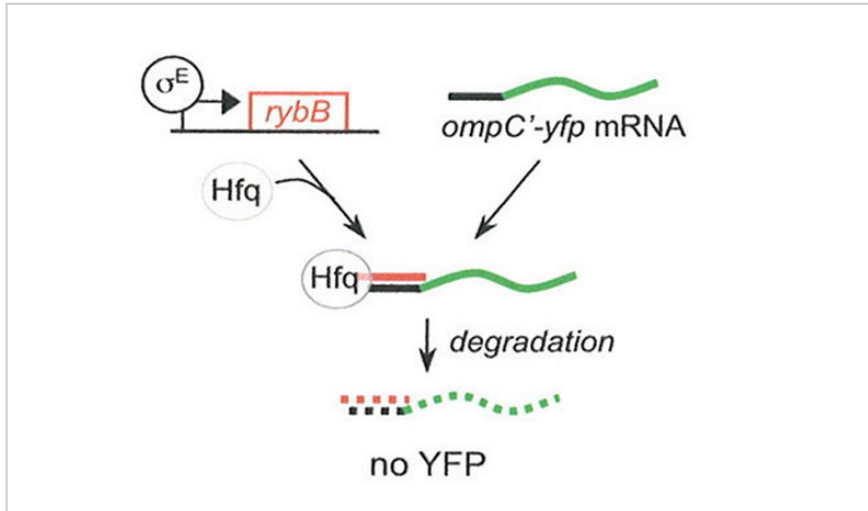


# Antibiotics Targeted to Bacterial Stress Pathways

ID# 2010-3727



Overview of Invention

## Technology Summary

An assay to identify inhibitors of a conserved bacterial stress response pathway, sigma factor  $\sigma^E$ , has been developed. The anti-bacterial agents identified will be able to combat highly resistant bacteria. In *Escherichia coli*,  $\sigma^E$  is essential to maintain the homeostasis of the cell envelope during stress and growth. This novel system finds inhibitors of the sigma factor  $\sigma^E$  pathway in order to render these pathogens harmless. In this reporter system when  $\sigma^E$  activity is high, RybB will be produced, and there will be low fluorescence. The opposite is also true; if  $\sigma^E$  activity is low, *ompC-yfp* transcription will be undisturbed and high fluorescence will be observed. The purpose is to identify inhibitors that block the  $\sigma^E$  pathway and study the mechanism by which these inhibitors act.

## Application & Market Utility

No inhibitors are currently available for this  $\sigma^E$  pathway and as assays can currently identify such inhibitors. The assay described here provides a positive read-out of inhibition of the  $\sigma^E$  system and can be adapted for high-throughput screening (HTS). Experimental results from a leading pharmaceutical company have demonstrated the feasibility of this assay. The innovative primary screen and secondary assays can be readily adapted to identify inhibitors of other sRNA regulators and sigma factors or other transcriptional regulators.

## Next Steps

Seeking research collaboration and licensing opportunities.

TECHNOLOGY READINESS LEVEL

4-7

### Seeking

Investment | Licensing | Research

### Keywords

- Drug Discovery
- Antibiotics
- HTS Target Identification

### Researchers

#### Sarah Ades

Associate Dean, The Graduate School Associate Professor of Biochemistry and Molecular Biology

[Online Bio](#)

[Website](#)

#### Kenneth Keiler

Professor of Biochemistry and Molecular Biology

[Website](#)

### Originating College

Eberly College of Science

### Office of Technology Management Contact

Long, Melissa  
mk1137@psu.edu  
814-865-5730