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## BIOGRAPHICAL SKETCH

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NAME Sargentini, Neil J.	POSITION TITLE Associate Professor and Chair of Microbiology/Immunology		
eRA COMMONS USER NAME NJSARGENTINI			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
California State University, Fresno, CA	BA	1969	Zoology
California State University, Fresno, CA	MA	1973	Microbiology
Stanford University, Stanford, CA	PhD	1980	Medical Microbiology

### A. Positions and Honors.

#### Positions and Employment

1970-1973	Department of Biology, California State University-Fresno, Fresno, CA
1970-1971	Teaching Assistant, Microbiology
1973	Instructor, Microbiology
1974	Instructor, Genetics, Department of Science, Merced Community College, Merced, CA
1980-1991	Stanford University School of Medicine, Department of Radiation Oncology, Stanford, CA
1980-1984	Clinical Life Science Research Associate
1984-1991	Senior Basic Life Science Research Associate/Assistant Laboratory Director
2006	Certificate of Completion, NIH Human Participant Protections Education for Research Teams
1991-Present	Kirksville College of Osteopathic Medicine (KCOM), A.T. Still University (ATSU), Kirksville, MO
1991-1994	Assistant Professor, Department of Microbiology/Immunology
1997-2000	Associate Dean, Basic Science
1994-Present	Associate Professor, Department of Microbiology/Immunology
2003-Present	Chair, Department of Microbiology/Immunology
2003-Present	Radiation Safety Officer
	<u>Committees:</u>
1991-2005	Member, Animal Care Committee
2001-Present	Member, (Chair, 2001-2003), Graduate Program Committee
1998-Present	Member, Interdisciplinary Research Committee
2002-Present	Chair, Biohazards Committee (Member, 1997-2002)

#### Honors

1999	A.T. Still Staff Award for Excellence in Teaching, Basic Science, KCOM
2001	Governor's Award for Excellence in Teaching, KCOM
2001	Above and Beyond Award, KCOM
2002	Kirksville Osteopathic Alumni Association Honorary Member
2002, 2003, & 2004	National Board of Osteopathic Medical Examiners (NBOME) Certificate of Appreciation
2003	Certificate of Excellence from Class of 2003, KCOM

#### Professional Memberships

1979-Present	Sigma Xi, The Scientific Research Society ( <b>President, 2006-07</b> )
1984-Present	Radiation Research Society
1990-Present	American Association for the Advancement of Science
1991-Present	American Society for Microbiology
1993-Present	Environmental Mutagen Society

## Research Mentorship Activities

Research Mentor for Family Medicine residency research projects: (Papers were submitted to the American College of Osteopathic Family Physicians.)

- Krogh, B., "Minocycline-induced Lupus: A Case Report," 1999
- Grgurich, M., "Correlation Between Cranial Rhythmic Impulse Rate and Depression in Menopausal Women," 1999
- Katz, D., "Drugs for Controlling Obesity," 2000
- Rampton, J., "Physician's Role in the Prevention of Health Risk Behaviors," 2000

**Research Advisor** for graduate students working in my laboratory

Letitia Jackson (ATSU MS Program) – 2007-present

Brantley Ping (TSU MS Program) – 2005-present

Aaron Sigler (ATSU MS Program) – 2003-present

Sam Pullen (ATSU MS Program) – 2002-2007

Jin Seo (TSU MS Program) – 2002-03

Yahui Song (TSU MS Program) – 1995-96

\*TSU = Truman State University

**Research Mentor** for undergraduate students working in my laboratory

Rebecca Zak (McNair Summer Research Intern) - 2003

Charissa Manuat (TSU undergraduate) – 2002-2003

Linisha Mills (TSU McNair Program) – 1999

Justin McWilliams (TSU undergraduate) – 1998

Ellen O'Connell (TSU undergraduate) – 1997

Dedrick Luikens (Drury Univ., KCOM PRIMO Program) – 1997

Janice Brush (High School, KCOM PRIMO Program) – 1996

TuShun Powers (TSU undergraduate and McNair Program) – 1995

Michael Arnold (TSU undergraduate) – 1993

Mary Jane Nather (TSU undergraduate) – 1991-92

## B. Selected Peer-Reviewed Publications (in chronological order).

**Sargentini NJ**, Smith KC. (1979) Multiple, independent components of ultraviolet radiation mutagenesis in *Escherichia coli* K-12 *uvrB5*. *J Bacteriol*, 140(2):436-444.

**Sargentini NJ**, Smith KC. (1980) Involvement of genes *uvrD* and *recB* in separate mutagenic deoxyribonucleic acid repair pathways in *Escherichia coli* K-12 *uvrB5* and B/r *uvrA155*. *J Bacteriol*, 143(1):212-220.

**Sargentini NJ**, Smith KC. (1981) Much of spontaneous mutagenesis in *Escherichia coli* is due to error-prone DNA repair: implications for spontaneous carcinogenesis. *Carcinogenesis*, 2(9):863-872.

Diver WP, **Sargentini NJ**, Smith KC. (1982) A mutation (*radA100*) in *Escherichia coli* that selectively sensitizes cells grown in rich medium to x- or u.v.-radiation, or methyl methanesulfonate. *Int J Radiat Biol Relat Stud Phys Chem Med*, 42(3):339-346.

**Sargentini NJ**, Bockrath RC, Smith KC. (1982) Three mechanisms for ultraviolet radiation mutagenesis in *Escherichia coli* K-12 *uvrB5*: specificity for the production of back and suppressor mutants. *Mutation Res*, 106(2):217-224.

**Sargentini NJ**, Diver WP, Smith KC. (1983) The effect of growth conditions on inducible, *recA*-dependent resistance to X rays in *Escherichia coli*. *Radiation Res*, 93(2):364-380.

**Sargentini NJ**, Smith KC. (1983) Characterization of an *Escherichia coli* mutant (*radB101*) sensitive to gamma and uv radiation, and methyl methanesulfonate. *Radiation Res*, 93(3):461-478.

Sharma RC, **Sargentini NJ**, Smith KC. (1983) New mutation (*mmrA1*) in *Escherichia coli* K-12 that affects minimal medium recovery and postreplication repair after UV irradiation. *J Bacteriol*, 154(2):743-747.

Felzenszwalb I, **Sargentini NJ**, Smith KC. (1983) *Escherichia coli* K-12 *radC102*: Isolation, characterization and interaction with different mutations. *Cellular Responses to DNA Damage* (EC Friedberg, BA Bridges, ed.), pp. 409-416, Alan R. Liss, Inc., N.Y.

Felzenszwalb I, **Sargentini NJ**, Smith KC. (1984) Characterization of a new radiation-sensitive mutant, *Escherichia coli* K-12 *radC102*. *Radiation Res*, 97(3):615-625.

**Sargentini NJ**, Smith KC. (1984) *umuC*-dependent and *umuC*-independent gamma- and UV-radiation mutagenesis in *Escherichia coli*. *Mutation Res*, 128(1):1-9.

- Sargentini NJ**, Smith KC. (1985) Spontaneous mutagenesis: the roles of DNA repair, replication, and recombination. *Mutation Res*, 154(1):1-27. (Review)
- Sargentini NJ**, Smith KC. (1985) Growth-medium-dependent repair of DNA single-strand and double-strand breaks in X-irradiated *Escherichia coli*. *Radiation Res*, 104(1):109-115.
- Sargentini NJ**, Smith KC. (1985) Metabolically-produced 'UV-like' DNA damage and its role in spontaneous mutagenesis. *Photochem Photobiol*, 42(6):801-803.
- Sargentini NJ**, Smith KC. (1986) Characterization and quantitation of DNA strand breaks requiring *recA*-dependent repair in X-irradiated *Escherichia coli*. *Radiation Res*, 105(2):180-186.
- Felzenszwalb I, **Sargentini NJ**, Smith KC. (1986) *Escherichia coli radC* is deficient in the *recA*-dependent repair of X-ray-induced DNA strand breaks. *Radiation Res*, 106(2):166-170.
- Sargentini NJ**, Smith KC. (1986) Role of the *radB* gene in postreplication repair in UV-irradiated *Escherichia coli uvrB*. *Mutation Res*, 166(1):17-22.
- Sargentini NJ**, Smith KC. (1986) Mutagenesis by normal metabolites in *Escherichia coli*: phenylalanine mutagenesis is dependent on error-prone DNA repair. *Mutation Res*, 161(2):113-118.
- Sargentini NJ**, Smith KC. (1986) Quantitation of the involvement of the *recA*, *recB*, *recC*, *recF*, *recJ*, *recN*, *lexA*, *radA*, *radB*, *uvrD*, and *umuC* genes in the repair of X-ray-induced DNA double-strand breaks in *Escherichia coli*. *Radiation Res*, 107(1):58-72.
- Smith KC, **Sargentini NJ**, Sharma RC, Wang TV. (1986) New DNA repair systems and new insights on old systems in *Escherichia coli*. *Radiation Carcinogenesis and DNA Alterations* (FJ Burns, AC Upton, G Silini, ed.), pp. 499-509, Plenum Press, N.Y.
- Sargentini NJ**, Smith KC. (1986) Mechanisms of spontaneous mutagenesis: implication for spontaneous carcinogenesis. *Radiation Carcinogenesis and DNA Alterations* (FJ Burns, AC Upton, G Silini, ed.), pp. 359-371, Plenum Press, N.Y.
- Sargentini NJ**, Smith KC. (1987) Ionizing and ultraviolet radiation-induced reversion of sequenced frameshift mutations in *Escherichia coli*: a new role for *umuDC* suggested by delayed photoreactivation. *Mutation Res*, 179(1):55-63.
- Sargentini NJ**, Smith KC. (1988) Genetic and phenotypic analyses indicating occurrence of the *recN262* and *radB101* mutations at the same locus in *Escherichia coli*. *J Bacteriol*, 170(5):2392-2394.
- Sargentini NJ**, Smith KC. (1989) Mutational spectrum analysis of *umuC*-independent and *umuC*-dependent gamma-radiation mutagenesis in *Escherichia coli*. *Mutation Res*, 211(2):193-203.
- Sargentini NJ**, Smith KC. (1989) Role of *ruvAB* genes in UV- and gamma-radiation and chemical mutagenesis in *Escherichia coli*. *Mutation Res*, 215(1):115-129.
- Smith KC, **Sargentini NJ**. (1991) *umuC*-Independent, *recA*-dependent mutagenesis. *Photobiology*, (E Riklis, ed.), pp. 169-176, Plenum Press, N.Y.
- Sargentini NJ**, Smith KC. (1992) Involvement of RecB-mediated (but not RecF-mediated) repair of DNA double-strand breaks in the  $\gamma$ -radiation production of long deletions in *Escherichia coli*. *Mutation Res*, 265(1):83-101.
- Sargentini NJ**, Smith KC. (1994) DNA sequence analysis of gamma radiation (anoxic)-induced and spontaneous *lacI<sup>f</sup>* mutations in *Escherichia coli* K-12. *Mutation Res*, 309(2):147-163.
- Sargentini NJ**, Smith KC. (1994) DNA sequence analysis of spontaneous and gamma radiation (anoxic)-induced *lacI<sup>f</sup>* mutations in *Escherichia coli umuC122::Tn5*: differential requirement for *umuC* at G.C vs. A.T sites and for the production of transversions vs. transitions. *Mutation Res*, 311(2):175-189.
- Song Y, **Sargentini NJ**. (1996) *Escherichia coli* DNA repair genes *radA* and *sms* are the same gene. *J Bacteriol*, 178(16):5045-5048.

### C. Research Support.

#### ONGOING

#### **Singh (PI)**

07/1/06-06/30/07

ATSU Strategic Research Initiative

*Responsibilities:* Co- Investigator

Manual Therapy-Specific Gene Expression Correlating with Nociceptive Pain Relief

*Goal:* To study mechanisms by which manual therapy alters pain thresholds. This project will assess regulatory effects across the genome in a well-accepted rat model for nociceptive pain and then use real time RT-PCR technology to focus on specific rat genes whose level of expression correlates best with pain reduction following manual therapy.



**Sargentini (PI)**

10/01/05-09/30/08

ATSU Internal Funding

*Responsibilities:* Principal Investigator

Amazon Plant Extract Effects on DNA Repair in Bacteria and Mice

*Goal:* To gain pilot data on DNA protective and DNA repair enhancing effects of amazon plant extract with a goal of obtaining extramural funding for an expanded study. This project will assess radioprotection afforded by a dietary plant extract in bacteria and mice, as well as determine gene regulatory effects in liver from extract-treated, x-irradiated mice.

COMPLETED**Sargentini (PI)**

06/01/04 – 05/31/06

KCOM Biomedical Sciences Program

*Responsibilities:* Principal Investigator

Mapping the Functional Domains of RecN Protein

*Goal:* To map the functional domains of RecN, an *Escherichia coli* DNA repair protein.

**Sargentini (PI)**

07/01/02 – 06/30/04

ATSU Warner/Fermaturo Fund

*Responsibilities:* Principal Investigator

Site-directed Mutagenesis of RadA Protein

*Goal:* To better understand DNA repair and mutagenesis in the bacterium *Escherichia coli*, through understanding the processes in human cells, and thus understanding the molecular basis of cancer and other diseases in humans.

**Sargentini (PI)**

10/10/02 – 08/10/04

KCOM Biomedical Sciences Program

*Responsibilities:* Principal Investigator

Characterization of the RadA/Sms DNA Repair Protein

*Goal:* To further define the biochemical/physiological function of RadA protein through purification of RadA/Sms protein for biochemical analysis, analysis of the biochemical function of RadA protein, and to test purified RadA fusion and native protein for protease, ATPase, and DNA-binding activity.

**D. Other Relevant Information.****Selected Published Abstracts and Professional Presentations (in chronological order)**

**Sargentini NJ**, Howard YM, Tinning L. "Altered Long Deletion Mutation Spectra in *Escherichia coli* rec Mutants," Gordon Conference on Mutagenesis, Plymouth, NH, 1998.

**Sargentini NJ**. "Current Understanding of the *E. coli* radA Gene," Basic Science Seminar, Kirksville College of Osteopathic Medicine, Kirksville, MO, January 10, 2003.

Patterson D, McNabb J, **Sargentini NJ**, Higbee D. "Using Human Patient Simulators and SPs in Medical School Basic Science Course," Innovations in Osteopathic Medical Education, Third Annual Meeting of the American Association of Colleges of Osteopathic Medicine, Bethesda, MD, June 22-25, 2005.

**Sargentini NJ**, McNabb J, Higbee D, Patterson D, Chamberlain NR. "Using Human Patient Simulators and Standardized Patients to Integrate Professional Behavior Assessment within a Medical School Basic Science Course," Central Group on Educational Affairs, Association of American Medical Colleges, Spring Conference 2006, Kansas City, MO, March 10, 2006.

**Sargentini NJ**, McNabb JE, Higbee D, Stuart MK, Chamberlain NR, Lockwood MD. "Using Standardized Patient Encounters to Improve Basic Science Understanding and Integrate Professional Behavior and Clinical Skills Assessment within Two Medical School Basic Science Courses," Central Group on Educational Affairs, Association of American Medical Colleges, Spring Conference 2007, Indianapolis, IN, March 22, 2007.

**Other Research Experience**COMPLETED**Sargentini (PI at KCOM)**

09/30/91 – 09/29/93

National Institutes of Health/Stanford University

*Responsibilities:* Principal Investigator

Mechanisms of Ionizing Radiation Mutagenesis

**Sargentini (PI) – 1R55CA055789**

09/30/92 – 03/31/95

National Cancer Institute (Shannon Award)

*Responsibilities:* Principal InvestigatorEffects of *umuC*, O<sub>2</sub>, and OH on Radiation Mutagenesis**Sargentini (PI)**

07/01/95 – 06/30/97

ATSU Warner/Fermaturo Fund

*Responsibilities:* Principal Investigator

Cloning, sequencing and characterization of the *Escherichia coli radA* gene, and preliminary characterization of other, unmapped *E. coli* genes

**Sargentini (PI) – 1R01CA055789**

07/01/95 – 06/30/99

National Cancer Institute

*Responsibilities:* Principal Investigator

*umuC*, O<sub>2</sub>, and OH Effects on Gamma Radiation Mutagenesis