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March 19, 2015

United States Nuclear Regulatory Commission
Materials Licensing Branch
Region III
801 Warrenville Road
Lisle, IL 60532-4351

Re: Amendment to Materials License No. 24-17210-01

To the Licensing Representative:

The following items are submitted as proposed changes to our Materials License.

1. New Certifying Officer. In case you have not been previously informed, please note that our previous Certifying Officer, Dr. Phillip C. Slocum, has been replaced by Margaret A. Wilson, DO, and Dean (KCOM). Her contact information is as follows:

Tel: 660-626-2354
FAX: 660-626-2080
Email: MWilson@atsu.edu

2. Appointment of a new RSO and Authorized User. I have informed the Certifying Officer for our institution, Dr. Margaret A. Wilson, Dean (ATSU-KCOM), that I wish to step down as RSO, pending approval of this amendment to our license. Dr. Wilson's support for this change in leadership is indicated in the attached letter of appointment, which identifies Dr. Vineet K. Singh, as her choice for the new RSO for our institution. I have worked closely with Dr. Singh on our Radiation Safety Committee for the past 11 years, and I fully support him replacing me as RSO. He is well-qualified as summarized below, and as will be deduced by examination of his attached CV. Based on this information, I also wish to add him to our List of Authorized Users with ability to work with ALL materials listed in our current license. To date, he has been listed as working under my supervision regarding radioactive materials, and through an oversight, I had not previously put him forward as an Authorized User.

Summary of Dr. Singh's credentials for appointment as RSO. Dr. Singh has a PhD degree in Biochemistry from the Indian Veterinary Research Institute (1993) and 23 years of work-

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related experience with radioisotopes (H-3, C-14, P-32, P-33, and S-35). After joining the Indian Veterinary Research Institute as a Scientist, he was appointed the RSO of the Division of Biochemistry in 1994, a position that he held until 1997. This position included the duties of training and supervising new users in the lab in the safe and effective use of radioisotopes. Since 2005, he has attended all annual in-service training seminars on radiation safety presented by a consulting health physicist at KCOM. His work at KCOM has relied on the use of P-32 and H-3. He has published several peer-reviewed research articles relying on radioisotopes and been a member of the Biohazards Committee (which oversees radiation safety at KCOM) for the last 9 years. He also completed a 40 hour technical short course entitled 'Radiation Safety Officer' administered by Nevada Technical Associates in May of 2013.

3. Deletion of Listed Authorized Users. The following individuals no longer have need to use radioactive materials, as they no longer are involved in research at ATSU-KCOM. Their names should be removed from our list of Authorized Users.

Richard J. Cenedella, PhD
John R. Martin, PhD
Orin B. Mock, PhD
James A. Rhodes, PhD
Lex C. Towns, PhD
Nandor J. Uray, PhD

Please let me know if you have any questions.



Neil Sargentini, Ph.D.
Professor and Chair, Biohazards Committee
(note: this committee includes the Radiation Safety Subcommittee; the new RSO, Dr. Singh, is a member)
A. T. Still University of Health Sciences
Kirksville College of Osteopathic Medicine
Department of Microbiology and Immunology
800 W. Jefferson Street
Kirksville, MO 63501

Email: nsargentini@atsu.edu
Tel: 660-626-2559 or 2474
Fax: 660-626-2523

ATTACHMENTS:

1. Dr. Wilson's Letter of Appointment
2. Dr. Singh's CV

Cc: Dr. Wilson

March 18, 2015

Vineet K. Singh, PhD
Microbiology/Immunology

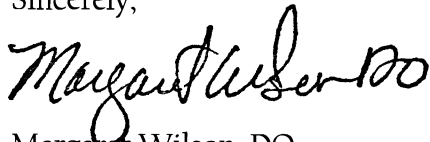
Dear Dr. Singh:

Please accept this letter as your official appointment as the ATSU-KCOM Radiation Safety Officer (RSO) in accordance with our U.S. Nuclear Regulatory Commission Materials License (24-17210-01).

Please perform all the duties that are expected of the RSO under the terms of our license. I invite you to talk with me at any time as needed to perform the duties of this position (e.g., oversight on all activities at KCOM having to do with the possession, use or disposal of radioactive materials; radiation safety issues; regulatory compliance issues, etc).

Thank you for your continued dedication and efforts to ATSU-KCOM.

Sincerely,



Margaret Wilson, DO
Dean

NS/kjk

Vineet Singh

Has successfully completed the 40 hour technical short course entitled

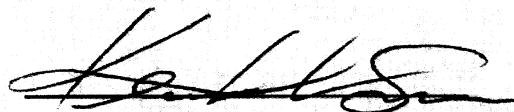
Radiation Safety Officer

May 13, 2013 – May 17, 2013

This certificate presented in Las Vegas, Nevada, May 17, 2013

By Nevada Technical Associates, Inc.

Approval codes for C.E. units are: ASRT 30.5 units: NVZ0146001, AAHP 32 units: 2008-00-005, ABIH 4.5 units: 08-1362



Kenneth Smith, CHP RRPT

Instructor

Certificate Number: 1368428415

Vineet K Singh, Ph.D.

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CURRICULUM VITAE
(Updated: March 19, 2015)

ACADEMIC DEGREES

Ph.D. Biochemistry; Indian Veterinary Research Institute, India; 1993
Thesis: "Biochemical Characterization of Buffalo Polymorphonuclear Granular Cationic Proteins"
M.S. Biochemistry; Banaras Hindu University, India; 1989
B.S. Chemistry; Banaras Hindu University, India; 1987

POSITIONS HELD

Professor Department of Microbiology and Immunology; Kirksville College of Osteopathic Medicine (KCOM); A.T. Still University of Health Sciences (07/12-present).
Associate Professor Department of Microbiology and Immunology; KCOM; A.T. Still University of Health Sciences (12/07-06/12); **Awarded tenure:** 07/09.
Assistant Professor Department of Microbiology and Immunology; KCOM; A.T. Still University of Health Sciences (12/04-11/07).
Postdoctoral Fellow Dept. of Microbiology and Molecular Genetics, Medical College of Wisconsin, Milwaukee, WI (07/02-11/04).
Postdoctoral Fellow Dept. of Biological Sciences, Illinois State University, Normal, IL (10/97-06/02).
Scientist Division of Biochemistry; Indian Veterinary Research Institute, India (07/93-09/97).
Senior Res. Fellow Division of Biochemistry; Indian Veterinary Research Institute, India (01/92-06/93).
Junior Res. Fellow Division of Biochemistry; Indian Veterinary Research Institute, India (01/90-12/91).

TEACHING EXPERIENCE

Courses taught:

- **Medical Microbiology:** Teach bacteriology section of this course to first year medical students of the KCOM (2005-present).

- **Infectious Diseases:** Teach cardiovascular infections and infections of the bones and joints at the KCOM (2010-present).
- **Principles of Microbiology:** Teach bacteriology section of this course to the first year dental students of the Missouri School of Dentistry and Oral Health (2012-present).
- **Clinical Case Presentations:** Facilitate small group clinical case presentation and discussion by KCOM medical students in all three departmental courses – Medical Microbiology, Medical Immunology and Infectious Diseases (2008-present).
- **Integrated SP Encounters:** Facilitated SP encounters of KCOM medical students in two departmental courses – Medical Microbiology and Infectious Diseases (2005-07).
- **Course Co-director:** Grant Writing and Medical Informatics course for KCOM MS students in Biomedical Sciences (2005-06).
- **Co-course Director** for Society 1 (2009-12).

Prior Teaching Experience:

- As a scientist at the Indian Veterinary Research Institute (07/93-09/97) taught following courses to M.S. and Ph.D. students: Physical Biochemistry, Metabolism of Carbohydrates and Lipids.
- Served as the Radiation Safety Officer of the Division of Biochemistry at Indian Veterinary Research Institute (1994-1997)

RESEARCH

Current Research Interests: My long-term research interest is to understand the molecular basis of *Staphylococcus aureus* pathogenicity. Although numerous *S. aureus* virulence factors are well characterized, it remains unclear how these factors coordinate and respond to the host's immune system during the course of infection. In addition, increasing levels of resistance to existing antibiotics is seriously reducing the options to treat staphylococcal infections. We are investigating global changes in staphylococcal gene expression in response to stress conditions and identifying regulatory networks that aid in the process of infection and antibiotic tolerance with the aim of identifying novel chemotherapeutic agents.

Prior Research Experiences:

Post-doctoral Research: Dept. of Microbiology and Molecular Genetics
Medical College of Wisconsin, Milwaukee, WI

Research Project: Studied *Mycobacterium tuberculosis* genes regulated by a two-component MprA/MprB regulatory system.

Post-doctoral Research: Dept. of Biological Sciences
Illinois State University, Normal, IL

Research Project: Studied stress biology of *Staphylococcus aureus*. I was a recipient of a post-doctoral fellowship award by the American Heart Association – Midwest Affiliate from 07/00 – 06/02.

Scientist: Division of Biochemistry
Indian Veterinary Research Institute, India.

Research Project: Studied host defense system in water buffaloes. These studies were aimed to investigate buffalo polymorphonuclear granular proteins and their roles in host defense. Appointment to the rank of a scientist was based on a nationwide search conducted by the Agricultural Scientist Recruitment Board of India. After a series of written tests and interviews, I was ranked highest at the national level in the discipline of biochemistry.

Research Associate: Division of Biochemistry
Indian Veterinary Research Institute, India (01/90-06/90).

Research Project: Studied biochemical properties of buffalo polymorphonuclear granular cationic proteins.

Peer-reviewed publications:

1. Roy, S.C., **Singh, V.K.** and More, T. 1997. Electrophoretic Detection of Myeloperoxidase, Protease, Lactoferrin and Lysozyme in Buffalo Polymorphonuclear Granular Acid Extracts. *Vet Res Commun*, **21**:325-34.
2. **Singh, V.K.**, More, T. and Singh, S. 1997. In Vitro Antibacterial Activity of the Cationic Proteins of Buffalo Polymorphonuclear Cells. *Ind J Animal Sci*, **67**:587-90.
3. **Singh, V.K.**, More, T. and Singh, S. 1997. The Effect of Activation of Granulocytes on Enzyme Release and Hydrogen Peroxide and Superoxide Production in Buffaloes. *Vet Res Commun*, **21**:241-7.
4. Sahoo, G., More, T. and **Singh, V.K.** 1998. A Comparative Study on Certain Enzymes of the Granulocyte from Different Ruminant Species. *Comp Immunol Microbiol Infect Dis*, **21**:319-25.
5. **Singh, V.K.**, McCracken, D.A., Nadakavukaren, M.J. and Jayaswal, R.K. 1998. Unique Morphogenesis in *Saccharomyces cerevisiae* Strain GS1731. *FEMS Microbiol Lett*, **166**:95-101.
6. **Singh, V.K.**, Xiong, A., Usgaard, T.R., Chakrabarti, S., Deora, R., Misra, T.K. and Jayaswal, R.K. 1999. ZntR is an Autoregulatory Protein and Negatively Regulates the Chromosomal Zinc Resistance Operon *znt* of *Staphylococcus aureus*. *Mol Microbiol*, **33**:200-7.
7. Xiong, A., **Singh, V.K.**, Cabrera, G. and Jayaswal, R.K. 2000. Molecular Characterization of the Ferric-Uptake Regulator, *fur*, from *Staphylococcus aureus*. *Microbiol*, **146**(Pt 3):659-68.
8. Pfeltz, R.F., **Singh, V.K.**, Schmidt, J.L., Batten, M.A., Baranyk, C.S., Nadakavukaren, M.J., Jayaswal, R.K. and Wilkinson, B.J. 2000. Characterization of Passage-Selected Vancomycin Resistant *Staphylococcus aureus* Strains of Diverse Parental Backgrounds. *Antimicrob Agents Chemother*, **44**(2):294-303.
9. Sahoo, G., More, T. and **Singh, V.K.** 2000. Evaluation of Oxygen-Dependent Immunodefences of the Polymorphonuclear Cells of Some Tropical Ruminants. *Vet Res Commun*, **24**:505-15.
10. Cabrera, G., Xiong, A., Uebel, M., **Singh, V.K.** and Jayaswal, R.K. 2001. Molecular Characterization of the Iron-hydroxamate Uptake System in *Staphylococcus aureus*. *Appl Environ Microbiol*, **67**:1001-3.
11. **Singh, V.K.**, Jayaswal, R.K., and Wilkinson, B.J. 2001. Cell Wall-Active Antibiotic Induced Proteins of *Staphylococcus aureus* Identified Using a Proteomic Approach. *FEMS Microbiol Lett*, **199**:79-84.
12. **Singh, V.K.**, Moskovitz, J., Wilkinson, B.J. and Jayaswal, R.K. 2001. Molecular Characterization of a Chromosomal Locus in *Staphylococcus aureus* that Contributes to Oxidative Defence and is Highly Induced by the Cell-Wall-Active Antibiotic Oxacillin. *Microbiol*, **147**(Pt 11):3037-45.
13. Moskovitz, J., **Singh, V.K.**, Requena, J., Wilkinson, B.J., Jayaswal, R.K. and Stadtman, E.R. 2002. Purification and Characterization of Methionine Sulfoxide Reductases from Mouse and *Staphylococcus aureus* and Their Substrate Stereospecificity. *Biochem Biophys Res Commun*, **290**:62-5.
14. **Singh, V.K.**, Schmidt, J.L., Jayaswal, R.K., and Wilkinson, B.J. 2003. Impact of *sigB* Mutation on *Staphylococcus aureus* Oxacillin and Vancomycin Resistance Varies with Parental Background and Method of Assessment. *Int J Antimicrob Agents*, **21**(3):256-61.
15. Price, C.T., **Singh, V.K.**, Jayaswal, R.K., Wilkinson, B.J. and Gustafson, J.E. 2002. Pine Oil Cleaner-Resistant *Staphylococcus aureus*: Reduced Susceptibility to Vancomycin and Oxacillin and Involvement of SigB. *Appl Environ Microbiol*, **68**:5417-21.
16. **Singh, V.K.**, Moskovitz, J. 2003. Multiple Methionine Sulfoxide Reductase Genes in *Staphylococcus aureus*: Expression of Activity and Roles in Tolerance of Oxidative Stress. *Microbiol*, **149**(Pt 10):2739-47.
17. Utaida, S., Dunman, P.M., Macapagal, D., Murphy, E., Projan, S.J., **Singh, V.K.**, Jayaswal, R.K. and Wilkinson, B.J. 2003. Genome-wide Transcriptional Profiling of the Response of

Staphylococcus aureus to Cell Wall-Active Antibiotics Reveals a Cell Wall Stress Stimulon. *Microbiol*, **149**:2719-32.

18. Hessner, M.J., Singh, V.K., Wang, X., Khan, S., Tschannen, M.R. and Zhart, T.C. 2004. Visualization of a Labeled Tracking Oligonucleotide for Visualization and Quality Control of Spotted 70-mer Arrays. *BMC Genomics*, **5**:12 (¶ authors contributed equally).
19. Singh, V.K., More, T. and Kumar, S. 2004. Separation of Cationic Proteins and Antibiotic Peptides from Buffalo Polymorphonuclear Cells. *Buffalo J*, **20**:173-82.
20. Gov, Y., Borovok, I., Korem, M., Singh, V.K., Jayaswal, R.K., Wilkinson, B.J., Rich, M. and Balaban, N. 2004. Quorum Sensing in Staphylococci is Regulated via Phosphorylation of Three Conserved Histidine Residues. *J Biol Chem*, **279**:14665-72.
21. He, H., Hovey, R., Kane, J., Singh, V.K. and Zahrt, T.C. 2006. MprAB is a Stress-Responsive Two-Component System that Directly Regulates Expression of Sigma Factors SigB and SigE in *Mycobacterium tuberculosis*. *J Bacteriol*, **188**:2134-43.
22. Singh, V.K., Utaida, S., Jackson, L.S.*, Jayaswal, R.K., Wilkinson, B.J. and Chamberlain, N.R. 2007. Role for *dnaK* Locus in Tolerance of Multiple Stresses in *Staphylococcus aureus*. *Microbiol*, **153**:3162-73.
23. Shaw, L.N., Jonsson, I.M., Singh, V.K., Tarkowski, A. and Stewart, G.C. 2007. Inactivation of *traP* has no Effect on the Agr Quorum-Sensing System or Virulence of *Staphylococcus aureus*. *Infect Immun*, **75**(9):4519-27.
24. Das, H., Reddy, G.R., More, T. and Singh, V.K. 2007. *In vitro* Effect of Certain Membrane-Acting Agents on Superoxide and Hydrogen Peroxide Production, Protein Synthesis and Membrane ATPase Activity in Buffalo PMN Cells. *Altern Lab. Anim*, **35**:1-8.
25. Singh, V.K., Hattangady, D.S., Giotis, E.S., Singh, A.K., Chamberlain, N.R., Stuart, M.K. and Wilkinson, B.J. 2008. Insertional Inactivation of Branched-Chain Alpha-Keto Acid Dehydrogenase in *Staphylococcus aureus* Leads to Decreased Branched-Chain Membrane Fatty Acid Content and Increased Susceptibility to Certain Stresses. *Appl Environ Microbiol*, **74**(19):5882-90.
26. Pantrangi, M., Singh, V.K., Wolz, C. and Shukla, S.K. 2010. Staphylococcal Superantigen-Like Genes, *ssl5* and *ssl8* are Positively Regulated by Sae and Negatively by Agr in the Newman Strain. *FEMS Microbiol Lett*, **308**:175-84.
27. Singh, V.K., Carlos, M.R.* and Singh, K.* 2010. Physiological Significance of the Peptidoglycan Hydrolase, LytM, in *Staphylococcus aureus*. *FEMS Microbiol Lett*, **311**:167-75.
28. Chamberlain, N.R. and Singh, V.K. 2011. Prevalence of Methicillin Resistant *Staphylococcus aureus* in Nasal Samples from Preclinical Second Year Medical Students. *Missouri Med*, **108**:373-6.
29. Chamberlain, N.R., Stuart, M.K., Singh, V.K. and Sargentini, N.J. 2012 Utilization of case presentations in medical microbiology to enhance relevance of basic science for medical students. *Med Educ Online* **17**: 15943 - DOI: 10.3402/meo.v17i0.15943.
30. Singh K.* and Singh, V.K. 2012. Expression of Four Methionine Sulfoxide Reductases in *Staphylococcus aureus*. *Int J Microbiol*, (2012):719594.
31. Stuart, M.K., Richardson, N.C., Singh, V.K. and Sargentini, N.J. 2012. Monoclonal Antibodies Against RadA/Sms Protein. *Hybridoma*, **31**:75.
32. Richardson, N.C., Sargentini, N.J., Singh, V.K. and Stuart, M.K. 2012. Monoclonal antibodies against the *Escherichia coli* DNA repair protein RadA/Sms. *Hybridoma*, **31**:25-31.
33. Singh, V.K., Syring, M.*, Singh, A.*, Singhal, K.*, Dalecki, A.* and Johansson, T.* 2012. An Insight into the Significance of the DnaK Heat Shock System in *Staphylococcus aureus*. *Int J Med Microbiol*, **302**(6):242-52.
34. Vaish, M* and Singh, V.K. 2013. Antioxidant Functions of Nitric Oxide Synthase in a Methicillin Sensitive *Staphylococcus aureus*. *Int J Microbiol*, (2013):312146.
35. Ruhlen, R.L., Snider, E.J., Sargentini, N.J., Worthington, B.D., Singh, V.K., Kvam, V.M., Johnson, J.C. and Degenhardt, B.F. 2013. Influence of Manual Therapy on Functional Mobility After Joint Injury in a Rat Model. *J Am Osteopath Assoc* **113**:738-52.

36. **Singh, V.K. 2014.** High Level Expression and Purification of Atl, the Major Autolytic Protein of *Staphylococcus aureus*. *Int J Microbiol*, 2014:615965.
37. Pantrangi, M., **Singh, V.K.** and Shukla, S.K. Regulation of Staphylococcal Superantigen-Like Gene, *ssI8* Expression in *S. aureus* strain, RN6390. *Clin Med Res* (in press).
38. **Singh, V.K. 2014.** Lack of a functional methionine sulfoxide reductase (MsrB) increases oxacillin and H₂O₂ stress tolerance and enhances pigmentation in *Staphylococcus aureus*. *Can J Microbiol* 60:625-628.
39. Ruhlen, R.L., **Singh, V.K.**, Pazdernik, V.K., Snider, E.J., Sargentini, N.J. and Degenhardt, B.F. Changes in Rat Spinal Cord Gene Expression After Inflammatory Hyperalgesia of the Joint and After Manual Therapy of the Injured Joint. *J Am Osteopath Assoc* 114:768-776.
40. **Singh, V.K.**, Vaish, M., Johansson, T.R., Baum, K.R., Singh, S., Shukla, S.K. and Moskovitz, J. 2014. Significance of four methionine sulfoxide reductases in *Staphylococcus aureus*. *pLOS ONE* 10(2):e0117594.

Other scholarly activity:

1. Singh, A., Singh, V.K. and Verma, A.S. 2011. Lymphatic Filariasis: An Introduction. *Biolixir*, 1:9-11.

Presentations in scientific meetings:

1. Baum, K.R., Pannu, M., Choudhry, M., Ring, R., **Singh, V.K.** Regulation of Oxacillin Inducible Methionine Sulfoxide Reductases in *Staphylococcus aureus*. 6th Annual Interdisciplinary Biomedical Research Conference; Kirksville, MO; November 1, 2014.
2. Baum, K.R. and **Singh, V.K.** Roles of Four Methionine Sulfoxide Reductases in the Virulence of *Staphylococcus aureus*. 6th Annual Interdisciplinary Biomedical Research Conference; Kirksville, MO; November 1, 2014.
3. Harper, J., Parfitt, J., Makin, I. and **Singh, V.K.** A Multi-plex Quantitative PCR to Evaluate Bacterial Pathogens Associated with Periodontal Disease. 114th General Meeting of the American Society for Microbiology, Boston, May 17-20, 2014.
4. Baum, K. and **Singh, V.K.** Significance of four Msr proteins in *Staphylococcus aureus*. 114th General Meeting of the American Society for Microbiology, Boston, May 17-20, 2014.
5. Baum, K. and **Singh, V.K.** Significance of four Msr proteins in *Staphylococcus aureus*. Missouri Osteopathic Annual Convention, Branson, MO, Apr 30-May 4, 2014. ('Best Show' award winning poster).
6. Parfitt, J., Reisbick, M., **Singh, V.K.**, Makin, I. and Shlossman, M. Development of anaerobic bacteria DNA isolation and rapid PCR assay of periodontal treatment assessment. American Dental Association's 49th Annual Dental Students' Conference on Research, Gaithersburg, April 21-23, 2013.
7. Chamberlain, N.R., Stuart, M.K., **Singh, V.K.** and Sargentini, N.J. Utilization of Clinical Case Presentations in Medical Microbiology and Infectious Diseases to Improve Student Performance on Course Assessments. Joint ACOM & AODME (American Association of Colleges of Osteopathic Medicine and Association of Osteopathic Directors and Medical Educators) 2013 Annual Meeting, Baltimore, April 24-27, 2013.
8. Parfitt, J., *Reisbick, M., ***Singh, V.K.**, *Makin, I. and *Shlossman, M. Anaerobic Bacterial DNA Characterization Using Real Time PCR and Pyrosequencing Techniques for Chronic Periodontal disease. VOLPE Award Winning Presentation, Ohio State University, Columbus, May 17, 2013 (*faculty mentors).
9. Vaish, M. and **Singh, V.K.** Role of Staphylococcal Nitric Oxide Synthase in Oxidative Stress Tolerance. 113th General Meeting of the American Society for Microbiology, Denver, May 18-21, 2013.

10. Stuart, M.K., Chamberlain, N.R., **Singh, V.K.** and Sargentini, N.J. Case Presentation Exercises in Immunology Enhance Relevance and Improve Student Satisfaction with the Course. 113th General Meeting of the American Society for Microbiology, Denver, May 18-21, 2013.
11. Stuart, M.K., Chamberlain, N.R., **Singh, V.K.** and Sargentini, N.J. Implementation of a Small Group Clinical Case Presentation Exercise in Immunology. AMSMIC 14th Educational Strategies Workshop; Santa Fe, Apr 28-May 2, 2012.
12. **Singh, V.K.**, Syring, M., Singh, A. and Johansson, T. Beyond Foldase and Holdase, an Insight into the Significance of the DnaK Heat Shock System in *Staphylococcus aureus*. 112th General Meeting of the American Society for Microbiology, San Francisco, June 16-19, 2012.
13. Castille, D.L., Hudman, D.A., **Singh, V.K.** and Sargentini, N.S. Upregulation of Genes Involved in DNA Double-Strand Break Repair in X-irradiated *Escherichia coli*. 112th General Meeting of the American Society for Microbiology, San Francisco, June 16-19, 2012.
14. Harper, J., Parfitt, J., Makin, I. and **Singh, V.K.** Development of Culture and a Rapid PCR Assay for Pathogens Associated with Periodontitis. 4th Annual Interdisciplinary Biomedical Research Conference; Kirksville, MO; September 29, 2012.
15. Vaish, M., Johansson, T.R. and **Singh, V.K.** Role of Methionine Sulfoxide Reductase in *Staphylococcus aureus* under Stress Conditions. 4th Annual Interdisciplinary Biomedical Research Conference; Kirksville, MO; September 29, 2012.
16. Stuart, M.K., Richardson, N.C., Hiatt, J.L., **Singh, V.K.** and Sargentini, N.J. Analysis of Proteins that Co-precipitate with RadA/Sms in X irradiated *Escherichia coli*. 111th General Meeting of the American Society for Microbiology, New Orleans, May 21-24, 2011.
17. Guthrie, C., Schuerman, A., Wilson, C., Worthington, B.D., Snider, E.J., Johnson, J.C., **Singh, V.K.**, Sargentini, N.J. and Ruhlen, R.L. Osteopathic Manual Treatment of Ankle Pain in a Rat Model. 3rd Interdisciplinary Biomedical Research Symposium, Kirksville, Oct 22, 2011.
18. Johansson, T., Singh, A. Singh, K. and **Singh, V.K.** Expression Pattern and Significance of Methionine Sulfoxide Reductases in *Staphylococcus aureus*. 111th General Meeting of the American Society for Microbiology, New Orleans, May 21-24, 2011.
19. Patel, N., Dalecki, A., Gariga, N., Makin, I. and **Singh, V.K.** Development of Culture and a Rapid PCR Assay for Periodontal Bacteria. 3rd Interdisciplinary Biomedical Research Symposium, Kirksville, Oct 22, 2011.
20. Castille, D.L., Hudman, D.L., **Singh, V.K.** and Sargentini, N.J. Gene Expression in X-irradiated *Escherichia coli*. 3rd Interdisciplinary Biomedical Research Symposium, Kirksville, Oct 22, 2011.
21. Budine, T.E., Chamberlain, N., **Singh, V.K.** and Walston, T.D. *Caenorhabditis elegans* as a model for *Staphylococcus aureus* virulence. 3rd Interdisciplinary Biomedical Research Symposium, Kirksville, Oct 22, 2011.
22. Worthington, B.D., Ruhlen, R.L., Snider, E.J., Johnson, J.C., **Singh, V.K.** and Sargentini, N.J. A Rat Model of Ankle Injury to Test Efficacy of Manual Treatment for Pain Relief. American Osteopathic Association Research Conference, Orlando, Oct 30-Nov 1, 2011.
23. Worthington, B.D., Ruhlen, R.L., Snider, E.J., Johnson, J.C., **Singh, V.K.** and Sargentini, N.J. A Rat Model of Ankle Injury to Test Efficacy of Manual Treatment for Pain Relief. American Osteopathic Association Research Conference, Orlando, Oct 30-Nov 1, 2011.
24. Davenport, K.L., Snider, E.J., Degenhardt, B.F., Johnson, J.C., **Singh, V.K.** and Sargentini, N.J. A Rat Model for Studies on Pain Relief from Ankle Injury; Undergraduate American Academy of Osteopathy (UAAO) Convocation; Pelvis and Sacrum: Where It All Comes Together; Colorado Springs, CO; March 17-21, 2010.
25. Singh, K. and **Singh, V.K.** Significance of Four Methionine Sulfoxide Reductases in *Staphylococcus aureus*. 110th General Meeting of the American Society for Microbiology, San Diego, May 23-27, 2010.
26. **Singh, V.K.** and Singh, K. Physiological Characterization of the LytM Protein in *Staphylococcus aureus*. 110th General Meeting of the American Society for Microbiology, San Diego, May 23-27, 2010.

27. Snider, E.J., Davenport, K.L., Degenhardt, B.F., Johnson, J.C., **Singh, V.K.** and Sargentini, N.S. Manual Therapy of the Knee Improves Running In Rat Model for Acute Ankle Injury. 13th World Congress on Pain, Montreal, Aug 29 - Sep 2, 2010.
28. Budine, T.E., Chamberlain, N., **Singh, V.K.** and Walston, T.D. *Caenorhabditis elegans* as a model for *Staphylococcus aureus* virulence. 2nd Interdisciplinary Biomedical Research Symposium, Kirksville, Oct 09, 2010.
29. Stuart, M.K., Richardson, N.C., Hiatt, J.L., **Singh, V.K.**, and Sargentini, N.J. Analysis of proteins that co-precipitate with RadA/Sms in X-irradiated *Escherichia coli*. 2nd Interdisciplinary Biomedical Research Symposium, Kirksville, Oct 09, 2010.
30. Richardson, N.C., Sargentini, N.J., **Singh, V.K.** and Stuart, M.K. Production of Monoclonal Antibodies to the *Escherichia coli* DNA Repair Protein, RadA/Sms. 110th General Meeting of the American Society for Microbiology, San Diego, May 23-27, 2010.
31. Syring, M.L., Gosu, P., Singh, K. and **Singh V.K.** The Impact of DnaK Heat Shock System in Stress Tolerance of *Staphylococcus aureus* is Independent of SigB. 109th General Meeting of the American Society for Microbiology, Philadelphia, May 17-21, 2009.
32. Stuart, M.K., Chamberlain, N.R., **Singh, V.K.** and Sargentini, N.J. Microbiology for Medical Students: A Case Presentations Model. 109th General Meeting of the American Society for Microbiology, Philadelphia, May 17-21, 2009.
33. Adatia, N., **Singh, V.K.** and Sargentini, N.J. Is the *nadR* Gene Co-regulated with *serB* and *radA* in *Escherichia coli*. 1st Interdisciplinary Biomedical Research Symposium, Kirksville, Sep 26, 2009.
34. Castille, D., Sargentini, N.J. and **Singh, V.K.** Gene Expression in X-irradiated *Escherichia coli*. 1st Interdisciplinary Biomedical Research Symposium, Kirksville, Sep 26, 2009.
35. Fossum, C., Degenhardt, B.F., Johnson, J.C., **Singh, V.K.** and Sargentini, N.J. Relief of Nociceptive Pain in the Rat by Manual Therapy. 1st Interdisciplinary Biomedical Research Symposium, Kirksville, Sep 26, 2009.
36. Budine, T., Chamberlain, N.C., **Singh, V.K.** and Walston, T. *Caenorhabditis elegans* as a Model Host for *Staphylococcus aureus*. 1st Interdisciplinary Biomedical Research Symposium, Kirksville, Sep 26, 2009.
37. Fossum, C., Sargentini, N.J., **Singh, V.K.** and Degenhardt, B.F. More Consistent Inflammation in Sprague-Dawley Rats Using Carrageenan Versus Capsaicin. American Osteopathic Association - 113th Annual Convention and Scientific Seminar, Las Vegas, Oct 26-28, 2008.
38. Fossum, C., Sargentini, N.J., **Singh, V.K.**, Towns, L.C. and Degenhardt, B.F. Carrageenan Produces More Consistent Inflammation than Capsaicin in Sprague-Dawley Rats. Presented during Pain, Mind, and Movement II, Official Satellite Symposium of the 12th World Congress on Pain, Dublin, Ireland, Aug 13-15, 2008.
39. **Singh, V.K.**, Hattangady, D.S., Giotis, E.S., Singh, A.K., Chamberlain, N.R., Stuart, M.K. and Wilkinson, B.J. 2008. Insertional Inactivation of Branched-Chain Alpha-Keto Acid Dehydrogenase in *Staphylococcus aureus* Leads to Decreased Branched-Chain Membrane Fatty Acid Content and Increased Susceptibility to Certain Stresses. 13th International Symposium on Staphylococci and Staphylococcal Infections, Cairns Convention Centre, Australia, Sep 7-10, 2008.
40. **Singh, V.K.**, Utaida, S., Jackson, L.S., Jayaswal, R.K., Wilkinson, B.J. and Chamberlain, N.R. Role for DnaK in tolerance of multiple stresses in *Staphylococcus aureus*. Gordon Research Conference on Staphylococcal Diseases, Les Diablerets Conference Center, Switzerland, Sep 2-7, 2007.
41. Shaw, L.N., Jonsson, **Singh, V.K.**, Tarkowski, A. and Stewart, G.C. Room for One More: Are There Really two Quorum Sensing Systems in *Staphylococcus aureus*? Gordon Research Conference on Staphylococcal Diseases, Les Diablerets Conference Center, Switzerland, Sep 2-7, 2007.
42. **Singh, V.K.**, Utaida, S., Jackson, L.S., Jayaswal, R.K., Wilkinson, B.J. and Chamberlain, N.R. Role for DnaK, a Major Heat Shock Protein, in Tolerance of Multiple Stresses in *Staphylococcus*

- aureus*. 107th General Meeting of the American Society for Microbiology, Toronto, Canada, May 21-25, 2007.
43. **Singh, V.K.** and Zahrt, T.C. Transcriptional Profiling of *Mycobacterium tuberculosis* Genes Regulated by the MprA-MprB Two-Component Regulatory System. 104th General Meeting of the American Society for Microbiology, New Orleans, May 23-27, 2004.
 44. **Singh, V.K.** and Zahrt, T.C. Transcriptional Profiling of *Mycobacterium tuberculosis* Genes Regulated by the MprA-MprB Two-Component Regulatory System. 10th Annual Midwest Microbial Pathogenesis Meeting, Iowa City, Oct 10-12, 2003.
 45. **Singh, V.K.**, J. Moskovitz, R.K. Jayaswal, and B.J. Wilkinson. Purification and Characterization of Three Different *Staphylococcus aureus* Proteins with Methionine Sulfoxide Reductase Activity". 102nd General Meeting of the American Society for Microbiology, Salt Lake City, May 19-23, 2002.
 46. **Singh, V.K.**, Wilkinson, B.J. and Jayaswal, R.K. Molecular Characterization of a Chromosomal Locus in *Staphylococcus aureus* that Contributes to Oxidative Defense and is Highly Induced by the Cell Wall-Active Antibiotic Oxacillin. Gordon Research Conference on Staphylococcal Diseases, Bristol, Aug 12-17, 2001.
 47. **Singh, V.K.**, Scybert, S.M., Jayaswal, R.K. and Wilkinson, B.J. The *msrA* Operon in *Staphylococcus aureus* is Highly Induced in Response to Cell Wall-Active Antibiotics and is Critical for H₂O₂ Tolerance. 101st General Meeting of the American Society for Microbiology, Orlando, May 20-24, 2001.
 48. Krishnanchettiar, S., Vydianathapuram, V.R., Sayed, A., Murthi, A., **Singh, V.K.** and Jayaswal, R.K. Fur (Ferric Uptake Regulator) Regulated Gene Expression in *Staphylococcus aureus*. 101st General Meeting of the American Society for Microbiology, Orlando, May 20-24, 2001.
 49. **Singh, V.K.**, Jayaswal, R.K. and Wilkinson, B.J. Oxacillin-Inducible Proteins of *Staphylococcus aureus*. 100th General Meeting of the American Society for Microbiology, Los Angeles, May 21-25, 2000.
 50. Uebel, M., Xiong, A., **Singh, V.K.**, Krishnanchettiar, S., Baranyk, C.S, Cabrera, G.L. and Jayswal, R.K. Molecular Characterization of the Ferric Uptake Regulator, Fur, from *Staphylococcus aureus*. 100th General Meeting of the American Society for Microbiology, Los Angeles, May 21-25, 2000.
 51. Cabrera, G., Coates, S., Lockwood, K.J., **Singh, V.K.** and Jayaswal, R.K. Potential of Yeast Toxins as Cell Cycle Control Agents for Cancer Therapy. 100th General Meeting of the American Society for Microbiology, Los Angeles, May 21-25, 2000.
 52. **Singh, V.K.**, Usgaard, T., Xiong, A., Chakrabarti, S., Deora, R., Misra, T.K. and Jayaswal, R.K. The Chromosomal *zntR* Gene of *Staphylococcus aureus* Encodes a *Trans*-Acting Metalloregulatory Protein. 99th General Meeting of the American Society for Microbiology, Chicago, May 30-June 03, 1999.
 53. Xiong, A., Cabrera, G., Quinn, A., Coates, S., **Singh, V.K.** and Jayaswal, R.K. Cloning and Nucleotide Sequence Analysis of Genes Involved in the Regulation and Uptake of Iron in *Staphylococcus aureus*. 99th General Meeting of the American Society for Microbiology, Chicago, May 30-June 03, 1999.
 54. Pfeltz, R.F., **Singh, V.K.**, Schmidt, J.L., Tuttle, C.E., Nadakavukaren, M.J. and Jayaswal R.K. Cell Wall Properties and Autolytic Activities of Passage Selected Glycopeptide-Intermediate Susceptibility *Staphylococcus aureus*. 99th General Meeting of the American Society for Microbiology, Chicago, May 30-June 03, 1999.
 55. Xiong, A., Cabrera, G., Quinn, A., Coates, S., **Singh, V.K.** and Jayaswal, R.K. Characterization of Iron Uptake Regulator, Fur, from *Staphylococcus aureus*. Gordon Research Conference on Staphylococcal Diseases, Il Ciocco, Barga, Italy, May 9-14, 1999.
 56. Ramadurai, L., Usgaard, T., **Singh, V.K.**, Matika, R. and Jayaswal, R.K. Analysis of an Autolytic Gene from *Staphylococcus carnosus*. 98th General Meeting of the American Society for Microbiology, Atlanta, May 17-21, 1998.

57. Singh, V.K., More, T. and Kumar, S. 1994. HPLC Based Separation of Antibiotic Proteins of Buffalo Polymorphonuclear Cells. 16th International Congress of Biochemistry and Molecular Biology, New Delhi, India, Sep 19-22, 1994.

D. Research Support

Ongoing Research Support

Singh (PI) (\$27,000) 06/01/14-06/30/15
ATSU Strategic Research Fund Responsibilities: Principal investigator
Title: A Rapid PCR Assay for Periodontal Bacteria.

Singh (PI) (\$5,000) 04/01/14-06/28/16
KCOM Biomedical Sciences Program Responsibilities: Principal Investigator
Title: Determining the Regulation Pattern of *msr* Genes in *Staphylococcus aureus*.

Singh (PI) (\$4,000) 06/01/14-05/31/16
Warner/Fermaturo and ATSU Board of Trustees Research Funds Responsibilities: Principal investigator
Title: Impact of Branched-Chain Fatty Acids on Staphylococcal Physiology and Antimicrobial Susceptibilities.

Singh (PI) (\$5,000) 04/01/13-06/28/15
KCOM Biomedical Sciences Program Responsibilities: Principal Investigator
Title: Multiplex PCR investigation of periodontal pathogens.

Completed Research Support

Singh (PI) (\$308,874) 05/01/10-04/30/14
National Institutes of Health Responsibilities: Principal Investigator
Title: Significance of Four Methionine Sulfoxide Reductases in *Staphylococcus aureus*.

Singh (PI) (\$9,000) 06/01/12-06/30/14
ATSU Strategic Research Fund Responsibilities: Principal investigator
Title: Development of culture capability and a rapid PCR assay for periodontal bacteria.

Chamberlain (PI) (\$1,189) 01/01/13-12/31/13
KOA/KCOM Education Program grant Responsibilities: Co-applicant
Title: Development of Interactive Multi-Touch Multimedia iPad-Friendly iHandouts for KCOM Students.

Sargentini (PI) (\$97,000) 09/01/09-02/29/12
American Osteopathic Association Responsibilities: Co-investigator
Title: New Rat Model for Pain, Relief by Manual Therapy and Gene Expression Studies.

Singh (PI) (\$5,000) 04/01/11 – 06/30/12
KCOM Biomedical Sciences Program Responsibilities: Principal investigator
Title: Characterization of Four Methionine Sulfoxide Reductases in *Staphylococcus aureus*.

Singh (PI) (\$4,000) 06/01/09-05/31/11
Warner/Fermaturo and ATSU Board of Trustees Research Funds Responsibilities: Principal investigator
Title: Characterization of an Enterotoxin Present in Methicillin Resistant *Staphylococcus aureus*.

Singh (PI) (\$5,000) KCOM Biomedical Sciences Program Title: Expression of Multiple Genes Encoding Methionine Sulfoxide Reductase in <i>S. aureus</i> .	05/01/09-06/30/10 Responsibilities: Principal investigator
Singh (PI) (\$5,000) KCOM Biomedical Sciences Program Title: <i>dnaK</i> Regulated Gene Expression in <i>Staphylococcus aureus</i> .	04/01/08-06/30/10 Responsibilities: Principal investigator
Chamberlain (PI) (\$4,000) Warner/Fermaturo and ATSU Board of Trustees Research Funds Title: Genetic Regulation of Persister Formation in <i>Staphylococcus aureus</i> .	06/01/08-05/31/10 Responsibilities: Co-investigator
Singh (PI) (\$4,000) Warner/Fermaturo and ATSU Board of Trustees Research Funds investigator Title: Studying Roles of Staphylococcal Genes in Infection and Disease.	07/01/07 – 06/30/09 Responsibilities: Principal investigator
Singh (PI) (\$50,000) American Osteopathic Association Title: Changes in Gene Expression Resulting from Osteopathic manipulation.	09/01/07-02/29/09 Responsibilities: Principal investigator
Singh (PI) (\$50,000) ATSU Strategic Research Fund Title: Manual Therapy-Specific Gene Expression Correlating with Nociceptive Pain Relief.	07/01/06-06/30/08 Responsibilities: Principal investigator
Carlson (PI) (\$69,464) ATSU Strategic Research Fund Title: Muscle stretch and the NF- κ B pathway in muscular dystrophy.	07/01/06-06/30/08 Responsibilities: Co-investigator
Cory Nelson & Jonathan Parker (PI) (\$2,300) F. Herbert Fields, DO Memorial Research Fund Title: Characterization of the Roles of Staphylococcal LytM in Disease and Antibiotic Resistance.	08/01/07-06/30/08 Responsibilities: Faculty-Mentor
Singh (PI) (\$70,000) American Heart Association –Midwest Affiliate Title: Characterization of Staphylococcal Pathogenic Genes Involved in Endocarditis Using a Novel <i>In Vivo</i> Expression Technique.	07/01/00-06/30/02 Responsibilities: Principal investigator

Research Training Provided to Students and Post-doctoral Fellows at the ATSU/KCOM:

Postdoctoral Fellows:

1. Gurdeep Rastogi, PhD (04/06-09/06). Dr. Rastogi assisted on a study investigating gene expression changes in *S. aureus* exposed to UV and X-irradiation. He is currently a senior scientist for the Govt. of India.
2. Sugunya Utaida, PhD (04/11-06/11). Dr. Sugunya is a faculty in the Biotechnology Department at the Thammasat University in Thailand. He received fellowship from her university for post-doctoral summer training in PI's laboratory.
3. Anchal Singh, PhD (12/10-11/11). Dr. Singh assisted the PI on a project entitled "*DnaK* Regulated Gene Expression in *Staphylococcus aureus*" and co-authored a paper, *Int. J. Med. Microbiol* (2012); 302:242-52. Dr. Singh is currently an Assistant Professor at the Amity University, New Delhi, India.

4. Nirupa Gariga, DDS (06/11-06/13). Dr. Gariga assisted in research projects investigating oral bacterial pathogens associated with periodontitis. She is now completing her clinical training at the Indiana University School of Dentistry.
5. Manisha Vaish, PhD (04/12-04/13). Dr. Vaish studied the role of staphylococcal nitric oxide synthase and was the primary author of a paper, *Int. J. Microbiol.* (2013):312146. Dr. Vaish is currently a post-doctoral fellow at the Icahn School of Medicine at Mount Sinai, New York.

Mentored Graduate Students from A.T. Still University:

1. *Letitia S. Jackson* (KCOM biomed student) conducted research in the PI's lab and studied the role of Msr and DnaK proteins in *S. aureus*. *Letitia also co-authored a paper published in Microbiol (2007), 153:3164-74.*
2. *Bryan Kenneth Tepper* (KCOM class of 2008) assisted the PI in creating a knockout mutant of *S. aureus* with reduced ability to synthesize branched chain fatty acids in their cell membrane.
3. *Brock Lopez* [dental student from the ATSU-Arizona School of Dentistry & Oral Health (ASDOH)] spent four weeks in the summer of 2008 assisting the PI in creating different combinations of autolysin gene mutants in *S. aureus*.
4. *Mary Rose Carlos* (ASDOH class of 2009) spent four weeks in the summer of 2007 and five weeks in the summer of 2008 assisting the PI in creating different combinations of autolysin gene mutants in *S. aureus*. *Mary also co-authored a paper published in FEMS Microbiol. Lett. (2010), 311:167-75.*
5. *Cory Nelson* (KCOM class of 2010) received ATSU's F. Herbert Fields, DO Memorial Research Fund award to characterize the roles of staphylococcal LytM in disease and antibiotic resistance in the PI's laboratory.
6. *Jonathan Parker* (KCOM class of 2010) received ATSU's F. Herbert Fields, DO Memorial Research Fund award to characterize the roles of staphylococcal LytM in disease and antibiotic resistance in the PI's laboratory.
7. *Mihir Shah* (KCOM class of 2009) assisted the PI in creating a knockout mutant of *S. aureus* Msr genes.
8. *Mara Syring* (KCOM class of 2011) assisted the PI in a rat study, focused on determining gene expression changes subsequent to osteopathic manipulation.
9. *Michael Syring* (KCOM biomed student) assisted the PI on a project entitled "DnaK Regulated Gene Expression in *Staphylococcus aureus*" and co-authored a paper published in *Int. J. Med. Microbiol (2012); 302:242-52.*
10. *Kuldeep Singh* (KCOM biomed student) assisted on a project entitled "Understanding the expression of multiple genes encoding methionine sulfoxide reductase in *Staphylococcus aureus*" and the data generated were used for his MS thesis. Kuldeep was primary author of a paper published in *Int J Microbiol, (2012):719594* and co-authored a paper published in *FEMS Microbiol. Lett. (2010), 311:167-75.*
11. *Trintje Johansson* (KCOM biomed student) worked on a project entitled "Characterization of Four Methionine Sulfoxide Reductases in *Staphylococcus aureus*" and the data were used for her MS thesis. *Trintje also co-authored a paper published in Int. J. Med. Microbiol (2012); 302:242-52.*
12. *Tucker Fischbeck* (KCOM class of 2014) completed his summer research elective in the PI's laboratory and has continued to assist with animal surgeries to test the virulence of *S. aureus*.
13. *Judy Wong* (KCOM class of 2014) completed her summer research elective in the PI's laboratory.
14. *Nipa Patel* (ASDOH class of 2013) completed her 6-weeks research training in summer of 2011 in the PI's laboratory.
15. *John Harper* (KCOM biomed student) is assisting on a project entitled "Multiplex PCR investigation of periodontal pathogens" and the data generated will be used for his MS thesis.
16. *Joshua Parfitt* (ASDOH class of 2013) assisted in research projects investigating oral bacterial pathogens associated with periodontitis in the PI's laboratory during the summer of 2012 and 2013 (for 6-weeks each time).
17. *Kyle Baum* (KCOM biomed student) is assisting on a project entitled "Regulation of *msr*

expression in *S. aureus*" and the data generated will be used for his MS thesis.

18. Nicholas Salava (ASDOH class of 2016) completed 6-weeks research training in summer of 2011 in the PI's laboratory.
19. Justin Babbel (KCOM class of 2017) completed summer research internship and investigated the expression of *bkd* genes in *S. aureus pdh* mutants.
20. Christopher Eppich (KCOM class of 2017) completed summer research internship and assayed the pyruvate dehydrogenase enzymatic activity in wild type *S. aureus* strain USA300 and its derivative *pdh* mutants.
21. Joshua Cofee (MOSDOH class of 2018) is assisting on a project targeting quantification of periodontal bacteria.
22. Matthew Nations (KCOM class of 2018) is assisting on a project targeting several superantigen like genes in *S. aureus*.
23. Mydah Chowdhry is assisting on a project entitled "Molecular assessment of periodontal pathogens" and the data generated will be used for her MS thesis.
24. Robert Ring (KCOM biomed student) is assisting on a project entitled "Roles of branched chain fatty acids in *Staphylococcus aureus* stress physiology" and the data generated will be used for his MS thesis.

Mentored Undergraduate/Graduate Students from Truman State University:

1. *Christine Nicole Black* (undergraduate student) assisted the PI in cloning and sub-cloning many *S. aureus* genes. Her molecular biology training in this laboratory helped her secure a career as a Molecular Technologist at Tricore Reference Laboratories in Albuquerque, NM.
2. *Brantley Ping* (graduate student) worked with the PI in purification and characterization of *E. coli* RadA protein.
3. *Samuel Ndubisi Edeh* (undergraduate student) assisted the PI in constructing *saNOS* mutant of *S. aureus*. His molecular biology training in this laboratory helped him secure a job as a research assistant in the Department of Neurosurgery at Washington University in St. Louis. Samuel is currently a research assistant at Mayo Clinic.
4. *Philip Gosu* (undergraduate student) assisted the PI in a rat study, focused on determining gene expression changes subsequent to osteopathic manipulation. Philip is currently a graduate student at the University of West Georgia.
5. *Krish Singhal* (undergraduate student) assisted the PI on the project studying the *DnaK* Regulated Gene Expression in *Staphylococcus aureus* and co-authored a paper published in *Int. J. Med. Microbiol* (2012); 302:242-52.
6. *Johanna Ruff* (undergraduate student) assisted in generating various *S. aureus* gene knockout mutants.
7. *Alex Dalecki* (undergraduate student) assisted the PI on the project studying the *DnaK* Regulated Gene Expression in *Staphylococcus aureus* and co-authored a paper published in *Int. J. Med. Microbiol* (2012); 302:242-52. Alex is now a graduate student at the University of Alabama.
8. *Elizabeth Kouba* (Undergraduate student) assisted in generating various *S. aureus* gene knockout mutants and in studies with the roles of branched chain fatty acids in *S. aureus*.
9. *Jourdan Howard* (Undergraduate student) assisted in generating various *S. aureus* gene knockout mutants and in studies with the roles of branched chain fatty acids in *S. aureus*.

AWARDS AND HONORS

1. Peer-reviewer, Department of Defense Research Proposals.
2. 2009 – Sigma Xi 'Researcher of the Year' – Kirksville chapter.
3. Ad-hoc reviewer for various research journals.
4. Member of the editorial board, Indian Journal of the Poultry Sciences (2005-2009).
5. Certified Item-Writer for the National Board of Osteopathic Medical Examiners.

6. Recipient of a Postdoctoral Fellowship award from the American Heart Association-Midwest Affiliate.
7. Ranked highest in a national level search for Scientists in the discipline of biochemistry by the Agricultural Scientist Recruitment Board of India.
8. Recipient of a travel award to present a poster during the 10th Annual Midwest Microbial Pathogenesis held in Iowa City, Iowa, Oct 10-12, 2003.
9. Member of the executive committee of the Office of the Postdoctoral education at the Medical College of Wisconsin at Milwaukee.
10. Recipient of a Senior Research Fellowship award from the Indian Veterinary Research Institute, India.
11. Lecturership award from the Indian Council of Agricultural Research, India.
12. Participated in an American Society for Microbiology-UNESCO Joint Program as an ASM young scientist to developing countries.

INVITED TALKS/SEMINARS

1. "Human Microbiome—It's Implications in Health and Disease". KCOM Basic Science Seminar, Feb 6, 2015.
2. "Significance of Multiple Methionine Sulfoxide Reductases in *Staphylococcus aureus*". KCOM Basic Science Seminar, Sep 19, 2014.
3. "Manual Therapy Effects on the Central Nervous System". KCOM Basic Science Seminar, Jan 10, 2014.
4. "Beyond Holdase and Foldase: DnaK Heat Shock System in *Staphylococcus aureus*". KCOM Basic Science Seminar, Nov 11, 2011.
5. "*Staphylococcus aureus*: Factors critical for its survival and virulence". 'Researcher of the Year Talk' Sigma Xi, Kirksville Chapter Fall Meeting, Kirksville, Oct 12, 2009.
6. "Microarray research". Interdisciplinary Biomedical Research Symposium, Kirksville, Sep 26, 2009.
7. "Infectious disease of children with emphasis on India and South Asia". ATSU-UNICEF Kirksville Chapter, Feb 12, 2009.
8. "Can you stress Staph?" Clinical Research Center of the Marshfield Clinic, Marshfield, WI; May 21, 2008.
9. "TRAP in STAPH : Fact & Fiction". KCOM Basic Science Seminar. Nov 2, 2007.
10. "Antibiotics and oxidative stress tolerance in *Staphylococcus aureus*: a pathogen defying all chemotherapeutic options". Truman State University; Nov 4, 2005.

SERVICE

ATSU/ KCOM Committees:

Chair, KCOM Faculty Senate (2011)
 Member, KCOM Faculty Senate (2010-present)
 KCOM Strategic Planning Committee (2011)
 ATSU Academic Technology Committee (2010-13)
 Admissions Interviewer (2005-present)
 Animal Care Committee (2005-present)
 Biohazard and Hazardous Materials Committee (2005-present)
 Interdisciplinary Research Committee (2005-present)
 KCOM Student Financial Aid Committee (2009-present)

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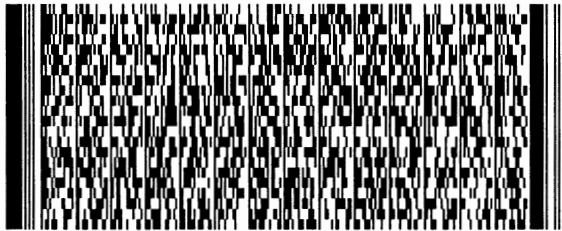
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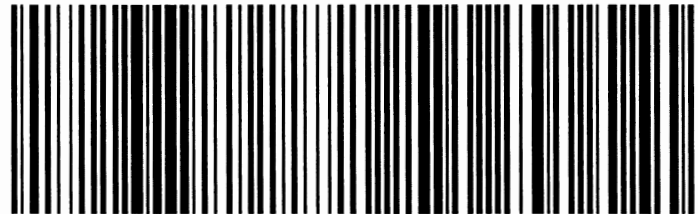
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