

**Lefkothea C. Papadopoulou** is a **Professor of Pharmacology** in School of Pharmacy, Faculty of Health Sciences, Aristotle University of Thessaloniki (AUTH), Macedonia, Greece.

She holds Bachelor and Doctorate [title of the thesis: “**Analysis of Anthracyclines-Hemoproteins Interactions in the Hemopoietic System**”, 1991] from the same **School of Pharmacy, AUTH**.

She served as a **Post-doctoral Research Fellow** for two years under the supervision of Professor Eric A. Schon, at the Department of Neurology of the College of Physicians and Surgeons, **Columbia University** in the **City of New York**, USA. During that time, she identified the human *SCO2*, a nuclear gene encoding the mitochondrial *SCO2*, a COX assembly protein and its association with a primary mitochondrial disorder.

Her **scientific interests**, include: •Molecular mechanisms of action of anthracyclines on bone marrow and myocardium; •Mitochondrial genetics and neurodegenerative disorders; •Cloning and expression of genes as well as purification and characterization of their protein products; •Protein Transduction Domain (PTD) Technology; •Tat-mediated protein transduction into mammalian cells, as an alternative therapeutic approach for monogenetic disorders; •Cellular bioenergetics; •Radiolabeling of recombinant proteins – biodistribution in mice; •Biological evaluation of fluoroquinolones’ derivatives; •IVT-mRNA therapeutics; •Cancer Car-NK cell immunotherapy; •PTD-IVT-mRNA therapeutics (*patented methodology*).

She developed with her research group a new delivery platform for any potentially therapeutic IVT-mRNA in combination with the Protein Transduction Domain (PTD) Technology, via a novel, patented conjugation reaction:

**Greek patent: ΔE1010063**; International PCT/GR2020/000059, International publication number: WO 2021/094792 A1 / 20.05.2021), entitled “**Method for the development of a delivery platform to produce deliverable PTD-IVT-mRNA therapeutics**”.

[An application to the European Patent Office (**EP20823912.9**) is pending authorization (11-6-2022)]

Her scientific metrics are:

**Citations:** > **2400**; index: h: 17, i10: 19

[Google scholar: <https://scholar.google.com/citations?user=jYXDuy0AAAAJ&hl=el&oi=sra>;  
[https://www.pharm.auth.gr/en/dep\\_members/papadopoulou-lefkothea/](https://www.pharm.auth.gr/en/dep_members/papadopoulou-lefkothea/);

with 27 papers in PubMed <https://pubmed.ncbi.nlm.nih.gov/?term=Papadopoulou+LC> ].

Her **teaching activities** involve both **courses** for **undergraduate** studies for more than 25 years as well for **graduate** studies since 2004, in the School of Pharmacy, ATh, Greece,

She is also involved in the **graduate** studies of **courses** in:

(I) IPPS "Precision Medicine - Translational Research and Therapeutics" : The School of Medicine and the Department of Pharmacy of the Faculty of Health Sciences of ATh.

(ii) **School of Medicine** at the Democritus University of Thrace, Greece,

(iii) Department of Biochemistry and Biotechnology, University of Thessaly, Greece.

She supervised:

**2 graduate students** for their **doctoral thesis** [2017 -2020: **PhD : Miliotou Androulla**, School of Pharmacy, A.U.Th, Greece; *“Development of in vitro transcribed mRNAs as Therapeutics for Metabolic/Monogenic Disorders, using the PTD Technology for their Intracellular Delivery”*; and 2001 -2007: **PhD: Foltopoulou Parthena**, School of Pharmacy, A.U.Th, Greece; *“Role of mitochondrial proteins in the pathophysiology and therapeutics of degenerative diseases”*];

**24 graduate students** for their **master theses**; and

**25 undergraduate students** for their **diplomatic theses**; while some others are in progress

She has been **awarded** with:

a) the ***EXCELLENCE in TEACHING***, from the Faculty of Health Sciences, ATh (for the academic year 2014-2015); and

b) in 2022 with the ***EXCELLENCE in INNOVATION*** from the Faculty of Health Sciences, ATh, for: ***REMARKABLE CLINICAL-LABORATORY WORK AND APPLICATION OF INNOVATIVE METHODS AND TECHNIQUES FOR THE FIRST TIME IN GREECE.***

Concerning the **patented methodology** she developed and received:

1) a research grant from the **ELIDEK** (Code 1533) for 4 years (2017-2020) as Supervisor of Androulla N. Miliotou’s doctoral thesis, entitled *“Development of in vitro transcribed mRNAs as therapeutics for metabolic/monogenic disorders, using the PTD technology for their intracellular delivery”* (Ph.D.: December 2020);

2) an Operational Programme «**Human Resources Development, Education and Lifelong Learning 2014-2020**» (MIS 5070970) for 2 years (2020-2022), entitled *“Development of a novel approach of CAR technology towards immunotherapy of oral cancer”* as an Academic Advisor;

while

**3)** for her grant application "***Deliverable in vitro transcribed mRNAs of Frataxin as a therapeutic approach for Friedreich ataxia***", she has been recommended and approved for funding by **Friedreich's Ataxia Research Alliance (FARA)**'s Scientific Review and Executive Committees for 1 year, with starting date the 1<sup>st</sup> of September 2024.

#### Selected Papers

- 1 Targeting mitochondrial bioenergetics by combination treatment with imatinib and dichloroacetate in human erythroleukemic K-562 and colorectal HCT-116 cancer cells. Kakafika et al, **Int J Oncol.** **2024**, 64(4):42. doi: 10.3892/ijo.2024.5630.
- 2 An Innovative PTD-IVT-mRNA Delivery Platform for CAR Immunotherapy of ErbB(+) Solid Tumor Neoplastic Cells. Georgiou-Siafis et al, **Biomedicines.** **2022**, 10(11):2885. doi: 10.3390/biomedicines10112885.
- 3 Development of a novel PTD-mediated IVT-mRNA delivery platform for potential protein replacement therapy of metabolic/genetic disorders. Miliotou et al, **Mol Ther Nucleic Acids.** **2021**, 26:694-710. doi: 10.1016/j.omtn.2021.09.008.
- 4 In vivo biodistribution study of TAT-L-SCO2 fusion protein, developed as protein therapeutic for mitochondrial disorders attributed to SCO2 mutations. Kaiafas et al, **Mol Genet Metab Rep.** **2020**, 25:100683. doi: 10.1016/j.ymgmr.2020.100683
- 5 CAR T-cell therapy: a new era in cancer immunotherapy. AN Miliotou, **LC Papadopoulou.** **Current Pharmaceutical Biotechnology.** 19 (1), 5-18
- 6 Imatinib inhibits the expression of SCO2 and FRATAxin genes that encode mitochondrial proteins in human Bcr-Abl<sup>+</sup> leukemia cells. **Papadopoulou et al, Blood Cells Mol Dis.** **2014**, 53(1-2):84-90. doi: 10.1016/j.bcmd.2014.03.001.
- 7 Fatal infantile cardioencephalomyopathy with COX deficiency and mutations in SCO2, a COX assembly gene. **Papadopoulou et al, Nature Genetics.** **1999**, 23(3):333-7. doi: 10.1038/15513.