ICB 2011 Invited Speaker:

Dr. Amanda Birmingham

Bioinformatics Manager, Thermo Scientific Genomics Thermo Fisher Scientific 2650 Crescent Dr., Suite 100 Lafayette, CO 80026 Direct: 720.890.5159 Email: <u>amanda.birmingham@thermofisher.com</u>

Title: Quantifying Effects of Screen Design on Hit Identification Performance

Abstract:

High-throughput screening of small molecules and/or RNA interference reagents is a key technique in pharmacogenomics. However, even experienced screeners struggle to design screens that provide adequate experimental power while controlling costs. To address this dilemma, we examine potential screening scenarios using the open-source NoiseMaker software tool for generation of realistically noisy virtual screens with known true hits. We quantify the effects of various replicate and control-use strategies on true hit identification under relevant screen noise conditions, providing screeners with guidance on the value of expenditures in these areas. We also demonstrate how screeners interested in additional strategies can independently assess their value using the NoiseMaker tool.