



Seminar

Special

4 p.m.

Monday, Nov. 12, 2018

331 Smith Hall

New targets and new lead compounds for blocking *Salmonella* virulence



Professor John May

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Professor May earned his bachelor's degree in chemistry with a concentration in biochemistry from Duke University, his doctorate in biochemistry from the University of Wisconsin-Madison, and was a National Institutes of Health Fellow in the Department of microbial pathogenesis at the Yale School of Medicine. His research specialty areas include biochemistry, molecular biology, bacteriology (*Salmonella*), and glycobiology.

Information

z.umn.edu/JohnMay

The increasing resistance of pathogenic bacteria towards current antibiotics has led to an urgent need for new strategies to develop antibacterial agents. One potential strategy is to target bacterial virulence, the physiological processes that enable bacteria to cause disease. To be virulent, bacteria must “play defense” by resisting antimicrobial conditions encountered during an infection. My research group of undergraduates is investigating how *Salmonella enterica*, a major bacterial cause of food-borne illness, resists certain antimicrobial conditions. We have discovered a new membrane-associated protein named DcrB that enables resistance to high levels of copper ions. Copper is an antimicrobial metal used by health care facilities in touched surfaces and by mammalian immune systems. We have determined the first three-dimensional structure of the DcrB protein, which is found in several bacterial pathogens. In addition to uncovering new stress resistance mechanisms, we are searching for small molecules that block virulence signaling pathways in *Salmonella*. We have developed assays to determine whether inhibitors of key bacterial signaling proteins block resistance of *Salmonella* to host immune defenses. Overall, our work has the potential to provide new molecular targets and possible lead compounds for blocking bacterial virulence.

Host: Professor Erin Carlson

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Open Forum: 1:30 p.m. to 2:30 p.m.

Monday, Nov. 12

**Kate and Michael Bárány Conference Room
(117/119 Smith Hall)**

**Q&A: Being a teacher-scholar
at a primarily undergraduate institution**