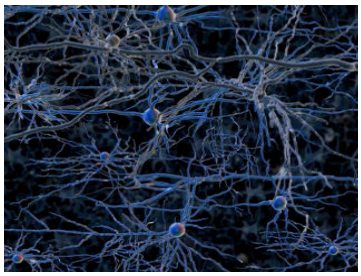
3D Human Neuronal Branching

Product Name	3D Human Neuronal Branching
Catalog Number	EP011
Product Format	6,12, and 24 well
Storage	37°C



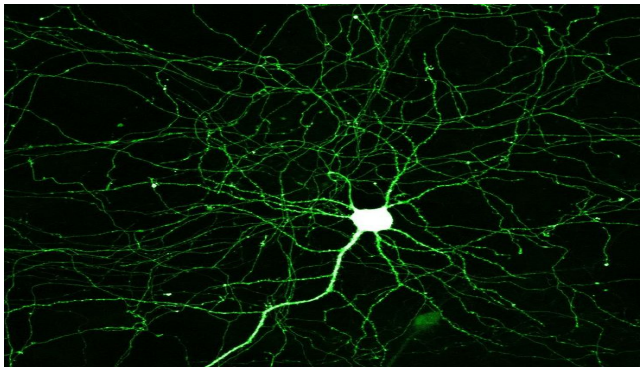
GENERAL INFORMATION

Our brains are full of fractals! In fact, they couldn't function if not for fractal geometry. The human brain comprises approximately 100 billion neurons. Amazingly, there are about 100 trillion synapses, or connections, among these brain cells. That's an average of 1000 connections for a given cell, though some neurons may only make a single connection, while others may have hundreds of thousands of synapses with cells all over the brain. The axons reach out to make synaptic connections with the dendrites of other neurons. It is the fractal branching pattern of the neuron's axons and dendrites that allows them to communicate with so many other cells. If neurons were shaped like cubes and neatly packed into the brain, one neuron could only connect with at most 6 other cells.

Our 3D Human Neuronal Branching possesses a cell body (soma), dendrites, and an axon. We do not use any Retinoic acid to help stimulate neuronal branching in this model.

This model can be used to study the following disease, but not limited to those applications:

1) Demyelination
2) Axonal degeneration
3) Multiple sclerosis
4) Alzheimer's disease
5) Nerve regeneration
6) HIV encephalitis
7) Parkinson's disease
8) Neuromyelitis Optica
9) Myasthenia gravis
10) Charcot-Marie-Tooth disease



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The 3D Human Neuronal Branching contains all of the materials necessary to perform multiple angiogenesis assays in a 24-well format. The kit is designed that the testing materials, i.e. compounds, conditioned media, or tissue explants, can be added into the system at any time, ranging from the onset of advanced Neuronal Branching. The resulting effect on tubule formation (tubular length, number of branches et al) can be monitored throughout the whole process under inverted fluorescence microscope.

Reagents and Materials Provided:

(1) 1 x vial of mixture of Human Brain Neurons and RFP-tagged supporting cells (-80°C or liquid N2)
(2) 1 x 24-well Alpha Coat Solution coated plate (Room temperature, for 2 months)
(3) 1 x 500ml of Endo-Growth Medium (4°C)

Protocols: Day 1

1. Pre warm Endo-Growth Medium to 37ºC in a water bath
2. Accurately pipette 24ml Endo-Growth Medium into a 50ml Falcon tube;
3. Rapidly thaw the vial of cryopreserved cells in a 37ºC water bath;
4. Transfer all cells gently into 24ml pre warmed Endo-growth medium;
5. Mix well the cells gently using a serological pipette;
6. Add 1.0ml of cell suspension to each well of the pre coated 24-well plate.
7. Make sure the cells are evenly dispersed in the wells.
8. Place the plate in an incubator (37ºC, 5% CO2 and humidified).

Day 2

9. Take the plate from the incubator and examine cells under inverted fluorescence microscopy (Human Brain Neurons should sparsely and evenly distributed among RFP positive human supporting cells).
10. Wash the cells one with 2 ml of PBS
11. Add 2.0ml of fresh Endo-Growth medium (control) or Experimental media (Endo-Growth medium, plus pro- or anti-angiogenic regents according to customer's needs).
12. Place the plate back into the incubator. Day 4, 6, 8, 10, 12, and 14…… 13. Replace the medium every 2 days until the end of the experiments