

BIOGRAPHICAL SKETCH

SPIROS EFTHIMIOPOULOS

2021

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**Biographical Sketch-Spiros Efthimiopoulos, Professor, Department of Biology,
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DATE AND PLACE OF BIRTH:

01-01-63, Antirrion, Etoloakarnanias, Greece

PROFESSIONAL EXPERIENCE

- 2013-present:** **Professor**, National and Kapodistrian University of Athens, Department of Biology
- 2007-2013:** **Associate Professor**, National and Kapodistrian University of Athens, Department of Biology
- 2001-2007:** **Assistant Professor**, National and Kapodistrian University of Athens, Department of Biology
- 1996-present:** **Adjunct Assistant Professor**, Mount Sinai School of Medicine, Dept. of Psychiatry.
- 1994-1996:** **Res. Assistant Professor**, Mount Sinai School of Medicine, Dept. of Psychiatry.
- 1991-1994:** **Visiting Scientist**, Mount Sinai School of Medicine, Dept. of Psychiatry.

EDUCATION

- 1986-1991:** **Ph.D. Neurobiology**, University of Patras, Department of Biology.
- 1981-1986:** **B.S. Biology**, University of Patras, Department of Biology.

AWARDS Hellenic Scholarship Foundation, Fellowship, 1986-1989.

MEMBERSHIPS

1. Co-founder member of the Greek Society for Neurosciences.
2. Member of the Hellenic Society for Biological Sciences
3. Member of the Federation of European Neuroscience Societies
4. Member of the Dana Alliance for Brain

PUBLICATIONS

Ph.D. Thesis project

The Biochemistry of the synapse: In-Vitro study of the systems of transport, release and metabolism of catecholamines in catecholaminergic and non-catecholaminergic

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regions of the CNS.” Laboratory of Animal and Human Physiology, Department of Biology, University of Patras.

Peer-review publications

1. Chatzistavraki M, Papazafiri P, **Efthimiopoulos S.** (2020). Amyloid precursor protein regulates depolarization-induced calcium-mediated synaptic signaling in brain slices. *J Alzheimers Dis.* 76(3):1121-1133.
2. Gourgouli K, Gourgouli I, Tsaousis G, Spai S, Niskopoulou M, **Efthimiopoulos S**, Lamnissou K. (2020). Investigation of genetic base in the treatment of age-related macular degeneration. *Int Ophthalmol.* 40(4):985-997.
3. Thysiadis S, Katsamakas S, Mpousis S, Avramidis N, **Efthimiopoulos S**, Sarli V. (2018). Design and synthesis of gallocyanine inhibitors of DKK1/LRP6 interactions for treatment of Alzheimer's disease. *Bioorg Chem.* 80:230-244.
4. Matis I, Delivoria DC, Mavroidi B, Papaevgeniou N, Panoutsou S, Bellou S, Papavasileiou KD, Linardaki Z, Stavropoulou AV, Vekrellis K, Boukos N, Kolisis FN, Gonos ES, Margarity M, Papadopoulos MG, **Efthimiopoulos S**, Pelecanou M, Chondrogianni N, Skretas G (2017). An integrated and generalizable bacterial discovery platform for chemical 1 rescuers of disease-associated protein misfolding. *Nature Biomedical Engineering*1(10):838-852.
5. Mavroeidi P, Mavrofydi O, Pappa E, Panopoulou M, Papazafiri P, Haralambous S, **Efthimiopoulos S.** (2017). Oxygen and glucose deprivation alter synaptic distribution of tau protein. **Journal of Alzheimer's Disease** 60(2):593-604
6. Stavropoulou AV, Mavrofydi O, Saftig P, **Efthimiopoulos S.** (2017). Serum starvation induces BACE1 processing and secretion. **Curr Alzheimer Res** 14(4):453-459.
7. Thysiadis S, Mpousis S, Avramidis N, Katsamakas S, Balomenos A, Remelli R, **Efthimiopoulos S**, Sarli V. (2016). Discovery of novel phenoxazinone derivatives as DKK1/LRP6 interaction inhibitors: Synthesis, biological evaluation and structure-activity relationships. **Bioorg Med Chem.** 2016 24(5):1014-22
8. Mpousis S, Thysiadis S, Avramidis N, Katsamakas S, **Efthimiopoulos S**, Sarli V. (2016). Synthesis and evaluation of gallocyanine dyes as potential agents for the treatment of Alzheimer's disease and related neurodegenerative tauopathies. **Eur J Med Chem.** 2016 Jan 27;108:28-38,

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9. Kyratzi E, Liakos A, Papadogiannaki G, **Efthimiopoulos S.** (2015). Structural and Regulatory Elements of the Interaction between Amyloid- β Protein Precursor and Homer3. **J Alzheimers Dis.** 2015 45(1):147-57.
10. Kyratzi E. & Efthimiopoulos S. (2014) Calcium regulates the interaction of Amyloid Precursor Protein with Homer3 protein. **Neurobiology of Aging 35: 2053-2063.**
11. Tsachaki M., Slavi N., Fotinopoulou A., Zarkou V., Ghiso J., **Efthimiopoulos S.,** (2013). BRI2 interacts with BACE1 and reduces its cellular levels by reducing the levels of BACE1 mRNA and inducing its degradation through the lysosomal pathway. **Current Alzheimer's Disease Research** 10(5):532-541.
12. Chatzistavraki M., Kyratzi E., Fotinopoulou A., Papazafiri Π., **Efthimiopoulos S.,** (2013) Downregulation of APP enhances both calcium content of endoplasmic reticulum and acidic stores and the dynamics of store operated calcium channel activity. **Journal of Alzheimer's Disease** 34(2):407-15.
13. Papandreou MA., Tsachaki M., **Efthimiopoulos S.,** Cordopatis P., Lamari FN., Margarity M. (2011). Cell-Line Specific Protection by Berry Polyphenols Against Hydrogen Peroxide Challenge and Lack of Effect on Metabolism of Amyloid Precursor Protein. **Phytotherapy Research** 26(7):956-63.
14. Papandreou MA., Tsachaki M., **Efthimiopoulos S.,** Cordopatis P., Lamari FN., Margarity M. (2011). Memory enhancing effects of saffron in aged mice are correlated with antioxidant protection. **Behav Brain Res.** 219(2):197-204.
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16. Tsachaki M., Ghiso J., Rostagno A., **Efthimiopoulos S.** (2010). BRI2 homodimerizes with the involvement of intermolecular disulfide bonds. **Neurobiol Aging** 31(1):88-98.
17. Parisiadou L., Bethani I., Michaki V., Krousti K., Rapti G., **Efthimiopoulos S.** (2008). Homer2 and Homer3 interact with amyloid precursor protein and inhibit A β production. **Neurobiol of Disease.** 30:353-364.
18. Talamagas A.A., **Efthimiopoulos S.,** Tsilibary E.C., Figueiredo-Pereira M.E., and Tzinia AK. (2007). A β (1-40)-induced secretion of matrix metalloproteinase-9 results in sAPP α release by association with cell surface APP. **Neurobiology of Disease** 28:304-315.

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20. Parisiadou L. and **Efthimiopoulos S. (2007)**. Expression of mDab1 promotes the stability and processing of Amyloid Precursor Protein and this effect is counteracted by X11 α . **Neurobiol of Aging** 28:377-388.
21. Papandreou MA., Kanakis CD., Polissiou MG., **Efthimiopoulos S.**, Cordopatis P., Margariti M., Lamari FN., (2006). Inhibitory activity on amyloid-beta aggregation and antioxidant properties of Crocus sativus stigmas extract and its crocin constituents. **J Agric Food Chem.** 54(23):8762-8.
22. Fassa A., Mehta P., **Efthimiopoulos S.**, (2005). Notch 1 interacts with the Amyloid Precursor Protein in a Numb-independent manner. **J Neurosci Res** 82:214-224.
23. Fotinopoulou A., Tsachaki M., Vlavaki M., Pouloupoulos A., Rostagno A., Frangione B., Ghiso J., **Efthimiopoulos S.**, (2005). BRI2 Interacts with Amyloid Precursor Protein (APP) and Regulates Amyloid β (A β) Production. **J Biol Chem** 280:30768-30772.
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26. Georgakopoulos A., Marambaud P., **Efthimiopoulos S.**, Shioi J., Cui W., Li D., Schutte M., Gordon R., Holstein GR., Martinelli G., Mehta P., Friedrich Jr VL., Robakis NK., (1999), Presenilin 1 forms complexes with the cadherin/catenin cell-cell adhesion system and is recruited to intercellular and synaptic contacts. **Mol. Cell** 4:893-902.
27. Dowjat WK., Wisniewski T., **Efthimiopoulos S.**, Wisniewski HM., (1999). Inhibition of neurite outgrowth by familial Alzheimer's disease-linked presenilin-1 mutations. **Neuroscience Letters** 267:141-144.
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29. **Efthimiopoulos S.**, Floor E., Georgakopoulos A., Shioi J., Cui W., Yasothornsrikul S., Hook VYH., Wisniewski T., Buee L., Robakis NK., (1998). Enrichment of Presenilin 1 peptides in neuronal large dense core and somatodendritic clathrin coated vesicles. **J. Neurochem.** 71:2365-2372.
30. Pereira M.F., **Efthimiopoulos S.**, Tezapsidis N., Buku A., Ghiso G., Mehta P., Robakis N.K. (1998): Distinct secretases, a cysteine and a serine protease generate the C-termini of A β 1-40 and A β 1-42, respectively. **J. Neurochem.** 72:1417-1422.
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33. Wu A., Pangalos M., **Efthimiopoulos S.**, Shioi J., Robakis NK., (1997). Appican expression induces morphological changes in C6 glioma cells and promotes adhesion of neural cells to the extracellular matrix. **J. Neurosci.** 17:4987-4993.
34. **Efthimiopoulos S.**, Punj S., Manolopoulos V., Pangalos M., Refolo LM., Robakis N.K., (1996). Intracellular cAMP inhibits constitutive and phorbol ester stimulated secretory cleavage of APP. **J. Neurochem.** 67:872-875.
35. Pappolla M.A., Sos M., Bick R.J., Omar R.A., Hickson-Bick D.L.M., Reiter R.J., **Efthimiopoulos S.**, Robakis N.K., (1997). Melatonin prevents death of neuroblastoma cells exposed to the Alzheimer Amyloid peptide. **J. Neuroscience** 17:1683-1690.
36. Fagarasan M.O., **Efthimiopoulos S.**, (1996). Mechanism of amyloid β -peptide (1-42) toxicity in PC12 cells. **Molecular Psychiatry** 1:398-403. **5-year IF: 13,204**

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37. Elder GA., Tezapsidis N., Carter J., Shioi J., Bouras C., Li D., Johnston J.M., **Efthimiopoulos S.**, Friedrich Jr VL., Robakis NK., (1996). Identification and Neuron specific expression of the S182/presenilin 1 protein in human and rodent brains. **J. Neurosci. Res.** 45: 308-320.
38. **Efthimiopoulos S.**, Vassilacopoulou D., Tezapsidis N., Ripellino J.A., Robakis N.K., (1996). Cholinergic agonists stimulate secretion of soluble full length APP from neuroendocrine cells. **Proc. Natl. Acad. Sci. USA** 93:8046-8050.
39. Pangalos M., **Efthimiopoulos S.**, Shioi J., Robakis NK., (1995). The chondroitin sulfate attachment site of appican is formed by splicing out exon 15 of the APP gene. **J. Biol. Chem.** 270:10388-10391.
40. Refolo LM., Sambamurti L., **Efthimiopoulos S.**, Pappolla M., Robakis NK., (1995). Evidence that secretase cleavage of cell surface Alzheimer Amyloid Precursor occurs after normal endocytic internalization. **J. Neurosci. Res.** 40:694-706.
41. Pappola M.A., Sambamurti K., **Efthimiopoulos S.**, Refolo L.M., Omar R.A., Robakis N.K., (1995). Heat-shock induces abnormalities in the cellular distribution of APP and APP fusion proteins. **Neurosci. Lett.** 192:105-108.
42. **Efthimiopoulos S.**, Felsenstein K.M., Sambamurti K., Robakis N.K., Refolo L.M., (1994). Study of the phorbol ester effect on Alzheimer's Amyloid Precursor processing: Sequence requirements, and involvement of a cholera toxin sensitive protein. **J. Neurosci. Res.** 38: 81-90.
43. Shioi J., Refolo L.M., **Efthimiopoulos S.**, Robakis N.K. (1993). Chondroitin Sulfate proteoglycan Form of Cellular and Cell Surface Alzheimer Amyloid Precursor. **Neurosci. Lett.** 154:121-124.
44. **Efthimiopoulos S.**, Giompres P., Valkana T., (1991). Kinetics of Dopamine and Noradrenaline Transport in Synaptosomes from Cerebellum, Striatum and Frontal Cortex of Normal and Reeler mice. **J. Neurosci. Res.** 29:510-519.

Review articles

1. Tsachaki M., Ghiso J., Efthimiopoulos S. (2008). BRI2 as a central protein involved in neurodegeneration. *Biotechnol J.* 3(12):1548-54.
2. Parisiadou L, Fassa A, Fotinopoulou A, Bethani I, **Efthimiopoulos S**, (2004). Presenilin 1 and Cadherins: Stabilization of Cell-Cell Adhesion and

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Proteolysis-Dependent Regulation of Transcription. **Neurodegenerative Diseases** 1:184-191.

3. Gonos ES, Agrafiotis D, Dontas AS, **Efthimiopoulos S**, Galaris D, Karamanos NK, Kletsas D, Kolettas E, Panayotou G, Pratsinis H, Sekeri-Pataryas KE, Simoes D, Sourlingas TG, Stathakos D, Stratigos AJ, Tavernarakis N, Trougkos IP, Tsiganos CP, Vynios DH. 2002 Ageing research in Greece. **Exp Gerontol.** 37(6):735-47.
4. Georgakopoulos A, Marambaud P, Friedrich VL Jr, Shioi J, **Efthimiopoulos S**, Robakis NK (2000). Presenilin-1: a component of synaptic and endothelial adherens junctions. **Ann NY Acad Sci** 920:209-14.
5. Robakis N.K., **Efthimiopoulos S.**, (1999). Familial Alzheimer Disease: Changes in A β production may indicate a disturbance in protein transport or function caused by pleiotropic effects of FAD mutations. **Neurobiology of Aging** 20:81-83.
6. Pangalos M.N., Shioi J., **Efthimiopoulos S.**, Wu A., Robakis N.K., (1996). Characterization of the chondroitin sulfate proteoglycan form of the Alzheimer Amyloid Precursor protein, Appican. **Neurodegeneration** 5:445-451.
7. Robakis N., Vassilacopoulou D., **Efthimiopoulos S.**, Shioi J., (1993). Cellular Processing and Proteoglycan Form of APP. **Ann. New York Acad. Sci.** 695:132-138.

Book chapters

1. Tsachaki M., Fotinopoulou A., Vlavaki M., Rostagno A., Frangione B., Ghiso J., and Efthimiopoulos S. (2007) Neurodegenerative diseases: Similarities in pathology suggest common molecular mechanism leading to neuronal death. Proceeding of the Neurobiology Today Symposium. Editors: Sabera Ruzdijic and Selma Kanazir, Belgrade, Serbia.
2. Efthimiopoulos S, (2005). Molecular basis of dementia of Alzheimer type. Pages: 53-64. Dementia: Medical and Social Chaledge. University Studio Press A.E. Magda Tsolaki and Aristidis Kazis (in Greek).
3. **Efthimiopoulos S.**, Georgakopoulos A., Floor E., Shioi J., Cui W., Wiesniewski T., Robakis NK., (1999). Enrichment of presenilin 1 peptides in the membranes of neuronal vesicles. Implications for Alzheimer's disease. In: Research Advances in Alzheimers Disease and Related Disorders pp 201-212. Sixth International Conference on Alzheimer's Disease and Related Disorders, 17-23 July, 1998, Amsterdam, Holland. (Invited).

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4. Pappolla M.A., Sos M., Bick R.J., Omar R.A., Hickson-Bick D.L.M., Reiter R.J., **Efthimiopoulos S.**, Sambamurti K., Robakis N.K., (1997). Oxidative damage and cell death induced by an amyloid peptide fragment is completely prevented by melatonin. *Research Advances in Alzheimers Disease and Related Disorders*.
5. Robakis N.N., Hook V.Y.H., Shioi J., Vassilakopoulou D., Ripellino J.A., **Efthimiopoulos S.**, Refolo L.M., Pangalos M.N., (1995). Biological function and processing of APP. In: *Research Advances in Alzheimer's Disease and Related Disorders*. K. Iqbal, J.A. Mortimer, B. Winblad and H.M. Wisniewski Eds. John Wiley and Sons Ltd.

Translations of educational text book chapters

1. Translation of the chapter "Excitable Tissues, Nervous Systems and Muscles" of the book "Environmental Animal Physiology" by Pat Willmer, Graham Stone and Ian Johnstone. This book is proposed for the students of the Department of Biology who choose the subject "Comparative Animal Physiology".
2. Translation of the chapter "The Peripheral Nervous System, Afferent Pathway, Special Senses" of the book "Introduction to Human Physiology" by Laurelee Sherwood. This book is proposed for the students of the Department of Biology who choose the course "Animal and Human Physiology".