Pulmonary

Faculty Research Interests

Drs. Wiley Youngs and Yang Yun
Dr. Young and Dr. Yun developed a new antibiotic treatment option for pulmonary infections including pneumonia and cystic fibrosis that has potential for significantly increasing survival among patients with lung infections. This nanoparticle antibiotic treatment is composed of encapsulated silver carbene complexes, or SCCs (a novel class of silver-based antimicrobials), developed by Dr. Youngs’ lab and a nanoparticle delivery system developed by Dr. Yun’s lab. The concentrated nanoparticles are administered once daily. These nebulized antimicrobials are an effective and convenient drug delivery technique that encourages patient compliance with the treatment regimen, ensuring successful reduction of patients’ illness severity, limiting development of resistance to antibiotics and potentially decreasing the spread of epidemics.

Elemental silver and the chemical structure of SCCs. The functional groups can be varied to achieve hydrophilic or hydrophobic compounds. This flexibility aids in the encapsulation of silver.