

Human neural organoids for drug testing and Neuroscience research

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NEURIX is a biotechnology company specialized in neurotoxicity testing and drug efficacy assessment. We provide a service platform and tissue manufacturer activity alternative to animal experimentation through the use of in vitro three dimensional neural models derived from human pluripotent stem cells. These are called Minibrain™.

The quality of our induced pluripotent stem cell and embryonic stem cell lines is strictly maintained by expansion and culture in Nutristem® HPSC media provided by Biological Industries. Consequently, our cell Minibrain™ can be customized and precisely controlled, thus ensuring robust and reliable results in line with human physiological conditions.

1) Our technology

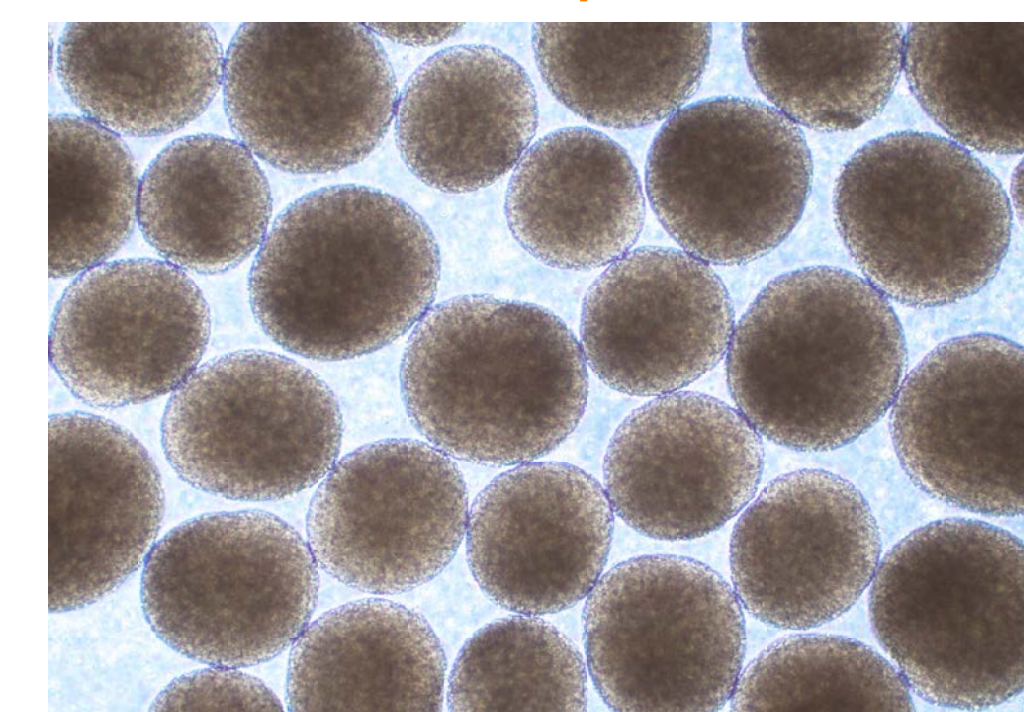
3-dimensional neural tissues derived from human pluripotent stem cells for drug testing.

Minibrain™



- Bigger size & easy to handle
- Virus spreading modeling
- Glioblastoma invasion model
- Polymer biocompatibility testing

Neurosphere

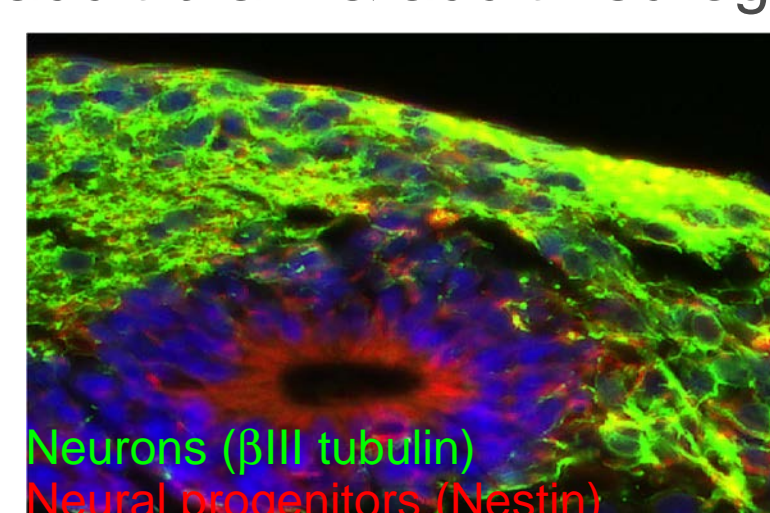


- High & medium throughput compatible (384 & 96 well plates)

2) Our offer to speed-up drug testing and neuroscience research

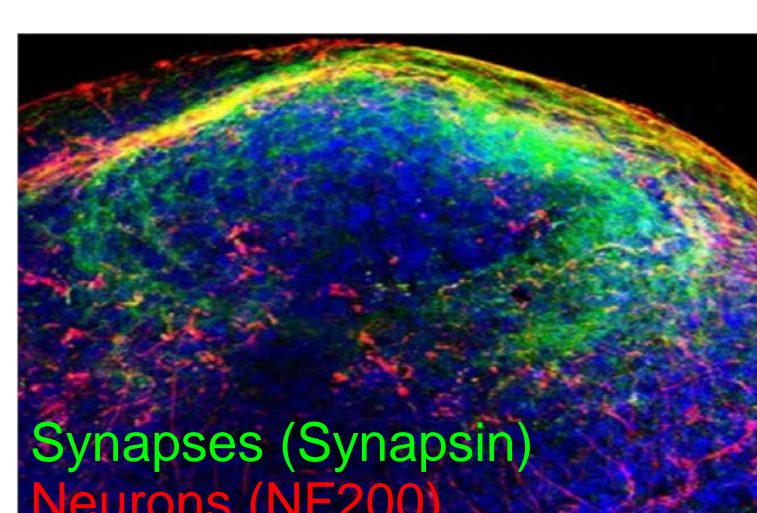
Our neural tissues

MATURE
Mimics adult brain & adult neurogenesis



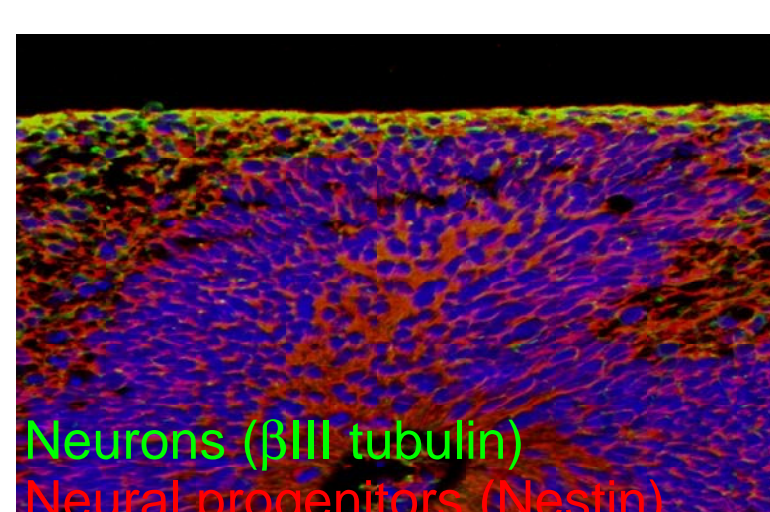
Source: Human pluripotent stem cells
Composition: Neurons, astrocytes oligodendrocyte progenitors, neural progenitors

NEURONS



Source: Luhmes neural precursor cells
Composition: Neurons (Dopaminergic)

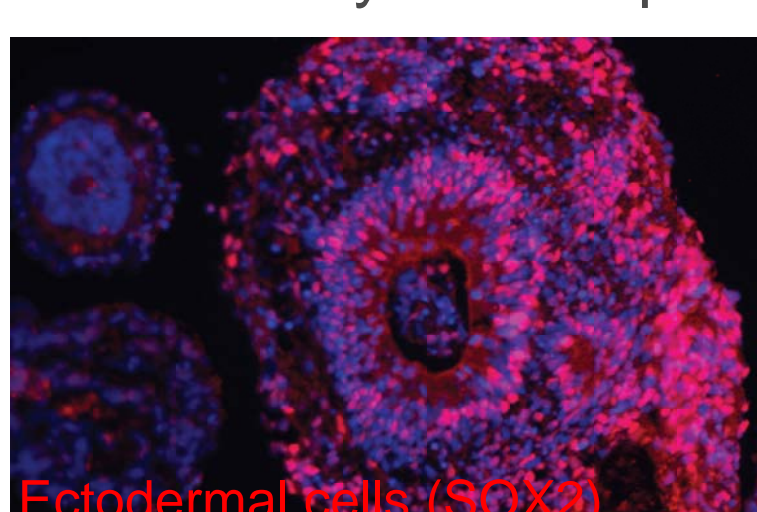
EARLY
Mimics fetal brain



Source: Human pluripotent stem cells
Composition: Neurons, neural progenitors

EMBRYOID

Mimics embryo development



Source: Human pluripotent stem cells
Composition: Ectodermal cells, endodermal cells, mesodermal cells

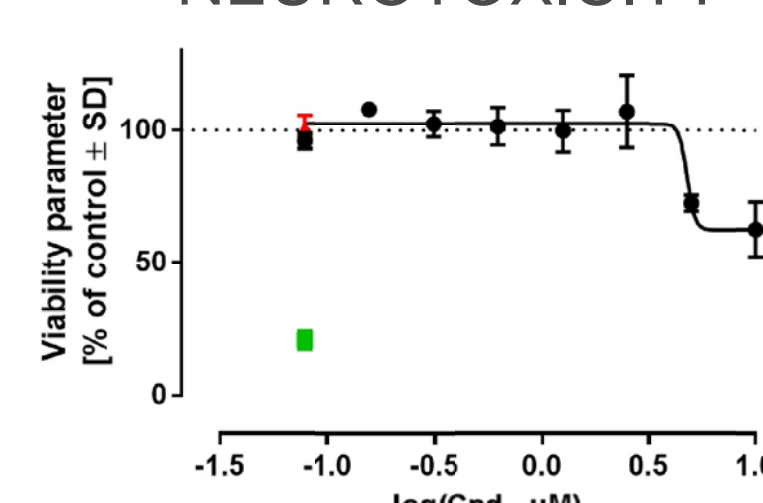
Our activities and services

a) Tissue manufacturing

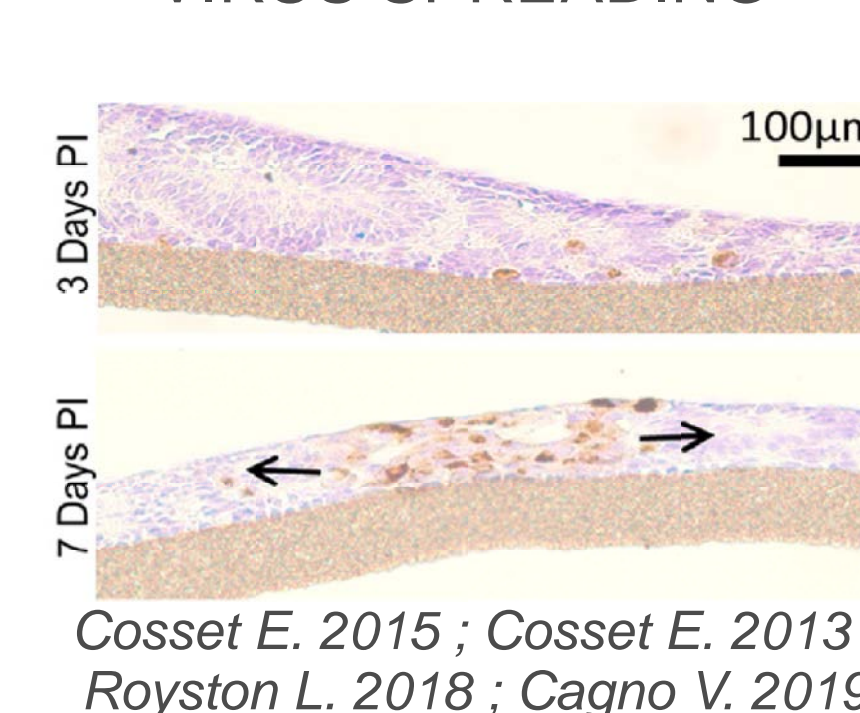
Shipment of Neurospheres and Minibrains for external use

b) In-house drug testing and research projects (CRO): acute or long term (1.5 months) exposure

CYTOTOXICITY & NEUROTOXICITY

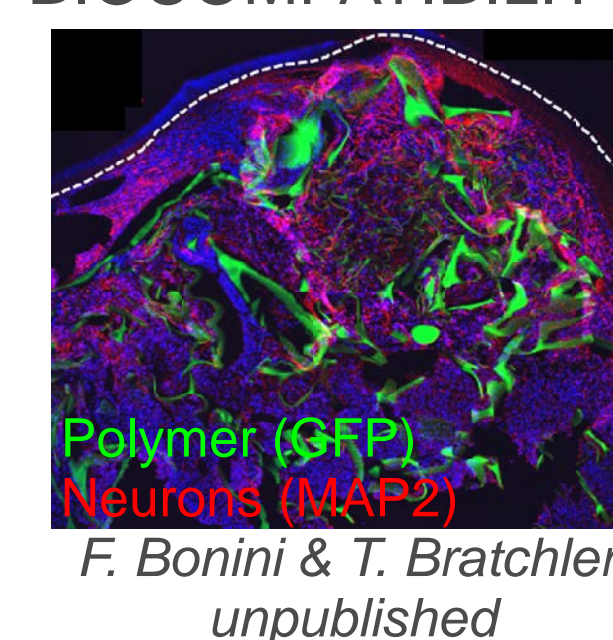


VIRUS SPREADING



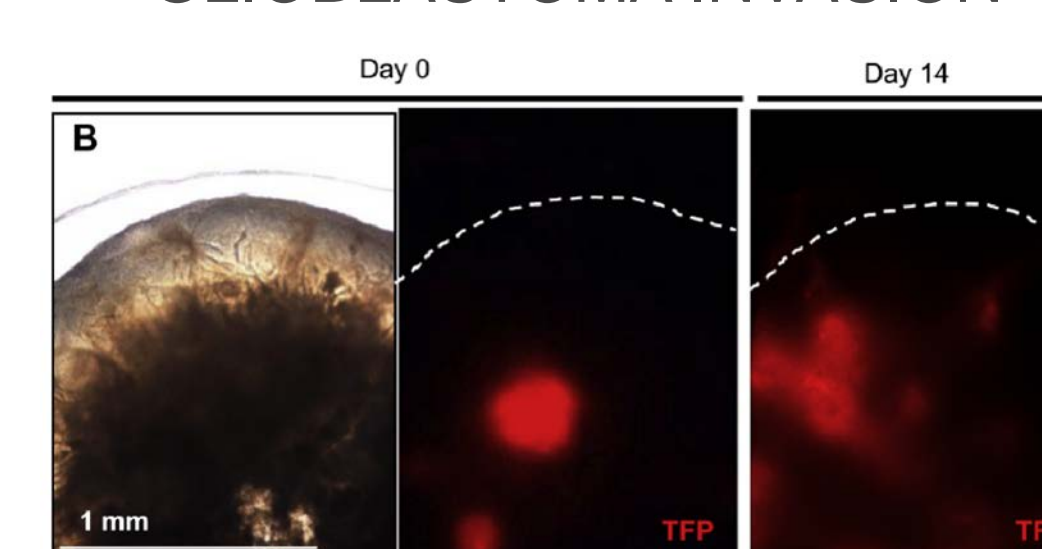
Cosset E. 2015 ; Cosset E. 2013 ; Royston L. 2018 ; Cagno V. 2019

POLYMER BIOCOMPATIBILITY



F. Borini & T. Bratchler, unpublished

GLIOBLASTOMA INVASION



Nayernia Z. et. Al. Biomaterials, 2013

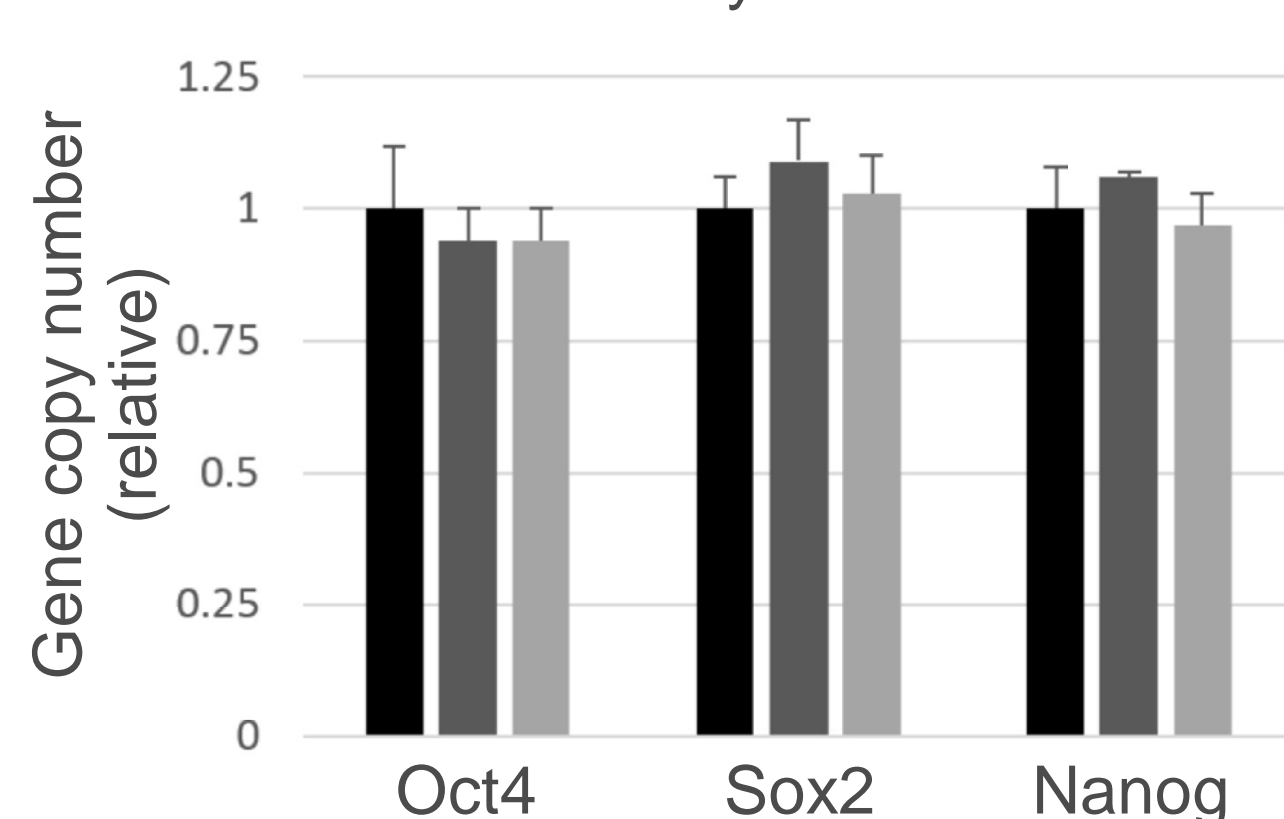
CUSTOM RESEARCH PROJECT

- Mitochondrial activity (O₂ / CO₂ measurements)
- Histology
- Proteomics
- Genomics
- Calcium imaging (under development)

3) High reproducibility with the Nutristem® media

High stability of our stem cells across passages

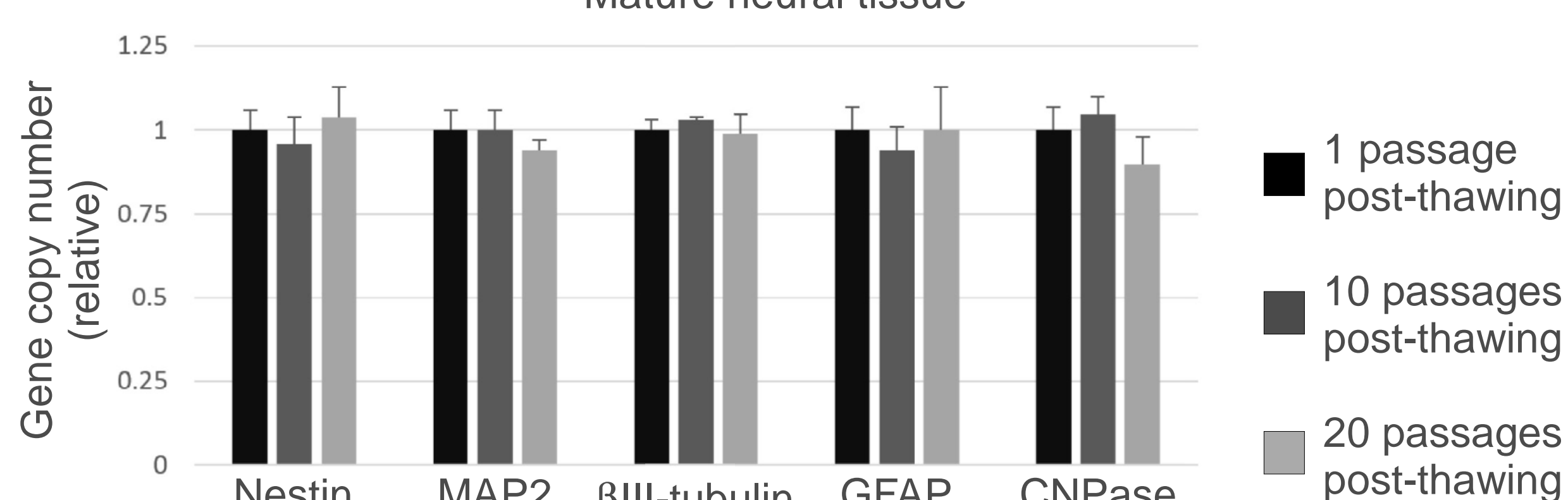
HS420 embryonic stem cells



The culture of our ES and IPS cells in the Nutristem® culture media preserves the stability and the pluripotency for at least 20 passages.

The quality of our stem cells reflects the low variability after differentiation in 3-dimensional neural tissue.

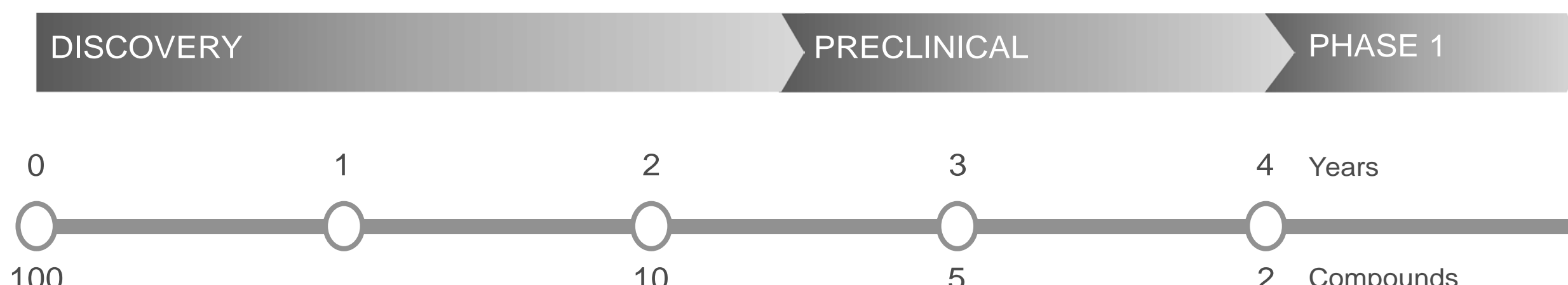
High reproducibility post-differentiation
Mature neural tissue



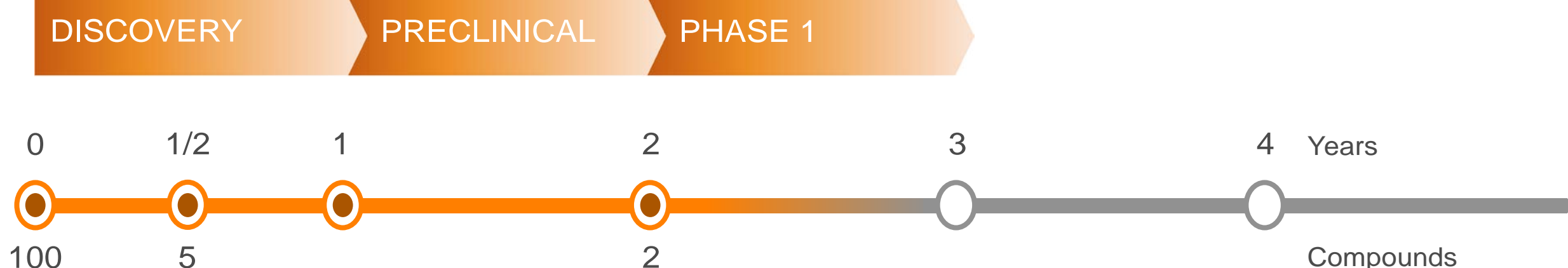
4) Accelerated drug development

3R REDUCED ANIMAL TESTING - DRUG SCREENING IN DISCOVERY AND PRECLINICAL PHASES

VALIDATED SCREENING
Including internal procedures and guidelines.
Including validation on animals



TRANSLATIONAL SCREENING USING MINIBRAIN & NEUROSPHERES
Neurix accelerates existent internal procedures through partnership.
This is done in parallel with in-house in-vitro and animal testing.



5) Example of success

Exemple package :

Toxicity testing on 14 compounds

14 Compounds

9 Compounds

5 Compounds

4 Compounds

Cytotoxicity testing on Neurons, 1 month exposure

Neurotoxicity testing on Neurons (synapsin reporter expression), 1 month exposure

Cytotoxicity testing on mature tissue, 1 month exposure