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Memorial Sloan Kettering
Cancer Center

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Cortical interneurons comprise a diverse class of cell types expressing the neurotransmitter GABA. Dysfunction of cortical interneurons has been implicated in neuropsychiatric diseases, including schizophrenia, autism and epilepsy. This novel protocol can yield synaptically active cortical interneurons *in vitro*, enabling physicians and researchers to model neuronal pathologies in psychiatric disorders. This will permit the screening and identification of therapeutic candidate compounds.

Advantages

This technology streamlines the existing protocol because it utilizes only three small molecules to generate CNS neurons. Induction conditions are well defined, cost effective, and easily replicable across multiple cell lines, making this a convenient and useful way of modeling human disease.

Market Opportunities

The exact neuropathology of many neurodegenerative and neuropsychiatric disorders is not clearly understood, in part because of the difficulties in modeling these disorders, and effective treatment options remain scarce. For example, even though 1 in 68 children are identified with autism spectrum disorder (ASD) and the total societal costs of caring for children with ASD were over \$9 billion in 2011, there are no current treatments or medications on the market. In the case of schizophrenia, with treatment and other costs estimated at over \$30 billion annually, there are a number of antipsychotic medications currently approved, yet these are associated with unpleasant, often debilitating side effects. By making it quicker, easier, and more cost-effective to produce cell lines needed to model neuronal pathologies in psychiatric disorders, this technology will facilitate research into potential therapeutics.

Areas of Application

Neurodegenerative and neuropsychiatric disorders: schizophrenia, autism, and epilepsy

Patent Information

U.S. National application PCT/US2014/034760 published (April 2016). National applications published in Australia, Israel and Japan.

National applications pending in Canada and Europe.

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Stage of Development

Ready to use

Indications

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Types

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