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DEVELOPMENT OF AN IN VITRO MODEL OF THE NEUROVASCULAR UNIT FOR BBB PERMEABILITY LINKED NEUROACTIVITY SCREENING

A novel in vitro screening tool combines blood-brain barrier permeability and neuronal response testing in one assay to efficiently rank neurotherapeutic drug candidates.

Researchers at Purdue University have developed a physiologically relevant in vitro screening tool combining blood-brain barrier (BBB) permeability testing with subsequent neuronal response to evaluate the effects of permeation on observed neuroactivity in one assay. Clinical translation of neurotheraputics significantly lags behind the rapid increase in neurological disorders seen worldwide. One of the primary hurdles to neurotherapeutic development is the blood brain barrier (BBB). Others have developed in vitro assays to emulate the BBB; however, the result of these assays does not translate to real efficacy, because the assays do not incorporate downstream neuroactivity or associated neurotoxicity as the Purdue technology does. Preliminary tests of the Purdue technology revealed it correctly rank-orders compounds compared to known parameters. The technology is versatile and can be adapted to utilize multiple cell types. The technology promises to reduce the resources needed for ranking hit and lead candidate compounds in the development of new neurotheraputic agents.

Advantages

-Promises to reduce time and cost associated with pharmaceutical development

-Flexible system: adaptable to multiple cell types

-Increased translational efficiency

Potential Applications

Technology ID
2020-KNIP-68758

Category
Biotechnology & Life Sciences/Analytical & Diagnostic Instrumentation
Pharmaceuticals/Research Tools & Assays

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-Drug Discovery and Development

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