

# Polycephalic (Multi-Headed) Cationic Amphiphiles as Novel Surfactants and Antimicrobial Agents



Kevin L. Caran<sup>1</sup>, Kevin P. C. Minbiole<sup>1</sup> and Kyle N. Seifert<sup>2</sup>

<sup>1</sup>Department of Chemistry and Biochemistry

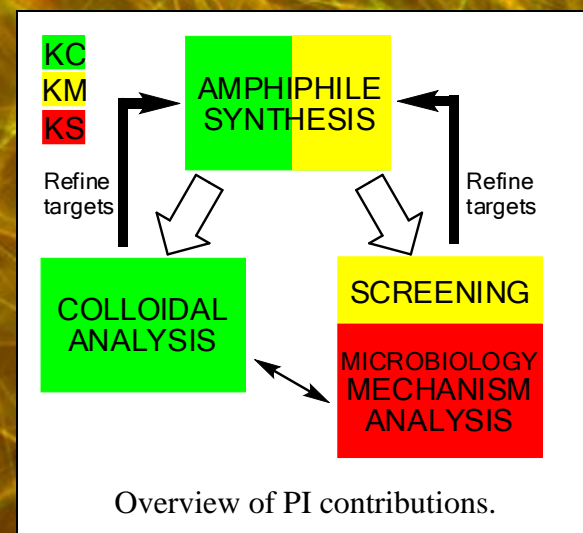
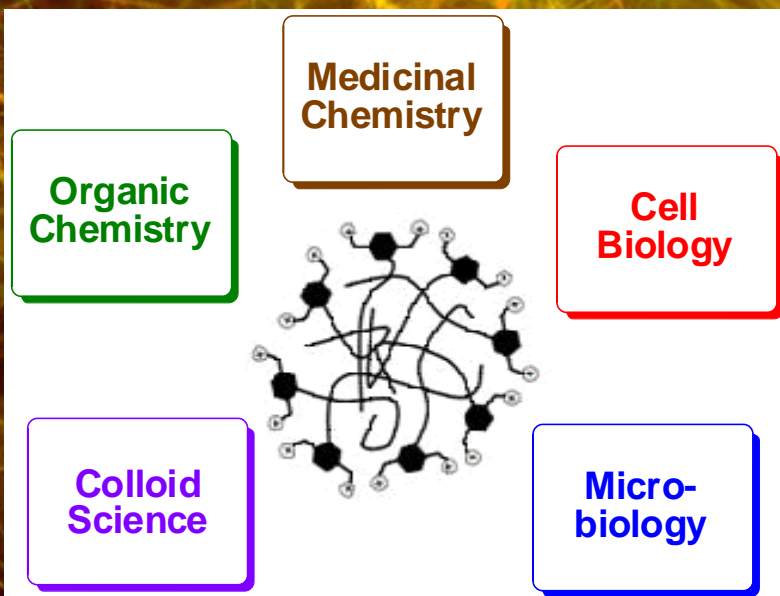
<sup>2</sup>Department of Biology

James Madison University  
Harrisonburg, VA

This interdisciplinary research team aims to synthesize and examine the colloidal and antimicrobial activities of novel polycephalic amphiphiles in an effort to build a comprehensive, mechanism-based understanding of a novel approach to antimicrobial activity.

**Fig. 1.** Structure of polycephalic amphiphiles. R = nonpolar.

**Fig. 2.** Example of a disk diffusion challenge assay using a bicephalic amphiphile showing a zone of bacterial inhibition surrounding a treated disk.



Background image: Fibrous crystals formed by a bicephalic (double-headed) amphiphile in water.