

BIOGRAPHICAL SKETCH

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NAME: **Steven K. Lower**

eRA COMMONS USER NAME (credential, e.g., agency login): **Lower09**

POSITION TITLE: **Professor**

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Kent State University, Kent, Ohio	B.S. (cum laude)	12/1994	biology, geology
Kent State University, Kent, Ohio	M.S.	05/1997	environmental chemistry
Virginia Tech, Blacksburg, Virginia	Ph.D.	05/2001	microbiology, mineralogy

Positions and Honors**Positions and Employment**

2001-2003 Assistant Professor, University of Maryland, College Park, Maryland
 2003-2008 Assistant Professor, Ohio State University, Columbus, Ohio
 2008-2014 Associate Professor, Ohio State University, Columbus, Ohio
 2015- Professor, Ohio State University, Columbus, Ohio

Other Experience and Professional Memberships

2000- Member American Chemical Society, American Society for Microbiology, American Geophysical Union, Biophysical Society
 2001- National Science Foundation Grant Review Panel for four different programs (Biocomplexity, Nanoscience, Frontiers in Earth System Dynamics, and Geobiology)
 2001- Grant proposal referee for the National Science Foundation, the Department of Energy, the Department of Defense, German Research Foundation (DFG)
 2012 National Science Foundation, Advisory Committee on the National Nanotechnology Initiative
 2014- National Institutes of Health, Grant Review Panel for Infectious Diseases & Microbiology

Honors

2003 Outstanding Research Award, Department of Energy
 2004 Alumnus of the Year, College of Science, Virginia Tech
 2008 CAREER Award, National Science Foundation
 2010 PECASE Award (highest honor bestowed by the U.S. government on scientists and engineers in the early stages of their independent research careers)
 2012 Clinical Research Forum Top 10 Clinical Research Award, Washington DC
 2013 Kavli Fellow, US National Academy of Sciences

Contributions to Science (ten peer-reviewed pubs shown below; advisees marked with *)

Lower SK, Beveridge TJ, and Hochella MF (2001) Bacterial recognition of mineral surfaces: Nanoscale interactions between *Shewanella* and α -FeOOH. *Science* 292: 1360-1363.

- Lower BH, *Yongsunthon R, *Vellano FP, and Lower SK (2005) Simultaneous force and fluorescence measurements of a protein that forms a bond between a bacterium and solid surface. *Journal of Bacteriology*: 187: 2127-2137.
- Lower BH, Shi L, *Yongsunthon R, Droubay TC, McCready CE, and Lower SK (2007) Specific bonds between an iron oxide surface and outer membrane cytochromes MtrC and OmcA from *Shewanella oneidensis* MR-1. *Journal of Bacteriology* 189: 4944-4952
- Lower BH, Lins RD, *Oestreicher Z, Straatsma TP, Hochella MF, Shi L, and Lower SK. (2008) In vitro evolution of a peptide with a hematite-binding motif that may constitute a natural metal-oxide binding archetype. *Environmental Science & Technology* 42: 3821-3827.
- Lower BH, *Yongsunthon R, Shi L, Wildling L, Gruber HJ, Wigginton NS, Reardon CL, Pinchuk GE, Droubay TC, Boily JF, and Lower SK. (2009) Antibody recognition force microscopy shows that outer membrane cytochromes OmcA and MtrC are expressed on the exterior surface of *Shewanella oneidensis* MR-1. *Applied and Environmental Microbiology* 75: 2931-2935.
- *Buck AW, Fowler VG, *Yongsunthon R, *Liu J, DiBartola AC, Que YA, Moreillon P, and Lower SK. (2010) Bonds between fibronectin and fibronectin-binding proteins on *Staphylococcus aureus* and *Lactococcus lactis*. *Langmuir* 26: 10764-10770.
- Lower SK, *Yongsunthon R, *Casillas-Ituarte NN, *Taylor ES, *DiBartola AC, Lower BH, Beveridge TJ, *Buck AW, and Fowler VG. (2010) A tactile response in *Staphylococcus aureus*. *Biophysical Journal* 99: 2803-2811.
- Lower SK, *Lamlertthong S, *Casillas-Ituarte NN, Lins RD, *Yongsunthon R, *Taylor ES, *DiBartola AC, Edmonson C, McIntyre LM, Reller LB, Que YA, Ros A, Lower BH, and Fowler VG. (2011) Polymorphisms in fibronectin binding protein A of *Staphylococcus aureus* are associated with infection of cardiovascular devices. *Proceedings of the National Academy of Sciences USA* 108: 18372-18377.
- *Casillas-Ituarte NN, Lower BH, *Lamlertthong S, Fowler VG, and Lower SK. (2012) Dissociation rate constants of human fibronectin binding to fibronectin-binding proteins on living *Staphylococcus aureus* isolated from clinical patients. *Journal of Biological Chemistry* 287: 6693-6701.
- *Xiong YQ, *Sharma-Kuinkel B, *Casillas-Ituarte NN, Fowler VG, Rude T, *DiBartola A, Lins R, Bayer A, Lower SK. (2015) Endovascular infections caused by methicillin-resistant *Staphylococcus aureus* are linked to clonal complex specific-alterations in binding and invasion domains of fibronectin-binding protein A as well as the occurrence of *fnbB*. *Infection and Immunity* 83: 4772-4780.

Research Support – SKL has been PI on \$5.6M in grants from NSF, NIH, and DOE

Ongoing Research Support

Title: Molecular binding reaction that initiates *Staphylococcus aureus* infections of cardiovascular devices
 ID #: R01HL119648
 PI: Steven Lower (sole-PI); subcontracts to Höök (Texas A&M), Fowler (Duke), McIntyre (U Florida)
 Agency: National Institutes of Health (NHLBI)
 Period: Jun 9, 2014-Jun 8, 2019
 Amount: \$3,100,000

Title: Protein mediated magnetite biomineralization
 ID #: EAR1424138
 PI: Steven Lower (co-PI)
 Agency: National Science Foundation
 Period: Sept 1, 2014-Aug 31, 2017
 Amount: \$339,000

Title: Forces at the heart of *Staphylococcus* biofilms on medical implants
 ID #: 14POST20460073
 PI: Steven Lower (co-PI)
 Agency: American Heart Association
 Period: July 1, 2014-Jun 30, 2016
 Amount: \$97,000

Completed Research Support (for past three years)

Title: CAREER: The protein-mineral bond
ID #: EAR0745808
PI: Steven Lower (sole-PI)
Agency: National Science Foundation
Period: March 1, 2008-Feb 28, 2014
Amount: \$453,000

Title: Forces at the heart of Staphylococcus biofilms on medical implants
ID #: R21HL086593
PI: Steven Lower (lead-PI) and Vance Fowler (subcontract, Duke University Medical Center)
Agency: National Institutes of Health (NHLBI)
Period: August 15, 2008-August 14, 2012
Amount: \$430,000