

## ELENA-GEORGIANA DOBRE

*Victor Babes National Institute of Pathology, Bucharest, Romania*

*University of Bucharest, Bucharest, Romania*

Gender: *Female* / Date of birth: *06 Aug 1995* / Nationality: *Romanian*

Research interests –*Skin cancer, epigenetics, immuno-oncology, bioinformatics.*

### EDUCATION SUMMARY

Faculty of Biology, University of Bucharest, *Bucharest, Romania*  
Ph.D. Candidate

October 2020 – present  
Admitted with grade 9.65/10

Faculty of Biology, University of Bucharest, *Bucharest, Romania*  
M.Sc. in Biochemistry and Molecular Biology, ranked 1 out of 26 graduates

October 2017 – July 2019  
GPA: 10/10

Faculty of Biology, University of Bucharest, *Bucharest, Romania*  
B.Sc. in Biochemistry, ranked 1 out of 42 graduates

October 2014 – July 2017  
GPA: 9.89/10

### RESEARCH EXPERIENCE

#### Doctoral studies in Molecular Biology and Immunology

October 2020 – present

*Current Advisor: Prof. Monica Neagu, PhD*

*University of Bucharest, Romania*

*Deciphering the genetic and epigenetic alterations involved in skin cancer progression and drug resistance*

- Employing immunological and molecular (RT-PCR, ddPCR) assays to investigate the genetic and epigenetic alterations driving skin cancer progression and drug resistance; *in vitro* generation of functional melanoma models by Crispr-Cas9 gene editing technology coupled with lentiviral transduction.

#### MSc in Biochemistry and Molecular Biology

January 2018 – July 2019

*Advisor: Prof. Marieta Costache, PhD*

*University of Bucharest, Romania*

*Ionized calcium binding adaptor molecule-1 (Iba-1) macrophages contribution to peripheral neuropathic pain development*

- Employing RT-PCR assays for cytokine/chemokine measurement to investigate the M1/M2 phenotypic switch following *Iba-1* silencing in rat models of peripheral neuropathy

#### BSc in Biochemistry

November 2016 – July 2017

*Advisor: Prof. Marieta Costache, PhD*

*University of Bucharest, Romania*

*Addressing the suitability of human adipose-derived stem cells (hADSCs) for breast tissue reconstruction in patients with cancer*

- Combining immunofluorescence microscopy and molecular approaches to investigate the potential genomic alterations (e.g., *hTERT*/telomerase reactivation) induced within the hADSCs exposed to tumor- conditioned media.

### WORK EXPERIENCE

#### Research Assistant

August 2023 – present

*Victor Babes National Institute of Pathology, Bucharest, Romania*

Scientific research activities within project PN-III-P4-PCE-2021-0549:

- microbial DNA extraction techniques from feces and dermal samples, alongside metagenomic studies involving sequencing of the 16S rRNA gene using NGS technology;
- nucleic acid extraction techniques from FFPE tissue samples, coupled with hotspot mutation analysis using RT-PCR and ddPCR techniques.

#### Quality Laboratory Manager

November 2021 – December 2023

*Ams Laborator Genetic SRL, Bucharest, Romania*

- implementation and maintenance of the Quality Systems programs that are consistent with regulatory policies and standards in the field (ISO 15189, Romanian National Authority for Quality Management in Health, Romanian National Institute of Public Health);
- supporting corrective action task force initiatives, conducting quality audits and process validation;
- assisting with laboratory administrative duties;
- obtaining lab certifications and completing QA/QC assignments;
- reviewing activities and developing policies associated with biological agents that pose a potential hazard to personnel or the environment;

#### Biochemist

April 2019 – December 2023

*Ams Laborator Genetic SRL, Bucharest, Romania*

- performing non-invasive prenatal testing (NIPT)-based on NGS techniques to identify fetal chromosomal deletions and duplications;

- performing RT-qPCR-based SARS-CoV-2 detection in nasopharyngeal swab samples;
- performing internal quality control and participating in interlaboratory comparison, proficiency testing (PT) schemes, or external quality assessment (EQA) programmes, in the accreditation process.

## Biochemist

August 2018 – April 2019

*Personal Genetics SRL, Bucharest, Romania*

- genetic testing for thrombophilia mutations;
- detection of KRAS, NRAS and BRAFV600 mutations in FFPE tissues from lung adenocarcinoma, melanoma and colorectal cancer patients via qRT-PCR and Sanger sequencing;
- performing internal quality control and participating in interlaboratory comparison/PT/ EQA programmes in the accreditation process.

## PUBLICATIONS

### Publications in ISI indexed/quoted journals:

- **Dobre E.G.**, Nichita L, Popp C, Zurac S, Neagu M., 2024. Assessment of RAS-RAF-MAPK pathway mutation status in healthy skin, benign nevi, and cutaneous melanomas: pilot study using droplet digital PCR. *International Journal of Molecular Sciences*. 25(4):2308. doi: 10.3390/ijms25042308.
- Constantin M., Chifiriuc M.C., Mihaescu G., Vrancianu C.O., **Dobre E.G.**, Cristian R.E., Bleotu C., Bertesteanu S.V., Grigore R., Serban B., Cirstoiu C., 2023. Implications of oral dysbiosis and HPV infection in head and neck cancer: from molecular and cellular mechanisms to early diagnosis and therapy. *Frontiers in Oncology*. 18:13:1273516. doi: 10.3389/fonc.2023.1273516.
- **Dobre E.-G.**, Surcel M., Constantin C., Ilie M.A., Caruntu A., Caruntu C., Neagu M., 2023. Skin cancer pathobiology at a glance: A focus on imaging techniques and their potential for improved diagnosis and surveillance in clinical cohorts. *International Journal of Molecular Sciences*. 24(2):1079.
- **Dobre E.-G.**, Constantin C., Neagu M., 2022. Skin cancer research goes digital: looking for biomarkers within the droplets. *Journal of Personalized Medicine*. 12(7):1136.
- **Dobre E.-G.**, Constantin C., Costache M., Neagu M., 2021. Interrogating epigenome toward personalized approach in cutaneous melanoma. *Journal of Personalized Medicine*. 11(9):901.
- Vrancianu C.O., **Dobre E.G.**, Gheorghe I., Barbu I., Cristian R.E., Chifiriuc M.C., 2021. Present and future perspectives on therapeutic options for carbapenemase-producing Enterobacterales infections. *Microorganisms*. 9(4):730.
- Vrancianu C.O., Gheorghe I., **Dobre E.-G.**, Barbu I.C., Cristian R.E., Popa M., Lee S.H., Limban C., Vlad I.M., Chifiriuc M.C., 2020. Emerging strategies to combat  $\beta$ -Lactamase producing ESKAPE pathogens. *International Journal of Molecular Sciences*. 21(22):8527.
- **Dobre E.-G.**, Dinescu S., Costache M., 2020. Connecting the missing dots: ncRNAs as critical regulators of therapeutic susceptibility in breast cancer. *Cancers*. 12(9):2698.

### Publications in journals indexed in other international databases:

- **Dobre E.G.**, Caruntu A., Munteanu A.N., Surcel M., Constantin C., Caruntu C., Scheau C., Neagu M., 2024. Investigating EGFR, BRAF, and RAS mutations in oral and cutaneous squamous cell neoplasms: a preliminary report on Romanian patients. *Romanian Journal of Military Medicine*. DOI: 10.55453/rjmm.2024.127.5.2.
- **Dobre E.G.**, Dinescu S., Costache M., 2019. Telomeres and telomere dysfunctions. *Reviews in Biological and Biomedical Sciences*. 2, 19-28.

## PRESENTATIONS

### Abstracts presented at International Scientific Conferences

- **Dobre E.G.**, Surcel M., Munteanu A., Neagu M., Constantin C. Examining IL-22 and its influence on primary cutaneous SCC keratinocytes: an *in vitro* approach. 12th EFIS-EJI South Eastern European Immunology School (SEEIS2023). October 20 –23, 2023, Trogir, Croatia. *Poster presentation*.
- **Dobre E.G.**, Munteanu A., Surcel M., Neagu M., Constantin C. Assessment of m6A, 5-hmC, and HDACs levels in oral squamous cell carcinoma cells (OSCC) treated with Hedgehog (HH) pathway inhibitors: a pilot study harnessing the epigenetic alterations and HH inhibition in OSCC therapy. 2nd ICI CIVIS SUMMER SCHOOL, July 3-7, 2023. Marseille, France. *Poster presentation*.
- Neagu M., Constantin C., **Dobre E.G.**, Surcel M., Munteanu A., Zurac S. Langerhans cells - reviewing their functions in skin pathologies. 18th European Academy of Dermatology and Venereology (EADV) Symposium. May 18 - 20, 2023. Sevilla, Spain. *Oral presentation*.
- **Dobre E.-G.**, Zenoaga-Barbarosie C., Vrancianu C.O., Dionisie M.V., Chirea E.T., Vulpe A., Belengeanu V., Popescu C. Clinical relevance of fetal fraction in NIPT. Data on 3375 pregnancies tested in Romania in 2019-2020. The 12th Medical Genetics Congress, February 2022, Iasi, Romania. Abstract Book Supplement, 66-67. *Oral presentation*.
- **Dobre E.-G.**, Neagu M. Droplet digital PCR: An emerging technology for cutaneous melanoma detection and

monitoring. *Biology and Life Sciences Forum*. 2021, 7, 20. *Oral presentation*.

- **Dobre E.-G.**, Neagu M. Multi-omics-driven biomarkers for precision medicine in cutaneous melanoma, in Proceedings of the 1st International Electronic Conference on Biomedicine, 1–26 June 2021. MDPI: Basel, Switzerland, doi:10.3390/ECB2021-10280. *Oral presentation*.

#### **Abstracts presented at National Scientific Conferences**

- **Dobre E.G.**, Dinescu S., Ristoiu V., Costache M. Therapeutic relevance of *Ionized calcium binding adaptor molecule-1 (Iba-1)* silencing in rat models of peripheral neuropathy. Student Scientific Session of the Faculty of Biology- 2019 edition, University of Bucharest, Romania. Student Scientific Session of the Faculty of Biology – Abstract volume, 2019, 20 (ISSN 2559- 396X). *Oral presentation*.
- **Dobre E.G.**, Dinescu S., Costache M. Assessment of telomerase expression in human adipose-derived stem cells (hADSCs) treated with tumor conditioned-medium. Student Scientific Session of the Faculty of Biology- 2017 edition, University of Bucharest, Romania. Student Scientific Session of the Faculty of Biology – Abstract volume, 2017, 38 (ISSN 2559- 396X). *Oral presentation*.

#### **FELLOWSHIPS:**

- *Training in CRISPR/Cas9 and shRNA techniques to study the genes involved in the proliferation and drug resistance of human melanoma cells*, INSERM U1149, Centre de Recherche sur l'Inflammation, Faculté de Médecine Paris Diderot, February- April 2023 (Paris, France);
- *Organoid models in immunology-oncology*, Institute of Cancer and Immunology Marseille, June-July 2023 (Marseille, France).

#### **ADDITIONAL INFORMATION**

- ORCID Profile: <https://orcid.org/0000-0002-6464-381X>
- Memberships: Romanian Society of Bioinformatics; European Association of Dermato-oncology;
- Languages: Native - Romanian. Proficient user – English, French, Spanish;
- Programs: C++ and C# programming languages, Genome Workbench, BLAST, statistical analysis software (GraphPad, SPSS, R, and Python);
- Systems: Windows, Bio-Linux;
- Hobbies: Swimming, Reading.