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Education

Year

1980 BS in Pharmacy

1981 MA in Pharmacology

1983 PhD in Pharmacology

1983 Postdoctoral Fellow at Mount Sinai School of Medicine NY

Research Interests

We are developing synthetic small molecules, with neuroprotective and neurogenic properties, shown to interact and signal through neurotrophin receptors (microneurotrophins): the efficacy of synthetic microneurotrophins is tested in animal models of neurodegenerative disorders and brain trauma. We also develop 3D micro/nano scaffolds of various materials for hosting neurons, oligodendrocytes, astrocytes and neural stem cells, as an advantageous platform to study the biology and chemistry of neurodifferentiation, neuritogenesis and synaptogenesis in neurodegenerative diseases *ex vivo*. The 3D neuroscaffolds are tested in two applications: i) as 3D neuroimplants, for reversing spinal cord injury, ii) as 3D neurobiosensors for screening for new neurogenic and neuroprotective compounds in therapeutics of neurodegeneration.

Funding

'EuroNeurotrophins', ITN/Horizon2020 Programme, European Union, 2018-2021

'MicroNeurotrophins in Alzheimer's Disease', Kainotomo Programme, GSRT, 2018-2021

Selected Publications

Pediaditakis I, Efstathopoulos P, Prousis KC, Zervou M, Arévalo JC, Alexaki VI, Nikolettou V, Karagianni E, Potamitis C, Tavernarakis N, Chavakis T, Margioris AN, Venihaki M, Calogeropoulou T, Charalampopoulos I, Gravanis A. (2016) Selective and differential interactions of BNN27, a novel C17-spiroepoxy steroid derivative, with TrkA receptors, regulating neuronal survival and differentiation. *Neuropharmacology* 11:266-282.

Simitzi C, Efstathopoulos P, Kourgiantaki A, Ranella A, Charalampopoulos I, Fotakis C, Athanassakis I, Stratakis E, Gravanis A. (2015) Laser fabricated discontinuous anisotropic microconical substrates as a new model scaffold to control the directionality of neuronal network outgrowth. *Biomaterials* 67:115-128.

Lazaridis I, Charalampopoulos I, Alexaki VI, Avlonitis N, Pediaditakis I, Efstathopoulos P, Calogeropoulou T, Castanas E, Gravanis A. (2011) Neurosteroids interacts with nerve growth factor (NGF) receptors, preventing neuronal apoptosis. *PLoS Biol* 9:e1001051.

Calogeropoulou T, Avlonitis N, Minas V, Pantou A, Alexi X, Charalampopoulos I, Zervou M, Vergou V, Lazaridis I, Alexis MN, Gravanis A. (2009) Novel dehydroepiandrosterone derivatives with anti-apoptotic, neuroprotective activity. *J Med Chem* 52:6569-6587.

Charalampopoulos I, Tsatsanis C, Dermizaki E, Alexaki I, Castanas E, Margioris AN, Gravanis A. (2004) Dehydroepiandrosterone and allopregnanolone protect sympathoadrenal cells against apoptosis, via Bcl-2 antiapoptotic proteins. *PNAS* 101:8209-8214.