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The application of high throughput screening technologies to antiviral drug discovery from BSL-2 to BSL-4

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Abstract

To date the development of anti viral small molecule therapeutics has not enjoyed the success rate of anti microbial drug discovery efforts. To improve the success rate, High Throughput Screening (HTS) is a technology that can be used to quickly evaluate large numbers of chemical structures in order to identify the relatively few compounds with antiviral activity and provide more leads for drug discovery programs. Virus assays based on cytopathic effect (CPE) are the most straightforward to adapt to HTS but for viruses that do not cause CPE, there are other options available. The HTS Center at Southern Research has extensive experience adapting antiviral assays to the HTS platform having screened over five million compounds in antiviral assays. Most were done at BSL-2 level containment, but over 275,000 compounds have been screened against three BSL-3 viruses and most recently 20,000 compounds were screened against two BSL-4 viruses. Assay design, assay development, HTS implementation, automation platform design, and strategies for screening difficult viruses will be presented.

Biography:

Lynn Rasmussen has been supervisor of the HTS Center at Southern Research since 2004 where she has been instrumental in developing the infectious disease HTS program. Previously she worked with retroviruses at the NCI-Frederick Cancer Research and Development Center, with emerging viruses at USAMRIID and with Rickettsia at the University of Maryland. She has undergraduate degrees in Chemistry and Biology from Virginia Tech and a master's degree in Biomedical Sciences from Hood College. She has over 30 years of laboratory research experience and thirteen years of automation experience.