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Curriculum Vitae

KYRIAKI THERMOS (K. THERMOU)

Kyriaki Thermos is Professor and Chairman of Pharmacology, School of Medicine, University of Crete. She received her BSc. degree in Chemistry (1976) from the Department of Chemistry, University of Patras, Greece, MSc. in Chemistry (1979) and Ph.D in Neurochemistry (1984) from the Department of Chemistry, New York University, N.Y., USA. She trained as a postdoctoral fellow in the Training Program of Neuropsychopharmacology, University of Pennsylvania, School of Medicine, NIMH-MH 146554 (1984-1986) and in parallel collaborated with the Department of Pharmacology, Medical College of Pennsylvania (MCP, Prof. Benjamin Weiss). Instructor in Pharmacology (MCP, Jan 1986-June 1986). She held the position of postdoctoral fellow/ Instructor of Pharmacology in the Department of Pharmacology, University of Pennsylvania, School of Medicine (Prof. T. Reisine, Sept 1986 - May 1988), Assistant Professor (1988), Associate Professor (1993) and Professor of Pharmacology (2009) at the School of Medicine, University of Crete (UoC). She served as the Chairman of the Department of Basic Sciences and Member of the Executive Council of the School of Medicine, UoC (1996-1997), Vice-Director of the Laboratory of Clinical Pharmacology, University Hospital (1990-2000, 2002- present) and Director (2000-2002, 2008-present), Scientific Collaborator (2000-present) and Member of the Secondary Executive Council (2001-2005) of the National Organization for Medicines, Executive Committee Member (1993-2021), Associate Director (2001- 2011, 2016-2018) and Director (2011-2014 and 2018-2021) of the Graduate Program in Neuroscience, School of Medicine, UoC. She served as member of the Executive Committee of the Hellenic Society for the Neurosciences (1989-1992), its representative to the International Brain Research Organization (**IBRO**, member of **Governing Council**, 2000-2006), **President** (2001-2003) and **General Secretary** (2003-2005) of the **Greek Pharmacological Society**. She served as a member of the **Network of European Neuroscience Schools** (NENS, 2003-2005), as a member (2009-2012) and **Chair** (July 2012- July 2014) of the **Communication Committee of the Federation of European Neuroscience Societies (FENS)** and **member** of the **Executive Committee of FENS** (July 2012- July 2014). She served as a member of the 1st Council of the UoC (2012-2017) and the 1st UoC Gender Equality Committee (2020-2022).

Science Biography

The focus of Dr. Thermos' research the past 20 years has been the investigation of new targets for drug development for retinal disease therapeutics. She studied the neurobiology/neuropharmacology of different biological systems and their function in retinal circuitry focusing on the somatostatin, NO/cGMP, endocannabinoid and neurosteroidal microneurotrophin systems. In parallel, she examined the putative neuroprotective/ therapeutic effects of the above mentioned agents in ischemia induced retinopathies. She has employed ex vivo (chemical ischemia), in vivo (AMPA excitotoxicity) and disease (diabetic retinopathy) models for her studies. Investigation of the endocannabinoid system and NADPH Oxidase (NOX) inhibitors as therapeutic targets is presently at the forefront of her research interests.

Up to 2009, in parallel to the studies in the retina, initially used as a model of the CNS, she investigated the role of somatostatin and its receptors in brain function and disease.

Teaching Experience

Since 1988, she has been teaching Medical Pharmacology, Cell Communication and Signalling (elective) to medical students at the Faculty of Medicine, University of Crete. She has taught in many Graduate Programs. Worth mentioning is her contribution to the development and organization of the Graduate Program of Neuroscience, Faculty of Medicine University of Crete, the first graduate program of Neuroscience in Greece. She organized and taught courses such as: Special Topics in Neuropharmacology, Neurochemistry/Neuropharmacology, and topics in the Core courses in Neuroscience. She has supervised 4 Postdoctoral Fellows, 13 PhD students (two of which have obtained Faculty positions in Greek Universities after successful postdoctoral fellowships in Europe and the States), 14 MSc students, and many undergraduate theses.

Awards

Fellowship for graduate studies (MSc and Ph.D) at New York University (1977-1984), Fellow, Training Program in Neuropsychopharmacology, University of Pennsylvania, School of Medicine, NIMH-MH 146554 (1984-1986), Biomedical Research Service Award, Medical College of Pennsylvania and Eastern Pennsylvanian Psychiatric Institute, Philadelphia, USA (1986-1987).

Funding (up to 2000)

As a postdoctoral fellow: “Studies of sites involved in dopaminergic supersensitivity”, National Institute of Mental Health (NIMH-42015-01 **R03**; \$15000) (1986-1987, Principal Investigator (**PI**)).

As a Faculty Member - UoC

“Dopamine-somatostatin interactions: changes after chronic administration of antidepressant drugs. Pharmacological approach to the neurobiological substrate of depression”, Greek Ministry of Health (1989-1991, **PI**), “Study of somatostatin receptors. Solubilization and reconstitution in a superficial membrane”, University of Crete, Research Account (1989-1992, **PI**), “Study of pharmacological characteristics of dopamine receptor subtypes: New therapeutic targets for neuropsychiatric diseases”, Greek Ministry of Health (1991-1992), “Pharmacological and molecular characterization of somatostatin receptors”, Greek Ministry of Health (1991-1992, **PI**), “Characterization of somatostatin receptors in the brain: Study of dopamine-somatostatin interactions”, Greek Drug Association (1991-1992, **PI**), “Interactions of somatostatin with other neurotransmitter systems in the central nervous system: Projections of the role of somatostatin in the pathogenesis of CNS disorders”, General Secretariat-Ministry of Research and Development/PENED (1991-1993, **PI**), “Determination of somatostatin release in the nucleus accumbens: effect of chronic antidepressant treatment”. General Secretariat-Ministry of Research and development/PENED (1996-1998, **PI**), “Biology of Cancer: Genetic Analysis and in vivo imaging of receptors-radiotherapy”, General Secretariat-Ministry of Research and development, EPET II (1998-2000), “Study of the role of somatostatin in the neuronal circuits of the retina”, General Secretariat-Ministry of Research and development, France-Greece Collaboration (In collaboration with Dr J. Epelbaum, Centre Paul Broca, Paris) (1998-2001, **PI**), “Study of the role of somatostatin in the neuronal circuits of the retina”, University of Crete, Research Account (1998-2000, **PI**).

Funding after 2000: List of Research Projects, title, budget, source, role in research team, starting/ending dates

1. Title: Somatostatin and its Receptors in Brain Function and Dysfunction. Budget: 209.325,34 €, Source: European Commission Contract, 5th Framework (QLG3-CT-1999-00908), Role: Co-Investigator. *Duration: 1/1/2000 -31/12/2003*
2. Title: Study of the role of somatostatin as a neuroprotectant in ischemic retinopathies: Somatostatin-Nitric Oxide and glutamic acid interaction in the retina. Budget: 34.403,00 €, Source: NOVARTIS, BASEL Role: **PI**, *Duration: 1/1/2002 - 31/12/2005.*
3. Title: Synthesis and pharmacological study of new cannabinoids with putative analgesic and psychomotor actions without addictive effects. Budget: 100.420,00, € Source: General Secretariat of Research and Technology (Program EPAN). Role: Co- Investigator. *Duration: 15/9/2003 -15/7/2007*
4. Title: Functional mapping of somatostatin receptors in the basal ganglia. Study of the interactions of somatostatin with other neurotransmitter systems” Budget: 33.421,97 €, Source: Ministry of Education (Program Heraklitus). Role: **PI**. *Duration: 8/11/2002 - 15/6/2007*
5. Title: Study of the role of somatostatin in the treatment of diseases such as retinal ischemia and hepatocellular carcinoma” Budget: 85.000,00 €, Source: Ministry of Education (Program Pythagoras), Role: **PI**. *Duration: 1/3/2004 - 31/8/2008.*
6. Title: Experimental models of retinopathies and the role of somatostatin as a neuroprotectant” Budget: 56.250,00 € , Source: General Secretariat-Ministry of Research and Technology (Program PENED), Role: **PI**, *Duration: 12/12/2005 - 30/6/2009*
7. Title: Somatostatin analogues as therapeutic targets in ischemia induced retinopathies” Budget: 2.500,00 €, Source: University of Crete Research Committee, Role: **PI**. *Duration: 20/5/2011 - 19/5/2012 .*
8. Title: Study of the neuroprotective actions of cannabinoids against retinal ischemia” Budget: 45.000,00 € Source: Ministry of Education (Program Heraklitus II-Support for Ph.D student D. Kokona). Role: **PI**. *Duration: 16/2/2011-16/2/2014.*
9. Title: Study of new therapeutic targets for the treatment of diabetic retinopathy: Neurosteroids/Microneurotrophins. Budget: 210.000,00 €, Source: ESPA/ Γ.Γ.Ε.Τ (ARISTEIA II), Role: **PI**. *Duration: 31/01/2014-31/10/2015.*
10. Title: Investigation of the down-regulation of the CB1 cannabinoid receptor in the retina and its implication in the therapeutic properties of endocannabinoids and synthetic cannabinoids in retinal disease. Budget: 3.500,00 €, Source: University of Crete Research Committee, Role **PI**, *Duration: 01/04/2017-31/10/2017.*
11. Title: Investigation of new therapeutic targets for the treatment of diabetic retinopathy: neurosteroidal microneurotrophins, Budget: 15.000,00 €, Source: University of Crete Research Committee, Role: **PI**, *Duration: 10/09/2015-09/09/2017.*
12. Title Study of the effect of chronic administration of endogenous and synthetic cannabinoids in the function of the cannabinoid receptor -1 (CB1) in healthy retina and in an experimental model of retinopathy. Budget: 22.500,00 €, Source: ELIDEK (Support for Ph.D student Sofia Papadogkonaki), Role: **PI**, *Duration: 1/11/2017-30/11/2019.*

13. Title: ULTRACHIRAL - Ultrasensitive chiral detection by signal - reversing cavity polarimetry, Budget: UoC-MED 218 886.00€ (Thermos,50k), Source: Horizon 2020, Role: **Co-Investigator**, Duration: 09/03/2017-31/12/2020.
14. Title: Role of NADPH Inhibitors in an experimental model of diabetic retinopathy. Budget:10.625,00 €, Source: University of Crete Research Committee, KA10752, Role: **PI**, Duration:02/11/2020 -31/03/2022.
15. Title: Preclinical investigation of NADPH Oxidase Inhibitors as therapeutic targets of retinopathies. Budget: 24.436,59 €, Source: GlucoxBiotech, Sweden (KA10879), Role: **PI**. Duration: 24/05/2021- 31/12/2022.

PUBLICATIONS (*corresponding author)

1. **Thermos, K.**, Murphy, R. B., and Schuster, D. I. Photoincorporation of [³H]Chlorpromazine into a solubilized bovine striatal preparation. *Biochemical Biophysical Research Communications* 106:1469-1477, 1982.
2. Schuster, D.I., Murphy, R.B., Ashton, R., **Thermos, K.**, Wennogle, L.P., Meyerson, L.R. "Photolabeling of neurotransmitter receptor sites in the brain." *American Chemical Society Symposium Series* 278:125-146, 1985.
3. **Thermos, K.**, Winkler, J.D. and Weiss, B. Effects of the irreversible dopaminergic ligand fluphenazine-N-mustard on dopaminergic behavior in supersensitive mice. *Neuropharmacology* 26: 1473-1480, 1987.
4. Winkler, J.D., **Thermos, K.**, and Weiss, B. Differential Effects of fluphenazine-N-mustard on calmodulin activity and D1 and D2 dopaminergic responses. *Psychopharmacology* 92: 285-291, 1987.
5. **Thermos, K.** and Reisine, T. Molecular mechanisms regulating ACTH synthesis and release. *Annals of New York Academy Sciences* 512: 187-194, 1987.
6. Katerinopoulos, H., **Thermos, K.**, Vassilatis, D., Schuster, D.I. Synthesis and dopamine receptor binding of rigid dopamine analogs. *European Journal Medicinal Chemistry* 23: 391-396, 1988.
7. Mahy, N., Woolkalis, M., **Thermos, K.**, Carlson, K., Manning, D., Reisine, T. Pertussis toxin modifies the characteristics of both the inhibitory GTP binding proteins and the somatostatin receptor in anterior pituitary tumor cells. *Journal of Pharmacology and Experimental Therapeutics* 246:779-785, 1988.
8. **Thermos, K.** and Reisine, T. Somatostatin receptor subtypes in the clonal anterior pituitary cell lines AtT-20 and GH₃. *Molecular Pharmacology* 33: 370-377, 1988.
9. He, H-T., Johnson, K., **Thermos, K.** and Reisine, T. Purification of a putative brain somatostatin receptor. *Proceedings National Academy Science (PNAS-USA)* 86: 1480-1484, 1989.
10. **Thermos, K.**, He, H-T., Wang, H-L., Margolis, N., Reisine, T. Biochemical properties of brain somatostatin receptors. *Neuroscience* 31: 131-141, 1989.
11. Katerinopoulos, H. and **Thermos, K.** Synthesis and dopaminergic properties of bridged tricyclic dopamine analogues. *European Journal Medicinal Chemistry* 24: 615-617, 1989.
12. Reisine, T., He, H-T., Rens-Damiano, S., Raynor, K., Borislów, S., and **Thermos, K.** Biochemical properties of somatostatin receptors. *Metabolism* 39: 70-73, 1990.
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14. Liapakis, G. and **Thermos, K.***. Characterization of [¹²⁵I]Tyr¹¹-Somatostatin binding in the Retina. *Neuropeptides* 21: 13-19, 1992.
15. Georvasaki, E., **Thermos, K.***, Liapakis, G., Spyraiki, C. Effect of acute and chronic treatment of desipramine on somatostatin receptors in brain. *Psychopharmacology* 108: 363-366, 1992.
16. Kouvarakis, A., **Thermos, K.** Hieble, P. and Katerinopoulos, H.E. Synthesis of rigid catecholamine analogues: Effects on dopaminergic and adrenergic systems. *European Journal Medicinal Chemistry* 28: 251-256, 1993.
17. Liapakis, G., Politou, E. and **Thermos, K.***. Characterization of somatostatin receptors in rabbit retina. *Biochemical Pharmacology* 45:1821-1828, 1993.
18. Radke, J., Spyraiki, C., and **Thermos, K.***. Measurement of extracellular somatostatin levels in the striatum using in vivo intracerebral microdialysis. *Neuroscience* 54: 493-498, 1993.
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50. Mastrodimou, N., Kiagiadaki, F., **Thermos, K.***. The role of nitric oxide and cGMP in somatostatin's protection

of retinal ischemia. *Investigative Ophthalmology Visual Science* 49: 342-249, 2008.

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76. Doulou, E., Kalomiraki, M., Parla, A., Thermos, K., Chaniotakis, N.A., Panderi, I. (2021). Hydrophilic Interaction Liquid Chromatography couple with Fluorescence Detection (HILIC-FL) for the Quantitation of Octreotide in injection forms, *Analytica* 2:121-129. doi.org/10.3390/analytica2040012.

Invited talks (selected)

- 1990 "Characterization of somatostatin receptors in brain. Universite de Marseille, Faculte des Sciences de Saint Jerome.
- 1998 "Somatostatin's Importance in the Basal Ganglia: an in vivo micro-dialysis study" MERCK Research Laboratories, New Jersey, USA
- 1998 "Somatostatin's Importance in the Basal Ganglia: an in vivo microdialysis study", University of Sussex
- 2000 "Somatostatin's role in the Basal Ganglia", University of Edinburgh, UK
- 2000 "Somatostatin and its receptors: molecular biology to therapeutics" 6th World Hellenic Biomedical Congress, Athens
- 2002 "Functional Mapping of Somatostatin receptors in the retina" 22nd Blankanese Conference, Hamburg-Blankanese, Germany
- 2004 Protective effects of somatostatin analogs against chemically induced ischemia in rat retina: role of somatostatin in the treatment of retinopathies", 5th Conference Medicinal Chemistry: Drug Discovery and Design, Patras
- 2009 Somatostatin analogs as therapeutics in retinal disease. Aegean Retina XI Chania, July 3-5, 2009
- 2009 Nitric oxide and cGMP protect the retinal from ischemia and mediate somatostatin's neuroprotective effects. European Association of Vision and Eye Research (EVER), Portoroz, Slovenia, September 30-October 3, 2009.
- 2010 Immunohistochemistry and Western blot methodologies to evaluate neuroprotective agents in models of retinopathies. European Association of Vision and Eye Research (EVER), Hersonisos, Crete, October 6-9, 2010
- 2011 Somatostatin analogues as therapeutics in ischemia induced retinopathies. Summer Neuropeptide Conference and The European Neuropeptide Club (ENC) Meeting, May 22 - 25, Boston, MA, USA, 2011.
- 2013 K. Thermos, P. Iordanidou, S. Poulaki, N. Mastrodimou, E. Koulakis, I. Charalampopoulos, A. Gravanis. The novel neurosteroid DHEA spiro-epoxy derivative, BNN27, provides neuroprotection to the retina when administered in drops and intra-peritoneally in the STZ-model of Diabetic Retinopathy. Aegean Retina Meeting, Santorini, 2013.

Editorial Positions

Associate Editor Frontiers in Pharmacology

Reviewer for International Journals

Brain Research, Brain Research Bulletin, Current Eye Research, European Journal Neuroscience, Investigative Ophthalmology and Visual Science (IOVS), Journal of Chemical Neuroanatomy, Journal of Neurochemistry, Life Science, Molecular Cellular Endocrinology, Molecular Vision, Naunyn-Schmiedeberg's Archives of Pharmacology, Neuropeptides, Neuropharmacology, Neuroscience, Neuroscience Letters, Pharmacology, Biochemistry and Behavior, Pharmacology and Therapeutics, The Asia-Pacific Journal of Endocrinology, Vision Research, Visual Neuroscience.

Reviewer Grant Agencies

National Science Foundation (USA), Neuroscience Study Section, European Commission, Brussels, ITN & Marie-Curie Programs, Brussels, and Greek Ministry of Health, Human Brain Project, Brussels, AXA-SW, ELIDEK.