cincinnati Comparative Mouse Genomics Centers (CMGCC) Symposium, Boston, MA, June
2003
Gordon Research Conference, Newport, RI, June 2003
University of Nebraska, Omaha, NE, May 2003
Gordon Research Conference, Ventura, CA, January 2003
55th Annual Symposium on Fundamental Cancer Research, M.D. Anderson Cancer Center,
Houston, TX, October 2002
University of California, San Diego, CA, October 2002
32nd Annual Meeting of European Environmental Mutagen Society, Warsaw, Poland, September
2002
University of Pittsburgh, Pittsburgh, PA, May 2002
American Chemical Society 223rd National Meeting, Orlando, FL, April 2002
SUNY-Stony Brook, Long Island, NY, April 2002
Gordon Research Conference, Ventura, CA, March 2002
Albert Einstein College of Medicine, New York, NY, February 2002
University of Southern California, Los Angeles, CA, November 2001
University of North Carolina, Chapel Hill, NC, September 2001
University of Rochester, Rochester, NY, April 2001
University of North Carolina, Chapel Hill, NC, March 2001
Gordon Research Conference, Ventura, CA, January 2001
Intramural AIDS Targeted Antiviral Program (IATAP) Symposium, NIH, Bethesda, MD,
October 2000
Gordon Research Conference, Oxford, UK, August 2000
65th Cold Spring Harbor Symposium on Quantitative Biology, Cold Spring Harbor, NY, June
2000
Curriculum in Toxicology, University of North Carolina Graduate Program, Chapel Hill, NC,
March, 2000
BER Workshop 2000, Galveston, TX, March, 2000
Gordon Research Conference, Ventura, CA, March 2000
AACR Special Conference on DNA Repair, San Diego, CA, January 2000

Books: Editor or Co-Editor (Reference Volumes):

The Eukaryotic Nucleus: Molecular Biochemistry and Macromolecular Assemblies, Vol. 1-2.
Strauss, P.R., Wilson, S.H. (eds.), The Telford Press/CRC Press, 1990.
Cancer Biology and Biosynthesis. Wilson, S.H. (ed.), CRC Press, 1991.
Base Excision Repair, Progress in Nucleic Acids Research and Molecular Biology. Mitra, S.,
McCullough, A., Lloyd, R.S., and Wilson, S.H. (eds.), Academic Press, 2001.
Biomarkers of Environmentally Associated Disease: Technologies, Concepts, and Perspectives.
Wilson, S.H., and Suk, W. (eds.), CRC Press, 2002.

Patent:

Wilson, S.H. and Kronick, M.N. "An assay technique for reactions that produce radioactive gases."

Reports and Special Articles:

1. **Schmidt-Collerus, J.J.**, Krimmel, J.A., Smith, C.D., and Wilson, S.H. Polymerization by the Diels-Alder reaction. University of Denver Research Institute Project Report to Olin-Matheson Corp. for period 1959-1962.
2. **Gray, D.N.**, Bonamo, F., Knight, R., Wilson, S.H., and Schmidt-Collerus, J.J. Synthesis and characterization of ultraviolet radiation absorbers. Progress Reports No. 1-4, 1961-1962 Wright-Patterson Air Development Center, U.S. Air Force 33616-8251. TASK No. 73120.
3. **Wilson, S.H.** Stability of rat liver messenger RNA: Long and short half-life cytoplasmic messenger RNA molecules indicate mechanisms for controlling differential stability. Honors Thesis, Harvard Medical School, Harvard University, February 1, 1968.
4. **Friedberg, E.C.**, Hanaoka, F., Tanaka, K., Wilson, S.H., and Yasui, A. Meeting Report: Report on the first US-Japan Repair Meeting, Sendai, Japan, October 27-31, 2002. **DNA Repair (Amst.)** 2:639-652, 2003.
5. **Bohr, V.A.**, Souza-Pinto, N., and Wilson, S.H. First US-EU DNA Repair Meeting: Endogenous Stress, National Conference Center, VA, USA, 14-18 October 2003. **DNA Repair (Amst.)**, 3:543-559, 2004.
6. **Friedberg, E.C.**, Hanaoka, F., Tanaka, K., Yasui, A., and Wilson, S.H. Meeting Report: The 2nd US-Japan DNA Repair Meeting, Honolulu, Hawaii, June 4-8, 2004, **DNA Repair (Amst.)**, 3:1661-1674, 2004.
7. **Wilson, S.H.** Book review: DNA damage recognition. **DNA Repair (Amst.)**, 6:396, 2007.
8. **Friedberg, E.C.**, Hanaoka, F., Tanaka, K., Wilson, S.H. and Yasui, A. Meeting Report: The 3rd US-Japan DNA Repair Meeting, Sendai, Japan, May 7-11, 2007, **DNA Repair (Amst.)**, 6:1545-1555, 2007.

Invited Research Articles and Reviews:

1. **Hoagland, M.B.**, Wilson, S.H., and Quincey, R.V. Some light upon the "Membrane RNA" problem. **IN:** San Pietro, A., Lamborg, M.R., and Kenney, F.T. (eds.), **Regulatory Mechanisms for Protein Synthesis in Mammalian Cells; third Kettering Symposium.** Academic Press, 1968, pp. 179-181.
2. **Wilson, S.H.**, Kuff, E.L., Bohn, E.W., Lueders, K.K., and Matsukage, A. DNA polymerase in association with intracisternal A-type particles. **IN:** Wells, R.D. and Inman, R.B. (eds.), **DNA Synthesis In Vitro.** University Park Press, 1973, pp. 361-367.
3. **Schrier, B.K.**, Wilson, S.H., and Nirenberg, M. Cultured cell systems and methods for neurobiology. **IN:** Fleischer, S. and Packer, L. (eds.), **Methods in Enzymology, Biomembranes: Part B.** Academic Press, 1974, Vol. 32, pp. 765-788.
4. **Schrier, B.K.** and Wilson, S.H. On the measurement of tritium in DNA and its applications to the assay of DNA polymerase activity. **IN:** Prescott, D.M. (ed.), **Methods in Cell Biology.** Academic Press, 1976, Vol. 13, pp. 105-120.

5. **Cobianchi, F.** and Wilson, S.H. Enzymatic techniques: Enzymes for modifying and labeling DNA and RNA. **IN:** Berger, S.L. and Kimmel, A.R. (eds.), **Methods in Enzymology, Guide to Molecular Cloning Techniques**. Academic Press, Inc., 1987, Vol. 152, pp. 94-110.
6. **Wilson, S.H.**, Cobianchi, F., and Guy, H.R. cDNA cloning and structure-function relationships of a mammalian helix destabilizing protein: hnRNP particle core protein A1. **IN:** Thompson, E.B. and Papaconstantinou, J. (eds.), **DNA: Protein Interactions and Gene Regulation**. University of Texas Press, 1987, pp. 129-146.
7. **Wilson, S.H.**, Abbotts, J., and Widen, S. Progress toward molecular biology of DNA polymerase β . **Biochim. Biophys. Acta.**, 949:149-157, 1988.
8. **Abbotts, J.**, SenGupta, D.M., Zmudzka, B.Z., Widen, S.G., and Wilson, S.H. Human DNA polymerase beta: Expression *E. coli* and characterization of the recombinant enzyme. **IN:** Moses, R.E. and Summers, W.C. (eds.), **DNA Replication and Mutagenesis**. American Society of Microbiology Press, 1988, pp. 55-67.
9. **Wilson, S.H.** Gene regulation and structure-function studies of mammalian DNA polymerase β . **IN:** Strauss, P.R. and Wilson, S.H. (eds.), **The Eukaryotic Nucleus: Molecular Biochemistry and Macromolecular Assemblies**. The Telford Press, CRC Press, 1990, Vol. I, pp. 199-234.
10. **Wilson, S.H.** hnRNP protein A1 and insight on the mechanism of nucleic acid binding. **IN:** Wilson, S.H. (ed.), **Cancer Biology and Biosynthesis**. CRC Press, 1990, pp. 55-89.
11. **Abbotts, J.**, and Wilson, S.H. Mechanistic Analysis of HIV-1 Reverse Transcriptase. **IN:** Kumar, A. (ed.), **Advances in Molecular Biology and Targeted Treatment of AIDS**. Plenum Press, 1991, pp. 1-19.
12. **Wilson, S.H.** and Abbotts, J. tRNA in the molecular biology of retroviruses. **IN:** Hatfield, D.L., Lee, B.J., and Pirtle, R.M. (eds.), **Transfer RNA in Protein Synthesis**. CRC Press, 1992, pp. 1-21.
13. **Englander, E.W.** and Wilson, S.H. Regulation of transcription from the mammalian DNA polymerase β promoter by oncogene proteins. **IN:** Spandidos, D. (ed.), **Current Perspectives on Molecular and Cellular Oncology**. JAI Press LTD., 1992, Vol I, part A, pp. 111-129.
14. **Wilson, S.H.**, Singhal, R.K., and Kumar, A. Structural and functional studies of mammalian DNA polymerase β . **IN:** Bohr, W.A., Wassermann, K., Kraemer, K.H. (eds.), **Alfred Benzon Symposium 35: DNA Repair Mechanisms**. 1992, pp. 343-360.
15. **Prasad, R.**, Casas-Finet, J.R., Karpel, R.L., and Wilson, S.H. Characterization of a 32-residue peptide from rat DNA polymerase β with single-stranded DNA-binding affinity. **IN:** Crabb J.W. (ed.), **Techniques in Protein Chemistry V**. Academic Press, 1994, pp. 359-369.
16. **Beard, W.A.** and Wilson, S.H. Site-directed mutagenesis of HIV reverse transcriptase to probe enzyme processivity and drug binding. **IN:** Erickson, J. and Abdel-Meguid, S. (eds.), **Protein Engineering, Current Opinion in Biotechnology**. Current Biology Ltd Press, 1994, Vol. 5, pp. 414-421.
17. **Beard, W.A.** and Wilson, S.H. Reverse transcriptase. **IN:** Karn, J. (ed.), **HIV: A Practical Approach, Volume 2: Biochemistry, Molecular Biology, Drug Discovery**. Oxford University Press, 1995, pp. 15-36.
18. **Beard, W.A.** and Wilson, S.H. Purification and domain-mapping of mammalian DNA polymerase β . **IN:** Campbell, J.L. (ed.), **Methods in Enzymology, DNA Replication**. Academic Press, 1995, Vol. 262, pp. 98-107.
19. **Kunkel, T.A.** and Wilson, S.H. Push and pull of base flipping. **Nature**, 384:25-26, 1996

20. **Mullen, G.P.** and Wilson, S.H. Repair activity in DNA polymerases: A structurally conserved helix-hairpin-helix motif in base excision repair enzymes and in DNA polymerase β . **IN: Hickson, I.D. (ed), Base Excision Repair of DNA Damage.** Landes Bioscience, 1997, pp. 121-135.
21. **Wilson, S.H.**, Singhal, R.K., and Zmudzka, B.Z. Studies of DNA polymerases in replication-based repeat expansion. **IN: Warren, S.T., and Wells, R.D. (eds.), Genetic Instabilities and Hereditary Neurological Diseases.** Academic Press, 1998, pp. 693-698.
22. **Kunkel, T.A.** and Wilson, S.H. DNA polymerases on the move. **Nat. Struct. Biol.**, 5:95-99, 1998.
23. **Beard, W.A.** and Wilson, S.H. Structural insights into DNA polymerase β fidelity: Hold tight if you want it right. **Chem. Biol.**, 5:R7-R13, 1998.
24. **Wilson, S.H.** and Singhal, R.K. Mammalian DNA repair and the cellular polymerases. **IN: Hoekstra, M.F., and Nickoloff, J.A. (eds.), DNA Damage and Repair, Vol 2.: DNA Repair in Higher Eukaryotes.** Humana Press, 1998, pp. 161-180.
25. **Wilson, S.H.** Mammalian base excision repair and DNA polymerase β . **Mutat. Res. – DNA Repair**, 407:203-215, 1998.
26. **Robertson, A.** and Wilson, S.H. Complementary DNA. **IN: Creighton, T.E. (ed.), Encyclopedia of Molecular Biology.** John Wiley & Sons, 1999, Vol. 1, pp. 532-540.
27. **Wilson, S.H.** and Kunkel, T.A. Passing the Baton in Base Excision Repair. **Nat. Struct. Biol.**, 7:176-178, 2000.
28. **Beard, W.A.** and Wilson, S.H. Structural design of a eukaryotic DNA repair polymerase: DNA polymerase β . **Mutat. Res. – DNA Repair (special issue, Structure of DNA Repair Enzymes)**, 460:231-244, 2000.
29. **Wilson, S.H.**, Sobol, R.W., Beard, W.A., Horton, J.K., Prasad, R., and Vande Berg, B.J. DNA polymerase- β and mammalian base excision repair. **IN: Cold Spring Harbor Symposia on Quantitative Biology**, Cold Spring Harbor Laboratory Press, 2000, Vol. 65, pp. 143-155.
30. **Sobol, R.W.** and Wilson, S.H. Mammalian DNA β -polymerase in base excision repair of alkylation damage. **IN: Moldave, K., Mitra, S., McCullough, A., Lloyd, R.S., and Wilson, S.H. (eds.), Progress in Nucleic Acids Research and Molecular Biology: Base Excision Repair.** Academic Press, 2001, Vol. 68, pp. 57-74.
31. **Beard, W.** and Wilson, S.H. DNA lesion bypass polymerases open up. **Structure (Camb.)**, 9:759-764, 2001.
32. **Beard, W.A.** and Wilson, S.H. DNA polymerases lose their grip. **Nat. Struct. Biol.**, 8:915-917, 2001.
33. **Sander, M.** and Wilson SH. Base Excision Repair, AP Endonucleases and DNA Glycosylases, version 1.0. **IN: Encyclopedia of Life Sciences.** Nature Publishing Group, London, 2002.
34. **Idriss, H.T.**, Al-Assar, O., and Wilson, S.H. Molecules in Focus: DNA polymerase β . **Int. J. Biochem. Cell Biol.**, 34:321-324, 2002.
35. **Beard, W.A.** and Wilson, S.H. DNA Polymerase β , eukaryotic. **IN: Lennarz, W.J. and Lane, M.D. (eds.), Encyclopedia of Biological Chemistry**, Elsevier Academic Press, 2004, pp. 708-712.
36. **Beard, W.A.** and Wilson, S.H. *Syn*-full behavior by T7 DNA polymerase. **Structure (Camb.)**, 13:1580-1582, 2005.
37. **Beard, W.A.** and Wilson, S.H. Structure and mechanism of DNA polymerase β . **Chemical Reviews**, “DNA Damage and Repair,” 106:361-382, 2006.

38. **Liu, Y.**, Prasad, R., and Wilson, S.H. DNA repair models for understanding triplet repeat instability. **IN: Wells, R.D. and Ashizawa, T. (eds.), Genetic Instabilities and Neurological Diseases**, Elsevier-Academic Press, 2006, pp. 667-678.
39. **Beard, W.A.**, Prasad, R., and Wilson, S.H. Activities and mechanism of pol β . **IN: Campbell, J.L. and Modrich, P. (eds.), Methods in Enzymology, DNA Repair, Part A**. Academic Press, 2006, Vol. 408, pp. 91-107.
40. **Horton, J.K.** and Wilson, S.H. Hypersensitivity phenotypes associated with genetic and synthetic inhibitor-induced base excision repair deficiency. **DNA Repair (Amst.)**, 6:530-543, 2007.

Bibliography (Peer-reviewed research articles):

1. **Wilson, S.H.** and Hoagland, M.B. Studies on the physiology of rat liver polyribosomes: Quantitation and intracellular distribution of ribosomes. **Proc. Natl. Acad. Sci. USA**, 54:600-607, 1965.
2. **Wilson, S.H.** and Hoagland, M.B. Physiology of rat-liver polysomes: The stability of messenger ribonucleic acid and ribosomes. **Biochem. J.**, 103:556-566, 1967.
3. **Wilson, S.H.**, Hill, H.Z., and Hoagland, M.B. Physiology of rat-liver polysomes: Protein synthesis by stable polysomes. **Biochem. J.**, 103:567-572, 1967.
4. **Wilson, S.H.** and Quincey, R.V. Quantitative determination of low molecular weight ribonucleic acids in rat liver microsomes. **J. Biol. Chem.**, 244:1092-1096, 1969.
5. **Quincey, R.V.** and Wilson, S.H. The utilization of genes for ribosomal RNA, 5S RNA, and transfer RNA in liver cells of adult rats. **Proc. Natl. Acad. Sci. USA**, 64:981-988, 1969.
6. **Blume, A.**, Gilbert, F., Wilson, S.H., Farber, J., Rosenberg, R., and Nirenberg, M. Regulation of acetylcholinesterase in neuroblastoma cells. **Proc. Natl. Acad. Sci. USA**, 67:786-792, 1970.
7. **Wilson, S.H.** and Kronick, M.N. A new assay technique for reactions that produce radioactive gases. **Anal. Biochem.**, 43:460-467, 1971.
8. **Wilson, S.H.**, Schrier, B.K., Farber, J.L., Thompson, E.J., Rosenberg, R.N., Blume, A.J., and Nirenberg, M.W. Markers for gene expression in cultured cells from the nervous system. **J. Biol. Chem.**, 247:3159-3169, 1972.
9. **Hill, H.Z.**, Wilson S.H., and Hoagland, M.B. Patterns of albumin and general protein synthesis in rat liver as revealed by gel electrophoresis. **Biochim. Biophys. Acta.**, 269:477-484, 1972.
10. **Wilson, S.H.** and Kuff, E.L. A novel DNA polymerase activity found in association with intracisternal A-type particles. **Proc. Natl. Acad. Sci. USA**, 69:1531-1536, 1972.
11. **Miller, J.V., Jr.**, Thompson, E.B., Kuff, E.L., and Wilson, S.H. Polydeoxythymidylate inhibition of rabbit reticulocyte RNA dependent protein synthesis in a Krebs II ascites cell system. **Biochem. Biophys. Res. Commun.**, 48:1280-1286, 1972.
12. **Wilson, S.H.**, Kuff, E.L., Bohn, E.W., and Lueders, K.K. Studies on DNA synthesis in murine myeloma: II. Activation of latent RNA-dependent DNA polymerase activity in membrane fractions. **Biochem. Biophys. Res. Commun.**, 49:1093-1099, 1972.
13. **Stromberg, K.**, Gantt, R., and Wilson, S.H. Structural studies on avian myeloblastosis virus: Conditions for isolation and biochemical characteristics of the core component. **Biochim. Biophys. Acta.**, 304:1-11, 1973.

14. **Miller, J.V., Jr.,** Wilson, S.H., Kuff, E.L., and Thompson, E.B. Inhibition of cell-free globin synthesis by polydeoxythymidylate. **Biochim. Biophys. Acta.**, 294:507-516, 1973.
15. **Thompson, E.J.,** Wilson, S.H., Schuette, W.H., Whitehouse, W.C., and Nirenberg, M.W. Measurement of the rate and velocity of movement by single heart cells in culture. **Amer. J. Card.**, 32:162-166, 1973.
16. **Schrier, B.K.** and Wilson, S.H. Investigation of methods for measurement of radioactivity in tritiated DNA and applications to assays for DNA polymerase activity. **Anal. Biochem.**, 56:196-207, 1973.
17. **Matsukage, A.,** Bohn, E.W., and Wilson, S.H. Multiple forms of DNA polymerase in mouse myeloma. **Proc. Natl. Acad. Sci. USA**, 71:578-582, 1974.
18. **Wilson, S.H.,** Bohn, E.W., Matsukage, A., Lueders, K.K., and Kuff, E.L. Studies on the relationship between deoxyribonucleic acid polymerase activity and intracisternal A-type particles in mouse myeloma. **Biochemistry**, 13:1087-1094, 1974.
19. **Stromberg, K.** and Wilson, S.H. Structural studies of avian myeloblastosis virus: Selective release of ribonucleoprotein polypeptides from the core component and partial purification of the DNA polymerase. **Biochim. Biophys. Acta.**, 361:53-58, 1974.
20. **Minna, J.D.,** Gazdar, A.F., Iverson, G.M., Marshall, T.H., Stromberg, K., and Wilson, S.H. Onconavirus expression in human \times mouse hybrid cells segregating mouse chromosomes. **Proc. Natl. Acad. Sci. USA**, 71:1695-1700, 1974.
21. **Bohn, E.W.,** Matsukage, A., and Wilson, S.H. Stimulation of DNA polymerase activity by the combination of p-hydroxymercuribenzoate and dithiothreitol. **Biochim. Biophys. Res. Commun.**, 59:243-251, 1974.
22. **Bohn, E.W.** and Wilson, S.H. Studies on the activity of the A particle-associated DNA polymerase. **Cancer Res.**, 34:1977-1981, 1974.
23. **Pertel, R.** and Wilson, S.H. Histamine content of the nematode *Caenorhabditis elegans*. **Comp. Gen. Pharmac.**, 5:83-85, 1974.
24. **Matsukage, A.,** Bohn, E.W., and Wilson, S.H. Differential sensitivity of low molecular weight DNA polymerase to sulfhydryl-blocking reagents. **Biochim. Biophys. Acta.**, 383:338-343, 1975.
25. **Matsukage, A.,** Bohn, E.W., and Wilson, S.H. On the DNA polymerase III of mouse myeloma: Partial purification and characterization. **Biochemistry**, 14:1006-1020, 1975.
26. **Pitha, J.** and Wilson, S.H. Template specific inhibitor of mammalian DNA polymerases. **Nucleic Acids Res.**, 3:825-834, 1976.
27. **Kuff, E.L.,** Lueders, K.K., Orenstein, J., and Wilson, S.H. Differential response of type C and intracisternal type A particle markers in cells treated with iododeoxyuridine and dexamethasone. **J. Virol.**, 19:709-716, 1976.
28. **Matsukage, A.,** Sivarajan, M., and Wilson, S.H. Studies on DNA α -polymerase of mouse myeloma: Partial purification and comparison of three molecular forms of the enzyme. **Biochemistry**, 15:5305-5314, 1976.
29. **Wilson, S.H.,** Matsukage, A., Bohn, E.W., Chen, Y.C., and Sivarajan, M. Polynucleotide recognition by DNA α -polymerase. **Nucleic Acids Res.**, 4:3981-3996, 1977.
30. **Pitha, J.,** Wilson, S.H., and Pitha, P.M. A vinyl polymer with purine residues deficient in base pairing inhibits murine leukemia virus replication. **Biochem. Biophys. Res. Commun.**, 81:217-223, 1978.
31. **Tanabe, K.,** Bohn, E.W., and Wilson, S.H. Steady-state kinetics of mouse DNA polymerase β . **Biochemistry**, 18:3401-3407, 1979.

32. **Chen, Y.-C.**, Bohn, E.W., Planck, S.R., and Wilson, S.H. Mouse DNA polymerase α : Subunit structure and identification of a species with associated exonuclease. **J. Biol. Chem.**, 254:11678-11687, 1979.
33. **Minna, J.D.**, Marshall, T.H., Brown, S.H., Burk, R.D., Lemon, R.S., and Wilson, S.H. Regulation of expression of type C virion DNA polymerase (reverse transcriptase) in human x mouse and human x rat hybrid cells. **Somatic Cell Genet.**, 5:991-1011, 1979.
34. **Planck, S.R.**, Tanabe, K., and Wilson, S.H. Distinction between mouse DNA polymerases α and β by tryptic peptide mapping. **Nucleic Acids Res.**, 8:2771-2782, 1980.
35. **Planck, S.R.** and Wilson, S.H. Studies on the structure of mouse helix-destabilizing protein-1. **J. Biol. Chem.**, 255:11547-11556, 1980.
36. **Detera, S.D.**, Becerra, S.P., Swack, J., and Wilson, S.H. Studies on the mechanism of DNA polymerase α : Nascent chain elongation, steady state kinetics and the initiation phase of DNA synthesis. **J. Biol. Chem.**, 256:6933-6943, 1981.
37. **Albert, W.**, Grummt, F., Hübscher, U., and Wilson, S.H. Structural homology among calf thymus α -polymerase polypeptides. **Nucleic Acids Res.**, 10:935-946, 1982.
38. **Detera, S.D.** and Wilson, S.H. Studies on the mechanism of *Escherichia coli* DNA polymerase I large fragment: Chain termination and modulation by polynucleotides. **J. Biol. Chem.**, 257:9770-9780, 1982.
39. **Karawya, E.M.** and Wilson, S.H. Studies on catalytic subunits of mouse myeloma α -polymerase. **J. Biol. Chem.**, 257:13129-13134, 1982.
40. **Becerra, S.P.**, Detera, S.D., and Wilson, S.H. Anomalous electrophoretic migration of oligodeoxynucleotides with terminal -OH groups: Applications for DNA exonuclease characterization. **Anal. Biochem.**, 129:200-206, 1983.
41. **Tanabe, K.**, Karawya, E., Fewell, J., Kuff, E.L., and Wilson, S.H. DNA polymerase and simian virus 40 infection of resting monkey cell: Induction of a novel aphidicolin resistant DNA polymerase activity. **Nucleic Acids Res.**, 11:8253-8268, 1983.
42. **Karawya, E.**, Swack, J., and Wilson, S.H. Improved conditions for activity gel analysis of DNA polymerase catalytic polypeptides. **Anal. Biochem.**, 135:318-325, 1983.
43. **Becerra, S.P.** and Wilson, S.H. Properties of a novel oligonucleotide-releasing bidirectional DNA exonuclease from mouse myeloma. **Biochemistry**, 23:908-914, 1984.
44. **Hazra, A.**, Detera-Wadleigh, S., and Wilson, S.H. Site-specific modification of *Escherichia coli* DNA polymerase I large fragment with pyridoxal 5'-phosphate. **Biochemistry**, 23:2073-2078, 1984.
45. **Detera-Wadleigh, S.**, Karawya, E., and Wilson, S.H. Synthesis of DNA polymerase by *in vitro* translation of calf RNA. **Biochem. Biophys. Res. Commun.**, 122:420-427, 1984.
46. **Morstyn, G.**, Russo, A., Carney, D.N., Karawya, E., Wilson, S.H., and Mitchell, J.B. Heterogeneity in the radiation survival curves and biochemical properties of human lung cancer cell lines. **J. Natl. Cancer Inst.**, 73:801-807, 1984.
47. **Karawya, E.**, Swack, J., Albert, W., Fedorko, J., Minna, J.D., and Wilson, S.H. Identification of a higher molecular weight DNA polymerase α catalytic polypeptide in monkey cells by monoclonal antibody. **Proc. Natl. Acad. Sci. USA**, 81:7777-7781, 1984.
48. **Detera-Wadleigh, S.**, Karawya, E., and Wilson, S.H. Synthesis of catalytically active polymerase α by *in vitro* translation of calf RNA. **IN: Hübscher, U. and Spadari, S. (eds.), Proteins Involved in DNA Replication.** Plenum Press, 1984, pp. 343-353.

49. **Swack, J.A.**, Karawya, E., Albert, W., Fedorko, J., Minna, J.D., and Wilson, S.H. Properties and applications of new monoclonal antibodies raised against calf DNA polymerase α . **Anal. Biochem.**, 147:10-21, 1985.
50. **Planck, S.R.** and Wilson, S.H. Native species of helix destabilizing protein-I in mouse myeloma identified by antibody probing of Western blots. **Biochem. Biophys. Res. Commun.**, 131:362-369, 1985.
51. **Mitchell, J.B.**, Karawya, E., Kinsella, T.J., and Wilson, S.H. Measurement of DNA polymerase β in skin fibroblast cell lines from patients with ataxia telangiectasia. **Mutation Res.**, 146:295-300, 1985.
52. **Sharief, F.S.**, Wilson, S.H., and Li, S.S.-L. Identification of the mouse low-salt-eluting single-stranded DNA-binding protein as a mammalian lactate dehydrogenase-A isoenzyme. **Biochem. J.**, 233:913-916, 1986.
53. **Cobianchi, F.**, SenGupta, D., Zmudzka, B.Z., and Wilson, S.H. Structure of rodent helix-destabilizing protein revealed by cDNA cloning. **J. Biol. Chem.**, 261:3536-3543, 1986.
54. **SenGupta, D.N.**, Zmudzka, B.Z., Kumar, P., Cobianchi, F., Skowronski, J., and Wilson, S.H. Sequence of human DNA polymerase β mRNA obtained through cDNA cloning. **Biochem. Biophys. Res. Commun.**, 136:341-347, 1986.
55. **Zmudzka, B.Z.**, SenGupta, D., Matsukage, A., Cobianchi, F., Kumar, P., and Wilson, S.H. Structure of rat DNA polymerase β revealed by partial amino acid sequencing and cDNA cloning. **Proc. Natl. Acad. Sci. USA**, 83:5106-5110, 1986.
56. **SenGupta, D.N.**, Kumar, P., Zmudzka, B.Z., Couglin, S., Vishwanatha, J.K., Robey, F.A., Parrott, C., and Wilson, S.H. Mammalian α -polymerase: Cloning of partial complementary DNA and immunobinding of catalytic subunit in crude homogenate protein blots. **Biochemistry**, 26:956-963, 1987.
57. **McBride, O.W.**, Zmudzka, B.Z., and Wilson, S.H. Chromosomal location of the human gene for DNA polymerase β . **Proc. Natl. Acad. Sci. USA**, 84:503-507, 1987.
58. **Anderson, R.S.**, Lawrence, C.B., Wilson, S.H., and Beattie, K.L. Genetic relatedness of human DNA polymerase β and terminal deoxynucleotidyltransferase. **Gene**, 60:163-173, 1987.
59. **Cobianchi, F.**, Karpel, R.L., Williams, K.L., Notario, V., and Wilson, S.H. Mammalian heterogeneous nuclear ribonucleoprotein complex protein A1: Large-scale overproduction in *Escherichia coli* and cooperative binding to single-stranded nucleic acids. **J. Biol. Chem.**, 263:1063-1071, 1988.
60. **Abbotts, J.**, SenGupta, D.N., Zmudzka, B., Widen, S.G., Notario, V., and Wilson, S.H. Expression of human DNA polymerase β in *Escherichia coli* and characterization of the recombinant enzyme. **Biochemistry**, 27:901-909, 1988.
61. **Merrill, B.M.**, Stone, K.L., Cobianchi, F., Wilson, S.H., and Williams, K.R. Phenylalanines that are conserved among several RNA-binding proteins form part of a nucleic acid-binding pocket in the A1 heterogeneous nuclear ribonucleoprotein. **J. Biol. Chem.**, 263:3307-3313, 1988.
62. **Jensen, L.**, Kuff, E.L., Wilson, S.H., Steinberg, A., and Klinman, D. Antibodies from patients and mice with autoimmune diseases react with recombinant hnRNP core protein A1. **J. Autoimmunity**, 1:73-83, 1988.
63. **Abbotts, J.**, SenGupta, D.N., Zon, G., and Wilson, S.H. Studies on the mechanism of *Escherichia coli* DNA polymerase I large fragment: Effect of template sequence and substrate variation on termination of synthesis. **J. Biol. Chem.**, 263:15094-15103, 1988.

64. **Majumdar, C.**, Abbotts, J., Broder, S., and Wilson, S.H. Studies on the mechanism of human immunodeficiency virus reverse transcriptase: Steady-state kinetics, processivity and polynucleotide inhibition. **J. Biol. Chem.**, 263:15657-15665, 1988.
65. **Widen, S.G.**, Kedar, P., and Wilson, S.H. Human β -polymerase gene: Structure of the 5' flanking region and active promoter. **J. Biol. Chem.**, 263:16992-16998, 1988.
66. **Zmudzka, B.Z.**, Fornace, A., Collins, J., and Wilson, S.H. Characterization of DNA polymerase β mRNA: Cell-cycle and growth response in cultured human cells. **Nucleic Acids Res.**, 16:9587-9596, 1988.
67. **Nowak, R.**, Siedlecki, J.A., Kaczmarek, L., Zmudzka, B.Z., and Wilson, S.H. Levels and size complexity of DNA polymerase β mRNA in rat regenerating liver and organs. **Biochem. Biophys. Acta.**, 1008:203-207, 1989.
68. **Majumdar, C.**, Stein, C.A., Cohen, J.S., Broder, S., and Wilson, S.H. Stepwise mechanisms of HIV reverse transcriptase: Primer function of phosphorothioate oligodeoxynucleotide. **Biochemistry**, 28:1340-1346, 1989.
69. **Fornace, A.**, Zmudzka, B., Hollander, M.C., and Wilson, S.H. Induction of β -polymerase mRNA by DNA-damaging agents in Chinese hamster ovary cells. **Mol. Cell Biol.**, 9:851-853, 1989.
70. **Basu, A.**, Kedar, P., Wilson, S.H., and Modak, M.J. Active site modification of mammalian DNA polymerase β with pyridoxal 5' phosphate: Mechanism of inhibition and identification of Lysine 71 in the deoxynucleoside triphosphate binding pocket. **Biochemistry**, 28:6305-6309, 1989.
71. **Bebenek, K.**, Abbotts, J., Roberts, J., Wilson, S.H., and Kunkel, T.A. Specificity and mechanism of error-prone replication by human immunodeficiency virus-1 reverse transcriptase. **J. Biol. Chem.**, 264:16948-16956, 1989.
72. **Casas-Finet, J.R.**, Karpel, R.L., and Wilson, S.H. Biophysical studies on the mammalian heterogeneous nuclear ribonucleoprotein, Al, and its component domains. **SPIE Proceedings, Time-Resolved Laser Spectroscopy in Biochemistry II**, 1204:540-547, 1990.
73. **Kay, B.K.**, Sawhney, R.K., and Wilson, S.H. Potential for two isoforms of the Al ribonucleoprotein in *Xenopus laevis*. **Proc. Natl. Acad. Sci. USA**, 87:1367-1371, 1990.
74. **McBride, O.W.**, Kozak, C., and Wilson, S.H. Mapping of the gene for DNA polymerase β on mouse chromosome 8. **Cytogenet. Cell Genet.**, 53:108-111, 1990.
75. **Kumar, A.**, Widen, S.G., Williams, K.R., Kedar, P., Karpel, R.L., and Wilson, S.H. Studies of the domain structure of mammalian DNA polymerase β : Identification of a discrete template binding domain. **J. Biol. Chem.**, 265:2124-2131, 1990.
76. **Jeang, K.T.**, Widen, S.G., Semmes IV, O.J., and Wilson, S.H. HTLV-I-trans-activator protein, Tax, is a trans-repressor of the human β -polymerase gene. **Science**, 247:1082-1084, 1990.
77. **Kedar, P.S.**, Abbotts, J., Kovacs, T., Lesiak, K., Torrence, P., and Wilson, S.H. Mechanism of HIV reverse transcriptase: Enzyme-primer interaction as revealed through studies of a dNTP analogue, 3'-azido-dTTP. **Biochemistry**, 29:3603-3611, 1990.
78. **Englander, E.W.** and Wilson, S.H. Protein binding elements in the human β -polymerase promoter. **Nucleic Acids Res.**, 18:919-928, 1990.
79. **Trauger, R.J.**, Talbott, R., Wilson, S.H., Karpel, R., and Elder, J.H. A single-stranded nucleic acid binding sequence common to the heterogeneous nuclear ribonucleoparticle protein Al and murine recombinant virus GP 70. **J. Biol. Chem.**, 265:3674-3678, 1990.

80. **Zmudzka, B.Z.** and Wilson, S.H. Dereglulation of DNA polymerase β by sense and antisense RNA expression in mouse 3T3 cells alters growth rate. **Somatic Cell Molec. Genet.**, 16:311-320, 1990.
81. **Kedar, P.S.**, Lowy, D.R., Widen, S.G., Fornace, A.J., and Wilson, S.H. Transfected human β -polymerase promoter contains a *ras*-responsive element. **Mol. Cell Biol.**, 10:3852-3856, 1990.
82. **Kumar, A.**, Abbotts, J., Karawya, E., and Wilson, S.H. Identification and properties of the catalytic domain of mammalian DNA polymerase β . **Biochemistry**, 29:7156-7159, 1990.
83. **Kumar, A.**, Casas-Finet, J.R., Luneau, C.J., Karpel, R.L., Merrill, B.M., Williams, K.R., and Wilson, S.H. Mammalian heterogeneous nuclear ribonucleoprotein A1: Nucleic acid binding properties of the COOH-terminal domain. **J. Biol. Chem.**, 265:17094-17100, 1990.
84. **Becerra, S.P.**, Clore, G.M., Gronenborn, A.M., Karlstrom, A.R., Stahl, S.J., Wilson, S.H., and Wingfield, P.T. Purification and characterization of the RNase H domain of HIV-1 reverse transcriptase expressed in recombinant *Escherichia coli*. **FEBS Lett.**, 270:76-80, 1990.
85. **Kumar, A.** and Wilson, S.H. Studies of the strand-annealing activity of mammalian hnRNP complex protein A1. **Biochemistry**, 29:10717-10722, 1990.
86. **Chen, K.-H.**, Widen, S.G., Wilson, S.H., and Huang, K.-P. Characterization of the 5'-flanking region of the rat protein kinase C γ gene. **J. Biol. Chem.**, 265:19961-19965, 1990.
87. **Baillon, J.G.**, Kumar, A., Wilson, S.H., and Jerina, D.M. A leucine zipper-like motif may mediate HIV reverse transcriptase subunit binding. **The New Biologist**, 3:1015-1019, 1991.
88. **Abbotts, J.**, Jaju, M., and Wilson, S.H. Thermodynamics of A:G mismatch poly (dG) synthesis by HIV-1 reverse transcriptase. **J. Biol. Chem.**, 266:3937-3943, 1991.
89. **Nadler, S.G.**, Merrill, B.M., Roberts, W.J., Keating, K.M., Lisbin, M.J., Barnett, S.F., Wilson, S.H., and Williams, K.R. Interactions of the A1 heterogeneous nuclear ribonucleoprotein and its proteolytic derivative, UP1, with RNA and DNA: Evidence for multiple RNA binding domains and salt-dependent binding mode transitions. **Biochemistry**, 30:2968-2976, 1991.
90. **Kedar, P.S.**, Widen, S.G., Englander, E.W., Fornace, A.J., and Wilson, S.H. The ATF/CREB transcription factor-binding site in the polymerase β promoter mediates the positive effect of *N*-methyl-*N'*-nitro-*N*-nitrosoguanidine on transcription. **Proc. Natl. Acad. Sci., USA**, 88:3729-3733, 1991.
91. **Widen, S.G.**, and Wilson, S.H. Mammalian β -polymerase promoter: Large-scale purification and properties of ATF/CREB palindrome binding protein from bovine testes. **Biochemistry**, 30:6296-6305, 1991.
92. **Englander, E.W.**, Widen, S.G., and Wilson, S.H. Mammalian β -polymerase promoter: Phosphorylation of ATF/CRE-binding protein and regulation of DNA binding. **Nucleic Acids Res.**, 19:3369-3375, 1991.
93. **Egan, W.**, Boal, J., Iyer, R.P., Storm, C., Wilson, S.H., Meyer, A., and Iversen, P. Abasic oligodeoxyribonucleoside phosphorothioates as inhibitors of the human immunodeficiency virus-1 (HIV-1): Phosphorothioate inhibition of HIV-1 reverse transcriptase and interactions with Syrian hamster fibroblast (V79) cells. **Nucleosides Nucleotides**, 10:457-460, 1991.
94. **Casas-Finet, J.R.**, Karpel, R.L., Maki, A.H., Kumar, A., and Wilson, S.H. Physical studies of the tyrosine and tryptophan residues in mammalian A1 heterogeneous nuclear ribonucleoprotein: Support for a segmented structure. **J. Mol. Biol.**, 221:693-709, 1991.

- 95. Casas-Finet, J.R.,** Kumar, A., Morris, G., Wilson, S.H., and Karpel, R.L. Spectroscopic studies of the structural domains of mammalian DNA β -polymerase. **J. Biol. Chem.**, 266:19618-19625, 1991.
- 96. Sobol, R.W.,** Suhadolnik, R.J., Kumar, A., Lee, B.J., Hatfield, D.L., and Wilson, S.H. Localization of a polynucleotide binding region in the HIV-1 reverse transcriptase: Implication for primer binding. **Biochemistry**, 30:10623-10631, 1991.
- 97. Becerra, P.S.,** Kumar, A., Lewis, M.S., Widen, S.G., Karawya E., Abbotts, J., Hughes, S.H., Shiloach, J., and Wilson, S.H. Protein-protein interactions of HIV-1 reverse transcriptase: Implication of central and C-terminal regions in subunit binding. **Biochemistry**, 30:11707-11719, 1991.
- 98. Abbotts, J.** and Wilson, S.H. Inhibitors of HIV-1 reverse transcriptase and fidelity of in vitro DNA replication. **J. Enzyme Inhibition**, 6:35-46, 1992.
- 99. Knutson, Jay R.,** Chen, R.F., Porter, D.K., Hensley, P., Han, M.K., Kim, S.J., Wilson, S.H., Clague, M., and Williamson, C.K. Fluorescence quenching in proteins: Some applications to protein-DNA and protein-lipid interactions. **SPIE Proceedings, Time-Resolved Laser Spectroscopy in Biochemistry III**, 1640:102-117, 1992.
- 100. Casas-Finet, J.R.,** Kumar, A., Karpel, R.L., and Wilson, S.H. Mammalian DNA polymerase β : Characterization of a 16-kDa transdomain fragment containing the nucleic acid-binding activities of the native enzyme. **Biochemistry**, 31:10272-10280, 1992.
- 101. Englander, E.W.** and Wilson, S.H. The cloned promoter of the human DNA β -polymerase gene contains a cAMP response element functional in HeLa cells. **DNA and Cell Biol.**, 11:61-69, 1992.
- 102. Casas-Finet, J.R.,** Wilson, S.H., and Karpel, R.L. Selective photochemical modification by trichloroethanol of tryptophan residues in proteins with a high tyrosine-to-tryptophan ratio. **Anal. Biochem.**, 205:27-35, 1992.
- 103. Jenkins, T.M.,** Saxena, J.K., Kumar, A., Wilson, S.H., and Ackerman, E.J. DNA polymerase β and DNA synthesis in *Xenopus* oocytes and in a nuclear extract. **Science**, 258:475-478, 1992.
- 104. Englander, E.W.** and Wilson, S.H. DNA damage response of cloned DNA β -polymerase promoter is blocked in mutant cell lines deficient in protein kinase A. **Nucleic Acids Res.**, 20:5527-5531, 1992.
- 105. Casas-Finet, J.R.,** Smith, J.D., Kumar, A., Kim, J.G., Wilson, S.H., and Karpel, R.L. Mammalian heterogeneous ribonucleoprotein A1 and its constituent domains. **J. Mol. Biol.**, 229:873-889, 1993.
- 106. Abbotts, J.,** Bebenek, K., Kunkel, T.A., and Wilson, S.H. Mechanism of HIV-1 reverse transcriptase: Termination of processive synthesis on a natural DNA template is influenced by the sequence of the template-primer stem. **J. Biol. Chem.**, 268:10312-10323, 1993.
- 107. Bebenek, K.,** Abbotts, J., Wilson, S.H., and Kunkel, T.A. Error-prone polymerization by HIV-1 reverse transcriptase: Contribution of template-primer misalignment, miscoding, and termination probability to mutational hot spots. **J. Biol. Chem.**, 268:10324-10334, 1993.
- 108. Becerra, S.P.,** Kumar A., and Wilson, S.H. Expression of polypeptides of human immunodeficiency virus-1 reverse transcriptase in *Escherichia coli*. **Protein Expression and Purification**, 4:187-199, 1993.
- 109. Kawa, S.,** Kumar, A., Smith, J.S., Becerra, S.P., Beard, W.A., Wilson, S.H., and Thompson, E.B. Expression and purification of the HIV-1 reverse transcriptase using the baculovirus expression vector system. **Protein Expression and Purification**, 4:298-303, 1993.

- 110. Chen, K-H.,** Widen, S.G., Wilson, S.H., and Huang, K-P. Identification of a nuclear protein binding element within the rat brain protein kinase C γ promoter that is related to the developmental control of this gene. **FEBS Lett.**, 325:210-214, 1993.
- 111. Kumar, A.,** Kim, H.R., Sobol, R.W., Becerra, S.P., Lee, B.J., Hatfield, D.L., Suhadolnik, R.J., and Wilson, S.H. Mapping of nucleic acid binding in proteolytic domains of HIV-1 reverse transcriptase. **Biochemistry**, 32:7466-7474, 1993.
- 112. Singhal, R.K.** and Wilson, S.H. Short gap-filling synthesis by DNA polymerase β is processive. **J. Biol. Chem.**, 268:15906-15911, 1993.
- 113. Beard, W.A.** and Wilson, S.H. Kinetic analysis of template•primer interactions with recombinant forms of HIV-1 reverse transcriptase. **Biochemistry**, 32:9745-9753, 1993.
- 114. Prasad, R.,** Kumar, A., Widen, S.G., Casas-Finet, J.R., and Wilson, S.H. Identification of residues in the single-stranded DNA-binding site of the 8-kDa domain of rat DNA polymerase β by UV cross-linking. **J. Biol. Chem.**, 268:22746-22755, 1993.
- 115. Sobol, R.W.,** Fisher, W.L., Reichenbach, N.L., Kumar, A., Beard, W.A., Wilson, S.H., Charubala, R., Pfleiderer, W., and Suhadolnik, R.J. HIV-1 reverse transcriptase: Inhibition by 2',5'-oligoadenylates. **Biochemistry**, 32:12112-12118, 1993.
- 116. Goel, R.,** Beard, W.A., Kumar, A., Casas-Finet, J.R., Strub, M.-P. Stahl, S.J., Lewis, M.S., Bebenek, K., Becerra, S.P., Kunkel, T.A., and Wilson, S.H. Structure/function studies of HIV-1 reverse transcriptase: Dimerization-defective mutant L289K. **Biochemistry**, 32:13012-13018, 1993.
- 117. Prasad, R.,** Widen, S.G., Singhal, R.K., Watkins, J., Prakash, L., and Wilson, S.H. Yeast open reading frame YCR14C encodes a DNA β -polymerase-like enzyme. **Nucleic Acids Res.**, 21:5301-5307, 1993.
- 118. Kim, S.-J.,** Lewis, M.S., Knutson, J.R., Porter, D., Kumar, A., and Wilson, S.H. Characterization of the tryptophan fluorescence and hydrodynamic properties of rat DNA polymerase β . **J. Mol. Biol.**, 244:224-235, 1994.
- 119. Delahunty, M.D.,** Wilson, S.H., and Karpel, R.L. Studies on primer binding of HIV-1 reverse transcriptase using a fluorescent probe. **J. Mol. Biol.**, 236:469-479, 1994.
- 120. Narayan, S.,** Widen, S.G., Beard, W.A., and Wilson, S.H. RNA polymerase II transcription: Rate of promoter clearance is enhanced by a purified activating transcription factor/cAMP response element-binding protein. **J. Biol. Chem.**, 269, 12755-12763, 1994.
- 121. Prasad, R.,** Beard, W.A., and Wilson, S.H. Studies of gapped DNA substrate binding by mammalian DNA polymerase β : Dependence on 5' phosphate group. **J. Biol. Chem.**, 269:18096-18101, 1994.
- 122. Sawaya, M.R.,** Pelletier, H., Kumar, A., Wilson, S.H., and Kraut, J. Crystal structure of rat DNA polymerase β : Evidence for a common polymerase mechanism. **Science**, 264:1930-1935, 1994.
- 123. Pelletier, H.,** Sawaya, M.R., Kumar, A., Wilson, S.H., and Kraut, J. Structures of ternary complexes of rat DNA polymerase β , a DNA template-primer, and ddCTP. **Science**, 264:1891-1903, 1994.
- 124. Liu, D.,** Derose, E.F., Prasad, R., Wilson, S.H., and Mullen, G.P. Assignments of ^1H , ^{15}N , and ^{13}C resonances for the backbone and side chains of N-terminal domain of DNA polymerase β . Determination of the secondary structure and tertiary contacts. **Biochemistry**, 33:9537-9545, 1994.
- 125. Idriss, H.,** Kumar, A., Casas-Finet, J.R., Guo, H., Damuni, Z., and Wilson, S.H. Regulation of *in vitro* nucleic acid strand annealing activity of heterogeneous nuclear

- ribonucleoprotein protein A1 by reversible phosphorylation. **Biochemistry**, 33:11382-11390, 1994.
- 126. Chyan, Y-J.**, Ackerman, S., Shepherd, N.S., McBride, O.W., Widen, S.G., Wilson, S.H., and Wood, T. G. The human DNA polymerase β gene structure. Evidence of alternative splicing in gene expression. **Nucleic Acids Res.**, 22:2719-2725, 1994.
- 127. Beard, W.A.**, Stahl, S.J., Kim, H-R., Bebenek, K., Kumar, A., Strub, M-Paule, Becerra, S.P., Kunkel, T.A., and Wilson, S.H. Structure/function studies of human immunodeficiency virus type 1 reverse transcriptase: Alanine scanning mutagenesis of an α -helix in the thumb subdomain. **J. Biol. Chem.**, 269:28091-28097, 1994.
- 128. Efrati, E.**, Tocco, G., Bruck, I., Eritja, R., Woodgate, R., Wilson, S.H., Tower, J., and Goodman, M.F. Biochemical analysis of possible deviations from the "A Rule": Specificity of nucleotide insertion at abasic DNA template lesions by pol β . **Proc. 10th International Congress Radiation Res.**, 2:324-331, 1995.
- 129. Srivastava, D.K.**, Rawson, T.Y., Showalter, S.D., and Wilson, S.H. Phorbol ester abrogates up-regulation of DNA polymerase β by DNA alkylating agents in Chinese hamster ovary cells. **J. Biol. Chem.**, 270:16402-16408, 1995.
- 130. Singhal, R.K.**, Prasad, R., and Wilson, S.H. DNA polymerase β conducts the gap-filling step in uracil-initiated base excision repair in a bovine testis nuclear extract. **J. Biol. Chem.**, 270:949-957, 1995.
- 131. Narayan, S.**, Beard, W.A., and Wilson, S.H. DNA damage-induced transcriptional activation of a human DNA polymerase β chimeric promoter: Recruitment of preinitiation complex *in vitro* by ATF/CREB. **Biochemistry**, 34:73-80, 1995.
- 132. Jaju, M.**, Beard, W.A., and Wilson, S.H. Human immunodeficiency virus type 1 reverse transcriptase: 3'-Azidodeoxythymidine 5'-Triphosphate inhibition indicates two-step binding for template primer. **J. Biol. Chem.**, 270:9740-9747, 1995.
- 133. Husain, I.**, Morton, B.S., Beard, W.A., Singhal, R.K., Prasad, R., Wilson, S.H., and Besterman, J.M. Specific inhibition of DNA polymerase β by its 14-kDa domain: Role of single- and double-stranded DNA binding and 5'-phosphate recognition. **Nucleic Acids Res.**, 23:1597-1603, 1995.
- 134. Bebenek, K.**, Beard, W.A., Casas-Finet, J.R., Kim, H.-R., Darden, T.A., Wilson, S.H., and Kunkel, T.A. Reduced frameshift fidelity and processivity of HIV-1 reverse transcriptase mutants containing alanine substitutions in helix H of the thumb subdomain. **J. Biol. Chem.**, 270:19516-19523, 1995.
- 135. Horton, J.K.**, Srivastava, D.K., Zmudzka, B.Z., and Wilson, S.H. Strategic down-regulation of DNA polymerase β by antisense RNA sensitizes mammalian cells to specific DNA damaging agents. **Nucleic Acids Res.**, 23:3810-3815, 1995.
- 136. Chen, K-H.**, Wood, T.G., He, F., Narayan, S., and Wilson, S.H. The bovine DNA polymerase β promoter: Cloning, characterization and comparison with the human core promoter. **Gene**, 164:323-327, 1995.
- 137. Sobol, R.W.**, Horton, J.K., Kühn, R., Gu, H., Singhal, R.K., Prasad, R., Rajewsky, K., and Wilson, S.H. Requirement of mammalian DNA polymerase- β in base-excision repair. **Nature**, 379:183-186, 1996.
- 138. He, F.**, Narayan, S., and Wilson, S.H. Purification and characterization of a DNA polymerase β promoter initiator element-binding transcription factor from bovine testis. **Biochemistry**, 35:1775-1782, 1996.

- 139. Srivastava, D.K.**, Evans, R.K., Kumar, A., Beard, W.A., and Wilson, S.H. dNTP binding site in rat DNA polymerase β revealed by controlled proteolysis and azido photoprobe cross-linking. **Biochemistry**, 35:3728-3734, 1996.
- 140. Beard, W.A.**, Osheroff, W.P., Prasad, R., Jaju, M., Sawaya, M.R., Wood, T.G., Kraut, J., Kunkel, T.A., and Wilson, S.H. Enzyme-DNA interactions required for efficient nucleotide incorporation and discrimination in human DNA polymerase β . **J. Biol. Chem.**, 271:12141-12144, 1996.
- 141. Beard, W.A.**, Minnick, D., Wade, C., Prasad, R., Won, R.L., Kumar, A., Kunkel, T.A., and Wilson, S.H. Role of the "Helix Clamp" in HIV-1 reverse transcriptase catalytic cycling as revealed by alanine-scanning mutagenesis. **J. Biol. Chem.**, 271:12213-12220, 1996.
- 142. Liu, D.**, Prasad, R., Wilson, S.H., DeRose, E.F., and Mullen, G.P. Three-dimensional solution structure of the N-terminal domain of DNA polymerase β and mapping of the ssDNA interaction interface. **Biochemistry**, 35:6188-6200, 1996.
- 143. Chyan, Y.-J.**, Strauss, P.R., Wood, T.G., and Wilson, S.H. Identification of novel mRNA isoforms for human DNA polymerase β . **DNA and Cell Biology**, 15:653-659, 1996.
- 144. Oda, N.**, Saxena, J.K., Jenkins, T.M., Prasad, R., Wilson, S.H., and Ackerman, E.J. DNA polymerases α and β are required for DNA repair in an efficient nuclear extract from *Xenopus* oocytes. **J. Biol. Chem.**, 271:13816-13820, 1996.
- 145. Prasad, R.**, Singhal, R.K., Srivastava, D.K., Tomkinson, A.E., and Wilson, S.H. Specific interaction of DNA polymerase β and DNA ligase I in a multiprotein base excision repair complex from bovine testis. **J. Biol. Chem.**, 271:16000-16007, 1996.
- 146. Piersen, C.E.**, Prasad, R., Wilson, S.H., and Lloyd, R.S. Evidence for an imino intermediate in the DNA polymerase β deoxyribose phosphate excision reaction. **J. Biol. Chem.**, 271:17811-17815, 1996.
- 147. Narayan, S.**, He, F., and Wilson, S.H. Activation of the human DNA polymerase β promoter by a DNA-alkylating agent through induced phosphorylation of CREB-1. **J. Biol. Chem.**, 271:18508-18513, 1996.
- 148. Lavrik, O.I.**, Prasad, R., Beard, W.A., Safronov, I.V., Dobrikov, M.I., Srivastava, D.K., Shishkin, G.V., Wood, T.G., and Wilson, S.H. dNTP binding to HIV-1 reverse transcriptase and mammalian DNA polymerase β as revealed by affinity labeling with a photoreactive dNTP analog. **J. Biol. Chem.**, 271:21891-21897, 1996.
- 149. Pelletier, H.**, Sawaya, M.R., Wolfle, W., Wilson, S.H., and Kraut, J. Crystal structures of human DNA polymerase β complexed with DNA: Implications for catalytic mechanism, processivity, and fidelity. **Biochemistry**, 35:12742-12761, 1996.
- 150. Pelletier, H.**, Sawaya, M.R., Wolfle, W., Wilson, S.H., and Kraut, J. A structural basis for metal ion mutagenicity and nucleotide selectivity in human DNA polymerase β . **Biochemistry**, 35:12762-12777, 1996.
- 151. Reha-Krantz, L.J.**, Nonay, R.L., Day III, R.S., and Wilson, S.H. Replication of O^6 -Methylguanine-containing DNA by repair and replicative DNA polymerases. **J. Biol. Chem.**, 271:20088-20095, 1996.
- 152. Strauss, P.R.**, Beard, W.A., Patterson, T.A., and Wilson, S.H. Substrate binding by human apurinic/aprimidinic endonuclease indicates a Briggs-Haldane Mechanism. **J. Biol. Chem.**, 272:1302-1307, 1997.
- 153. Efrati, E.**, Tocco, G., Eritja, R., Wilson, S.H., and Goodman, M.F. Abasic translesion synthesis by DNA polymerase β violates the "A-Rule": Novel types of nucleotide incorporation

by human DNA polymerase β at an abasic lesion in different sequence contexts. **J. Biol. Chem.**, 272:2559-2569, 1997.

154. Forgacs, E., Latham, G., Beard, W.A., Prasad, R., Bebenek, K., Kunkel, T.A., Wilson, S.H., and Lloyd, R.S. Probing structure/function relationships of HIV-1 reverse transcriptase with styrene oxide N^2 -Guanine adducts. **J. Biol. Chem.**, 272:8525-8530, 1997.

155. Kim, S., Merrill, B.M., Rajpurohit, R., Kumar, A., Stone, K.L., Papov, V.V., Schneidersm J.M., Szer, W., Wilson, S.H., Paik, W.K., and Williams, K.R. Identification of N^G -Methylarginine residues in human heterogeneous RNP protein A1: Phe/Gly-Gly-Gly-Arg-Gly-Gly-Gly/Phe is a preferred recognition motif. **Biochemistry**, 36:5185-5192, 1997.

156. Mullen, G.P. and Wilson, S.H. DNA polymerase β in abasic site repair: A structurally conserved helix-hairpin-helix motif in lesion detection by base excision repair enzymes. **Biochemistry**, 36:4713-4717, 1997.

157. Bebenek, K., Beard, W.A., Darden, T.A., Li, L., Prasad, R., Luxon, B.A., Gorenstein, D.G., Wilson, S.H., and Kunkel, T.A. A minor groove binding track in reverse transcriptase. **Nat. Struct. Biol.**, 4:194-197, 1997.

158. Butler, A.P., Johnson, D.G., Kumar, A.P., Narayan, S., Wilson, S.H., and MacLeod, M.C. Disruption of transcription *in vitro* and gene expression *in vivo* by DNA adducts derived from a benzo[a]pyrene diol epoxide located in heterologous sequences. **Carcinogenesis**, 18:239-244, 1997.

159. Mullen, G.P., Antuch, W., Maciejewski, M.W., Prasad, R., and Wilson, S.H. Insights into the mechanism of the β -elimination catalyzed by the N-terminal domain of DNA polymerase β . **Tetrahedron**, 53:12057-12066, 1997.

160. Sawaya, M.R., Prasad, R., Wilson, S.H., Kraut, J., and Pelletier, H. Crystal structures of human DNA polymerase β complexed with gapped and nicked DNA: Evidence for an induced fit mechanism. **Biochemistry**, 36:11205-11215, 1997.

161. Yang, X-P., He, F., Rawson, T.Y., and Wilson, S.H. Human DNA polymerase β promoter: Phorbol ester activation is mediated through the cAMP response element and cAMP-response-element-binding protein. **J. Biomed. Sci.**, 4:279-288, 1997.

162. Biade, S., Sobol, R.W., Wilson, S.H., and Matsumoto, Y. Impairment of proliferating cell nuclear antigen-dependent apurinic/apyrimidinic site repair on linear DNA. **J. Biol. Chem.**, 273:898-902, 1998.

163. Fortini, P., Pascucci, B., Parlanti, E., Sobol, R.W., Wilson, S.H., and Dogliotti, E. Different DNA polymerases are involved in the short- and long-patch base excision repair in mammalian cells. **Biochemistry**, 37:3575-3580, 1998.

164. Singh, S.B., Beard, W.A., Hingerty, B.E., Wilson, S.H., and Broyde, S. Interactions between DNA polymerase β and the major covalent adduct of the carcinogen (+)-*anti*-benzo[a]pyrene diol epoxide with DNA at a primer-template junction. **Biochemistry**, 37:878-884, 1998.

165. Chen, K.-H., Yakes, F.M., Srivastava, D.K., Singhal, R.K., Sobol, R.W., Horton, J.K., Van Houten, B., and Wilson, S.H. Up-regulation of base excision repair correlates with enhanced protection against a DNA damaging agent in mouse cell lines. **Nucleic Acids Res.**, 26:2001-2007, 1998.

166. Lavrik, O.I., Nasheuer, H.-P., Weisshart, K., Wold, M.S., Prasad, R., Beard, W.A., Wilson, S.H., and Favre, A. Subunits of human replication protein A are crosslinked by photoreactive primers synthesized by DNA polymerases. **Nucleic Acids Res.** 26:602-607, 1998.

- 167. Prasad, R.,** Chyan, Y.J., Beard, W.A., Maciejewski, M.W., Mullen, G.P., and Wilson, S.H. Functional analysis of the amino-terminal 8-kDa domain of DNA polymerase β as revealed by site-directed mutagenesis: DNA binding and 5'-deoxyribose phosphate lyase activities. **J. Biol. Chem.**, 273:11121-11126, 1998.
- 168. Prasad, R.,** Beard, W.A., Strauss, P., and Wilson, S.H. Human DNA polymerase β deoxyribose phosphate lyase: Substrate specificity and catalytic mechanism. **J. Biol. Chem.**, 273:15263-15270, 1998.
- 169. Stucki, M.,** Pascucci, B., Parlanti, E., Fortini, P., Wilson, S.H., Hübscher, U., and Dogliotti, E. Mammalian base excision repair by DNA polymerases δ and ϵ . **Oncogene**, 17:835-843, 1998.
- 170. Srivastava, D.K.,** Vande Berg, B.J., Prasad, R., Molina, J.T., Beard, W.A., Tomkinson, A.E., and Wilson, S.H. Mammalian abasic site base excision repair: Identification of the reaction sequence and rate-determining steps. **J. Biol. Chem.**, 273:21203-21209, 1998.
- 171. Dimitriadis, E.K.,** Prasad, R., Vaske, M.K., Chen, L., Tomkinson, A.E., Lewis, M.S., and Wilson, S.H. Thermodynamics of human DNA ligase I trimerization and association with DNA polymerase β . **J. Biol. Chem.**, 273:20540-20550, 1998.
- 172. Longley, M.J.,** Prasad, R., Srivastava, D.K., Wilson, S.H., and Copeland, W.C. Identification of 5'-deoxyribose phosphate lyase activity in human DNA polymerase γ and its role in mitochondrial base excision repair *in vitro*. **Proc. Natl. Acad. Sci., USA**, 95:12244-12248, 1998.
- 173. Beard, W.A.,** Bebenek, K., Darden, T.A., Li, L., Prasad, R., Kunkel, T.A., and Wilson, S.H. Vertical-scanning mutagenesis of a critical tryptophan in the minor groove binding track of HIV-1 reverse transcriptase: Molecular nature of polymerase-nucleic acid interactions. **J. Biol. Chem.**, 273:30435-30442, 1998.
- 174. Osheroff, W.P.,** Jung, H.K., Beard, W.A., Wilson, S.H., and Kunkel, T.A. The fidelity of DNA polymerase β during distributive and processive DNA synthesis. **J. Biol. Chem.**, 274:3642-3650, 1999.
- 175. Srivastava, D.K.,** Husain, I., Arteaga, C.L., and Wilson, S.H. DNA polymerase β expression differences in selected human tumors and cell lines. **Carcinogenesis**, 20:1049-1054, 1999.
- 176. Ochs, K.,** Sobol, R.W., Wilson, S.H., and Kaina, B. Cells deficient in DNA polymerase β are hypersensitive to alkylating agent-induced apoptosis and chromosomal breakage. **Cancer Res.**, 59:1544-1551, 1999.
- 177. Dianov, G.L.,** Prasad, R., Wilson, S.H., and Bohr, V.A. Role of DNA polymerase β in the excision step of long patch mammalian base excision repair. **J. Biol. Chem.**, 274:13741-13743, 1999.
- 178. Efrati, E.,** Tocco, G., Eritja, R., Wilson, S.H., and Goodman, M.F. "Action-at-a-distance" mutagenesis: 8-oxo-7,8-dihydro-2'-deoxyguanosine causes base substitution errors at neighboring template sites when copied by DNA polymerase β . **J. Biol. Chem.**, 274:15920-15926, 1999.
- 179. Powell, M.D.,** Beard, W.A., Bebenek, K., Howard, K.J., Le Grice, S.F.J., Darden, T.A., Kunkel, T.A., Wilson, S.H., and Levin, J.G. Residues in the α H and α I helices of the HIV-1 reverse transcriptase thumb subdomain required for the specificity of RNase H-catalyzed removal of the polypurine tract primer. **J. Biol. Chem.**, 274:19885-19893, 1999.

- 180. Osheroff, W.P.**, Beard, W.A., Wilson, S.H., and Kunkel, T.A. Base substitution specificity of DNA polymerase β depends on interactions in the DNA minor groove. **J. Biol. Chem.**, 274:20749-20752, 1999.
- 181. Idriss, H.**, Kawa, S., Damuni, Z., Thompson, E.B., and Wilson, S.H. HIV-1 reverse transcriptase is phosphorylated *in vitro* and in a cellular system. **Int. J. Biochem. Cell Biol.**, 31,1443-1452, 1999.
- 182. Lewis, D.A.**, Bebenek, K., Beard, W.A., Wilson, S.H., and Kunkel, T.A. Uniquely altered DNA replication fidelity conferred by an amino acid change in the nucleotide binding pocket of human immunodeficiency virus type 1 reverse transcriptase. **J. Biol. Chem.**, 274:32924-32930, 1999.
- 183. Horton, J.K.**, Prasad, R., Hou, E., and Wilson, S.H. Protection against methylation-induced cytotoxicity by DNA polymerase β -dependent long patch base excision repair. **J. Biol. Chem.**, 275:2211-2218, 2000.
- 184. Prasad, R.**, Dianov, G.L., Bohr, V.A., and Wilson, S.H. FEN1 Stimulation of DNA polymerase β mediates an excision step in mammalian long patch base excision repair. **J. Biol. Chem.**, 275:4460-4466, 2000.
- 185. Narayan, S.** and Wilson, S.H. Kinetic analysis of Sp1-mediated transcriptional activation of a TATA-containing promoter. **Biochemistry**, 39:818-823, 2000.
- 186. Miller, H.**, Prasad, R., Wilson, S.H., Johnson, F., and Grollman, A.P. 8-OxodGTP incorporation by DNA polymerase β is modified by active-site residues Asn279. **Biochemistry**, 39:1029-1033, 2000.
- 187. Maciejewski, M.W.**, Liu, D., Prasad, R., Wilson, S.H., and Mullen, G.P. Backbone dynamics and refined solution structure of the N-terminal domain of DNA polymerase β . Correlation with DNA binding and dRP lyase activity. **J. Mol. Biol.**, 296:229-253, 2000.
- 188. Patterson, T.A.**, Little, W., Cheng, X., Widen, S.G., Kumar, A., Beard, W.A., and Wilson, S.H. Molecular cloning and high-level expression of human polymerase β cDNA and comparison of the purified recombinant human and rat enzymes. **Protein Expr. Purif.**, 18:100-110, 2000.
- 189. Deterding, L.J.**, Prasad, R., Mullen, G.P., Wilson, S.H., and Tomer, K.P. Mapping of the 5'-2-deoxyribose-5-phosphate lyase active site in DNA polymerase β by mass spectrometry. **J. Biol. Chem.**, 275:10463-10471, 2000.
- 190. Chen, K.-H.**, Srivastava, D.K., Singhal, R.K., Jacob, S., Ahmed, A.E., and Wilson, S.H. Modulation of DNA base excision repair by oxidized low density lipoprotein and antioxidants in mouse monocytes. **Carcinogenesis**, 21:1017-1022, 2000.
- 191. Marintchev, A.**, Robertson, A., Dimitriadis, E.K., Prasad, R., Wilson, S.H., and Mullen, G.P. Domain Specific interaction in the XRCC1-DNA polymerase β complex. **Nucleic Acids Res.**, 28:2049-2059, 2000.
- 192. Sobol, R.W.**, Prasad, R., Evenski, A., Baker, A., Yang, X.-P., Horton, J.K., and Wilson, S.H. The lyase activity of DNA repair protein β -polymerase protects from DNA-damage-induced cytotoxicity. **Nature**, 405:807-810, 2000.
- 193. Latham, G.J.**, Forgacs, E., Beard, W.A., Prasad, R., Bebenek, K., Kunkel, T.A., Wilson, S.H., and Lloyd, R.S. Vertical-scanning mutagenesis of a critical tryptophan in the "minor groove binding track" of HIV-1 reverse transcriptase. **J. Biol. Chem.**, 275:15025-15033, 2000.
- 194. Osheroff, W.P.**, Beard, W.A., Yin, S., Wilson, S.H., and Kunkel, T.A. Minor groove interactions at the DNA polymerase β active site modulate single-base deletion error rates. **J. Biol. Chem.**, 275:28033-28038, 2000.

- 195. Narayan, S.** and Wilson, S.H. Kinetic analysis of Sp1-mediated transcriptional activation of the human DNA polymerase β promoter. **Oncogene**, 19:4729-4735, 2000.
- 196. Li, L.,** Pedersen, L.G., Beard, W.A., Bebenek, K., Wilson, S.H., Kunkel, T.A., and Darden, T.A. A molecular dynamics model of HIV-1 reverse transcriptase complexed with DNA: Comparison with experimental structures. **J. Mol. Model.**, 6:575-586, 2000.
- 197. Podlutsky, A.J.,** Dianova, I.I., Wilson, S.H., Bohr, V.A., and Dianov, G.L. DNA synthesis and dRPase activities of polymerase β are both essential for single-nucleotide patch base excision repair in mammalian cell extracts. **Biochemistry**, 40:809-813, 2001.
- 198. Vande Berg, B.J.,** Beard, W.A., and Wilson, S.H. DNA structure and aspartate 276 influence nucleotide binding to human DNA polymerase β . **J. Biol. Chem.**, 276:3408-3416, 2001.
- 199. Zhou, J.,** Ahn, J., Wilson, S.H., and Prives, C. A role for p53 in base excision repair. **EMBO J.**, 20:914-923, 2001.
- 200. Srivastava, D.K.,** Tendler, C.L., Milani, D., English, M.A., Licht, J.D., and Wilson, S.H. The HIV-1 transactivator protein Tat is a potent inducer of the human DNA repair enzyme polymerase- β . **AIDS**, 15:433-440, 2001.
- 201. Bebenek, K.,** Tissier, A., Frank, E.G., McDonald, J.P., Prasad, R., Wilson, S.H., Woodgate, R., and Kunkel, T.A. 5'-Deoxyribose phosphate lyase activity of human DNA polymerase ϵ *in vitro*. **Science**, 291:2156-2159, 2001.
- 202. Belova, G.I.,** Prasad, R., Kozyavkin, S.A., Lake, J.A., Wilson, S.H., and Slesarev, A.I. A type IB topoisomerase with DNA repair activities. **Proc. Natl. Acad. Sci. USA**, 98:6015-6020, 2001.
- 203. Lavrik, O.I.,** Prasad, R., Sobol, R.W., Horton, J.K., Ackerman, E.J., and Wilson, S.H. Photoaffinity labeling of mouse fibroblast enzymes by a base excision repair intermediate: Evidence for the role of poly(ADP-ribose) polymerase-1 in DNA repair. **J. Biol. Chem.**, 276:25541-25548, 2001.
- 204. Prasad, R.,** Lavrik, O.I., Kim, S.-J., Kedar, P., Yang, X.-P., Vande Berg, B.J., and Wilson, S.H. DNA polymerase β -mediated long patch base excision repair: Poly(ADP-ribose) polymerase-1 stimulates strand displacement DNA synthesis. **J. Biol. Chem.**, 276:32411-32414, 2001.
- 205. Chen, K.-H.,** Srivastava, D.K., and Wilson, S.H. Relationship between base excision repair capacity and DNA alkylating agent sensitivity in mouse monocytes. **Mutat. Res. – DNA Repair**, 487:121-126, 2001.
- 206. Belova, G.I.,** Prasad, R., Nazimov, I.V., Wilson, S.H., and Slesarev, A.I. The domain organization and properties of individual domains of DNA topoisomerase V, a type 1B topoisomerase with DNA repair activities. **J. Biol. Chem.**, 277:4959-4965, 2002.
- 207. Beard, W.A.,** Shock, D.D., Yang, X.-P., DeLauder, S.F., and Wilson, S.H. Loss of DNA polymerase β stacking interactions with templating purines, but not pyrimidines, alters catalytic efficiency and fidelity. **J. Biol. Chem.**, 277:8235-8242, 2002.
- 208. Horton, J.K.,** Baker, A., Vande Berg, B.J., Sobol, R.W., and Wilson, S.H. Involvement of DNA polymerase β in protection against the cytotoxicity of oxidative DNA damage. **DNA Repair (Amst.)**, 1:317-333, 2002.
- 209. Yang, L.,** Beard, W.A., Wilson, S.H., Broyde, S., and Schlick, T. Polymerase β simulations suggest that Arg258 rotation is a slow step rather than large subdomain motions *per se*. **J. Mol. Biol.**, 317:651-671, 2002.

- 210. Sobol, R.W.,** Watson, D.E., Nakamura, J., Yakes, F.M., Hou, E., Horton, J.K., Ladapo, J., Van Houten, B., Swenberg, J.A., Tindall, K.R., Samson, L.D., and Wilson, S.H. Mutations associated with base excision repair deficiency and methylation-induced genotoxic stress. **Proc. Natl. Acad. Sci. USA**, 99:6860-6865, 2002.
- 211. Gryk, M.R.,** Maciejewski, M.W., Robertson, A., Mullen, M.A., Wilson, S.H., and Mullen, G.P. Letter to the Editor: ^1H , ^{13}C and ^{15}N resonance assignments for the predeuterated 22 kD palm-thumb domain of DNA polymerase β . **J. Biomol. NMR**, 22:197-198, 2002.
- 212. Lavrik, O.I.,** Kolpashchikov, D.M., Prasad, R., Sobol, R.W., and Wilson, S.H. Binary system for selective photoaffinity labeling of base excision repair DNA polymerases. **Nucleic Acids Res.**, 30:e73, 2002.
- 213. Yang, L.,** Beard, W.A., Wilson, S.H., Roux, B., Broyde, S., and Schlick, T. Local deformations revealed by dynamics simulations of DNA polymerase β with DNA mismatches at the primer terminus. **J. Mol. Biol.**, 321:459-478, 2002.
- 214. Kedar, P.S.,** Kim, S.-J., Robertson, A., Hou, E., Prasad, R., Horton, J.K., and Wilson, S.H. Direct interaction between mammalian DNA polymerase β and proliferating cell nuclear antigen. **J. Biol. Chem.**, 277:31115-31123, 2002.
- 215. Beard, W.A.,** Shock, D.D., Vande Berg, B.J., and Wilson, S.H. Efficiency of correct nucleotide insertion governs DNA polymerase fidelity. **J. Biol. Chem.**, 277:47393-47398, 2002.
- 216. Gryk, M.R.,** Marintchev, A., Maciejewski, M.W., Robertson, A., Wilson, S.H., and Mullen, G.P. Mapping of the interaction interface of DNA polymerase β with XRCC1. **Structure (Camb.)**, 10:1709-1720, 2002.
- 217. Horton, J.K.,** Joyce-Gray, D.F., Pachkowski, B.F., Swenberg, J.A., and Wilson, S.H. Hypersensitivity of DNA polymerase β null mouse fibroblasts reflects accumulation of cytotoxic repair intermediates from site-specific alkyl DNA lesions. **DNA Repair (Amst.)**, 2:27-48, 2003.
- 218. Krahn, J.M.,** Beard, W.A., Miller, H., Grollman, A.P., and Wilson, S.H. Structure of DNA polymerase β with the mutagenic DNA lesion 8-oxodeoxyguanine reveals structural insights into its coding potential. **Structure (Camb.)**, 11:121-127, 2003.
- 219. He, F.,** Yang, X.-P., Srivastava, D.K., and Wilson, S.H. DNA polymerase β gene expression: The promoter activator CREB-1 is upregulated in Chinese hamster ovary cells by DNA alkylating agent-induced stress. **Biol. Chem.**, 384:19-23, 2003.
- 220. Kim, S.-J.,** Beard, W.A., Harvey, J., Shock, D.D., Knutson, J.R., and Wilson, S.H. Rapid segmental and subdomain motions of DNA polymerase β . **J. Biol. Chem.**, 278:5072-5081, 2003.
- 221. Sobol, R.W.,** Foley, J.F., Nyska, A., Davidson, M.G., and Wilson, S.H. Regulated over-expression of DNA polymerase β mediates early onset cataract in mice. **DNA Repair (Amst.)**, 2:609-622, 2003.
- 222. Beard, W.A.** and Wilson, S.H. Structural insights into the origins of DNA polymerase fidelity. **Structure (Camb.)**, 11:489-496, 2003.
- 223. Harrigan, J.A.,** Opresko, P.L., von Kobbe, C., Kedar, P.S., Prasad, R., Wilson, S.H., and Bohr, V.A. The Werner syndrome protein stimulates DNA polymerase β strand displacement synthesis via its helicase activity. **J. Biol. Chem.**, 278:22686-22695, 2003.
- 224. Chyan, Y.-J.,** Rawson, T.Y., and Wilson, S.H. Cloning and characterization of a novel member of the human ATF/CREB family: ATF2 deletion, a potential regulator of the human DNA polymerase β promoter. **Gene**, 312:117-124, 2003.

- 225. Beard, B.C.**, Wilson, S.H., and Smerdon, M.J. Suppressed catalytic activity of base excision repair enzymes on rotationally positioned uracil in nucleosomes. **Proc. Natl. Acad. Sci.**, USA, 100:7465-7470, 2003.
- 226. Matsuda, T.**, Vande Berg, B.J., Bebenek, K., Osheroff, W.P., Wilson, S.H., and Kunkel, T.A. The base substitution fidelity of DNA polymerase β -dependent single nucleotide base excision repair. **J. Biol. Chem.**, 278:25947-25951, 2003.
- 227. Prasad, R.**, Bebenek, K., Hou, E., Shock, D., Beard, W., Woodgate, R., Kunkel, T.A., and Wilson, S.H. Localization of the deoxyribose phosphate lyase active site in human DNA polymerase ϵ by controlled proteolysis. **J. Biol. Chem.**, 278:29649-29654, 2003.
- 228. Sobol, R.W.**, Kartalou, M., Almeida, K.H., Joyce, D.F., Engelward, B.P., Horton, J.K., Prasad, R., Samson, L.D., and Wilson, S.H. Base excision repair intermediates induce p53-independent cytotoxic and genotoxic responses. **J. Biol. Chem.**, 278:39951-39959, 2003.
- 229. Cabelof, D.C.**, Guo, Z.-M., Raffoul, J.J., Sobol, R.W., Wilson, S.H., Richardson, A., and Heydari, A.R. Base excision repair deficiency caused by polymerase β haploinsufficiency: Accelerated DNA damage and increased mutational response to carcinogens. **Cancer Res.**, 63:5799-5807, 2003.
- 230. Hou, E.W.**, Prasad, R., Beard, W.A., and Wilson, S.H. High-level expression and purification of untagged and histidine-tagged HIV reverse transcriptase. **Protein Expr. Purif.**, 34:75-86, 2004.
- 231. Poltoratsky, V.P.**, Wilson, S.H., Kunkel, T.A., and Pavlov, Y.I. Recombinogenic phenotype of human activation-induced cytosine deaminase. **J. Immunol.**, 172:4308-4313, 2004.
- 232. Cistulli, C.**, Lavrik, O.I., Prasad, R., Hou, E., and Wilson, S.H. AP endonuclease and poly(ADP-ribose) polymerase-1 interact with the same base excision repair intermediate. **DNA Repair (Amst.)**, 3:581-591, 2004.
- 233. Endres, M.**, Biniszkiwicz, D., Sobol, R.W., Harms, C., Ahmadi, M., Lipski, A., Katchanov, J., Mergenthaler, P., Dirnagl, U., Wilson, S.H., Meisel, A., and Jaenisch, R. Increased postischemic brain injury in mice deficient in uracil-DNA glycosylase. **J. Clin. Invest.**, 113:1711-1721, 2004.
- 234. Yang, L.**, Beard, W.A., Wilson, S.H., Broyde, S., and Schlick, T. Highly organized but pliant active site of DNA polymerase β : Compensatory mechanisms in mutant enzymes revealed by dynamics simulations and energy analyses. **Biophys. J.**, 86:3392-3408, 2004.
- 235. Bose-Basu, B.**, DeRose, E.F., Kirby, T.W., Mueller, G.A., Beard, W.A., Wilson, S.H., and London, R.E. Dynamic characterization of a DNA repair enzyme: NMR studies of [methyl- ^{13}C]methionine-labeled DNA polymerase β . **Biochemistry**, 43:8911-8922, 2004.
- 236. Yang, L.**, Arora, K., Beard, W.A., Wilson, S.H., and Schlick, T. Critical role of magnesium ions in DNA polymerase β 's closing and active site assembly. **J. Am. Chem. Soc.**, 126:8441-8453, 2004.
- 237. Beard, W.A.**, Shock, D.D., and Wilson, S.H. Influence of DNA structure on DNA polymerase β active site function: Extension of mutagenic DNA intermediates. **J. Biol. Chem.**, 279:31921-31929, 2004.
- 238. Wiederhold, L.**, Leppard, J.B., Kedar, P., Karimi-Busheri, F., Rasouli-Nia, A., Weinfeld, M., Tomkinson, A.E., Izumi, T., Prasad, R., Wilson, S.H., Mitra, S., and Hazra, T.K. AP endonuclease-independent DNA base excision repair in human cells. **Mol. Cell**, 15:209-220, 2004.

- 239. Hu, H.-Y.,** Horton, J.K., Gryk, M.R., Prasad, R., Naron, J.M., Sun, D.-A., Hecht, S.M., Wilson, S.H., and Mullen, G.P. Identification of small molecule synthetic inhibitors of DNA polymerase β by NMR chemical shift mapping. **J. Biol. Chem.**, 279:39736-39744, 2004.
- 240. Lan, L.,** Nakajima, S., Oohata, Y., Takao, M., Okano, S., Masutani, M., Wilson, S.H., and Yasui, A. *In situ* analysis of repair processes for oxidative DNA damage in mammalian cells. **Proc. Natl. Acad. Sci. USA**, 101:13738-13743, 2004.
- 241. Krahn, J.M.,** Beard, W.A., and Wilson, S.H. Structural insights into DNA polymerase β deterrents for misincorporation support an induced-fit mechanism for fidelity. **Structure (Camb.)**, 12:1823-1832, 2004.
- 242. Beard, B.C.,** Stevenson, J.J., Wilson, S.H., and Smerdon, M.J. Base excision repair in nucleosomes lacking histone tails, **DNA Repair (Amst.)**, 4:203-209, 2005.
- 243. Liu, Y.,** Beard, W.A., Shock, D.D., Prasad, R., Hou, E.W., and Wilson, S.H. DNA polymerase β and flap endonuclease 1 enzymatic specificities sustain DNA synthesis for long patch base excision repair. **J. Biol. Chem.**, 280:3665-3674, 2005.
- 244. Sukhanova, M.V.,** Khodyreva, S.N., Lebedeva, N.A., Prasad, R., Wilson, S.H., and Lavrik, O.I. Human base excision repair enzymes apurinic/apyrimidinic endonuclease1 (APE1), DNA polymerase β and poly(ADP-ribose) polymerase 1: Interplay between strand-displacement DNA synthesis and proofreading exonuclease activity. **Nucleic Acids Res.**, 33:1222-1229, 2005.
- 245. Horton, J.K.,** Stefanick, D.F., Naron, J.M., Kedar, P.S., and Wilson, S.H. Poly(ADP-ribose) polymerase activity prevents signaling pathways for cell cycle arrest following DNA methylating agent exposure. **J. Biol. Chem.**, 280:15773-15785, 2005.
- 246. Braithwaite, E.K.,** Prasad, R., Shock, D.D., Hou, E.W., Beard, W.A., and Wilson, S.H. DNA polymerase λ mediates a back-up base excision repair activity in extracts of mouse embryonic fibroblasts. **J. Biol. Chem.**, 280:18469-18475, 2005.
- 247. Batra, V.K.,** Beard, W.A., Shock, D.D., Pedersen, L.C., and Wilson, S.H. Nucleotide-induced DNA polymerase active site motions accommodating a mutagenic DNA intermediate. **Structure (Camb.)**, 13:1225-1233, 2005.
- 248. Braithwaite, E.K.,** Kedar, P.S., Lan, L., Polosina, Y.Y., Asagoshi, K., Poltoratsky, V.P., Horton, J.K., Miller, H., Teebor, G.W., Yasui, A., and Wilson, S.H. DNA polymerase λ protects mouse fibroblasts against oxidative DNA damage and is recruited to sites of DNA damage/repair. **J. Biol. Chem.**, 280:31641-31647, 2005.
- 249. Poltoratsky, V.,** Horton, J.K., Prasad, R., and Wilson, S.H. Brief report: REV1 mediated mutagenesis in base excision repair deficient mouse fibroblast. **DNA Repair (Amst.)**, 4:1182-1188, 2005.
- 250. Horton, J.K.,** Stefanick, D.F., and Wilson, S.H. Involvement of poly(ADP-ribose) polymerase activity in regulating Chk1-dependent apoptotic cell death. **DNA Repair (Amst.)**, 4:1111-1120, 2005.
- 251. Arora, K.,** Beard, W.A., Wilson, S.H., and Schlick, T. Mismatch-induced conformational distortions in polymerase β support an induced-fit mechanism for fidelity. **Biochemistry**, 44:13328-13341, 2005.
- 252. Prasad, R.,** Batra, V.K., Yang, X.-P., Krahn, J.M., Pedersen, L.C., Beard, W.A., and Wilson, S.H. Structural insight into the DNA polymerase β deoxyribose phosphate lyase mechanism. **DNA Repair (Amst.)**, 4:1347-1357, 2005.

- 253. Kirby, T.W.,** DeRose, E.F., Beard, W.A., Wilson, S.H., and London, R.E. A thymine isostere in the templating position disrupts assembly of the closed DNA polymerase β ternary complex. **Biochemistry**, 44:15230-15237, 2005.
- 254. Harrigan, J.A.,** Wilson, III, D.M., Prasad, R., Opresko, P.L., Beck, G., May, A., Wilson, S.H., and Bohr, V.A. The Werner syndrome protein operates in base excision repair and cooperates with DNA polymerase β . **Nucleic Acids Res.**, 34:745-754, 2006.
- 255. Batra, V.K.,** Beard, W.A., Shock, D.D., Krahn, J.M., Pedersen, L.C., and Wilson, S.H. Magnesium-induced assembly of a complete DNA polymerase catalytic complex. **Structure (Camb.)**, 14:757-766, 2006.
- 256. Cabelof, D.C.,** Ikeno, Y., Nyska, A., Busuttill, R.A., Anyangwe, N., Vijg, J., Matherly, L.H., Tucker, J.D., Wilson, S.H., Richardson, A., and Heydari, A.R. Haploinsufficiency in DNA polymerase β increases cancer risk with age and alters mortality rate. **Cancer Res.**, 66:7460-7465, 2006.
- 257. Gao, G.,** Prasad, R., Lodwig, S.N., Unkefer, C.J., Beard, W.A., Wilson, S.H., London, R.E. Determination of lysine pK values using [5-¹³C]lysine: Application to the lyase domain of DNA Pol β . **J. Am. Chem. Soc.**, 128:8104-8105, 2006.
- 258. Yoshimura, M.,** Kohzaki, M., Nakamura, J., Asagoshi, K., Sonoda, E., Hou, E., Prasad, R., Wilson, S.H., Tano, K., Yasui, A., Lan, L., Seki, M., Wood, R.D., Arakawa, H., Buerstedde, J.-M., Hohegger, H., Okada, T., Hiraoka, M., and Takeda, S. Vertebrate PolQ and Pol β cooperate in base excision repair of oxidative DNA damage. **Mol. Cell**, 24:115-125, 2006.
- 259. Lin, P.,** Pedersen, L.C., Batra, V.K., Beard, W.A., Wilson, S.H., and Pedersen, L.G. Energy analysis of chemistry for correct nucleotide insertion by DNA polymerase β . **Proc. Natl. Acad. Sci. USA**, 103:13294-13299, 2006.
- 260. Batra, V.K.,** Shock, D.D., Prasad, R., Beard, W.A., Hou, E.W., Pedersen, L.C., Sayer, J.M., Yagi, H., Kumar, S., Jerina, D.M., and Wilson, S.H. Structure of DNA polymerase β with a benzo[c]phenanthrene diol epoxide-adducted template exhibits mutagenic features. **Proc. Natl. Acad. Sci. USA**, 103:17231-17236, 2006.
- 261. Das, A.,** Wiederhold, L., Leppard, J.B., Kedar, P.S., Prasad, R., Wang, H., Boldogh, I., Karimi-Busheri, F., Weinfeld, M., Tomkinson, A.E., Wilson, S.H., Mitra, S., and Hazra, T.K. NEIL2-initiated, APE-independent repair of oxidized bases in DNA: Evidence for a repair complex in human cell. **DNA Repair (Amst.)**, 5:1439-1448, 2006.
- 262. Radhakrishnan, R.,** Arora, K., Wang, Y., Beard, W.A., Wilson, S.H., and Schlick, T. Regulation of DNA repair fidelity by molecular checkpoints: "Gates" in DNA polymerase β 's substrate selection. **Biochemistry**, 45:15142-15156, 2006.
- 263. Poltoratsky, V.,** Prasad, R., Horton, J.K., and Wilson, S.H. Down-regulation of DNA polymerase β accompanies somatic hypermutation in human BL2 cell lines. **DNA Repair (Amst.)**, 6:244-253, 2007.
- 264. Sucato, C.A.,** Upton, T.G., Kashemirov, B.A., Batra, V.K., Martinek, V., Xiang, Y., Beard, W.A., Pedersen, L.C., Wilson, S.H., McKenna, C.E., Florian, J., Warshel, A., and Goodman, M.F. Modifying the β - γ leaving-group bridging oxygen alters nucleotide incorporation efficiency, fidelity and catalytic mechanism of DNA polymerase β . **Biochemistry**, 46:461-471, 2007.
- 265. Oelschlaeger, P.,** Klahn, M., Beard, W.A., Wilson, S.H., and Warshel, A. Magnesium-cationic dummy atom molecules enhance representation of DNA polymerase β in molecular dynamics simulations: Improved accuracy in studies of structural features and mutational effects. **J. Mol. Bio.**, 366:687-701, 2007.

- 266. Horton, J.K.** and Wilson, S.H. Hypersensitivity phenotypes associated with genetic and synthetic inhibitor-induced base excision repair deficiency. **DNA Repair (Amst.)**, 6:530-543, 2007.
- 267. Horton, J.K.**, Stefanick, D.F., Kedar, P.S., and Wilson, S.H. ATR signaling mediates an S-phase checkpoint after inhibition of poly(ADP-ribose) polymerase activity. **DNA Repair (Amst.)**. 6:742-750, 2007.
- 268. Wang, Y.**, Reddy, S., Beard, W.A., Wilson, S.H., and Schlick, T. Differing conformational pathways before and after chemistry for insertion of dATP vs. dCTP opposite 8-oxoG in DNA polymerase β . **Biophys. J.**, 92:3063-3070, 2007.
- 269. Tano, K.**, Nakamura, J., Asagoshi, K., Arakawa, H., Sonoda, E., Braithwaite, E.K., Prasad, R., Buerstedde, J.-M., Takeda, S., Watanabe, M., and Wilson, S.H. Interplay between DNA polymerases β and λ in repair of oxidation DNA damage in chicken DT40 cells. **DNA Repair (Amst.)**, 6:869-275, 2007.
- 270. Liu, Y.**, Prasad, R., Beard, W.A., Kedar, P.S., Hou, E.W., Shock, D.D., Wilson, S.H. Coordination of steps in single-nucleotide base excision repair mediated by apurinic/aprimidinic endonuclease 1 and DNA polymerase β . **J. Biol. Chem.**, 282:13532-13545, 2007.
- 271. Kovtun, I.V.**, Liu, Y., Bjoras, M., Klungland, A., Wilson, S.H., and McMurray, C. OGG1 initiates age-dependent CAG expansion in somatic cells during normal base excision repair of oxidized bases *in vitro* and *in vivo*. **Nature**, 447:447-452, 2007.
- 272. Nakanishi, S.**, Prasad, R., Wilson, S.H., and Smerdon, M. Different structural states in oligonucleosomes are required for early versus late steps of base excision repair. **Nucleic Acids Res.**, 35:4313-4321, 2007.
- 273. Palma, N.**, Cinelli, S., Saporita, O., Wilson, S.H., and Dogliotti, E. Ochratoxin A-induced mutagenesis in mammalian cells is consistent with production of oxidative stress. **Chem. Res. Toxicol.**, 20:1031-1037, 2007.
- 274. Prasad, R.**, Liu, Y., Deterding, L.J., Poltoratsky, V., Kedar, P.S., Horton, J.K., Kanno, S.-I., Asagoshi, K., Hou, E.W., Khodyreva, S.N., Lavrik, O.I., Tomer, K.B., and Wilson, S.H. HMGB1 is a co-factor in mammalian base excision repair. **Mol. Cell**, 27:829-841, 2007.
- 275. Moon, A.F.**, Garcia-Diaz, M., Batra, V.K., Beard, W.A., Bebenek, K., Kunkel, T.A., Wilson, S.H., and Pedersen, L.C. The X family portrait: Structural insights into biological functions of X family polymerases. **DNA Repair (Amst.)**, 6:1709-1725, 2007.
- 276. Hou, E.W.**, Prasad, R., Asagoshi, K., Masaoka, A., and Wilson, S.H. Comparative assessment of plasmid and oligonucleotide DNA substrates in measurement of *in vitro* base excision repair activity. **Nucleic Acids Research**, 35:e112, 2007.
- 277. Das, S.**, Chattopadhyay, R., Bhakat, K.K., Boldogh, I., Kohno, K., Prasad, R., Wilson, S.H., and Hazra, T.K. Stimulation of NEIL2-mediated oxidized base excision repair via YB-1 interaction during oxidative stress. **J. Biol. Chem.**, 282:28474-28484, 2007.
- 278. McKenna, C.E.**, Kashemirov, B.A., Upton, T.G., Batra, V.K., Goodman, M.F., Pedersen, L.C., Beard, W.A., and Wilson, S.H. (R)- β,γ -fluoromethylene-dGTP-DNA ternary complex with DNA polymerase β . **J. Am. Chem. Soc.** 129:15412-15413, 2007.
- 279. Xiang, Y.**, Goodman, M., Beard, W.A., Wilson, S.H., and Warshel, A. Exploring the role of large conformational changes in the fidelity of DNA Polymerase β . **Proteins**, 70:231-247, 2008.

- 280. Horton, J.K.,** Watson, M., Stefanick, D.F., Shaughnessy, D.T., Taylor, J.A., and Wilson, S.H. XRCC1 and DNA polymerase β in cellular protection against cytotoxic DNA single-strand breaks. **Cell Res.**, 18:48-63, 2008.
- 281. Sucato, C.A.,** Upton, T.G., Kashemirov, B.A., Osuna, J., Oertell, K., Beard, W.A., Wilson, S.H., Florián, J., Warshel, A., McKenna, C.E., Goodman, M.F. DNA Polymerase β fidelity: Halomethylene-modified leaving groups in pre-steady-state kinetic analysis reveal differences at the chemical transition state. **Biochemistry**, 47:870-879, 2008.
- 282. Batra, V.K.,** Beard, W.A., Shock, D.D., Pedersen, L.C., and Wilson, S.H. Structures of DNA polymerase β with active-site mismatches suggest a transient abasic site intermediate during misincorporation. **Mol. Cell**, 30:315-324, 2008.
- 283. Lin, P.,** Batra, V.K., Pedersen, L.C., Beard, W.A., Wilson, S.H., and Pedersen, L.G. Incorrect nucleotide insertion at the active site of a G:A mismatch catalyzed by DNA polymerase β . **Proc. Natl. Acad. Sci. USA**, 105:5670-5674, 2008.
- 284. Poltoratsky, V.,** Horton, J.K., Prasad, R., Beard, W.A., Woodgate, R., and Wilson S.H. Negligible impact of pol ι expression on the alkylation sensitivity of pol β -deficient mouse fibroblast cells. **DNA Repair (Amst.)**, 7:830-833, 2008.
- 285. Oka, H.,** Sakai, W., Sonoda, E., Nakamura, J., Asagoshi, K., Wilson, S.H., Kobayashi, M., Yamamoto, K., Heierhorst, J., Takeda, S., and Taniguchi, Y. DNA damage response protein ASCIZ links base excision repair with immunoglobulin gene conversion. **Biochem. Biophys. Res. Commun.**, 371:225-229, 2008.
- 286. Kronenberg, G.,** Harms, C., Sobol, R.W., Cardozo-Pelaez, F., Linhard, H., Winter, B., Balkaya, M., Gertz, K., Gay, S.B., Cox, D., Eckart, S., Ahmadi, M., Juckel, G., Kempermann, G., Hellweg, R., Sohr, R., Hörtnagl, H., Wilson, S.H., Jaenisch, R., and Endres, M. Folate deficiency induces neurodegeneration and brain dysfunction in mice lacking uracil DNA glycosylase. **J. Neurosci.**, 28:7219-7230, 2008.
- 287. Allen, D.,** Herbert, D.C., McMahan, A., Rotrekl, V., Sobol, R.W., Wilson, S.H., and Walter, C.A. Mutagenesis is elevated in male germ cells obtained from DNA Polymerase-beta heterozygous mice. **Biol. Reprod.**, 79:824-831, 2008.
- 288. Kedar, P.S.,** Stefanick, D.F., Horton, J.K., and Wilson, S.H. Interaction between PARP-1 and ATR in mouse fibroblasts is blocked by PARP inhibition. **DNA Repair (Amst.)**, 7:1787-1798, 2008.
- 289. Upton, T.G.,** Kashemirov, B.A., McKenna, C.E., Goodman, M.F., Prakash, G.K.S., Kultyshev, R., Batra, V.K., Pedersen, L.C., Beard, W.A., Wilson, S.H. α,β -Difluoromethylene deoxynucleoside triphosphates: Synthesis and structure of a stable ternary DNA complex with DNA polymerase β . **J. Am. Chem. Soc.**, In Press.
- 290. Prasad, R.,** Longley, M.J., Sharief, F.S., Hou, E.W., Copeland, W.C., and Wilson, S.H. Human DNA polymerase θ possesses 5'-dRP lyase activity and functions in single-nucleotide base excision repair *in vitro*. **Nucleic Acids Research**, In Press.

More information can be found at:

<http://www.niehs.nih.gov/research/atniehs/labs/lsh/dnarna/index.cfm>