

Ingenuity[®] Science Spotlight:

Articles featured in the Ingenuity Science Spotlight represent some of the best and most diverse examples of how IPA[®] has contributed to research across multiple platforms, research areas, and research goals.



“Our work is focused on developing new drug therapies for biodefense-related and emerging viral pathogens. IPA was the bridge between our high throughput siRNA screen and identification of effective drugs that blocked infection in culture and are showing great promise in our animal work. We expect that IPA will also be an important tool when analyzing results of our latest high throughput drug screens.”

Robert Davey, PhD, Galveston National Laboratory,
University of Texas Medical Branch (UTMB)

Identification of Novel Cellular Targets for Therapeutic Intervention Against Ebola Virus Infection by siRNA Screening.

Andrey A. Kolokoltsov, Mohammad F. Saeed, Alexander N. Freiberg, Michael R. Holbrook, and Robert A. Davey. Drug Development Research 70 : 255–265 (2009)

<http://www3.interscience.wiley.com/journal/122456642/abstract>

A team of researchers led by Robert Davey of UTMB, Galveston, Texas, has successfully employed a novel strategy for predicting targets and confirming drug leads that severely impact infection by Ebola virus (EBOV). Their strategy focused on the virus' complete dependence on cellular proteins for infection and replication, and employed advances in siRNA screening of the druggable genome (the kinome, specifically) as a method for identifying candidate targets. Critical to their success was the use of redundant siRNA activity (RSA) analysis to identify significant siRNA hits, as well as the qualification and prioritization of those hits using IPA. IPA analysis of siRNA hits predicted the involvement of particular signaling networks (MAPK, PI3K, CAMK) in Ebola infection. That prediction was tested with the PI3K and CAMK inhibitors LY294002 and KN-93, which severely impacted EBOV infection, dropping virus titers by 65% and >95% respectively. Their experimental approach of siRNA profiling coupled with analysis in IPA was effective in transitioning hits to drug leads quickly, identifying potentially useful leads for development of effective therapies against infection by EBOV.