


BIOGRAPHICAL SKETCH			
<b>NAME: Maria Gaitanou</b> 		<b>POSITION: Assistant Researcher</b> Laboratory of Cellular and Molecular Neurobiology-Stem Cells Department of Neurobiology, Hellenic Pasteur Institute (HPI) e-mail: <a href="mailto:mgaitanou@pasteur.gr">mgaitanou@pasteur.gr</a> <a href="mailto:mariagaitanou@gmail.com">mariagaitanou@gmail.com</a>	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	Degree	Completion Date	Field of Study
National and Kapodistrian, University of Athens, School of Sciences, Faculty of Biology, Athens, Greece.	BSc.	1994	Biology
National and Kapodistrian University of Athens, School of Sciences, Faculty of Biology, Athens, Greece.	PhD.	2000	Molecular Neurobiology
Hellenic Pasteur Institute (HPI), Athens, Greece.	Postdoctoral Fellow	2000-2006	Molecular Neurobiology
EMBL Course: Genome Engineering: CRISPR/Cas9, EMBL Heidelberg, Germany 17-22 March 2019	Course	2019	CRISPR/Cas9 Technology

#### A. Personal Statement

I have a strong background in the field of neural stem cells biology. My research interests focus on: 1) *Neurodevelopment-Stem Cell biology*, as I have performed studies on neural stem cells *in vitro* and *in vivo* and I have identified new molecules and mechanisms involved in the control of cell cycle progression/exit and neuronal differentiation. 2) *Neurosignaling*, as I have focused on novel cellular and molecular signaling pathways that underlie neurogenesis and the pathophysiology of CNS. 3) *Gene therapy approaches*, aiming at the regeneration-repair of injured CNS/spinal cord using stem cells in cell replacement therapies and lentiviruses for the delivery of therapeutic genes. 4) *Neurodegeneration*, as I study DYRK1 kinase family, as a novel pharmacological target for the treatment of Alzheimer's disease and the related tauopathies. I intend to develop novel therapeutics, using small molecules and miRNAs combined to nanoparticle delivery systems, and nanotechnology-based immuno-medicines as novel combinatorial therapeutic approaches for the treatment of neurodegenerative diseases. During my career as a PI or Co-Investigator, in collaboration with other Researchers and Academics, I have attracted several national competitive research grants for scientific projects that I have successfully realized. Moreover, I am Academic Tutor in the "Athens International Master's Program in Neurosciences". During my career, I have supervised post-docs, Ph.D. Students, Master Students, and BSc. students. In addition, I have professional experience as a Reviewer in Scientific Journals and Grant Foundations.

#### B. Positions and Honors

**2014-date:** Research Investigator at the Assistant Professor Level, Laboratory of Cellular and Molecular Neurobiology-Stem Cells, Department of Neurobiology, Hellenic Pasteur Institute (HPI), Athens, Greece.

**2007-2014:** Research Investigator at the Lecturer Level, Laboratory of Cellular and Molecular Neurobiology-Stem Cells, Department of Neurobiology, Hellenic Pasteur Institute (HPI), Athens, Greece.

**2006-2010:** Lecturer (407) of Molecular Neurobiology at the Department of Molecular Biology and Genetics, Democritus University of Thrace, Greece.

### C. Professional activities

#### Teaching activities:

**2017-date:** Academic Tutor in “Athens International Master’s Program in Neurosciences” launched in 2017 as part of the **Network of European Neuroscience Schools (NENS)** coordinated by Department of Biology, National and Kapodistrian University of Athens, Greece.

**2008-2016:** Academic Tutor of Neurobiology in the Master’s Program “**Molecular Medicine**”, Medical School, University of Athens, Greece.

#### Editorial activities:

**2021-date:** Member of Editorial board of *World J Stem Cells* (IF: 5.326).

**2020-date:** Section Editor for *Current Stem Cell Research & Therapy* (IF: 3.828), *Special Issue: Neural Stem Cells*

**2020-date:** Editorial Manager for *Neuropeptides* (IF: 3.286).

#### Peer-Reviewer:

**2019-date:** *Stem Cells International* (IF: 5.443), *World Journal of Stem Cells* (IF: 5.326), *Current Stem Cell Research & Therapy* (IF: 3.828), *Neuropeptides* (IF: 3.286), *International Journal of Molecular Sciences* (IF: 5.923)

#### Reviewer of Grants and Fellowships:

**2020-date:** External Grant Reviewer for Fondation pour La Recherche Médicale (FRM).

**2018-date:** Research Projects to Support Post-Doctoral Researchers HFRI.

**2016-date:** Member of the Scholarships Evaluation Committee of the Greek State Scholarships Foundation (IKY)

#### Other activities:

**2017-date:** Member of Internal Evaluation Committee of Athens International Master’s Program in Neurosciences.

**2018-2019:** President of the National Jury of the Committee for the Evaluation of Candidates to Represent Greece in 30<sup>th</sup> European Union Contest for Young Scientists (EUCYS), Dublin 2018 and in 31<sup>th</sup> European Union Contest for Young Scientists (EUCYS), Sophia 2019, Greek Ministry of Education.

### D. Honors and Awards

●**2021:** Award for best scientific presentation in the 29<sup>th</sup> Meeting of the Hellenic Society for Neuroscience (HSfN), Virtual meeting 8 October 2021 for the scientific work: “Mirk/Dyrk1B minibrain kinase overexpression alters lateral columnar organization of motor neurons in the embryonic chick spinal cord.” Kokkorakis N., Politis P., Stathourou M., Matsas R., **Gaitanou M.**

●**2018:** Award for best scientific presentation in the 4<sup>th</sup> Day Conference of Hellenic Pasteur Institute, 27 September 2018, National School of Public Health, for the scientific work: “Mirk/Dyrk1B induces cell cycle exit and neuronal differentiation *in vivo* and marks hippocampal adult neurogenesis”. Kokkorakis N., Politis PK., Matsas R., **Gaitanou M.**

●**2018:** First Prize “George Stamatogiannopoulos” in the 3<sup>rd</sup> Conference of Hellenic Society of Gene Therapy and Regenerative Medicine held in Mediterranean Palace, Thessaloniki 2 June 2018, for the scientific work: “MicroRNA-934 is a novel regulator of early human neurogenesis with a prospective evolutionary role in brain development”, Prodromidou K., Vlachos I., **Gaitanou M.**, Kouroupi G., Hatzigeorgiou A., and Matsas R.

●**2016:** First Prize in the 2<sup>nd</sup> Conference of Hellenic Pasteur Institute, held in Athens 27 September 2016, for the scientific work: “mir-934 is a novel regulator of early human neurogenesis”. Prodromidou K., Vlachos I., Kouroupi G., Taoufik E., **Gaitanou M.**, Hatzigeorgiou A., Matsas R.

●**2010:** First Prize in the Congress of the Hellenic Society for Neuroscience, Athens 2010 for best scientific work: “Lentivirus-mediated expression of insulin-like growth Factor-I promotes neural stem/precursor cell proliferation and enhances their potential to generate neurons”, Kouroupi G, Lavdas AA, **Gaitanou M**, Thomaidou D, Stylianopoulou F, Matsas R.

### E. Conferences Invitations

●International Conference: “Dyrk1A, related kinases and human diseases, March 28- 1st April 2017, Saint-Malo, France. “Mirk/Dyrk1B kinase is a novel dual function molecule inducing cell cycle exit and neuronal differentiation in the embryonic chick spinal cord” M. Gaitanou (invited speaker).

•International Network of Institute Pasteur/Hellenic Pasteur Institute/Institute Carnot, Course: “Digital image processing/analysis tools in Light Microscopy: From the basics and beyond”, June 10-17, 2013, Athens, Greece. “Subcellular localization and targeting in the mitochondria of the neuronal protein Cend1” M. Gaitanou (invited speaker).

#### F. Outreach activities and media coverage

- Theocharakis Foundation: Coffee with the researchers of the Hellenic Pasteur Institute, (Café Merlin), 5 February 2017, Title: “Cell cycle and neuronal differentiation, two opposing processes in the generation of the Central Nervous System (CNS)”
- National Documentation Centre, 20 October 2015, Participation in the Speaker’s panel of Seminar: "Preparing Young Researchers for Open Science" (<http://helios-eie.ekt.gr/EIE/handle/10442/15008>).
- European Researchers’ Night /Athens Science Festival 2015-2017
- Public lecture organized by Hellenic Society for Neuroscience (HSFN), in the Naval Military Hospital-Salamis Naval Base, 17 March 2012. Title of the talk: "The use of stem cells in cell therapy of neurodegenerative diseases" (Invited speaker).

#### G. Contribution to Science

According to Web of Science (<https://www.webofscience.com/wos/woscc/summary/ff1aa22f-922b-4e45-b794-47e67250e5cb-23ce1dff/relevance/1>): **31** Total publications, **15** Research papers, **2** Reviews, **14** Refereed Conference Proceedings, **1** Review under submission to **World J Stem Cells, 2022**: Kokkorakis N., Gaitanou M.: “Stem cell-derived motor neuron transplants for the treatment of motor dysfunctions”. **1** Research paper Papadimitriou E., **Gaitanou M.** et al.: Submitted to **PNAS, 2022**: **Metrics**: h-index: **10**, Total citations: **387**. Average citation per item: **12.48**, Average **IF: 5.944 (highest IF: 24.118, lowest IF: 3.24)**. **63** Presentations in International and National Conferences.

#### Publications

1. Kokkorakis N. and **Gaitanou M. (2020)**. Minibrain-related kinase/dual-specificity tyrosine-regulated kinase 1B implication in stem/cancer stem cells biology **World J Stem Cells**. 2020 Dec 26;12(12):1553-1575. doi: 10.4252/wjsc.v12.i12.1553
2. Prodromidou K\* Vlachos R\* **Gaitanou M**, Kouroupi G, Hatzigeorgiou A and Matsas R. **(2020)**. MicroRNA-934 is a novel primate-specific small non-coding RNA with neurogenic function during early development **elife. 2020 May 27;9:e50561**. doi: 10.7554/eLife.50561\*equal contribution
3. **Gaitanou M.**, Segklia K and Matsas R. **(2019)**. Cend1, a story with many tales: From regulation of cell cycle progression/exit of neural stem cells to brain structure and function. **Stem Cells Int. 2019 May 2;2019: 2054783**.
4. Tzortzopoulos A., Thomaidou D., **Gaitanou M.**, Matsas R. and Skoulakis E. **(2019)**. Expression of mammalian BM88/Cend1 in Drosophila affects nervous system development by interfering with precursor cell formation. **Neuroscience Bulletin, 2019 May 11**.
5. Pallaki P., Georganta E., Serafimidis I., Papanikolaou V., Koutloglou S., Papadimitriou E., Agalou A., Tserga A., Simeonof A., Thomaidou D., **Gaitanou M.** and Georgoussi Z. **(2017)**. A novel regulatory role of RGS4 in STAT5B activation, neurite outgrowth and neuronal differentiation **Neuropharmacology, 2017**.
6. Foka P, Karamichali E, Dalagiorgou G, Serti E, Doumba PP, Pissas G, Kakkanas A, Kazazi D, Kochlios E, **Gaitanou M**, Koskinas J, Georgopoulou U and Mavromara P. **(2014)**. Hepatitis C virus modulates lipid regulatory factor Angiopoietin-like 3 gene expression by repressing HNF-1 $\alpha$  activity **J. Hepatol. 2014 Jan; 60(1):30-8**.
7. Tsioras K, Papastefanaki F, Politis PK, Matsas R., **Gaitanou M. (2013)**. Functional Interactions between BM88/Cend1, Ran-binding protein M and Dyrk1B kinase affect cyclin D1 levels and cell cycle progression/exit in mouse neuroblastoma cells **PLoS One., 2013 Nov 28; 8 (11)**.
8. Georganta EM, Tsoutsis L, **Gaitanou M** and Georgoussi Z. **(2013)**  $\delta$ -opioid receptor activation leads to neurite outgrowth and neuronal differentiation via a STAT5B-Gai/o pathway” **J. Neurochem. 2013 Nov; 127(3):329-41**.
9. Lavdas AA, Efrose R, Douris V, **Gaitanou M**, Papastefanaki F, Swevers L, Thomaidou D, Iatrou K, Matsas R. **(2010)** Soluble forms of the cell adhesion molecule L1 produced by insect and baculovirus-transduced mammalian cells enhance Schwann cell motility **J. Neurochem. 2010, Sep 16**.

10. Kouroupi G, Lavdas AA, **Gaitanou M**, Thomaidou D, Stylianopoulou F, Matsas R. (2010) "Lentivirus-mediated expression of insulin-like growth factor-I promotes neural stem/precursor cell proliferation and enhances their potential to generate neurons" **J. Neurochem.** 2010, Jul 31
11. D. Smirlis, H. Boleti, **M. Gaitanou**, M. Soto, K. Soteriadou (2009). Leishmanial Ran protein is localized at the nuclear envelope and perinuclear structures interacts with Leishmania histone H1 and it is involved in parasitic cell-cycle progression **Biochem J.** 2009, Sep 22
12. Sidera K., **Gaitanou M.**, Stellas D., Matsas R. and Patsavoudi E. (2008). *A Critical Role for HSP90 in Cancer Cell Invasion Involves Interaction with the Extracellular Domain of HER-2.* **J Biol Chem.**, 2008 Jan 25; 283(4):2031
13. Katsimpardi L., **Gaitanou M.**, Malnou C., Lledo PM., Charneau P., Matsas R and Thomaidou D (2008). BM88/Cend1 expression levels are critical for proliferation and differentiation of subventricular zone-derived neural precursor cells **Stem Cells** 2008; 26:1796-1807
14. Georgopoulou N.,\* Hurel C.,\* Politis PK.,\* **Gaitanou M.**, Matsas R., Thomaidou D (2006). BM88 is a dual function molecule inducing cell cycle exit and neuronal differentiation of neuroblastoma cells via cyclin D1 down-regulation and pRB hypo-phosphorylation \* equal contribution **J Biol Chem.**, 2006
15. Christos Kenoutis, Rodica C. Efroze, Luc Swevers, Alexandros A. Lavdas, **Maria Gaitanou**, Rebecca Matsas, and Kostas Iatrou (2006). Baculovirus-mediated gene delivery into mammalian cells does not alter their transcriptional and differentiating potential but is accompanied by early viral gene expression **J. Virol.** 80 (8): 4135-4146.
16. **Maria Gaitanou**, Pasquale Buanne, Christina Pappa, Niki Georgopoulou, Avgi Mamalaki, Felice Tirone and Rebecca Matsas (2001). Cloning, expression and localization of human BM88 shows that it maps to chromosome 11p15.5, a region implicated in Beckwith-Wiedemann syndrome and tumorigenesis. **Biochem J.** 2001, 355: 715-724.
17. **Maria Gaitanou**, Avgi Mamalaki, Effrosini Merkouri and Rebecca Matsas (1997). Purification and cDNA cloning of mouse BM89 antigen shows that is identical with the synaptic vesicle protein synaptophysin **J. Neurosci. Res.** 1997, 48:507-514.

#### REFEREED CONFERENCE PROCEEDINGS

1. Pallaki P., Serafimidis I., Thomaidou D., **Gaitanou M.** and Georgoussi Z. (2018). A novel regulation role of RGS4 in neuronal cell proliferation and sprouting mediated via STAT5B transcriptional responses. **FEBS OPEN BIO** Volume: 8 Pages: 380-380. Supplement: 1, **JUL 2018**
2. Pallaki P., Serafimidis I., Papadimitriou E., Papakonstantinou MP, Thomaidou, D, **Gaitanou M.** and Georgoussi Z. (2018). RGS4 Regulates Neurite Outgrowth and Cell Proliferation Mediated by STAT5B Transcriptional Responses **FASEB JOURNAL** Volume: 32 Issue: 1 Supplement: S Meeting Abstract: 805.17 Published: **APR 2018**
3. Georgoussi Z., Pallaki P., Serafimidis I., Symeonof A., Koutloglou S., Papakonstantinou M., Georganta E., Thomaidou D., **Gaitanou M.** (2017). A novel regulatory role of RGS4 in delta-opioid receptor mediated neuronal outgrowth and differentiation, **Annual Meeting of the American-Society for Pharmacology and Experimental Therapeutics (ASPET) at Experimental Biology Meeting, Chicago, Illinois, April 22-26, 2017.** **FASEB JOURNAL**, Volume 31, Supplement: 1, **April 2017**
4. Pallaki P., Papadimitriou E., Serafimidis I., Koutloglou S., Papanikolaou V., **Gaitanou M.**, Thomaidou D. Georgoussi Z. (2016). A novel regulatory role of RGS4 in neural precursor proliferation and STAT5B-mediated gene transcription, **41<sup>st</sup> FEBS Congress on Molecular and Systems Biology for a Better Life, Location: Kusadasi, TURKEY, Date: SEP 03-08, 2016.**
5. Matsas R., Papastefanaki F., Laspa M.; **Gaitanou M.**; Schachner M. (2011). "Lentivirus-mediated expression of the human neural cell adhesion molecule L1 for *ex vivo* and *in vivo* gene therapy of the lesioned CNS" **GLIA** 2011, Volume: 59 Pages: S92-S92, **OCT 2011**
6. Papastefanaki F., Laspa M.; **Gaitanou M.**; Schachner M.; Matsas R. (2011). "Lentiviral expression of the human neural cell adhesion molecule L1 for *ex vivo* and *in vivo* gene therapy of the lesioned CNS" **Journal of Neurochemistry** Volume: 118, Special Issue S1, Pages: 45-45, **AUG 2011**

7. **Gaitanou M.**, Xingi E., Matsas R. (2011). "N- and C-terminal signal domains are essential for targeting the neuronal protein BM88/Cend1 to the mitochondrial outer membrane" **Journal of Neurochemistry** Volume: 118, Special Issue S1, Pages: 73-73, AUG 2011
8. Tsioras K., Matsas R., **Gaitanou M.** (2011). "Protein-protein interactions between BM88/Cend1, RanBPM and Mirk/Dyrk1B in regulating cell cycle progression in neural cells" **Journal of Neurochemistry** Volume: 118, Special Issue S1, Pages: 82-82, AUG 2011
9. Matsas R., Tsioras K., **Gaitanou M.** (2011). "Coordinate regulation of cell cycle progression/exit and differentiation of neural stem cells" **Journal of Neurochemistry** Volume: 118, Special Issue S1, Pages: 248-248, AUG 2011
10. Katsimpardi L., **Gaitanou M.**, Malnou C., Lledo PM., Charneau P., Matsas R and Thomaidou D. (2008). Cend1/BM88 expression levels are critical for proliferation and differentiation of subventricular zone-derived neural precursor cells" **FEBS JOURNAL** Volume: 275 Pages: 296-296 Supplement: 1, **33<sup>rd</sup> FEBS Congress/11<sup>th</sup> IUBMB Conference, Athens, GREECE, Date: JUN 28-JUL 03, 2008.**
11. Sidera K., **Gaitanou M.**, Matsas R., Patsavoudi E. (2006). "Cell surface hsp90 interacts with the extracellular domain of her2 and contributes to receptor activation" **FEBS JOURNAL** Volume: 273 Pages: 95-95 Supplement: 1, **31<sup>st</sup> FEBS Congress, Location: Istanbul, TURKEY, Date: JUN 24-29, 2006.**
12. **Gaitanou M.**; Politis P., Matsas R. (2005). "The neuronal protein BM88 is a new partner for the signaling protein RanBPM" **FEBS JOURNAL** Volume: 272 Pages: 438-438 Supplement: 1, JUL 2005. **IUBMB 50<sup>th</sup> Anniversary Symposium Location: Budapest, HUNGARY, Date: JUL 02-07, 2005.**
13. Thomaidou D.; Politis P., Georgopoulou N., Hurel C., **Gaitanou M.**, Roher H., Matsas R. (2004). "BM88 regulates cell cycle exit and differentiation towards the neuronal lineage during CNS development" **GENE THERAPY** Volume: 11 Pages: S134-S135 Supplement: 1, Meeting abstract 32, OCT 2004. **2<sup>nd</sup> European Conference and Practical Course on Towards Clinical Gene Therapy-Preclinical Gene Transfer Assessment, Location: Univ. Autonoma Barcelona, Fac Vet, Bellaterra, SPAIN, Date: FEB 01-14, 2004.**
14. Thomaidou D., Papastefanaki F., **Gaitanou M.**, Matsas R. (2002). "BM88, a neuronal CNS marker, is expressed by both neurons and glia in the PNS" **GLIA 2002**, Volume: 59 Pages: S74-S74, MAY 2002.

#### **G. Ongoing and Completed Research Support (Last 3 Years)**

- High Technology Infrastructure for Preclinical Studies and Provision of Specialized Services for Infectious and Neurodegenerative Diseases» (MIS 5066768) implemented under the Priority Axis «Strengthening the Mechanisms and Investments of SMEs of the Attica Region in Research and Innovation» funded by the Operational Program «Attiki 2014-2020» (NSFR 2014-2020), and co-financed by the Greek State and the European Regional Development Fund. **Total budget: 1.000.000 €**, for the period **July. 2021 – Dec. 2023**. Coordinator for HPI: Karagouni E. (Gaitanou M., PI participation as Team member)
- Development of a multi-parametric morpho-functional platform to uncover disease mechanisms and druggable targets in patient-derived cells: study of neuron-glia dynamics in  $\alpha$ -synuclein mediated pathologies", (DiseasePHENOTarget) **2021-2023**, funded by Hellenic Foundation for Research and Innovation (HFRI) **Total budget: 1.000.000€**, PI: Matsas R. (Gaitanou M., PI participation as Team member)
- Flagship National Action for Research in Neurodegenerative Diseases Based on Precision Medicine, **2020-2022**, Source: Secretariat for Research and Technology (GRST), **Personal Budget: 22.500€ for Gaitanou M.** (Team member) **Total budget for HPI: 150.000€**, Total budget: 2.1M. Coordinators: N. Tavernarakis and L. Stefanis. Coordinator for HPI: Matsas R.
- Biomarkers in autoimmune neurological diseases (NeuroMarkers) MIS 5032815, **2018-2021**; Operational Program Competitiveness, Entrepreneurship and Innovation, European Union and Greek national funds. **Personal Budget for Gaitanou M.: 35.000€**, **Total budget for HPI 340.000 €**, Total budget: 680,000 €, Coordinator: P. Zisimopoulou, Partners: Tzartos Neurodiagnostics.
- Infectious, autoimmune and neurodegenerative diseases: study of the pathogenetic mechanisms and development of diagnostic, prognostic and therapeutic approaches» (MIS 5002486) implemented under the «Action Strategic Development on the Research and Technological Sector» funded by the Operational Program «Competitiveness, Entrepreneurship and Innovation» (NSFR 2014-2020), and co-financed by the Greek State and the European Regional

Development Fund. **Total budget for HPI: 550.000 €** for the period **Oct. 2017 – Oct. 2019**. **Personal Budget for Gaitanou M (WP Leader of WP 5.3): 22.900€** Coordinator for HPI: Karagouni E.

- Effectiveness of terrestrial and marine plant extracts for the prevention and treatment of parasite infections (Microcotyle spp, Myxosporea) and of myxobacteriosis in cultured Sea bream (*Sparus aurata* L.)” (AltMedSea) Duration: **2020-2023**, Source: EPAnEK, 2014-2020, T6YBII-00246, MIS 5055881, **Total budget: 399.973 €**, HPI budget: 112.000 €, PI: Karagouni E. Partners: University of Thessaly, ELGO/Dimitra, SKALOMA SA. (Gaitanou M., PI participation as Team member).