



DEPARTMENT OF  
BIOMEDICAL ENGINEERING

UAB Schools of Engineering and Medicine

## Weekly Seminar

1:25 pm – 2:15 pm

Friday, October 27, 2017

Heritage Hall – Room 125

### Stephen Barnes, Ph.D.

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UAB Environmental Health Sciences  
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Director, Mass Spectrometry Shared Facility, UAB Comprehensive Cancer Center  
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### “Metabolomics and engineering – a two-way process”

As for many other areas of science, bioanalysis is built on the principles of physics and its application to physical processes and the engineering needed to make it better/faster/cheaper. Chromatographic separation of biological analytes is no exception - it began over a century ago in the separation of plant pigments, and has moved to concepts of phase partition (and a Nobel Prize in 1952) to GC and LC and is combined with all sorts of detection systems (another Nobel Prize in 2002). By identifying critical steps in metabolism associated with disease identified with metabolomics, geneticists are applying gene therapy as clinical treatments. The same principles can be applied to organisms that can be engineered make either unique compounds with complex chiral chemistry, or large amounts of chemicals suitable as feedstocks. Engineering and science is now catching up with yeasts and the wine industry that figured out how to this before the advent of systematic bioanalytical science.

