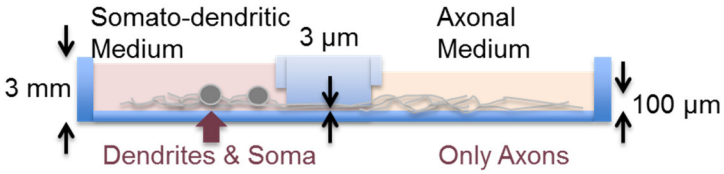
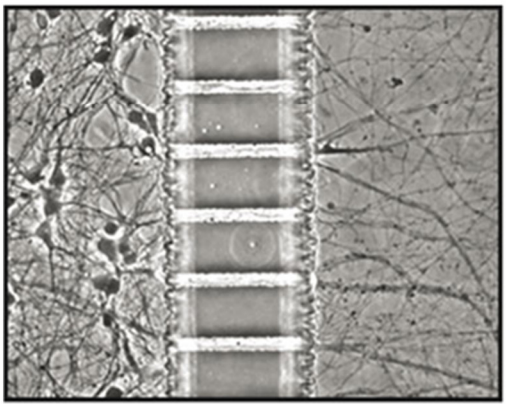
**SynAging Product Sheet 2**

# Neurodegeneration and Rescue Model in a Microfluidic Device

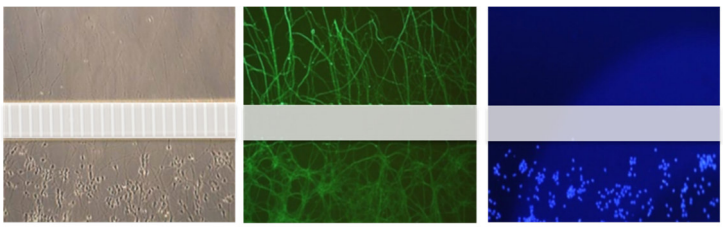
**Neurons are grown in a microfluidic chamber** as described in Taylor *et al.* (Nature Methods, 2005, 2:599–605) separating soma and dendrites from axons. Both compartments can be treated independently, without interchange of media. This permits investigation of disease mechanisms and compound rescue.



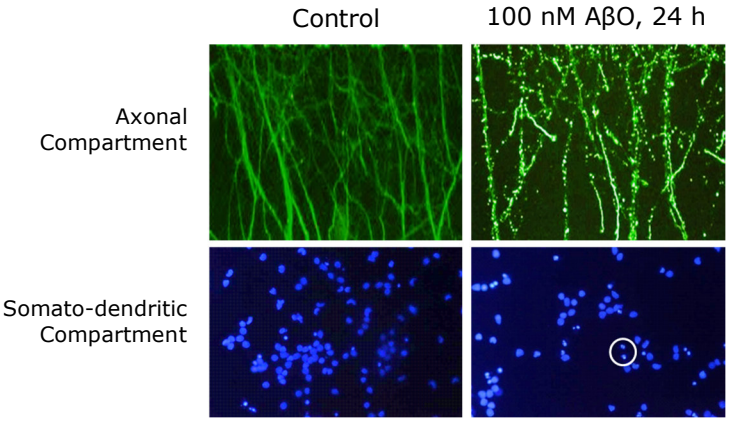
**The following neurons are available for testing in the microfluidic device at SynAging:**

- Hippocampal neurons (rat / mouse)
- Cortical neurons (rat / mouse)
- Striatal neurons (rat / mouse)



Phase Contrast Micrograph | β-Tubulin Labelling | Nuclear DAPI Staining

**Aβ oligomers (AβO)** are used to induce neurodegeneration, as in Alzheimer's disease. For example, AβO can be exclusively added to the axonal compartment and the effects investigated. Within minutes, changes in the axonal compartment can be observed. Within 24h, the neurodegeneration spreads to the soma, inducing apoptosis, which is visualized by DAPI staining:




**Microfluidic device utility:**

- Strict separation of axonal and somato-dendritic media
- AβOs induce axonal and synaptic degeneration upon contact
- Retrograde neuronal signaling results in nuclear apoptosis
- Clear dose-dependent effects of AβO

**Applications:**

- **Insights into drug candidate mode-of-action**
- **Investigate compound activity following AβO interaction with axons or after retrograde signaling to soma and nucleus**
- **Provide insights regarding target location and engagement**
- **Time course studies of quantifiable phenotypes**
- **Pre-incubation of axonal or somato-dendritic compartments with drug candidates before AβO-induced neurodegeneration, to investigate neuronal protection rather than direct AβO competition**

**SynAging SAS:** *Your partner in naturally induced phenotypic models accelerating drug discovery for proteopathic CNS diseases*


SynAging SAS
24-30 Rue Lionnois
54000 Nancy
France

President:
Violette Koziel
CEO/CSO:
Thierry Pillot

Contact for Europe & USA:
Dr. Andreas Köpke
andreas.kopke@synaging.com
Tel : +49 6136 957 3000

IRET N°: 520 189 838 00011
VAT N°: FR61520189838


Au coeur de la mémoire

www.synaging.com