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Australian startup Tessara Therapeutics partners with NETRI to design organ-on-chip models

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Collaborate on the development of next generation 3D brain-on-a-chip model



Australia-based startup Tessara Therapeutics and French firm NETRI have established a collaboration to develop a family of next generation organ-on-chip models for neurological disease.

The new models will combine Tessara's RealBrain 3D neural micro-tissues with NETRI's NeoBento microfluidic platform, thereby enabling investigation of normal and disease states in a high-throughput, multi-tissue interconnected architecture that incorporates 3D micro-tissues with heterogeneous cell populations and functional neural networks.

RealBrain micro-tissues combine high biological complexity in a model that is also scalable and reproducible. Automated production of RealBrain micro-tissues starts with encapsulation of human neural precursor cells in Tessara's proprietary biomaterials, followed by only 3 weeks of in vitro development in a single culture medium.

The resulting micro-tissues have intrinsic optical clarity and contain heterogenous populations of neurons and glia, with mature, functional neural networks supported by cell-secreted extracellular matrix. RealBrain models include the ArtiBrain model of normal brain tissue and the ADBrain model of Alzheimer's disease.

Based on an ongoing momentum of high adoption of alternative to animal models, NETRI has developed a highly disruptive approach using organs-on-chip technologies particularly suited for long-term culture of neuronal 3D organoids and for co-culture of neural and non-neural cells.