

Curriculum Vitae

PERSONAL INFORMATION Pătraș Laura-Ioana



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Sex F | Date of birth 27/07/1988 | Nationality Romanian

WORK EXPERIENCE	
15/05/2024 - Present	Researcher in the international project 101132842-I3HIES-I3-2022-CAP2b entitled: „Boosting Interregional Innovation Investment and cooperation among Health Innovation EcoSystems. Project coordinator: Professor Dr. Anca Andreica. Babeș-Bolyai University, 1, Kogalniceanu street, Cluj-Napoca, Romania (www.ubbcluj.ro) Research activity
06/06/2023 – 30/05/2024	Postdoctoral researcher in the national grant PN-III-P2-2.1-PED-2021-0411 entitled: „Development of 3D co-culture systems for anticancer drug testing and exploring tumor intercellular interactions”. Project director: Assistant Professor Dr. Alina Sesărman. Babeș-Bolyai University, 1, Kogalniceanu street, Cluj-Napoca, Romania (www.ubbcluj.ro) Research activity
07/06/2023 – Present	Postdoctoral researcher in the national grant PN-III-P1-1.1-TE-2021-0366 entitled: “Targeted therapy for the treatment of melanoma based on co-administration of anti-PD-L1 antibodies and curcumin-loaded extracellular vesicles”. Project director: Assistant Professor Dr. Alina Sesărman. Babeș-Bolyai University, 1, Kogalniceanu street, Cluj-Napoca, Romania (www.ubbcluj.ro) Research activity
02/01/2021 – 31/04/2023	Visiting Postdoctoral Fellow at Weill Cornell Medical College in the Department of Pediatrics (New York City, N.Y., U.S.) Training and working in research on the roles of exosomes in Metastasis and Pre-Metastatic Niche Formation. Research activity
20/11/2020 – 30/04/2020	Visiting Postdoctoral Fellow at Weill Cornell Medical College in the Department of Pediatrics (New York City, N.Y., U.S.) Training and working in research on the roles of exosomes in Metastasis and Pre-Metastatic Niche Formation. Research activity
26/02/2018-Present	University assistant at Babeș-Bolyai University in the department of Molecular Biology and Biotechnology Babeș-Bolyai University, 1, Kogalniceanu street, Cluj-Napoca, Romania (www.ubbcluj.ro) Structural Biochemistry and Metabolism Biochemistry laboratory practices for undergraduates Teaching activity
01/08/2017-31/10/2019	Research assistant in the national grant PN-III-P4-ID-PCE-2016-0342 entitled: “Means of intratumor intercellular communication – sources of inspiration for future cancer targeted therapies”. Project director: Conf. Dr. Manuela Banciu. Babeș-Bolyai University, 1, Kogalniceanu street, Cluj-Napoca, Romania (www.ubbcluj.ro) Isolation, purification and stabilization of extracellular vesicles harvested from B16.F10 murine melanoma cells for their use as transport vehicles for different therapeutic agents <i>in vivo</i> . Research activity

01/10/2015-30/09/2017	<p>Research assistant in the national grant PN-II-RU-TE-2014-4-1191 entitled: “Re-education of protumor macrophages - ground for future targeted combination cancer therapies”. Project director: Conf. Dr. Manuela Banciu.</p> <p>Babeş-Bolyai University, 1, Kogalniceanu street, Cluj-Napoca, Romania (www.ubbcluj.ro) Performing <i>in vitro</i> and <i>in vivo</i> experiments on the efficacy of combination therapies for advanced colorectal and melanoma cancer treatment and their potential to re-educate protumor macrophages.</p> <p>Research activity</p>
04/01/2016–30/06/2016	<p>Erasmus+ mobility scholarship (6 months) at the University Medical Centre Utrecht</p> <p>Utrecht Medical University Centre, Heidelberglaan 100, 3584 CX Utrecht, Netherlands (http://www.umcutrecht.nl/nl/) Studying extracellular vesicles secreted by colon cancer cells and investigating the manner in which these vesicles mediate cancer cell drug resistance to various therapeutic agents.</p> <p>Research activity</p>
01/10/2013–04/10/2019	<p>PhD student in the doctoral school of Integrative Biology from Babeş-Bolyai University</p> <p>Babeş-Bolyai University, 1, Kogalniceanu street, Cluj-Napoca, Romania (www.ubbcluj.ro) The PhD thesis research was funded by the grant PN-II-PT-PCCA-2011-3.2-1060/2012: “Development and preclinical evaluation of nanoparticle systems for targeted colorectal cancer therapy”. Project director: Prof. Dr. Laurian Vlase. As a member in this project, I performed <i>in vitro</i> and <i>in vivo</i> experiments to determine the efficacy of different targeted treatments and the effects of these treatments on tumor inflammation, angiogenesis and oxidative stress status. During this PhD I received a doctoral scholarship POSDRU/159/1.5/S/133391 (08/04/2014 – 07/12/2015) and I was also a teaching associate responsible for biochemistry practical classes for undergraduate students and for coordinating bachelor and master thesis (2013-present).</p> <p>Education and research activities</p>

01/05/2012–31/08/2013

Biologist in the national project PN-RU-TE-69/291/2010: “Resistance and tolerance to parasitism as a mediator of avian life-history: the role of oxidative stress and immune cell system”. Project director: Associate Prof. Dr. Peter Laszlo Pap.

Babeş-Bolyai University, 1, Kogalniceanu street, Cluj-Napoca, Romania (www.ubbcluj.ro)
Analysis of the samples that consisted mainly of pro- and antioxidants quantification, immunological determinations, sex determination by nucleic acids analyses, microscopic examinations, as well as setting up protocols for oxidative stress measurement.

[Research activity](#)

EDUCATION AND TRAINING

10/2013–10/2019

PhD

EQF8

Babeş-Bolyai University, Faculty of Biology and Geology, Cluj-Napoca, Romania

Biochemistry and advanced molecular biology, oxidative stress, nanomedicine

10/2018-06/2018

Teacher training diploma - level II

Department for Teacher Training, Babeş-Bolyai University, 7, Sindicatelor street, Cluj-Napoca, Romania

10/2010–06/2012

Teacher training diploma - level I

Department for Teacher Training, Babeş-Bolyai University, 7, Sindicatelor street, Cluj-Napoca, Romania

10/2010–06/2012

Master’s degree in Biology within the program of Molecular Biotechnology [EQF7 studies](#)

Babeş-Bolyai University, Faculty of Biology and Geology, Cluj-Napoca, Romania

Theoretical and practical skills of molecular biology and biotechnology, immunology, bioinformatics, recombinant DNA technology, cell signaling. I graduated on first place from a total of 21 graduates.

10/2007–06/2010

Bachelor's degree in Biology

EQF6

Babeş-Bolyai University, Faculty of Biology and Geology, Cluj-Napoca, Romania

Biology. I graduated on first place from a total of 31 graduates.

Curriculum Vitae

09/2003-06/2007

Baccalaureate

EQF5

National College "Emil Racoviță", Cluj-Napoca, Romania

Science major: maths and computer science, and English intensive program. English language certificate.

PERSONAL SKILLS

English

Romanian

French

Levels:
A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user
[Common European Framework of Reference for Languages](#)

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	
C2	C1	C1	C1	C1
According to ALPHA English test and C2 according to CEFR				
C1	C2	C1	C1	B2
Self-evaluation				

Communication skills

Good communication and interaction skills in a multicultural environment, acquired through European and international exchange projects. Great ability to defend research papers in front of a public, obtained through my participation at national and international conferences.

Organizational/managerial skills

Organizational/managerial skills acquired as a tutor for undergraduate laboratory practices (within the European project POSDRU/7/7.1/S/1, 20/06/2010-8/07/2010) as well as by organizing contests or volunteering in non-profit organizations to coordinate projects. Good leadership features and analytical thinking skills gained by coordinating students during their bachelor and master thesis studies and experiments. I appreciate both teamwork and individual work and I am very enthusiastic about my work.

Job-related skills

Practical knowledge of molecular biology: DNA/RNA isolation, qPCR, PCR for sequencing, building clone libraries gained through my lab activity at the Institute for Biological Research from Cluj-Napoca during my bachelor and master thesis. Work experience with measurement of oxidative stress markers via different colorimetric and enzymatic methods, HPLC, immune system response to different factors (hemagglutination tests, enzymatic activity determination of lysozyme, microscopic examination of blood smears) gained via my research activity as a biologist in the project PN RU TE 69/291/2010 (Director: Associate Prof. Dr. Peter Laszlo Pap). Advanced knowledge of spectrophotometry, chromatography, electrophoresis, Western blot, protein array, ELISA, immunohistochemistry and immunofluorescence techniques. Experience with cell culture techniques and with different tumor models, as well as preparation and characterization of liposomes for therapeutic purposes, acquired during my doctoral research activity as a member in the following projects PN-II-PT-PCCA-2011-3.2-1060/2012 (Director: Prof. Dr. Laurian Vlase), PN-II-RU-TE-2014-41191, PN-III-P4-ID-PCE-2016-0342 (Director: Conf. Dr. Manuela Banciu). Extensive experience in working with murine tumor models and on working with clinical samples.

Practical skills of fluorescence microscopy, flow cytometry, ultrafiltration methods, ultracentrifugation, size-exclusion chromatography Nanoparticle Tracking Analysis and FACS for the isolation and characterization of extracellular vesicles learned during the Erasmus mobility at the University Medical Centre Utrecht (Mentor: Prof. Dr. Raymond Schifflers) and during my work in the national grant PN-III-P4-ID-PCE-2016-0342 (Director: Conf. Dr. Manuela Banciu), as well as during my current postdoctoral fellowship at Weill Cornell Medicine.

Information processing	Communication	Content creation	Safety	Problem solving
Proficient level	Proficient level	Independent level	Independent level	Proficient level

Levels: Basic level - Independent level - Proficient level

[Digital competence – self-evaluation](#)

Advanced knowledge of Microsoft Office suite and basic knowledge of C++.Independent user of GraphPad Prism, TotalLabQuant, ImageJ, FACSCalibur, Zen, ChromNAV programs gained during my PhD and the Erasmus mobility at the UMCU. Basic level user of Photoshop, Adobe Illustrator.

Other skills Photography and speleology skills (Speo-Politehnica, 2006-Present). Member of the European Association for Cancer Research (EACR) (16/01/2015-Present), Member of the International Society for Extracellular Vesicles (ISEV) (12/03/19-Present) and Romanian Society of Biochemistry and Molecular Biology (SRBBM) (2015-Present).

Driving licence B

ADDITIONAL INFORMATION

Representative publications

1. Overbey EG, Kim J, Tierney BT, Park J, Huerbi N, Lucaci AG, Medina SG, Damle N, Najjar D, Grigorev K, Afshin EE, Ryon KA, Sienkiewicz K, **Patras L**, et al. (2024) The Space Omics and Medical Atlas (SOMA) and international astronaut biobank, *Nature*. doi: 10.1038/s41586-024-07639-y. PMID: 38862028.
2. Jones CW, Overbey EG, et al. (2024) Molecular and physiologic changes in the SpaceX Inspiration4 civilian crew., *Nature*. doi: 10.1038/s41586-024-07648-x. PMID: 38862026.
3. Overbey, E.G., Ryon, K., Kim, J. et al. (2024) Collection of biospecimens from the inspiration4 mission establishes the standards for the space omics and medical atlas (SOMA). *Nature Communications*, 15(1):4964. doi: 10.1038/s41467-024-48806-z. PMID: 38862509.
4. Kim J, Tierney BT, Overbey EG, et al. (2024) Single-cell multi-ome and immune profiles of the Inspiration4 crew reveal conserved, cell-type, and sex-specific responses to spaceflight. *Nature Communications*, 15(1):4954. doi: 10.1038/s41467-024-49211-2. PMID: 38862516.
5. Huerbi N, Kim J, Overbey EG, Batra R, Schweickart A, **Patras L** et al. (2024) Secretome profiling reveals acute changes in oxidative stress, brain homeostasis, and coagulation following short-duration spaceflight. *Nature Communications*, 15(1):4862. doi: 10.1038/s41467-024-48841-w. PMID: 38862464.
6. Huerbi N, Kim J, Overbey EG, Batra R, Schweickart A, **Patras L** et al. (2024) Secretome profiling reveals acute changes in oxidative stress, brain homeostasis, and coagulation following short-duration spaceflight. *Nature Communications*, 15(1):4862. doi: 10.1038/s41467-024-48841-w. PMID: 38862464.
7. Siew K, Nestler KA, Nelson C, et al. (2024) Cosmic kidney disease: an integrated pan-omic, physiological and morphological study into spaceflight-induced renal dysfunction. *Nature Communications*. 15(1):4923. doi: 10.1038/s41467-024-49212-1. PMID: 38862484.
8. **Patras L.**, Shaashua L., Matei I., Lyden D. (2023) Immune determinants of the pre-metastatic niche. *Cancer Cell*, 41(3):546-572. doi: 10.1016/j.ccell.2023.02.018. PMID: 36917952.
9. **Patras L.**, Paul. D., Matei I. (2023) Weaving the nest: extracellular matrix roles in pre-metastatic niche formation. *Frontiers in Oncology*, 13:1163786. doi: 10.3389/fonc.2023.1163786. PMID: 37350937; PMCID: PMC10282420.
10. **Patras L.**, Ionescu AE, Munteanu C, Hajdu R, Kosa A, Porfire A, Licarete E, Rauca VF, Sesarman A, Luput L, Bulzu P, Chiroi P, Tranca RA, Meszaros MS, Negrea G, Barbu-Tudoran L, Potara M, Szedlacsek S, Banciu M. (2022) Trojan horse treatment based on PEG-coated extracellular vesicles to deliver doxorubicin to melanoma *in vitro* and *in vivo*. *Cancer Biology & Therapy*, 23(1):1-16. doi: 10.1080/15384047.2021.2003656. PMID: 34964693.
11. **Patras L.**, Fens M.H.A.M, Vader P., Barendrecht A., Sesarman A, Banciu M., Schiffelers R. (2020) Normoxic tumour extracellular vesicles modulate the response of hypoxic cancer and stromal cells to doxorubicin *in vitro*. *Int. J. Mol. Sci.* 21(17):5951. doi: 10.3390/ijms21175951. PMID: 32824972.
12. **Patras L.**, Banciu M. Intercellular crosstalk via extracellular vesicles in tumor milieu as emerging therapies for cancer progression (2019) *Current Pharmaceutical Design*, 25(17):1980-2006. doi: 10.2174/1381612825666190701143845. PMID: 31267855.
13. **Patras L.**, Sylvester B., Luput L., Sesarman A., Licarete E., Porfire A., Muntean D., Drotar D.M., Rusu A.D., Nagy A.L., Catoi C., Tomuta I., Vlase L., Banciu M., Achim M. (2017) Liposomal prednisolone phosphate potentiates the antitumor activity of liposomal 5-fluorouracil in C26 murine colon carcinoma *in vivo*. *Cancer Biology & Therapy*, 18(8):616-626. doi: 10.1080/15384047.2017.1345392. PMID: 28696813.
14. Alupeii M.C., Licarete E., **Patras L.**, Banciu M. (2015) Liposomal simvastatin inhibits tumor growth via targeting tumor-associated macrophages-mediated oxidative stress. *Cancer Letters*, 356:946-952. doi: 10.1016/j.canlet.2014.11.010. PMID: 25444912.



29.06.2024