

SE&T Colloquium Series-Fall 2013

Speaker	Dr. Kyle Cissell Department of Chemistry
Title	<i>Nucleic Acid Detection: From the Well-plate to Paper</i>
Abstract	<p>The detection of nucleic acids, in particular, microRNA, is an important aspect of science. MicroRNAs (miRNAs) are short, approximately 18-24 nucleotide length non-coding RNAs. The expression levels of miRNAs are critical, due to their involvement in tumor suppression and implications in disease progression. Due to the inherently low levels of miRNA in cells and bodily fluids, highly sensitive methods are needed for miRNA detection. To this end, well-plate methods for miRNA detection which utilize fluorescence (organic fluorophores) and bioluminescence (<i>Renilla</i> luciferase) have been developed. Two miRNA detection methods are presented, both of which display low detection limits (nanomolar or less). Applications in nucleotide specificity and cancer detection will also be introduced. Each method relies on hybridization of miRNA with a complementary target in a microwell-plate format. Unfortunately, well-plate assays are rendered to remote analysis and in most cases, require expensive instrumentation. In order to develop a more rapid, on-site nucleic acid detection technique that employs less reagents, paper-based analytical devices (PADs) are employed. Current designs will be presented, as well as a demonstration of fabrication and fluid flow through the channels.</p>
Date	Tuesday, October 1
Time	4:10-5:00pm
Place	Pioneer 240
	Refreshments will be served at 4:00pm.