BIOGRAPHICAL SKETCH

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NAME	POSITION TITLE
Opresko, Patricia Lynn	Assistant Professor
eRA COMMONS USER NAME OPRESKOPA	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
DeSales University, Center Valley, PA	B.A.	1994	Chemistry
DeSales University, Center Valley, PA	B.A.	1994	Biology
Pennsylvania State University, College of Medicine, Hershey, PA	Ph.D.	2000	Biochemistry and Molecular Biology
Pennsylvania State University, College of Medicine, Jake Gittlen Cancer Research Institute, Hershey, PA	Postdoctoral Fellow	3/2000-5/2000	Biochemistry and Molecular Biology
National Institute on Aging, National Institutes of Health, Baltimore, MD	Postdoctoral Fellow	6/2000-05	DNA Repair and Aging

A. Professional Appointments

1994-2000 Ph.D. graduate student, Program in Biochemistry and Molecular Biology, Pennsylvania State University, College of Medicine

3/2000-5/2000 Postdoctoral Fellow, Pennsylvania State University, College of Medicine, Jake Gittlen Cancer Research Institute

5/2000-2005 NIH Intramural Postdoctoral Research Fellow, Laboratory of Molecular Gerontology, National Institute on Aging, National Institutes of Health

2005- present Assistant Professor, Department of Environmental and Occupational Health, Graduate School of Public Health, University of Pittsburgh

Other Experience and Professional Memberships

1999-present Member, American Association for Cancer Research

2005-present Member, Environmental Mutagen Society

Honors and Service

1994 American Chemical Society Award, Lehigh Valley Section

1999 AACR Special Conference Travel Grant Award

1998-99 The Four Diamonds Fund of the Milton S. Hershey Medical Center, mentored investigator award "Processing of DNA lesions by a mutator DNA polymerase." $5,000

2005 Environmental Mutagen Society Travel Grant Award

2006 Ellison Medical Foundation New Scholar in Aging

2007 - present Editorial Advisory Board for the journal *Mechanisms of Aging and Development*

B. Publications (in chronological order) (peer reviewed articles)

1. Eckert KA, Hile SH and **Vargo PL.** Development and use of an *in vitro* HSV-*tk* forward mutation assay to study eukaryotic DNA polymerase processing of DNA alkyl lesions. *Nucleic Acids Res*. 1997; 25: 1450-1457. Publication under maiden name.
2. **Opresko PL**, Sweasy JB, and Eckert KA. (1998) The mutator form of polymerase β with amino acid substitution at tyrosine 265 in the hinge region displays an increase in both base substitution and frame shift errors. *Biochemistry* 1998; 37: 2111-2119.
3. Eckert KA and **Opresko PL**. DNA polymerase mutagenic bypass and proofreading of endogenous DNA lesions. *Mutation Research* 1999; 424: 221-236.

4. **Opresko PL**, Shiman R and Eckert KA. Hydrophobic interactions in the hinge domain of DNA polymerase β are important but not sufficient for maintaining fidelity of DNA synthesis. *Biochemistry* 2000; 39: 11399-11407.
5. Brosh RM Jr, von Kobbe C, Sommers JA, Karmakar P, **Opresko PL**, Piotrowski J, Dianova I, Dianov GL, and Bohr VA. Werner syndrome protein interacts with human flap endonuclease 1 and stimulates its cleavage activity. *EMBO J*. 2001; 20: 5791-5801.
6. **Opresko PL**, Laine J-P, Brosh RM Jr, Seidman MM, and Bohr VA. Coordinate action of the helicase and 3' to 5' exonuclease of Werner Syndrome protein. *J. Biol. Chem*. 2001; 276: 44677-44687.
7. von Kobbe C, Karmakar P, Dawut L, **Opresko PL**, Zeng X, Brosh RM Jr, Hickson ID, and Bohr VA. Colocalization, physical and functional interaction between Werner and Bloom syndrome proteins. *J. Biol. Chem.* 2002; 277: 22035-22044.
8. **Opresko PL**, von Kobbe C, Laine JP, Harrigan J, Hickson ID, Bohr VA. Telomere binding protein TRF2 binds to and stimulates the Werner and Bloom syndrome helicases. *J. Biol. Chem.* 2002;277: 41110-41119.
9. Harrigan JA, **Opresko PL**, von Kobbe C, Kedar PS, Prasad R, Wilson SA, and Bohr VA. The Werner syndrome protein stimulates DNA polymerase β strand displacement synthesis via its helicase activity. *J. Biol. Chem.* 2002; 278: 22686-22695.
10. Chen W-H, von Kobbe C, **Opresko PL**, Ren J, Kufe D, and Bohr VA. Werner syndrome protein phosphorylation by Abl tyrosine kinase regulates its activity. *Mol. Cell. Biol.* 2003; 23: 6385-6395.
11. Laine JP*, **Opresko PL***, Indig FE, Harrigan JA, von Kobbe C, and Bohr VA. Werner protein stimulates topoisomerase I DNA relaxation activity. *Cancer Research* 2003; 63: 7136-7146. *contributed equally
12. von Kobbe C, Harrigan JA, May A, **Opresko PL**, Dawut L, Cheng W-H, and Bohr VA. A central role for the WRN/PARP-1 complex in the poly (ADP-Ribosyl)ation pathway after DNA damage. *Mol. Cell. Biol.* 2003; 23: 8601-8613.
13. 13. Cheng W-H, **Opresko PL**, von Kobbe C, Arthur LM, Komatsu K, Seidman MM, Carney JP, and Bohr VA. Linkage between Werner syndrome protein and the Mre 11 complex via Nbs1. *J. Biol. Chem.* 2004; 279: 21169-21176.
14. **Opresko PL**, Otterlei M, Graakjær, Bruheim P, Dawut L, May A, Seidman M, Kølvraa S, and Bohr VA. The Werner syndrome helicase and exonuclease cooperate to resolve D-loop structures at telomeric ends in a manner regulated by TRF1 and TRF2. *Molecular Cell* 2004; 14: 763-774.
15. **Opresko PL**, Fan J, Danzy S, Wilson DM III, and Bohr VA. Oxidative damage in telomeric DNA distrupts recognition by TRF1 and TRF2. *Nucleic Acids Research* 2005; 33: 1230-1239.
16. **Opresko PL**, Mason PA, Podell ER, Lei M, Hickson ID, Cech TR, and Bohr VA. POT1 stimulates RecQ helicases WRN and BLM to unwind telomeric DNA substrates. *J. Biol. Chem.* 2005; 280: 32069-32080.
17. Muftuoglu M, Wong HK, Imam S, Wilson DM III, Bohr VA, and **Opresko PL**. Telomere repeat binding factor interacts with base excision repair proteins and stimulates DNA synthesis by DNA polymerase β. *Cancer Research* 2006; 66**:** 113-124.
18. Harrigan JA, Wilson DM, Prasad R, **Opresko PL**, Beck G, May A, Wilson SH, and Bohr VA. The Werner syndrome protein cooperates with DNA polymerase β during base excision repair. *Nucleic Acids Research*, 2006; 34: 745-754.
19. Zhang P, Furikawa K, **Opresko PL**, Xu X, Bohr VA, and Mattson MP. TRF2 dysfunction elicits DNA damage responses associated with senescence in proliferating neural cells and differentiation of neurons. *J. Neurochem*., 2006, 97, 567-581.
20. Cheng WH, Kusumoto R, **Opresko PL**, Sui X, Huang S, Nicolette ML, Paull TT, Campisi J, Seidman MM, and Bohr VA. Collaboration of Werner syndrome protein and BRCA1 in cellular responses to DNA interstrand cross-links. *Nucleic Acids Research*, 2006, 34, 2751-2760.
21. Eller MS, Liao X, Liu S, Hanna K, Backvall H, **Opresko PL**, Bohr VA, Gichrest, BA. A role for WRN in telomere-based DNA damage responses. *Proc Natl Acad Sci USA*. 2006. 104: 15073-8.
22. **Opresko PL**, Calvo JP, von Kobbe C. Role for the Werner syndrome protein in the promotion of tumor cell growth. *Mechanisms of Aging and Development*. 2007. 128:423-36.
23. Sowd G, Lei M, and **Opresko PL**. Mechanism and substrate specificity of telomeric protein POT1 stimulation of the Werner Syndrome helicase. *Nucleic Acids Research*. 2008. 36: 4242-56

24. **Opresko PL**, Sowd G, and Wang H. The Werner syndrome helicase/exonuclease processes mobile D-loops through branch migration and degradation. *PLoS ONE*, 2009. 4:e4825.
25. Sanders J, Cauley J, Boudreau R, Zmuda J, Strotmeyer E, **Opresko P**, Hsueh WC, Cawthon R, Li R, Harris T, Kritchevsky S, Newman A. Leukocyte Telomere Length is Not Associated with Bone Mineral Density, Osteoporosis, or Fracture in Older Adults: Results from the Health, Aging and Body Composition Study. *J Bone Mineral Research*. 2009, in press.
26. Liu F, Barchowsky AB, and **Opresko PL**. The Werner Syndrome Protein Functions in Repair of Cr(VI)-induced Replication Associated DNA Damage. *Toxicological Sciences*, 2009, in press.

(Reviews and book chapters)

1. Bohr VA, Brosh RM, von Kobbe C, **Opresko PL,** and Karmakar P. Pathways defective in the human premature aging disease Werner syndrome. *Biogerontology*, 2002; 3: 89-94
2. **Opresko PL,** Cheng W-H, von Kobbe C, Harrigan JA, and Bohr VA. Werner syndrome and the function of the Werner protein; what they can teach us about the molecular aging process. *Carcinogenesis*, 2003; 24: 791-802.
3. Bohr VA, and **Opresko PL.** Genomic instability in human premature aging. Aging at the Molecular Level, T. von Zglinicki (ed.), Kluwer Academic Publishers, Netherlands; 2003; pp. 65-77.
4. **Opresko PL**, Cheng W-H, and Bohr VAA. Bohr. At the junction of RecQ helicase biochemistry and human disease. *J. Biol. Chem*., 2004; 279: 18099-18102.
5. Cheng W-H, **Opresko PL,** von Kobbe C, Harrigan JA, and Bohr VA. The human Werner syndrome as a model for aging. In Topics in Current Genetics, T. Nystrom and H.D. Osiewacz, (eds), Springer, Berlin; 2003; vol. 3, chapter 9, pp. 239-268.
6. Lee JW, Harrigan J, **Opresko PL**, and Bohr VB. Pathways and functions of the Werner syndrome protein. *Mech Aging Dev*., 2005; 126, 79-86.
7. Brosh RM, **Opresko PL**, and Bohr VA. Enzymatic Mechanism of the WRN Helicase/Nuclease. *Methods in Enzymology*. J.L. Campbell and P. Modrich, (eds); San Diego, CA: Academic Press. 2006. 409: 52-85. 2006.
8. **Opresko PL**. Telomere ResQue and Preservation, Roles for the Werner Syndrome protein and other RecQ helicases. *Mech Aging Dev*., 2008; 129, 79-80.

C. Research Support

Awarded:

Opresko-PI 7/1/2006-6/30/2010
Ellison Medical Foundation New Scholars Award in Aging
"Molecular Mechanisms of Telomeric DNA Instability Associated with the Human Progeroid Werner Syndrome"
The goals of this proposal are to determine the molecular mechanisms of telomeric DNA loss associated with WS and oxidative stress and to define WRN roles in telomere replication and repair.

Opresko-PI 7/1/2006-06/30/2011
NIEHS Outstanding New Environmental Scientist Award
"Mechanisms of Telomeric DNA Loss and Repair"
The specific goals of this proposal are to determine the molecular mechanisms of telomeric DNA loss associated with DNA damaging agents and Werner syndrome and to define the roles for the repair protein WRN in telomere preservation.

Opresko-PI 7/1/2008-6/30/2010
Small Grants Program of the Central Research Development Fund- University of Pittsburgh
"Relationship of Age-Related Cataracts and Telomere Length in Humans"
The goal of this proposal is to study the association of telomere length in white blood cells and lens clarity in a cohort from the Health, Aging and Body Composition Study. The study is a collaboration with Dr. Ann Newman at the University of Pittsburgh.