3D in-line blood brain barrier pharmacology testing platform

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**Contact information of lead PI
Country**

France

Title of project or programme

3D in-line blood brain barrier pharmacology testing platform

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ANR

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€ 441,924

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01/11/2015

Total duration of award in years

3

Keywords
Research Abstract

Neurological disorders represent a significant portion of the global disease burden as well as a large cost to society. Most, if not all, neurological disorders, including Alzheimer's disease (AD) are associated with a dysfunction of the blood-brain barrier (BBB), which restricts diffusion of compounds and is critical for maintaining homeostasis and proper neuronal function. Understanding BBB functions and modulation in disease conditions is crucial, however, the BBB is a particularly challenging type to model, as it requires complex interactions from multiple cell types. Although animal models are being used, species differences along with ethical considerations impede high-throughput experimentation necessary to facilitate drug discovery. Frustrated attempts to accurately model the BBB have resulted in withdrawal of 'Big Pharma'

from investing in BBB platforms. The solution to these problems is the development of a novel, physiologically relevant, predictive, in vitro model, integrated with continuous, non-invasive monitoring to allow accurate and dynamic assessment of the model under development. 3Bs is a radically different, technology-based approach to develop a 3D model of the BBB, employing techniques derived from tissue engineering, materials science and cell biology, to recreate the complex cellular interactions seen in vivo. The 3D model of the BBB is envisioned as a portable chip with in-line monitoring capabilities using cutting-edge organic electronic technology. The 3D model will be adaptable to laboratory situations in a first instance, using AD as a model system, but in future, amenable for the pharmaceutical industry for high throughput screening applications. This high risk but high yielding project will allow breakthroughs to be made in the study of all disorders of the central nervous system (CNS) and for therapeutic screening.

Further information available at:

Types:
Investments < €500k

Member States:
France

Diseases:
N/A

Years:
2016

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N/A

Database Tags:
N/A