Anexa 20

MEMORIUL ȘTIINȚIFIC

Subsemnata Comarița Ioana-Karla, student doctorand în cadrul SCOSAAR, Școala Doctorală de Științele Vieții, înmatriculată la data de 02.11.2020 în domeniul de studii universitare de doctorat Biologie, la conducătorul de doctorat C.S. I Dr. Adriana Georgescu, autor al tezei de doctorat cu titlul **Afectarea peretelui vascular în boala cardiovasculară aterosclerotică și boala cardiopulmonară: mecanismele moleculare implicate și efectele terapiei mediate de vezicule extracelulare și siRNA**, declar următoarele activități realizate in cadrul stagiului doctoral (se vor păstra doar activitățile realizate):

A. Lista de lucrări științifice

Prim-autor (3):

1. **Comarița I.K.,** Vîlcu A., Constantin A., Procopciuc A., Safciuc F., Alexandru N., Dragan E., Nemecz M., Filippi A., Chiţoiu L., Gherghiceanu M., Georgescu A. **Therapeutic Potential of Stem Cell-Derived Extracellular Vesicles on Atherosclerosis-Induced Vascular Dysfunction and Its Key Molecular Players**. *Front. Cell Dev. Biol.* 2022, *10*, doi:10.3389/fcell.2022.817180 - factor de impact - 6.684, Q1
2. **Comarița I. K.,** Tanko G., Anghelache I.L., Georgescu A. **The siRNA-mediated knockdown of AP-1 restores the function of the pulmonary artery and the right ventricle by reducing perivascular and interstitial fibrosis and key molecular players in cardiopulmonary disease.** J Transl Med.; 22(1):137, 2024. doi: 10.1186/s12967-024-04933-1- factor de impact- 8.440, Q1

3. În curs de publicare: Alexandra Vîlcu, Ioana Karla Comarița, Alina Constantin, Nicoleta Alexandru, Miruna Nemecz, Florentina Safciuc, Florina Maria Bojin,Virgil Păunescu, Adriana Georgescu. **Innovative therapy with stem cell-derived extracellular vesicles on cardiac hypertrophy in an animal model of atherosclerosis; elucidation of the molecular mechanisms involved in the repair process.** *Biomolecules*, 2025, impact factor 4,8.

Co-autor (3):

1. Nicoleta Alexandru, Anastasia Procopciuc, Alexandra Vîlcu, **Ioana Karla Comarița**, Elisabeta Bădilă, Adriana Georgescu. **Extracellular vesicles—incorporated microRNA signature as biomarker and diagnosis of prediabetes state and its complications.** *Rev Endocr Metab Disord* (2021), doi.org/10.1007/s11154-021-09664-y – factor de impact 9.30, Q1
2. Constantin A, **Comarița IK**, Alexandru N, Filippi A, Bojin F, Gherghiceanu M, Vîlcu A, Nemecz M, Niculescu LS, Păunescu V, Georgescu A. **Stem cell-derived extracellular vesicles reduce the expression of molecules involved in cardiac hypertrophy-In a model of human-induced pluripotent stem cell-derived cardiomyocytes.** *Front Pharmacol*, 2022, doi: 10.3389/fphar.2022.1003684 - factor de impact- 5.98, Q1
3. Nemecz, M., Stefan, D.S., **Comarița, I.K.** *et al.* **Microvesicle-associated and circulating microRNAs in diabetic dyslipidemia: miR-218, miR-132, miR-143, and miR-21, miR-122, miR-155 have biomarker potential**. *Cardiovasc Diabetol* **22**, 260 (2023). doi.org/10.1186/s12933-023-01988-0 - factor de impact 9.3, Q1

B. Participări la conferințe/workshop-uri

Prezentări orale (1):

Al 42-lea Simpozion Aniversar al Institutului de Biologie și Patologie Celulară „Nicolae Simionescu" și a 38-a Sesiune Științifică Anuală a Societății Române de Biologie Celulară cu participare internațională, 4-6 Noiembrie, București, 2021. **Therapeutic Potential Of Stem Cell-Derived Extracellular Vesicles On Atherosclerotic-Induced Vascular Dysfunction**.

Postere (11):

1. **Ioana Karla Comarița**, Alina Constantin, Alexandra Vîlcu, Anastasia Procopciuc, Florentina Safciuc, Nicoleta Alexandru, Emanuel Dragan, Miruna Nemecz, Alexandru Filippi, Adriana Georgescu. **Inflammation-induced arterial dysfunction in atherosclerosis; the modulating**

action of mesenchymal stem cell-derived extracellular vesicles. *'Frontiers in CardioVascular Biomedicine,'* 29th April – 1st May 2022, Budapest – Hungary.

2. Miruna Nemecz, Diana Simona Stefan, Alina Constantin, Anastasia Procopciuc, **Ioana Karla Comarița**, Gabriela Tanko, Adriana Georgescu. **MicroRNAs in circulating microvesicles and plasma as biomarkers that complement the clinical diagnosis of diabetic dyslipidemia and its complications**. *'Frontiers in CardioVascular Biomedicine'*, 29th April – 1st May 2022, Budapest – Hungary.
3. **Comarița, K.I** et al. **Vascular wall damage in atherosclerotic cardiovascular disease; Positive effect of extracellular vesicle-based nanotherapeutics on endothelial dysfunction and its key molecular players**. Poster 042/#1044 at the '90th European Atherosclerosis Society Hybrid Congress' (EAS 2022), May 22th -25th, 2022, Milano, Italy.
4. Miruna Nemecz, Diana Simona Stefan, Gabriela Tanko, Alina Constantin, **Ioana Karla Comarița**, Adriana Georgescu. **Microvesicle-related and circulating microRNAs as potential biomarkers of diabetic dyslipidemia,** The anniversary symposium of the Institute of Cellular Biology and Pathology "Nicolae Simionescu" "43 years of sustaining an excellence-promoting environment for cardiovascular research in Romania", December 8th-9th, Bucharest, Romania
5. **Ioana Karla Comarița**, Alexandra Vîlcu, Alina Constantin, Florentina Safciuc, Nicoleta Alexandru, Miruna Nemecz, Alexandru Filippi, Adriana Georgescu**. Therapeutic potential of stem cell-derived extracellular vesicles on atherosclerosis-induced vascular dysfunction and its key molecular players,** The anniversary symposium of the Institute of Cellular Biology and Pathology "Nicolae Simionescu" "43 years of sustaining an excellence-promoting environment for cardiovascular research in Romania", December 8th-9th, 2022, Bucharest, Romania
6. Alina Constantin, **Ioana Karla Comarița**, Nicoleta Alexandru, Alexandru Filippi, Alexandra Vîlcu, Miruna Nemecz, Adriana Georgescu. **Stem cell - derived extracellular vesicles reduce the expression of molecules involved in cardiac hypertrophy - in a model of human-induced pluripotent stem cell-derived cardiomyocytes,** The anniversary symposium of the Institute of Cellular Biology and Pathology "Nicolae Simionescu" "43 years of sustaining an excellence-promoting environment for cardiovascular research in Romania", December 8th-9th , 2022, Bucharest, Romania

7. **Ioana Karla Comarița**, Gabriela Tanko, Laurențiu Anghelache, Alina Constantin, Miruna Nemecz, Nicoleta Alexandru-Moise, Adriana Georgescu. **Tracking The Effect Of siRNA AP-1 As A Potential Therapeutic Strategy In Reversing The Pulmonary Arterial And Right Ventricular Dysfunction Associated With Cardiac And Pulmonary Fibrosis In A Model Of Cardiopulmonary Disease.** The 44th Annual Scientific Symposium Of The Institute Of Cellular Biology And Pathology "Nicolae Simionescu" - ICBP-NS - Held Jointly With 40th Annual Scientific Session Of The Romanian Society For Cell Biology - RSCB , 16-17 November 2023, Bucharest, Romania.
8. **Ioana Karla Comarița**, Alina Constantin, Alexandra Vîlcu, Anastasia Procopciuc, Florentina Safciuc, Nicoleta Alexandru, Miruna Nemecz, Adriana Georgescu. **Arterial dysfunction in an animal model of atherosclerosis; the beneficial effect of mesenchymal stem cell-derived extracellular vesicles in reducing inflammation**. 1st Meeting of the AtheroNET COST Action CA21153, 22th-24th March 2023, Bucharest, Romania.
9. **I K Comarița**, I L Anghelache, G Tanko, A Georgescu, The effects of siRNA-mediated knockdown of AP-1 on pulmonary arterial and right ventricular dysfunction associated with cardiac and pulmonary fibrosis in cardiopulmonary disease, *'Frontiers in CardioVascular Biomedicine*, 12-14 april, 2024, Amsterdam, The Netherlands.
10. Alexandra Vilcu, **Ioana Karla Comarița,** Alina Constantin, Nicoleta Alexandru-Moise, Miruna Nemecz, Gabriela Tanko, Adriana Georgescu. **Cardiac hypertrophy in atherosclerotic cardiovascular disease: molecular mechanisms and therapeutic approaches.** 41st Annual Scientific Session Of The Romanian Society For Cell Biology International Conference Under The Auspices Of The Romanian Academy And The Academy Of Medical Sciences. December 11-13, 2024, Târgu Mureș.
11. Constantin A, **Comarița IK**, Nemecz M, Vilcu A , Georgescu A, Alexandru-Moise N. **Immune Modulation Of T Cells By Platelets And Microvesicles In Experimentally Induced Atherosclerosis.** 41st Annual Scientific Session Of The Romanian Society For Cell Biology International Conference Under The Auspices Of The Romanian Academy And The Academy Of Medical Sciences. December 11-13, 2024, Târgu Mureș.

Workshop-uri

DIABETER online workshop "A new therapeutic tool in autoimmune diabetes: Mesenchymal Stromal Cell", November 20, 2020, IBPC "Nicolae Simionescu", Bucharest, Romania.

THERAVALDIS online workshop: "Diabetes in cardiovascular diseases; pathogenic mechanisms and targeted therapies", November 27, 2020, IBPC "Nicolae Simionescu", Bucharest, Romania.

INTERA online workshop: "Recent advances in the field of obtaining nanovectors for gene transfection", April 22, 2021, IBPC "Nicolae Simionescu", Bucharest, Romania.

INTERA-1 Summer School "Encapsulation of cells and drugs: materials, procedures and applications", 13-14 May 2021, IBPC "Nicolae Simionescu", Bucharest, Romania.

Prof. Dimitris Kardassis: Lectures to the students (Lipoprotein pathways and their roles in the pathophysiology of atherosclerosis / Transcriptional Regulation of Cardiovascular Genes: Basic principles and methodologies in vitro and in vivo / Hormone Nuclear receptors: from basic biology to clinical exploitation in CVD), 14-18 November, 2024, IBPC "Nicolae Simionescu", Bucharest, Romania.

C. Brevete

Procedeu de obținere a veziculelor extracelulare modificate. Cerere de Brevet de Inventie, OSIM Nr. A/00017 din 20.01.2021. Autori: Alexandru Filippi, Nicoleta Alexandru-Moise, Alina Constantin, **Karla Comarița**, Alexandra Vîlcu, Anastasia Procopciuc, Adriana Georgescu

D. Proiecte

2018-2021 – Grant acordat de Autoritatea Națională Pentru Cercetare Științifică și Inovare, CNCS-UEFISCDI, - Proiecte Complexe Realizate în Consorţii CDI (PCCDI) - Program 1. Dezvoltarea sistemului național de cercetare dezvoltare, Subprogram 1.2. Performanță instituțională – "Proiecte de dezvoltare instituțională". Proiect nr. PN-III-P1-1.2-PCCDI-2017-0527/Contract nr. 83 PCCDI/2018

Titlu Proiect: Dezvoltarea de BIOnanotehnologii bazate pe Veziculele Extracelulare, aplicabile în diagnosticul precoce, prognosticul și terapia bolii Aterosclerotice;

Acronim proiect: BIOVEA

Manager de proiect: Dr. CSI Adriana Georgescu

2020-2022 - Grant acordat de Autoritatea Națională Pentru Cercetare Științifică și Inovare, CNCS–UEFISCDI, Program RESURSE UMANE, Proiecte de cercetare pentru stimularea constituirii de tinere echipe de cercetare independente (TE), Competitie 2019, Număr proiect: PN-III-P1-1.1-TE-2019-0811/ Grant nr. 97/14.09.2020.

Titlu proiect: Modularea imună a celulelor T de catre plachete și microvezicule plachetare în ateroscleroza indusă experimental; rolul microRNA142-3p;

Acronim Proiect: IMPLEXIA

Manager de proiect: Dr. CSII Nicoleta Alexandru-Moise

2023-2026 - Grant acordat de Ministerul Cercetării, Inovării și Digitalizării din România - Planul Național de Recuperare și Reziliență al României. Componenta C9. SPRIJIN PENTRU SECTORUL PRIVAT, CERCETARE, DEZVOLTARE ȘI INOVAȚIE - „I8. Dezvoltarea unui program de atragere a resurselor umane înalt specializate din străinătate în activități de cercetare, dezvoltare și inovare" (PNRR /2022/C9/MCID/I8)- Cod Project 93.

Titlul proiectului: Noi strategii nanoterapeutice pentru fibroza cardiacă care vizează mecanismele care stau la baza tranziția fibroblast la miofibroblast**;**

Acronim proiect: HEARTCURE

Manager de proiect: Dr. Rostyslav Bilyy

Cercetatori Principali: Adriana Georgescu, Manuela Călin, Elena Butoi

Student-doctorand