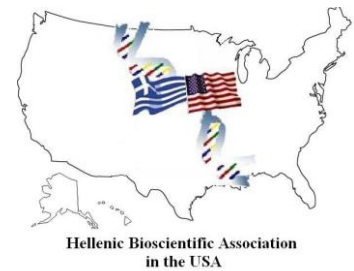




Alexandros Kokkosis



HBA-USA Election Board of Directors 2025-2027

Professional profile (Expertise, degrees, current position, previous positions)

SUMMARY

Postdoctoral fellow in Regeneron Pharmaceuticals focusing on age-related memory loss and memory enhancing mechanisms. My research expertise focuses on neuroscience, pharmacology, neuroimmunology and cognitive science. Proficient in a variety of molecular and cellular techniques in animal and *in vitro* models, surgical procedures, behavioral testing, and microscopy. Extensive research on neuroglial interactions, microfluidic systems (brain on chip technology) and neural stem cell technologies. Significant project management experience of collaborative projects in an industrial and clinical environment, with an advanced certificate in biomedical and clinical research. Substantial management skills developed by supervising research projects in academia and industry, training lab personnel, member and chair of several steering committees and leading public outreach efforts.

EDUCATION

- 08/2015 – 08/2021: Stony Brook University, Stony Brook, NY, USA**
Ph.D. in Molecular & Cellular Pharmacology
Dissertation: Chronic Stress Induces Microglial-Mediated Inflammatory Responses and Compromises the Neuronal and Oligodendroglial Homeostasis Leading to Depression.
Mentor: Dr. Stella Tsirka
Advanced Certificate Program: *Scholar in Biomedical Sciences (SBMS)*, Stony Brook University 2018-2019.
- 08/2015 – 08/2017: Stony Brook University, Stony Brook, NY, USA**
M.Sc. in Biomedical Sciences. Specialization: Molecular & Cellular Pharmacology
GPA: 3.93 Distinction: Top score in program
- 10/2012 – 06/2015: University of Patras, Patras, Greece**
M.Sc. in Biological Technology. Specialization: Neurobiology
GPA: 4 (General Grade: 9.88/10; Excellent with Honors). Distinction: Top score in program
- 12/2007 – 03/2012: University of Patras, Patras, Greece**
B.Sc. in Biology
GPA: 3.3 (General Grade: 7.71/10)
- 10/2010 – 06/2015: National Conservatory of Greece, Athens, Greece**
B.A. in Vocal Performance-Baritone
General Grade: 10/10 (Excellent with Honors; GPA: 4), Distinction: 2nd National award prize
- 09/2007 – 07/2014: Conservatory of Patras, Patras, Greece**
B.A. in Musicology & Composition-Special Harmony/Counterpoint Degrees
General Grade: 10/10 (Excellent with Honors; GPA: 4)

POSITIONS & EMPLOYMENT

- 09/2021 – Today: Postdoctoral Fellow – Velocigene-Human Systems, Regeneron Pharmaceuticals – Mentor: Elias Pavlopoulos**
- 08/2015 – 08/2021: Graduate Research Assistant – Dept of Pharmacological Sciences, Stony Brook University – Mentor: Stella Tsirka**
- 09/2012 – 06/2015: Graduate Research Assistant – Dept of Biology, University of Patras – Margarity & Kypreos Labs**

Scientific profile (Research interests, publication record, distinctions & awards)

RESEARCH EXPERIENCE

- 09/2021 – Today: Postdoctoral Fellow – Velocigene-Human Systems Group, Regeneron Pharmaceuticals – Mentor: Elias Pavlopoulos**
- Investigate age-related memory decline and memory enhancing mechanisms.
 - Examine positive regulators of synaptic plasticity and memory in age-related cognitive decline
- 08/2015 – 08/2021: Graduate Research Assistant – Dept of Pharmacological Sciences, Stony Brook University – Mentor: Stella Tsirka**
- 1) Cellular & molecular mechanisms mediated by glial cells in chronic stress-induced depression.**
- Characterized the microglial-mediated inflammatory mechanisms in a depression mouse model.
 - Elucidated the inflammatory effects upon oligodendroglial progeny and neuronal dysfunction in a depression mouse model.
 - Introduced a novel hypothesis for existence of immune oligodendrocytes in major depressive disorder (MDD).
 - Two first-author publications in *Nature Molecular Psychiatry* 27 (6), 2833-2848 (2022), *Biological Psychiatry* (2022) and two supplement papers published in *The FASEB Journal, Volume 34* (2020), *The FASEB Journal, Issue S1 & Volume 33* (2019).

2) Preclinical and clinical anti-depressant studies in collaboration with the psychiatry department at Stony Brook Hospital.
- PET study (TSPO) and anti-inflammatory treatment (Celecoxib) in MDD patients and animal models of depression.

- Study was awarded a \$3.5 million NIMH grant: https://neuro.stonybrookmedicine.edu/RaminParsey_NIH_Grant_Depression_Imaging

3) Neural Stem Cell (NSC) signaling (Wnt signaling) responses during homeostasis and after demyelinating injury.

- Performed AAV stereotaxic injections in the subventricular zone with Wnt5a and NICD signaling modulators.

- Investigated the Wnt-dependent Cdc42 activity in tissue repair (electron microscopy), after a lysolecithin demyelination injury.

- Studied the NSC activation, and lineage progression (neurosphere cultures).

- Co-authored and published results in *Nature Communications* 2018, 9:36.

4) Characterize the inflammatory effects on cerebrovascular homeostasis during major depressive disorder.

- Investigated the effects of chronic stress in endothelial dysfunction on a depression mouse model.

- Examined the correlation of depression and cerebrovascular deficits through *in vivo* and *in vitro* approaches.

- Study was awarded with a *Predoctoral Fellowship by American Heart Association (2018-2020)*.

09/2012 – 06/2015: Graduate Research Assistant – Depts of Biology & Medicine, University of Patras, Greece – Margarity & Kypreos Labs

Investigate the neurotransmitter, metabolic and behavioral dysregulation in mouse model of Diabetes Type I Neuropathy.

- Brain-region specific biochemical analysis on Cholinergic and Dopaminergic signaling.

- Assessed glycemic profile of mice and brain-region specific biochemical analysis of oxidant and antioxidant markers.

- Performed behavioral analysis and studied mitochondrial dysfunction via cytochrome c pathway.

- The study was rewarded with *Greek State Master's Student Scholarship* and published in *FEBS Journal*, 281 (Suppl. 1) (2014) Page 277.

03/2012 – 07/2012: Internship Research-Aroma Innovation Hub – Dept of Pharmacy, University of Patras, Greece – Lamari Lab

Investigation of the neuroprotective action of saffron (*Crocus sativus* L.) in aluminum-neurotoxicity mouse model, through HPLC-metabolite analysis, oxidative markers and behavioral assessment

- Conducted research on plant extraction, *in vivo* phytotherapy, behavioral analysis and antioxidant marker analysis in brain regions

- Performed metabolite analysis in specific brain regions using High Performance-Liquid Chromatography (HPLC).

- Results were published at the *Food and Chemical Toxicology* 52 (2013) 163–170.

10/2010 – 03/2012: Undergraduate Research Assistant – Dept of Biology, University of Patras, Greece – Margarity Lab

Investigation of the effects of lead (Pb) induced neurodegeneration in cholinergic system, redox imbalance and behavior.

- Brain-region specific biochemical analysis on cholinergic markers (ACh, AChE) and ROS markers (GSH, MDA).

- Behavioral assessment (learning/memory, fear/anxiety). Study was published in *Physiology & Behavior*, Volume 131 (2014), Pages 115–122.

JOURNAL PUBLICATIONS (For a detailed citation index use the link: <https://scholar.google.com/citations?user=wJ352L4AAAAJ&hl=en&oi=ao>)

1. A.G. Kokkosis, M.Madeira, Z. Hage, K. Valais, D.Koliatsis, E. Resutov, S.E. Tsirka. Chronic psychosocial stress triggers microglial-/macrophage-induced inflammatory responses leading to neuronal dysfunction and depressive-related behavior. *Glia*, under revision (2023).

2. A.G. Kokkosis, M.M. Madeira, M.R. Mullahy, S.E. Tsirka. Chronic stress disrupts the homeostasis and progeny progression of oligodendroglial lineage cells, associating immune oligodendrocytes with prefrontal cortex hypomyelination. *Nature Molecular Psychiatry*, 27 (6), 2833-2848 (2022).

3. Alexandros G. Kokkosis and Stella E. Tsirka. Neuroimmune Mechanisms and Sex/Gender-Dependent Effects in the Pathophysiology of Mental Disorders. *Journal of Pharmacology and Experimental Therapeutics*, October 2020, 375 (1) 175-192; 2020. PMID: 32661057.

4. A.G. Kokkosis, K. Valais, M. Mullahy, S.E. Tsirka. Depression Mediated by Inflammatory Responses to Chronic Stress. *The FASEB Journal*, Volume 34, Issue (Suppl. 1), April 2020.

5. A.G. Kokkosis, M. Mullahy, K. Valais, S.E. Tsirka. Chronic stress induces microglial-mediated inflammatory responses and compromises the NG2-glia homeostasis during depression. *GLIA* 67, July 2019, E761-E762.

6. A.G. Kokkosis, M. Mullahy, A. Aguirre, S.E. Tsirka. Chronic Stress Induces Inflammatory Responses and Compromises the NG2-Glial Homeostasis during Depression. *The FASEB Journal*, Volume 33, Issue (Suppl. 1), April 2019.

7. Chavali M, Kokkosis AG, Klingener M, Garkun Y, Felong S, Maffei A, Aguirre A. Non-canonical Wnt signaling regulates neural stem cell quiescence during homeostasis and after demyelination. *Nature Communications* 2018 Jan 2; 9(1):36. doi: 10.1038/s41467-017-02440-0. PMID: 29296000

8. F Birey, AG. Kokkosis, A. Aguirre. Oligodendroglia-lineage cells in brain plasticity, homeostasis and psychiatric disorders, *Current Opinion in Neurobiology*, Volume 47, December 2017, Pages 93–103. DOI: 10.1016/j.conb.2017.09.016, PMID: 29073529

9. Anastasia-Varvara Ferlemi, Dionisis Avgoustatos, Alexandros G. Kokkosis, Vasilis Protonotarios, Caterina Constantinou, Marigoula Margarity. Lead induced effects on learning/memory and fear/anxiety are correlated with disturbances in specific cholinesterase isoform activity and redox imbalance in adult brain, *Physiol Behav.* 2014 May 28;131:115-22. doi: 10.1016/j.physbeh.2014.04.033. PMID: 24768645

10. A.G. Kokkosis, C. Constantinou, K. E. Kypreos, M. Margarity. Behavioral and brain-region specific biochemical changes in streptozotocin-induced diabetes. *FEBS Journal* 281 (Suppl. 1) (2014) Page 277.

11. Zacharoula I. Linardaki, Malvina G. Orkoulas, Alexandros G. Kokkosis, Fotini N. Lamari, Marigoula Margarity. Investigation of the neuroprotective action of saffron (*Crocus sativus* L.) in aluminium-exposed adult mice through behavioral and neurobiochemical assessment, *Food Chem Toxicology* 2013 Feb;52:163-70. doi: 10.1016/j.fct.2012.11.016.PMID: 23168242

HONORS & AWARDS

1. American Heart Association (AHA) Predoctoral Fellowship, 1/1/2019-1/1/2021, American Heart Association.

2. Cover figure, *Journal of Pharmacology and Experimental Therapeutics (JPET)*, Vol. 375, Issue 1, 1 Oct 2020, PMID: 32661057.

3. Distinguished Travel Award, Stony Brook Graduate Student Organization and Graduate School, Fall 2020.

4. American Association for Pharmacology & Experimental Therapeutics (ASPET) Meeting Travel Award, San Diego, CA, 4-7 April 2020.

5. David L. Williams Memorial Travel Award 2019, Molecular & Cellular Pharmacology Graduate Program at Stony Brook University, June 2019.

6. Hellenic Bioscientific Association of USA Travel Scholarship Award 2019, June 2019, HBA-USA.

7. American Association for Pharmacology and Experimental Therapeutics (ASPET) Mentoring Network for 2019-2020.

8. Trainee Professional Development Award, Society for Neuroscience 2018, 3-7 November 2018, San Diego, California, USA, Poster award #: FFF23.

