JMU Chemistry and Biochemistry Seminar
Friday, January 19, 2018
3:35pm in ISAT 159

Finding the Key when the Lock is RNA (Molecules to Turn Off a Cancer-Promoting RNA)

Dr. Kevin Luebke
Director of Nucleic Acids Molecular Recognition
SRI International
Harrisonburg, VA

Non-coding RNA molecules play crucial roles in the regulation of metabolism. As a result, overproduction and underproduction of non-coding RNA molecules contribute to many human diseases, suggesting the potential benefits of targeting these RNAs with drugs. A class of short non-coding RNAs called microRNAs is a particularly rich source of potential therapeutic targets. Excessive production of one of these microRNAs, miR-21, contributes to many cancers by suppressing the cancer cell's natural and appropriate self-destruction. Overproduction of this same RNA also contributes to heart failure by promoting fibrosis of the heart in response to stress. Folded precursors of miR-21 are enticing targets for development of ligands that diminish production of the mature RNA to appropriate levels. However, there is currently a lack of methods for finding such compounds. I will describe our development of a microarray screening approach to finding small, peptide-like molecules that bind to and suppress maturation of precursors to miR-21.