



Aura-Elena Ionescu

Nationality: Romanian **Date of birth:** 19/11/1988 **Gender:** Female

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WORK EXPERIENCE

Research Scientist, Ph.D.

Institute of Biochemistry, Department of Enzymology, Cell Signaling Research Group [04/01/2023 – Current]

Address: 296 Splaiul Independenței Bd., 060031 Bucharest (Romania)

Study of the family of membrane proteins called G protein-coupled receptors (GPCRs).

My main focus consists in the study of GPR75, a G protein-coupled receptor whose biological function is unknown (it is an orphan receptor). I have concentrated my efforts in the identification of interactors of this receptor in mammalian cells. For this purpose, I used techniques such as mass spectrometry-based proteomics, immunoprecipitation, Western blot, maintenance and processing of cell cultures (bacterial and mammalian).

Research Scientist, Ph.D.

Institute of Biochemistry, Department of Enzymology [21/12/2020 – Current]

Address: 296 Splaiul Independenței Bd., 060031 Bucharest (Romania)

The title of "DOCTOR" was granted by Order of the Minister of Education and Research no. 6245/ 21.12.2020.

Research Scientist, Ph.D. student

Institute of Biochemistry, Department of Enzymology [06/2017 – 20/12/2020]

Address: 296 Splaiul Independenței Bd., 060031 Bucharest (Romania)

Website: www.biochim.ro

Activities:

- continuation and development of the activities started in November 2013, related to the study of human Eyes absent proteins (details below, interval November 2013 - May 2017).

- training and supervising students in the laboratory, for the practical part of the bachelor's and dissertation papers or for summer practice.

Business or sector: Fundamental research

Research Assistant, Ph.D. student

Institute of Biochemistry, Department of Enzymology [02/2013 – 05/2017]

Address: 296 Splaiul Independenței Bd., 060031 Bucharest (Romania)

Website: www.biochim.ro

November 2013 - May 2017. The study of human Eyes absent proteins, mainly EYA3, in the context of phosphorylation induced by tyrosine-protein kinase Src: detection of tyrosine-phosphorylated sites, EYA3-EYA3 interaction, study of the balance between phosphorylation and autodephosphorylation reactions of EYA3, the interaction of EYA1, EYA2 and respectively EYA3 with WDR1 WT, the cellular implications of phosphorylation of EYA3 tyrosine residues in normal and cancerous mammalian cells (proliferation - HEK293T, MCF-7, MDA-MB-231 - invasiveness, in MCF-7).



February - October 2013. Expression and purification of a cytidine deaminase specific to single stranded DNA; mass spectrometric analysis of proteins (identification of proteins and detection of phosphorylated tyrosine residues using liquid chromatography coupled with mass spectrometry).

■ The studies I have performed starting with February 2013 also materialized in the results of the activities performed as a doctoral student (read the paragraphs entitled "Publications", "Presentations", "Projects" and "Honours and awards").

Business or sector: Fundamental research

Resident Pharmacist in Clinical Pharmacy

Emergency Clinical Hospital Bucharest [01/01/2013 – 31/12/2015]

Address: 8 Floreasca street, 014461 Bucharest (Romania)

Website: www.scub.ro

During the three years of residency, I attended practical trainings in the hospital and theoretical courses of clinical pharmacy at the Faculty of Pharmacy, "Carol Davila" University of Medicine and Pharmacy, Bucharest. The knowledge acquired through the above-mentioned training was applied in the practice performed at the Emergency Clinical Hospital Bucharest and in the hospital's pharmacy (closed circuit pharmacy).

Business or sector: Clinical Pharmacy

EDUCATION AND TRAINING

Ph.D. student

The School of Advanced Studies of the Romanian Academy - Institute of Biochemistry [01/11/2013 – 09/09/2020]

Address: 296 Splaiul Independenței Bd., 060031 Bucharest (Romania)

Website: <https://acad.ro/scosaar/>

Field(s) of study: Natural sciences, mathematics and statistics: *Biochemistry*

Final grade: Excelent

Thesis: Mass spectrometric analysis of EYA-modified proteins from normal and cancerous cells

Specialty Department: Life sciences, medical and agricultural.

The field of doctoral studies (classified by "The School of Advanced Studies of the Romanian Academy", SCOSAAR): Biology.

Regarding the results of the activity, please read the paragraphs entitled "Publications" (especially articles no. 3, 5 and 6), "Presentations", "Projects", "Conferences and seminars" and "Honours and awards".

Resident Pharmacist in Clinical Pharmacy

Emergency Clinical Hospital Bucharest [01/01/2013 – 31/12/2015]

Address: 8 Floreasca street, 014461 Bucharest (Romania)

Website: www.scub.ro

Field(s) of study: Health and welfare: *Pharmacy*

Final grade: 9.90

Pharmaceutical practice in closed circuit pharmacy (hospital pharmacy).

MSc student in Chemical Biology

"Școala Normală Superioară București" (SNSB) within the Romanian Academy [10/2012 – 10/2014]

Address: 296 Splaiul Independenței Bd., 060031 Bucharest (Romania)

Field(s) of study: Natural sciences, mathematics and statistics: *Biochemistry*

■ **The main subjects of study were:** Recombinant DNA technology, Protein folding and misfolding, Crystallography and protein purification, Chemical Biology, DNA-protein interactions, Bioinformatics and Molecular modeling.

Regarding the results of the activity, please read the paragraph entitled "Publications" (articles no. 6 and 7).



Student

Faculty of Pharmacy, "Carol Davila" University of Medicine and Pharmacy [01/10/2007 – 09/2012]

Address: 6 Traian Vuia street, 020956 Bucharest (Romania)

Website: <https://umfcd.ro/>

Field(s) of study: Health and welfare: *Pharmacy*

Final grade: 9.85

■ **The main studied subjects were:** Pharmacology and clinical pharmacy, Pharmaceutical technology and Biopharmacy, Toxicology, Biochemistry, Pharmaceutical Chemistry, Drug control and analysis, Analytical Chemistry, Biostatistics.

■ **Bachelor's thesis:** "Pharmacological screening over newly synthesized thiosemicarbazide, triazole and thiadiazole derivatives".

■ Regarding the results of the activity, please read the paragraphs entitled "Publications" (article no. 8), "Conferences and seminars" and "Honours and awards".

LANGUAGE SKILLS

Mother tongue(s): **Romanian**

Other language(s):

English

German

LISTENING C2 READING C2 WRITING C2

LISTENING A2 READING A2 WRITING A2

SPOKEN PRODUCTION B2 SPOKEN INTERACTION C1 SPOKEN PRODUCTION A2 SPOKEN INTERACTION A2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

COMMUNICATION AND INTERPERSONAL SKILLS

Communication skills

Very good communication skills, acquired through experiences with patients from the hospital and the related closed circuit pharmacy (during the pharmaceutical internship period within the Residency), in the open circuit pharmacy (during the pharmaceutical practice program performed while being a pharmacy student) and through the work performed within the Department of Enzymology (The Institute of Biochemistry of the Romanian Academy) as a master's and doctoral student (presentation of scientific articles at "Jurnal Club" - type seminars, presentation of the obtained data at group and institute seminars, poster presentations - see paragraph entitled "Presentations").

ORGANISATIONAL SKILLS

Organisational/ managerial skills

During my doctoral studies I trained and supervised some students and master students, so they could carry out their bachelor or dissertation thesis.

JOB-RELATED SKILLS

Cellular and molecular biology techniques, as well as mass spectrometry-based proteomics techniques

SDS-PAGE, native and in gradient electrophoresis, Western Blot, immunoprecipitation, in vitro reactions (phosphorylation, dephosphorylation, determination of enzymatic activity), analysis of peptides and proteins through mass spectrometry (coupled with liquid chromatography) and interpretation of the obtained results, protein expression in bacterial system and purification of proteins (by affinity, ion exchange and size exclusion chromatography), growth, managing and processing of mammalian cells in culture, site-directed mutagenesis, cloning.



DIGITAL SKILLS

good communication and teamwork skills / Information processing-Independent user / Good communication skills (written and verbal) / Communication & presentation skills / Content creation: Independent user / Problem solving - independent / Safety : Basic User / Communication: Independent user

General use programs

Microsoft Office™ (Word™, Excel™, Power Point™) / Adobe Acrobat Reader / Adobe Illustrator™

Specialized programs/ softwares

Thermo Scientific™ Proteome Discoverer™ v1.4 and v1.3 (with SEQUEST or Sequest HT algorithms), / MaxQuant - programs used for the analysis and interpretation of mass spectrometry data; / Xcalibur™ - program used for mass spectrometry raw data acquisition and processing; / Image J; / GraphPad Prism 6; / PyMOL (basic concepts); / FCS Express (De Novo Software™) - for the analysis of flow cytometry data (basic concepts); / Vector NTI®, SnapGene® (basic concepts);

PROJECTS

CERO - PROFIL DE CARIERĂ: CERCETĂTOR ROMÂN

[08/2014 – 11/2015]

Project won as Ph.D. student at the Institute of Biochemistry of the Romanian Academy:

I have obtained a scholarship through the project entitled "CERO - PROFIL DE CARIERĂ: CERCETĂTOR ROMÂN" with contract code: POSDRU/159/1.5/S/135760.

Within this project, between July and September 2015 (two months), I obtained another scholarship, at the University of Utrecht, The Netherlands (Biomolecular Mass Spectrometry and Proteomics Department, Bijvoet Center for Biomolecular Research and Utrecht Institute for Pharmaceutical Sciences). At the University of Utrecht, I performed native and bottom-up mass spectrometry experiments related to my research as Ph.D. student, particularly EYA3 tyrosine phosphorylation by protein tyrosine kinase Src. Results were published in the article: „**A analysis of EYA3 Phosphorylation by Src Kinase Identifies Residues Involved in Cell Proliferation.** Aura E. Ionescu; Mihaela Mentel; Cristian V.A. Munteanu; Livia E. Sima; Eliza C. Martin; Georgiana Necula-Petrareanu; Stefan E. Szedlacsek. International Journal of Molecular Sciences 2019, Volume 20, Issue 24, 6307”.

PUBLICATIONS

Synthesis and characterization of a novel [52Mn]Mn-labelled affibody based radiotracer for HER2+ targeting

[2023]

Balázs Váradi, Károly Brezovcsik, Zoltán Garda, Enikő Madarasi, Horea Szedlacsek, Rodica-Aura Badea, Andrei Mihai Vasilescu, Adina-Gabriela Puiu, Aura Elena Ionescu, Livia-Elena Sima, Cristian V. A. Munteanu, Simona Călărăș, Adrienn Vágner, Dezső Szikra, Ngô Minh Toàn, Tibor Nagy, Zoltán Szűcs, Stefan Szedlacsek, Gábor Nagy and Gyula Tircsó

Inorganic Chemistry Frontiers, 2023

Trojan horse treatment based on PEG-coated extracellular vesicles to deliver doxorubicin to melanoma in vitro and in vivo

[2022]

Laura Patras, Aura Elena Ionescu, Cristian Munteanu, Renata Hajdu, Andreea Kosa, Alina Porfire, Emilia Licarete, Valentin Florian Rauca, Alina Sesarman, Lavinia Luput, Paul Bulzu, Paul Chiroi, Rares Andrei Tranca, Marta-Szilvia Meszaros, Giorgia Negrea, Lucian Barbu-Tudoran, Monica Potara, Stefan Szedlacsek, Manuela Banciu

Cancer Biology and Therapy 2022 Dec 31;23(1):1-16.



[Analysis of EYA3 Phosphorylation by Src Kinase Identifies Residues Involved in Cell Proliferation](#)

[2019]

Aura E. Ionescu; Mihaela Mentel; Cristian V.A. Munteanu; Livia E. Sima; Eliza C. Martin; Georgiana Necula-Petrareanu; Stefan E. Szedlacsek

International Journal of Molecular Sciences 2019, Volume 20, Issue 24, 6307.

[Regulation of TRPM8 Channel Activity by Src-mediated Tyrosine Phosphorylation](#)

[2019]

Alexandra Manolache, Tudor Selescu, Georgiana Maier, Mihaela Mentel, Aura Ionescu, Cristian Neacsu, Alexandru Babes, Stefan Szedlacsek

Journal of Cellular Physiology. 2020 Jun;235(6):5192-5203.

[WDR1 is a novel EYA3 substrate and its dephosphorylation induces modifications of the cellular...](#)

[2018]

Correct title: "WDR1 is a novel EYA3 substrate and its dephosphorylation induces modifications of the cellular actin cytoskeleton"

Mihaela Mentel, Aura E. Ionescu, Ioana Puscalau-Girtu, Martin S. Helm, Rodica A. Badea, Silvio O. Rizzoli & Stefan E. Szedlacsek

Scientific Reports, 2018 Feb 13;8(1):2910.

[Expression, Purification, and Kinetic Analysis of PTP Domains](#)

[2016]

Mihaela Mențel, Rodica A. Badea, Georgiana Petrăreanu, Sujay T. Mallikarjuna, Aura E. Ionescu, Ștefan E. Szedlacsek

Methods in Molecular Biology, Vol. 1447, pages 39-66, Protein Tyrosine Phosphatases, 2016.

[Phosphoketolases from Lactococcus lactis, Leuconostoc mesenteroides and Pseudomonas aeruginosa:...](#)

[2014]

Correct title: "Phosphoketolases from Lactococcus lactis, Leuconostoc mesenteroides and Pseudomonas aeruginosa: dissimilar sequences, similar substrates but distinct enzymatic characteristics"

Georgiana Petrăreanu, Mihaela C Balașu, Andrei M Vacaru, Cristian V A Munteanu, Aura E Ionescu, Iulia Matei, Ștefan E Szedlacsek

Applied Microbiology and Biotechnology. 2014 Sep;98(18):7855-67. Epub 2014 Apr 17.

[Synthesis and Biological Evaluation of Some New N¹-\[4-\(4-Chlorophenylsulfonyl\) benzoyl\]-N⁴-\(aryl\)..](#)

[2013]

Correct title: "Synthesis and Biological Evaluation of Some New N¹-[4-(4-Chlorophenylsulfonyl) benzoyl]-N⁴-(aryl)-thiosemicarbazides and Products of Their Cyclization"

Ștefania-Felicia Bărbuceanu, Gabriela Băncescu, Gabriel Șaramet, Florica Bărbuceanu, Constantin Drăghici, Flavian Ștefan Rădulescu, Aura Ionescu and Simona Negreș

Heteroatom Chemistry, Volume 24, Issue 4, pages 309-321, July 2013.



PRESENTATIONS

Poster presentations

■ **“EYA3 tyrosine phosphorylation by Src kinase. From mass spectrometry to implications in proliferation.”**

Aura-Elena Ionescu, Mihaela Mențel, Aneika C. Leney, Cristian V.A. Munteanu, Albert J. Heck, Ștefan E. Szedlacsek, The 12th Central and Eastern European Proteomic Conference: “Advances in Proteomics and Progress in Precision Medicine”, 24 - 26th of October 2018, Bucharest, Romania.

■ **“Evidence for intermolecular autodephosphorylation of human Eya3”**

Aura Elena Ionescu, Mihaela Mențel, Rodica Aura Badea, Ștefan Eugen Szedlacsek

EMBO Conference „Europhosphatase 2017: Phosphatases in cell fates and decisions”, 23 - 28th of July 2017, Paris, France.

■ **„Mass Spectrometric investigations regarding phosphorylation of human Eya3 by Src kinase”**

Aura Elena Ionescu, Mihaela Mențel, Cristian V. A. Munteanu, Cristian Marian Butnaru, Rodica Aura Badea, Ioana Iancu, Ștefan Eugen Szedlacsek

EMBO Conference “Europhosphatase 2015: Phosphorylation switches and cellular homeostasis”, 24- 29th June 2015, Turku, Finland.

CONFERENCES AND SEMINARS

The 12th Central and Eastern European Proteomic Conference

[Bucharest, Romania, 24/10/2018 – 26/10/2018]

Theme: "Advances in Proteomics and Progress in Precision Medicine" (with Certificate of attendance).

The 2nd International Summer School “Proteomics - from Introduction to Clinical Applications”

[Iași, Romania, 09/07/2018 – 13/07/2018]

EMBL-EBI bioinformatics training courses

[Bucharest, Romania, 18/04/2018 – 20/04/2018]

EMBL-EBI bioinformatics training courses “Introduction to EMBL-EBI resources”, “Sequence search and alignment”, “Introduction to Ensembl” (with Certificate of Completion).

The 2nd Romanian Bioinformatics Seminar

[Bucharest, Romania, 18/04/2018 – 20/04/2018]

The “Academician Nicolae Cajal” Symposium of the Romanian Medical Sciences Academy

[Bucharest, Romania, 22/03/2018 – 24/03/2018]

Europhosphatase 2017: "Phosphatases in cell fates and decisions"

[Paris, France, 23/07/2017 – 28/07/2017]

EMBO Conference

Europhosphatase 2015: "Phosphorylation switches and cellular homeostasis"

[Turku, Finland, 24/06/2015 – 29/06/2015]

EMBO Conference

Late Summer Practical Proteomics Seminar

[IMP/IMBA, Vienna, Austria , 02/09/2013 – 03/09/2013]

With Certificate of Completion



„Hands-on-dissolution" Workshop

[Hotel "Alpin", Poiana Braşov, Romania, 11/06/2012 – 14/06/2012]

The 13th Int. Congress of the Romanian Society of Clinical Pharmacology, Therapeutics and Toxicology

[Hotel "Alpin", Poiana Braşov, Romania, 11/06/2012 – 14/06/2012]

HONOURS AND AWARDS

As Ph.D. student

[26/10/2018]

■ **Third prize** at the "Best poster" contest, organized within "The 12th Central and Eastern European Proteomic Conference: Advances in Proteomics and Progress in Precision Medicine"

Poster: **"EYA3 tyrosine phosphorylation by Src kinase. From mass spectrometry to implications in proliferation.**

Aura-Elena Ionescu, Mihaela Menţel, Aneika C. Leney, Cristian V.A. Munteanu, Albert J. Heck, Ştefan E. Szedlacsek"
24 - 26th of October 2018, Bucharest, Romania.

As student at the Faculty of Pharmacy, "Carol Davila" University of Medicine and Pharmacy

■ **First prize** at the "Clinical Aptitudes" contest, within the 12th edition of the Student Scientific Communications Session, organized by the Faculty of Pharmacy, "Carol Davila" University of Medicine and Pharmacy, 10 - 11th of May 2012, Bucharest (the competitors had to solve a clinical case).

■ **Second prize** for the study entitled "Experimental pharmacology research concerning the acute toxicity, analgesic effect and anti-inflammatory effect of some newly synthesized organic compounds", accomplished at the "Pharmacology and Clinical Pharmacy" Department of the Faculty of Pharmacy, "Carol Davila" University of Medicine and Pharmacy Bucharest. The competition was organized within the 12th edition of the Student Scientific Communications Session, 10th - 11th of May 2012, Bucharest.

■ **Fourth prize** with the study entitled "New tioureids of the 2-thiophencarboxylic acid with potential pharmacological activity", accomplished at the "Pharmaceutical Chemistry" Department. The competition was organized within the 10th edition of the Student Scientific Communications Session, held at the Faculty of Pharmacy, "Carol Davila" University of Medicine and Pharmacy Bucharest, in 2010.

Awards obtained during high school

■ **Special Mention** at the National Chemistry Olympics, 41st Edition, Braşov 2007;

■ **First Prize** at the County Chemistry Olympics, Ploieşti, 2007;

■ **Mention** at the County Chemistry Olympics, Ploieşti, 2006;

■ **Third Prize** at the County Chemistry Olympics, Ploieşti, 2005;

■ **Mention** at the County Biology Olympics, Ploieşti, 2004.

DRIVING LICENCE

Driving Licence: AM

Driving Licence: B1

Driving Licence: B



Signature

Bucharest, 07/08/2023

A handwritten signature in blue ink that reads "Ionescu".

Aura-Elena Ionescu