



Julius B. Lucks, PhD

Northwestern University

Department of Chemical and Biological Engineering

Co-Director Center for Synthetic Biology

AREA(S) OF FOCUS:

Harnessing the natural design principles of RNA for synthetic biology applications

The Lucks Lab develops high-throughput techniques to study the structure, folding, and functions of RNA to engineer RNA-based diagnostics.

KEY RESEARCH AREAS:

Uncovering RNA cellular pathways

Employ innovative sequencing techniques to acquire a deeper understanding of RNA structure, function, and control over cellular processes.

RNA synthetic biology

Design RNA-based biotechnologies that control gene expression, act as new approaches to pathogen and chemical diagnostics, work in RNA-based therapeutics.

ENTREPRENEURIAL SUCCESS:



STEMLOOP

Stemloop creates sensors that function outside of a cell to enable rapid, sensitive, and specific target analyte detection.

First product: μ Sense™

- Quickly test lead levels in water to tackle America's water crisis.
- Utilizes RNA Output Sensors Activated by Ligand Induction (ROSALIND).

ROSALIND platform capabilities:

- Detect contaminants, small molecules, antibiotics, and metals.
- Produce a fluorescent signal through activation of transcription with fluorescence-activating RNAs.

