

Rondedrick Sinville is a native of Shreveport, LA. He received his B.S. degree in Chemistry from Grambling State University in December 2000. He became a member of the Soper Research Group in the spring of 2002.

Rondedrick's research focuses on the use of polymeric microfluidic devices as electrophoretic platforms for novel genotyping analyses. In particular, poly (methyl methacrylate), PMMA, microfluidic devices are used to electrophorese short DNA fragments fluorescently-labeled with near-IR dyes. Electrophoresing using these custom, low-cost-of-production plastic-based devices has several advantages including reduced analysis times and low sample consumption. Two novel ligation-based mutation identification strategies previously developed for conventional gel capillary electrophoresis, the ligase detection reaction (LDR) assay and Endonuclease V/ ligase (endoV/ligase) scanning assay, are currently being integrated onto our microdevices; LDR is highly effective for probing known mutations being highly associated with various disease states, whereas the endoV/ligase technique excels in unveiling unknown mutations within critical segments of DNA responsible for important regulations such as cell apoptosis. In-house constructed laser-induced fluorescence systems are currently used for spectral read-out. The ultimate goal of these projects is to incorporate the benefits of these highly sensitive and multiplexible methods with the advantages of plastic microchip separations to create a clinical tool for the early detection of cancers.

Publications:

G.A. Thomas, **R. Sinville**, S. Sutton, H.D. Farquar, Y. Wei, F. Barany, R.P. Hammer and S.A. Soper. Capillary and microelectrophoretic separations of ligase detection reaction products produced from low-abundant point mutations in genomic DNA. *Electrophoresis*, **2004**, 25, 1668-1677

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