Institute of Cellular Biology and Pathology - "Nicolae Simionescu"

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CURRICULUM VITAE

Personal data
Name: **Nicoleta Alexandru-Moise (Previous**: **Nicoleta Alexandru)**, Ph.D., Principal Investigator II
Name on published papers: Nicoleta Alexandru
Born: June 17 th 1979, Măcin, Romania
Mailing address: Institute of Cellular Biology and Pathology - 'Nicolae Simionescu',
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Education

1993 –1997 - High school 'Gheorghe Munteanu Murgoci', Măcin, Diploma baccalaureate degree
1997 -2001 - Faculty of Chemistry, Specialization 'Technological Biochemistry', Bucharest University, BSc in Chemistry
2001-2003 - Master in 'Biosensor in environmental monitoring', Faculty of Chemistry, Bucharest University, MSc in Chemistry
2003-2009 - PhD student in Institute of Cellular Biology and Pathology 'N. Simionescu', Romanian Academy, Department: Vascular Dysfunction in Diabetes
2009 - PhD degree in Biology, Magna Cum Laude
2010 - Principal Investigator III in Institute of Cellular Biology and Pathology 'N. Simionescu', Romanian Academy, Department: Vascular Dysfunction in Diabetes and Obesity
2010-2013 –Postdoctoral Fellowship: „Cristofor I. Simionescu" Postdoctoral Fellowship Programme (ID POSDRU/89/1.5/S/55216), Sectoral Operational Programme Human Resources Development 2007 – 2013, financially supported by European Social Fund, Research field: Biomaterials, Scientific subdomain: Nanodimensioned and Nanostructured Biomaterials.
2018 - Principal Investigator II in Institute of Cellular Biology and Pathology 'N. Simionescu', Romanian Academy, Department of Pathophysiology and Pharmacology.

Professional experience

2001-2006 -Research assistant in Institute of Cellular Biology and Pathology 'N. Simionescu', Romanian Academy, Department: Vascular Dysfunction in Diabetes
2006-2010 -Scientific Researcher in Institute of Cellular Biology and Pathology 'N. Simionescu', Romanian Academy, Department: Vascular Dysfunction in Diabetes
2010-2018 -Principal Investigator III in Institute of Cellular Biology and Pathology 'N. Simionescu', Romanian Academy, Department of Pathophysiology and Pharmacology
2018- in present -Principal Investigator II in Institute of Cellular Biology and Pathology 'N. Simionescu', Romanian Academy, Department of Pathophysiology and Pharmacology

Training stages:

2007- Training period during three months (April 23rd- July 23rd) in the Department of Physiology of the University of Extremadura, Cáceres, Spain under supervision of Prof., PhD J.A. Rosado. ***Learn techniques:*** *platelet aggregation, intracellular reactive oxygen species production through the oxidation of CM H_2DCFDA,*

platelets viability, measurement of intracellular free calcium concentration in platelets. This training was supported by SERA, Specific Support Action, PC6 (Project manager: Acad. Maya Simionescu).
2008 -COST Training School Support: 'Summer school for the identification of proteins and post-translational modifications by mass spectrometry' Brussels, Belgium, August 24 – 29.
2011 – Training period during one week (May 16-20) for learning the *Scanning electron microscope technique,* in the Centre of Advanced Researchers for Bio-nanoconjugates and Biopolymers - 'Petru Poni' Institute of Macromolecular Chemistry, Iasi, Romania, supervision PhD Mariana Pinteala.
2012- Training period during two weeks (March 18-30) for learning the Laser MicroDissection (LMD) technique, in the Medical Biology section, Department Pathology and Medical Biology, University Medical Center Groningen, Netherlands, supervision PhD Grietje Molema. This training was supported by European Social Fund –„Cristofor I. Simionescu" Postdoctoral Fellowship Programme (ID POSDRU/89/1.5/S/55216), Sectoral Operational Programme Human Resources Development 2007 – 2013.
2012- Training period during one month (April 29rd- May 31rd) in the Angiogenesis Laboratory, Portuguese Institute of Oncology Francisco Gentil, Lisbon, Portugal, under supervision of MD, PhD Sérgio Dias. ***Learn techniques:*** *isolation of microvesicles (MVs) from cell cultures: Human Umbilical Vein Endothelial Cells (HUVECs) and tumoral cells (HL60), obtaining and quantification of miRNAs from MVs, qRT-PCR, electroporation protocol for HUVEC cells, in situ hybridization, MVs analysis at Bioanalyser and their charaterization by flow cytometry and immunofluorescence.* This training was supported by European Social Fund –„Cristofor I. Simionescu" Postdoctoral Fellowship Programme (ID POSDRU/89/1.5/S/55216), Sectoral Operational Programme Human Resources Development 2007 – 2013.
2012- Training period during one month (June 3rd- July 5rd) in the Centre for Vision & Vascular Science, School of Medicine, Dentistry & Biomedical Science, Royal Victoria Hospital, Queen's University Belfast, Belfast, Northern Ireland, UK, under supervision of Prof., PhD Alan Stitt. ***Learn techniques:*** *isolation of whole mononuclear cells from peripheral blood and umbilical cord blood to obtain endothelial progenitor cells (EPCs) cultures; isolation of EPCs using the specific "microbeads"; obtaining of "early" EPCs (myeloid angiogenic cells, MACs) and "late" EPCs (outgrowth endothelial cells, OECs) in culture; confocal microscopy; isolation of microvesicles from OECs culture and their charaterization by flow citometry and confocal microscopy.* This training was supported by European Social Fund –„Cristofor I. Simionescu" Postdoctoral Fellowship Programme (ID POSDRU/89/1.5/S/55216), Sectoral Operational Programme Human Resources Development 2007–2013.
2012- Training period during one month (September 29rd- October 31rd) in the Atherothrombosis, Atherosclerosis and Inflammation Department, Division of Cardiovascular Sciences, Center for Applied Medical Research (CIMA), University of Navarra, Pamplona, Spain, under supervision of MD, PhD Jose´ A. Páramo. ***Learn techniques:*** *thromboelastometry (ROTEM), mouse model of thromboembolic stroke, mouse tail bleeding model, flow cytometry, isolation and purification of microparticles from plasma of TAFI knockout mice after ischemic stroke model, fibrinolytic activity of microparticles, enzymatic kinetics, isolation of Human Umbilical Vein Endothelial Cells (HUVEC), immunohistochemistry for brain hemorrhage and infarct size.* This training was supported by European Social Fund –„Cristofor I. Simionescu" Postdoctoral Fellowship Programme (ID POSDRU/89/1.5/S/55216), Sectoral Operational Programme Human Resources Development 2007 – 2013.

Courses:
2002- *Postgraduate course*: 'From cellular and molecular biology to XXI century medicine", 6th edition, Institute of Cellular Biology and Pathology 'N. Simionescu', Bucharest, Romania, October; **2005**- *EASD Advanced Postgraduate Course:* Type 2 diabetes: Current concepts in pathogenesis, diagnostics, treatment and prevention, Belgrade, Serbia and Montenegro, May 8-11; **2010**- *Postdoctoral courses*: , Macromolecular Chemistry at the border between classic and modern', 'Polymeric biomaterials", „Rheology of polymeric materials" and „The projects management', Iasi, Romania, November 1-5; **2011-** *Spring Training Course*: 'Bioactive/Biocompatible polymeric materials', Zabrze, Poland, March 7-11. **2011-** *Summer School*: 'Inflammation and Cardiovascular Disease', Obergurgl, Austria, September 29 - October 2. **2011-** *Autumn School*: "Biomaterials**.** Current Trends and Prospects**"** Busteni, Romania, November 9-13. **2012-** *Workshop*: "Open Problems in Systems Chemistry", Institut Européen des Membranes (CNRS/École Nationale Supérieure de Chimie Montpellier/Université Montpellier II), Montpellier, France, January 22-27.

Scientific assignments

Professional activity: • Basic scientific research • Cellular and molecular biology and pathology, biochemistry, biology and pathology of the cardiovascular system; • Study of platelet dysfunction in ageing and in pathological conditions such as diabetes, hypertension, hypercholesterolemia and chronic venous insufficiency; revealing of the molecules involved in cell signaling mechanisms that lead to platelet activation and aggregation. The evaluation of relationship between circulating microparticles (MPs) or microvesicles (MVs)) and endothelial progenitor cells and their contribution to vascular dysfunction and also their effect on blood platelet function in experimental induced atherosclerosis. The investigation of the potential beneficial effects of circulating microparticles of healthy origins on EPC dysfunctionality in atherosclerosis as well as involved mechanisms.

Scientific achievements

• A complex of factors contribute to platelet cytosolic free Ca^{2+} concentration, $[Ca^{2+}]_i$, during biological ageing of diabetics: ageing, hyperglycemia, and oxidative stress induce increase of $[Ca^{2+}]_i$, while AGE products (AGE- poly-L-lysine and AGE-albumin) reduce $[Ca^{2+}]_i$; • Homocysteine induce a endogenous production of reactive oxygen species (ROS) in human platelets, which lead Ca^{2+} mobilization from internal stores (dense tubular system and acidic stores) and subsequently, to platelet aggregation; All the parameters tested: ROS generation, Ca^{2+} mobilization and platelet aggregation are more elevated in platelets from diabetic donors than in controls, which indicates that platelets from diabetic donors are more sensitive to plasma homocysteine levels; • Exogenous oxidative stress, thrombin activation, progression of ageing and type 2 diabetes lead to protein carbonyls formation in platelets, and this modification can be attenuated by antioxidant enzymes (catalase and superoxide dismutase); ; • Patients with chronic venous insufficiency have an enhanced level of circulating endothelial and platelet microparticles that contribute to altered dysfunctional response of the venous wall. Moreover, in CVI, platelets circulate in an activated state and contribute to the altered dysfunctional response of the venous wall and to the development of this pathology; •Experimental hypertension associated with hypercholesterolemia produces major changes in morphology, signaling mechanisms and oxidative stress in blood platelets, changes that are significantly diminished by irbesartan administration; this drug functions as an antioxidant on platelets in hypertension associated with hypercholesterolemia; • EPCs have the ability to reduce platelet activation and to modulate their pro-inflammatory and antithrombogenic properties in hypertension associated with hypercholesterolemia. Circulating EPC-based therapy recovers EPC/platelet functions and consolidates their interaction under dynamic flow conditions, in experimental induce atherosclerosis. Furthermore, the administration of EPCs in combination with PMPs did not induce improvements on obtained effects when given only EPCs; •late EPCs from experimental animal model of atherosclerosis exhibited different morphological and functional characteristics compared to control, and their function recovery can be supported by MP ability to transfer miRNAs. These findings bring a new light on the MP role in the cell-cell communication and EPC-mediated endothelial vascular repair. • Platelets have a new biological role in regulating EPC function via SDF-1α, VEGF, CD40L, PDGF, IL-1β,-6,-8 chemokines, miR-223, and IGF-1R in atherosclerosis. These results may lead to the development of novel therapies based on targeting interplay between platelets and EPCs in patients with cardiovascular disease.

Technical skills and competences:

• working on cell cultures (obtaining and characterization of late endothelial progenitor cells (late EPCs), thawing and culturing of human-induced pluripotent stem cell-derived cardiomyocytes (hiPSC-CMs)) • isolation and characterization of microparticles or microvesicles and of mesenchymal stem cell-derived extracellular vesicles (EV-MSCs): adipose tissue-derived stem cells (EV-ADSCs) and bone marrow-derived stem cells (EV-BMMSCs) • experimental animal handling: work on mice, hamsters and rats, tissue samples collecting • flow cytometry technique • molecular biology techniques: PRC and RT-PCR• echocardiography technique •ELISA method • biochemical and biophysical assays, including spectrophotometric and spectrofluorimetric techniques • electron and fluorescence microscopy • Western-Blot technique • inNO Nitric oxide measuring system 'NO sensor (amiNO-700)' •lucigenin-enhanced chemiluminescence methode for oxygen reactive species measurement • immunohistochemical techniques.

Reviewer at:

2013-2014 'PloseOne' Journal
2013-2014 'Thrombosis Research' Journal
2013-2014 'Toxicology and Applied Pharmacology' Journal
2014-2015 'American Journal of Cardiovascular Drugs' Journal
2017-2018 'FEBS' Journal

Member of Scientific Society:
Romanian Society for Cell and Molecular Biology (since 2002)
European Atherosclerosis Society (since 2010)
Romanian Society for Developmental Biology (RSDB) (since 2010)
International Society for Heart Research ISHT (since 2011)
The Diabetes and Cardiovascular Disease EASD Study Group (D&CVD) (since 2011)
European Vascular Biology Organisation (EVBO) (since 2013)
International Society for Regenerative Medicine and Surgery (ISRMS) (since 2014)
Working Group on Atherosclerosis and Vascular Biology, European Society of Cardiology (ESC)(since 2014)

Research record:
• **38 ISI published articles** (19 as first and 2 as corresponding author); **5 BDI published articles** (3 as first author); **1 book** (as first author); **4 book chapters** (1 as first author); **26 ISI abstracts** (10 as first author); **1 science newspaper articles** as first author; **2 patents** *(e.g. A/00284/2020; A/00017/2021);* **6 oral presentations** (4 at prestigious Universities/Institutes from abroad: *Zabrze, Lisbon, Belfast, Pamplona* and 2 at international conferences); **67 poster communications** at international conferences and 11 at national conferences; 7 international courses;

The published papers

ISI Journals

1. A. Constantin, I. K. Comarița, **N. Alexandru**, A. Filippi, F. Bojin, M. Gherghiceanu, A. Vîlcu, M. Nemecz, L.S. Niculescu, V. Păunescu, A. 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. *Frontiers in Pharmacology,* 13:1003684, 2022. (IF:5.988)

2. A. Filippi, A. Constantin, **N. Alexandru**, C. A. Mocanu, M. L. Vlad, M. I. Fenyo, A. Simionescu, D. T. Simionescu, I. Manduteanu, A. Georgescu. VLA4 enhanced allogeneic endothelial progenitor cell-based therapy preserves aortic valve function in a mouse model of dyslipidemia and diabetes, in *Special Issue "Targeted Therapies in Diabetes and Its Complications*", *Pharmaceutics*, 14, 1077-1094, 2022, https://doi.org/10.3390/pharmaceutics14051077. (IF:6.525)

3. I. K. Comarița, A. Vîlcu, A. Constantin, A. Procopciuc, F. Safciuc, **N. Alexandru**, E. Dragan, A.M. Nemecz, A. Filippi, L. Chitoiu, M. Gherghiceanu, A. Georgescu. Therapeutic potential of stem cell-derived extracellular vesicles on atherosclerosis-induced vascular dysfunction and its key molecular players. *Frontiers in Cell and Developmental Biology, (Front Cell Dev Biol.)* 10:817180: 1-30, 2022*, doi: 10.3389/fcell.2022.817180. eCollection 2022.* (IF:6.684)

4. N. **Alexandru**, A. Procopciuc, A. Vîlcu, I. K. Comariţa, E. Bădilă, Georgescu A. Extracellular vesicles - incorporated microRNA signature as biomarker and diagnosis of prediabetes state and its complications*. Reviews in Endocrine and Metabolic Disorders (REMD),* 2022, 23(3):309-332. *DOI: 10.1007/s11154-021-09664-y.* (IF: 9.306)

5. A. Constantin*, A. Filippi*, **N. Alexandru**, M. Nemecz, A. Georgescu. Extracellular vesicles from adipose tissue stem cells in diabetes and associated cardiovascular disease; pathobiological impact and therapeutic potential. *International Journal of Molecular Sciences (IJMS),* 21 (24): 9598-9623, 2020, *doi:10.3390/ijms21249598 (†These authors contributed equally to this work)* (IF: 4.556)

6. A. Filippi, A. Constantin, **N. Alexandru**, G. Voicu, C.A. Constantinescu, D. Rebleanu, M. Fenyo, D. Simionescu, A. Simionescu, I. Manduteanu, A. Georgescu. Integrins α4β1 and αVβ3 are reduced in endothelial progenitor cells from diabetic dyslipidemic mice and may represent new targets for therapy in aortic valve disease. *Cell Transplantation*, Volume 29: 1–8, 2020, DOI: 10.1177/0963689720946277 (IF:3.341)

7. N. Alexandru[†], E. Andrei[†], F. Safciuc, E. Dragan, A.M. Balahura, E. Badila, A. Georgescu. Intravenous administration of allogenic cell-derived microvesicles of healthy origins defends against atherosclerotic cardiovascular disease development by a direct action on endothelial progenitor cells. *Cells,* 9 (2),423:1-24, 2020, https://doi.org/10.3390/cells9020423. ([†]These authors contributed equally to this work). (IF:6.663)

8. N. Alexandru, A. Constantin, M. Nemecz, I.K. Comariţa, A. Vîlcu, A. Procopciuc, G. Tanko and A. Georgescu. Hypertension associated with hyperlipidemia induced different microRNA expression profiles

in plasma, platelets, and platelet-derived microvesicles; effects of endothelial progenitor cell therapy. *Frontiers in Medicine*, 6 (Article 280):1-10, 2019, https://doi.org/10.3389/fmed.2019.00280. (IF:3.113)

9. M.M. Tucureanu*, A. Filippi*, **N. Alexandru**, C.A. Constantinescu, L. Ciortan, R. Macarie, M. Vadana, G. Voicu, S. Frunza, D. Nistor, A. Simionescu, D.T. Simionescu, A. Georgescu**(corresponding author), I. Manduteanu. Diabetes-induced early molecular and functional changes in aortic heart valves in a murine model of atherosclerosis, *Diabetes and Vascular Disease Research*, 16(6):562-576, 2019, doi: 10.1177/1479164119874469. (*These authors contributed equally to this work). (IF:2.707)

10. N. Alexandru, F. Safciuc, A. Constantin, M. Nemecz, G. Tanko, A. Filippi, E. Dragan, E. Bădilă, A. Georgescu. Platelets of healthy origins promote functional improvement of atherosclerotic endothelial progenitor cells. *Frontiers in Pharmacology/ Inflammation Pharmacology*. 10 (Article 424):1-14, 2019, doi: 10.3389/fphar.2019.00424. (IF:3.845)

11. A. Constantin, M. Dumitrescu, M. Nemecz, A. Picu, B. Smeu, C. Guja, **N. Alexandru**, A. Georgescu, G. Tanko. Sera of obese Type 2 diabetic patients undergoing metabolic surgery instead of conventional treatment exert beneficial effects on beta cell survival and function: Results of a randomized clinical study. *Obesity Surgery*, 29(5):1485-1497, 2019, doi: 10.1007/s11695-019-03710-0. (IF:3.603)

12. M. Nemecz, A. Constantin, M. Dumitrescu, **N. Alexandru**, A. Filippi, G. Tanko, A. Georgescu. The distinct effects of palmitic and oleic acid on pancreatic beta cell function: the elucidation of associated mechanisms and effector molecules. *'Frontiers in Pharmacology/Ethnopharmacology',* 9:1554, 2019, doi: 10.3389/fphar.2018.01554. eCollection 2018. (IF:3.845)

13. N. Alexandru, E. Andrei, L. Niculescu, E. Dragan, V. Ristoiu, A. Georgescu. Microparticles of healthy origins improve endothelial progenitor cell dysfunction via microRNA transfer in an atherosclerotic hamster model, *Acta Physiologica,* 221: 230–249, 2017, doi: 10.1111/apha.12896. (IF: 5.93)

14. N. Alexandru, A. Costa, A. Constantin, D. Cochior, A. Georgescu. Microparticles: From biogenesis to biomarkers and diagnostic tools in cardiovascular disease. *Current Stem Cell Research & Therapy.* 12(2):89-102, 2017. (IF: 2.168)

15. M. Nemecz*, **N. Alexandru***, G. Tanko, A. Georgescu. Role of MicroRNA in endothelial dysfunction and hypertension, *Current Hypertension Reports*, 2016;18(12):87.(*These authors contributed equally to this work), doi: 10.1007/s11906-016-0696-8 (IF: 3.036)

16. A. Georgescu*, **N. Alexandru***, E. Andrei, E. Dragan, D. Cochior, S. Dias. Effects of transplanted circulating endothelial progenitor cells and platelet microparticles in atherosclerosis development. *Biology of the Cell,* 108(8):219-243, 2016, doi: 10.1111/boc.201500104. (*These authors contributed equally to this work). (IF:2.649)

17. N. Alexandru, E. Badila, E. Weiss, D. Cochior, E. Stępień, A. Georgescu. Vascular complications in diabetes: Microparticles and microparticle associated microRNAs as active players. *Biochemical and Biophysical Research Communications*, 472:1-10, 2016. (IF: 2.466)

18. E. Bădilă, A.M. Daraban, E. Ţintea, D. Bartoş, **N. Alexandru**, A. Georgescu. Midkine in cardiovascular disease: Where do we come from and where are we heading to? *European Journal of Pharmacology*, 762:464-471, 2015. (IF: 2.730)

19. J. Orbe, **N. Alexandru**, C. Roncal, M. Belzunce, P. Bibiot, J.A. Rodriguez, J.C.M. Meijers, A. Georgescu, J.A. Paramo. Lack of TAFI increases brain damage and microparticle generation after thrombolytic therapy in ischemic stroke. *Thrombosis Research,* 136(2): 445-450, 2015. (IF:2.320)

20. N. Alexandru, E. Andrei, E. Dragan, and A. Georgescu. Interaction of platelets with endothelial progenitor cells in the experimental atherosclerosis: Role of transplanted endothelial progenitor cells and platelet microparticles. *Biology of the Cell,* Vol. 107(6): 189–204, 2015. (IF: 2.552)

21. E. Andrei, **N. Alexandru**, E. Dragan and A. Georgescu. Flow Cytometric Analysis of Circulating Microparticles and Endothelial Progenitor Cells in Plasma; a Research Tool for Atherosclerosis and Therapy. *Exp Clin Cardiol,* Vol 20 Issue7 pages: 1555-1563, 2014. (IF:0.758)

22. E. Badila, AM. Daraban, S. Ghiorghe, A. Georgescu, **N. Alexandru**, D. Bartos, C. Tarziu. Rethinking cardiovascular therapy - the effect of irbesartan on circulating microparticles and endothelial progenitor cells in patients with hypertension and dyslipidemia. *Farmacia,* Vol. 62 (1):93-106, 2014. (IF: 1.005)

23. N. Alexandru, A. Georgescu**.** Circulating microparticles and microRNAs as players in atherosclerosis. *World J Hematol.* 2(2): 16-19, 2013, ISSN 2218-6204 (online) (IF:0).

24. A. Georgescu*, N. **Alexandru***, M. Nemecz, I. Titorencu, D. Popov. Irbesartan administration therapeutically influences circulating endothelial progenitor cell and microparticle mobilization by involvement of pro-inflammatory cytokines. *European Journal of Pharmacology*. 711: 27-35, 2013, doi information: 10.1016/j.ejphar.2013.04.004. (*These authors were corresponding authors). (IF: 2.684)

25. N. Alexandru, D. Popov, E. Dragan, E. Andrei and A. Georgescu. Circulating endothelial progenitor cell and platelet microparticle impact on platelet activation in hypertension associated with hypercholesterolemia. *PLoS ONE,* 8(1): e52058, doi:10.1371/journal.pone.0052058, 2013. (IF: 3.534)

26. A. Georgescu*, **N. Alexandru***, E. Andrei, I. Titorencu, E. Dragan, C. Tarziu, S Ghiorghe, E. Badila, D. Bartos, D. Popov. Circulating microparticles and endothelial progenitor cells in atherosclerosis; pharmacological effects of irbesartan. *J Thromb Haemost*, 10(4):680-91, 2012. (*These authors were corresponding authors). (IF: 6.081)

27. N. Alexandru, D. Popov, A. Georgescu. Platelet dysfunction in vascular pathologies and how can it be treated. *Thrombosis Research,* 129:116-126, 2012. (IF: 3.133)

28. A. Georgescu, **N. Alexandru**, A. Constantinescu, I. Titorencu, D. Popov. The promise of EPC-based therapies on vascular dysfunction in diabetes. *European Journal of Pharmacology,* 669: 1–6, 2011 (IF: 2.516).

29. A. Georgescu**, N. Alexandru**, M. Nemecz, I. Titorencu, D. Popov. Enoxaparin reduces adrenergic contraction of resistance arterioles in aging and in aging associated with diabetes via engagement of MAP kinase pathway. *Blood Coagulation and Fibrinolysis,* 22(4): 310-316, 2011. (IF: 1.4)

30. N. Alexandru, A. Georgescu, M. Amuzescu, C. Zamfir, A. Badila, D. Popov. Platelet reactivity in chronic venous insufficiency –*Clin. Lab.*;57(7-8):527-534, 2011. (IF: 0.904)

31. A. Georgescu**,** D.Popov, A.Constantin, M.Nemecz, **N.Alexandru**, D.Cochior, A.Tudor. Dysfunction of human subcutaneous fat arterioles in obesity alone or obesity associated with Type 2 diabetes. *Clinical Science,* 120(10): 463-472, 2011. (IF: 4.317)

32. N. Alexandru, D. Popov, E. Dragan, E. Andrei and A. Georgescu. Platelet activation in hypertension associated with hypercholesterolemia; effects of irbesartan. *Journal of Thrombosis and Hemostasis*, 9(1):173-84, 2011. (IF: 5.731)

33. N. Alexandru, D. Popov, A. Georgescu. Intraplatelet oxidative/nitrative stress: inductors, consequences, and control. *Trends Cardiovasc Med*; 20:232–238, 2010. (IF: 3.250)

34. A. Georgescu, **N. Alexandru**, D. Popov, M. Amuzescu, E. Andrei, C. Zamfir, H. Maniu, A. Badila. Chronic venous insufficiency is associated with elevated level of circulating microparticles. *Journal of Thrombosis and Haemostasis*,7(9): 1566–1575, 2009. (IF: 6.069)

35. N. Alexandru, I. Jardín, D. Popov, M. Simionescu, J. García-Estañ, G. M. Salido, J.A. Rosado. Effect of homocysteine on calcium mobilisation and platelet function in type 2 diabetes mellitus. *J. Cell. Mol. Med*. 12 (5B): 2015-2026, 2008. (IF: 5.114)

36. N. Alexandru, A. Constantin, D. Popov. Carbonylation of platelet proteins occurs as consequence of oxidative stress and thrombin activation, and is stimulated by ageing and type 2 diabetes. *Clin Chem Lab Med* 46(4):528–536, 2008. (IF: 1. 888)

37. N. Alexandru, D. Popov, A. Sbarcea, M. Amuzescu. Platelet free cytosolic calcium concentration during ageing of type 2 diabetic patients. *Platelets* 18(7): 473-480, 2007. (FI: 1.915)

38. A. Georgescu, **N. Alexandru**, E. Constantinescu, D. Popov. Effect of gap junction uncoupler heptanol on resistance arteries reactivity in experimental models of diabetes, hyperlipemia and hyperlipemia-diabetes. *Vascular Pharmacology* 44 (6): 513-518, 2006. (IF: 1.718)

Journals indexed in international databases:

1. A. Costa, **N. Alexandru**, F. Silva, A. Magalhães, S. Dias, A. Georgescu. Detection of miRNAs in Extracellular Vesicles by In Situ Hybridization Using Formalin-Frozen Paraffin Embedded Sections. Annals of *Romanian Society for Cell Biology*, Vol. XXI, Issue 3, 2017, pp. 29-35, doi: 10.ANN/RSCB-2017-0019: RSCB Received 13 December 2017; accepted 30 May 2018.

2. E. Andrei, **N. Alexandru,** A. Georgescu. Circulating microparticles: major mediators of the pathogenesis of cardiovascular complications in diabetes. Annals of the Romanian Society for Cell Biology, vol. XIX, Issue 3, pp. 55-63, 2015.

3. N. Alexandru, A. Georgescu. Microparticles as players in the pathogenesis of cardiovascular disease. *Fisiología,* vol. 18(1):9-14, 2015. ISSN:1889-397X.

4. N. Alexandru, E Badila and A. Georgescu. The role of endothelial progenitor cells in the cardiovascular disease pathogenesis. J Stem Cells Res, Rev & Rep. 2014;1(2):2.

5. N. Alexandru, D. Rogoz, D. Popov, A. Sbarcea, M. Amuzescu. Effects of ageing on $[Ca^{2+}]_i$ homeostasis in human platelets (in Romanian). Annals of the Romanian Society for Cell Biology, vol. VIII, pp.21-26, 2004, edited by A. Ardelean et. al. (B+ indexed).

Science newspaper articles

1. **Nicoleta Alexandru**, Adriana Georgescu. Active role of cell-derived microparticles in diabetes associated cardiovascular complications. Atlas of Science (website: www.atlasofscience.org), August 12, 2016.

Books

N. Alexandru. Platelet dysfunction during ageing and in cardiovascular pathology (in Romanian), Agir Editorial House, Bucharest, Romania, 159 pages, ISBN: 978-973-720-289-5, 2010.

Chapters in books

1. A. Georgescu, **N. Alexandru,** D. Popov. Ongoing data on vascular endothelial cell dysfunction: an update, in a book entitled: *From Vascular Cell Biology to Cardiovascular Medicine*, editors A. Georgescu and F. Antohe, published by RESEARCH *SIGNPOST*/TRANSWORLD RESEARCH *NETWORK*, Kerala, India, ISBN - 978-81-7895-503-2, p. *125-141,* 2011.

2. N. Alexandru, I. Titorencu, S. Frunzã, E. Weiss, E. Bãdilã, A. Georgescu. *Chapter's Title:* Endothelial progenitor cell dysfunction in the pathogenesis of vascular complications of diabetes. *Book's Title:* Mechanisms of Vascular Defects in Diabetes Mellitus, *Editors:* Chandrasekharan Kartha, Surya Ramachandran, M. Radhakrishna Pillai, *in Series Title:* Advances in Biochemistry in Health and Disease, *Springer, UK,* Volume 17, ISBN 978-3-319-60324-7, p.159-208, 2017.

3. M. Gherghiceanu, **N. Alexandru**, S.L. Magda, A. Constantin, M. Nemecz, A. Filippi, O.C. Ioghen, L.C. Ceafalan, F. Bojin, G. Tanko, V. Paunescu, D. Vinereanu, E. Stepien, A. Georgescu. *Chapter's Title:* Extracellular vesicles as valuable players in diabetic cardiovascular diseases, Published: 05 July 2019. *Book title:* Extracellular Vesicles and Their Importance in Human Health. *Book edited by*: Dr. Ana Gil De Bona and Jose Antonio Reales-Calderon, IntechOpen, ISBN 978-1-78923-944-7, p.1 -25, 2020.

4. L.C. Ceafalan, O.C. Ioghen, D.S. Marta, A. Constantin, **N. Alexandru**, M. Nemecz, G. Tanko, A. Filippi, S.L. Magda, F. Bojin, V. Paunescu, D. Vinereanu, A. Georgescu, M. Gherghiceanu. *Chapter's Title:* Extracellular Vesicles as Risk Factor in Neurodegenerative Diseases, Published: 05 July 2019. *Book's Title:* Extracellular Vesicles and Their Importance in Human Health*, Book edited by*: Dr. Ana Gil De Bona and Jose Antonio Reales-Calderon, IntechOpen, ISBN 978-1-78923-944-7, p.1 -21, 2020.

Oral Communications

1. Alexandru N., Georgescu A., Popov D., Andrei E., Dragan E. Platelet activation in experimental induced atherosclerosis and the beneficial effects of irbesartan. Workshop: 'Cellular and molecular biology – for the benefit of mankind', Bucharest, Romania, September 8, 2010, Abstract in Book of Abstracts, p. 10.

2. Alexandru N., Georgescu A., Dragan E., Andrei E., Popov D. The mechanisms of platelet activation in atherosclerosis and the effects of irbesartan administration. Bioactive/Biocompatible polymeric materials, Spring Training Course, Zabrze, Poland, March 6-13, 2011, Abstract in Book of Abstracts, p. 50.

3. Alexandru N., Popov D., Dragan E., Andrei E., Georgescu A. Consequences of irbesartan administration on platelet changes in hypertension associated with hypercholesterolemia, Angiogenesis Laboratory, Portuguese Institute of Oncology, Lisbon, Portugal, May 18, 2012.

4. Alexandru N. Effects of irbesartan treatment on platelet activation in hypertension associated with hypercholesterolemia. Belfast, UK, Centre for Vision & Vascular Science, Queen's University, Royal Victoria Hospital, One day Workshop: "Cardiovascular Disease and Angiogenesis", 14 June, 2012 - Abstract in Book of Abstracts, p. 6.

5. Alexandru N., Popov D., Dragan E., Andrei E., Georgescu A. Effects of irbesartan administration on platelet dysfunction in hypertension associated with hypercholesterolemia. Diaspora in Scientific Research and Higher Education in Romania Conference (in Romanian), Bucharest, Romania, September 25-28, 2012.

6. Alexandru N. Platelet activation in atherosclerosis and the effects of irbesartan administration. Center for Applied Medical Research (CIMA), Division of Cardiovascular Sciences, University of Navarra, Pamplona, Spain, October 19, 2012.

Professional performance

Hirsch Index: according to **Web of Science Core Collection: 19**, **Scopus: 19**, **Google Scholar: 20** and **ResearchGate**: **19.**

Total Citation Number: **Web of Science Core Collection**: 825 **Scopus:** 871, **Google Scholar:** *1266,* **ResearchGate**: 994.

Patents obtained and patent applications

1. Process for obtaining the genetically modified endothelial progenitor cells (Procedeu de obtinere a unor celule progenitoare endoteliale modificate genetic). Patent Application: OSIM Nr. A/00284 din 25.05.2020. Authors: Alexandru Filippi, Loredana Antonescu, Alina Constantin, Cristina Constantinescu, **Nicoleta Alexandru**, Adriana Georgescu.

2. Process for obtaining modified extracellular vesicles (Procedeu de obținere a veziculelor extracelulare modificate). Patent Application, OSIM No. A/00017 of 20.01.2021. Authors: Alexandru Filippi, **Nicoleta Alexandru-Moise**, Alina Constantin, Karla Comarita, Alexandra Vîlcu, Anastasia Procopciuc, Adriana Georgescu.

Grants

***Project manager* of following national projects**

1. 2008-2009: Grant from Ministry of Education, Research and Youth, CNCSIS, National Program for Research-Development and Innovation 2 (PNCDI-2), Program Human Resources/ Research Projects for young PhD. Students- TD type/ Project number PN-II-RU-TD-2008-3: The studies of platelet dysfunction associated with vascular system changes in ageing and pathological conditions; *Code: TD-50*, *Grant no 11/2.06.2008*; **-** *the project was* funded with: 42 500 lei.

2. 2015-2017: Grant of the Romanian National Authority for Scientific Research and Innovation, CNCS –UEFISCDI, Program Human Resources/ Project number PN-II-RU-TE-2014-4-0523: New insights in platelet-endothelial progenitor cell interplay in atherosclerotic disease; *Grant no 80/01.10.2015*; **-** *the project was* funded with: 550 000 lei.

3. 2020-2022: Grant of the Romanian National Authority for Scientific Research and Innovation, CNCS –UEFISCDI, Program Human Resources/ Project number PN-III-P1-1.1-TE-2019-0811: Immune modulation of T-cells by platelets and platelet-derived microvesicles in experimental induced atherosclerosis; the role of microRNA-142-3p / Modularea imuna a celulelor T de catre plachete si microvezicule plachetare in ateroscleroza indusa experimental; rolul microRNA-142-3p); *Grant no 97 /04.09.2020*; - Project acronym: IMPLEXIA;- the project was funded with: 431 900 lei.

Collaborator of following national projects

1. 2002 – 2005: Grant Awarded By: Romanian Ministry Of Research- National Research Program For Fundamental Research VIASAN- The pharmacological properties and the cellular mechanisms involved in the effect of nebivolol in the renal artery in diabetes; the experimental data.

2. 2003 – 2004: Grant Awarded By: Romanian Ministry Of Research- National Research Program For Fundamental Research VIASAN- Possibilities for reestablishment of vascular dysfunction and biochemical changes in diabetes and atherosclerosis.

3. 2003 – 2005: Grant Awarded By: Romanian Ministry Of Research- National Research Program For Fundamental Research VIASAN-Impact of obesity on diabetes and cardiovascular diseases generation in urban communities in Romania- a population, pathophysiological and genetic study.

4. 2003 – 2005: Grant Awarded By: Romanian Ministry Of Research - National Research Program For Fundamental Research CERES- The studies on the cerebral vasculature in aging.

5. 2004 – 2006: Grant Awarded By: Romanian Ministry Of Research- National Research Program For Fundamental Research VIASAN: Adiponectin – the mediator in the intercellular signaling activated by insulin; the clinical involvements in the obesity associated with type 2 diabetes.

6. 2004-2006: Grant Awarded By: Romanian Ministry Of Research- National Research Program For Fundamental Research VIASAN- The effect of the enoxaparin (a low molecular weight heparin) in the reestablishment of the endothelial vascular dysfunctions in aging and in diabetes; the involvement of the mitogen-activated protein kinase evidentiated by changes in the expression of c-fos gene and transcription factor AP-1.

7. 2005 – 2006: Grant from Romanian Academy – Cellular senescence in the kidneys- a genetically determined process or a consequence of oxidative stress and nitrosative stress?

8. 2005 – 2008: Grant Awarded By: Romanian Ministry of Research - National Research Program for Fundamental Research "Excellence Research Project" - The alteration of the cellular

and molecular mechanisms and of gene expression in the cardiovascular disease and diabetes/ obesity, the major alteration of the metabolic syndrome – the fundamental and clinical researches.

9. 2006-2008: **Excellence Research Projects for young researchers -** *Grant no. 15121/2006-2008*- The effect of elevated levels of shed membrane microparticles on the function of the peripheral veins at patients with chronic venous insufficiency.

10. 2008-2011: **National Program for Research-Development and Innovation 2 (PNCDI-2), National Centre for Programs' Management (CNMP), Partnerships Program 4, Direction 4 – Health –** *Grant no. 42138/ 1.10.2008*- Ratio of circulating microparticles to endothelial progenitor cells, a new cellular marker of endothelial dysfunction induced by combined hypertension and hypercholesterolemia; anti-atherosclerotic effect of irbersartan.

11. 2008-2011: National Program for Research-Development and Innovation 2 (PNCDI-2), Ministry of Education, Research and Youth, The National Authority for Scientific Research, Idei Program 1 – Funding Application for Exploratory Research Projects – *Grant no. 1159/19.01.2009*- Vascular complications of small arteries in patients with obesity associated or not with type 2 diabetes; the endothelial dysfunction and insulin resistance.

12. 2011-2014: Grant of the Romanian National Authority for Scientific Research and Innovation, CNCSIS–UEFISCDI, Human Resources Program/ TE, Project number PNII-TE 26/2011-2014 - Investigation of molecular mechanisms of endothelin system in diabetes; development of new pharmacological strategies to improve vascular function.

13. 2015-2017 Grant of the Romanian National Authority for Scientific Research and Innovation, CNCS –UEFISCDI, Human Resources Program / Project number PN-II-RU-TE-2014-4-0525: Microparticles as intracellular delivery strategies for microRNAs and potential therapies for atherosclerotic vascular disease; *Grant no 79/01.10.2015*; **-** *the project was* funded with: 550 000 lei

14. 2016-2020 MNE – NASRI (INTERMEDIATE BODY FOR RESEARCH): COMPETITIVENESS OPERATIONAL PROGRAMME 2014-2020 PRIORITY AXIS 1 – RESEARCH, TECHNOLOGICAL DEVELOPMENT AND INNOVATION (RD&I) TO SUPPORT ECONOMIC COMPETITIVENESS AND BUSINESS DEVELOPMENT**. Action 1.1.4** Attracting high-level personnel from abroad in order to enhance the RD capacity. **Project Title:** Targeted therapies for diabetes - related aortic valve disease. **Contract no.** 115/13.09.2016/ **Project Code:** 104362. Acronym: THERAVALDIS- *the project was* funded with: 8657500 lei

15. 2018-2021 - Grants of the Romanian National Authority for Scientific Research, CNCS-UEFISCDI - Complex Projects Completed in Consortia CDI (PCCDI), under Program 1. Developing national CD, Subprogram 1.2. Institutional performance - "Institutional Development Project". Project no. PN-III-P1-1.2-PCCDI-2017-0527/Contract no. 83 PCCDI/2018 - Project title: Development of BIOnanotechnologies based on extracellular vesicles for early diagnosis, prognosis and therapy of atherosclerotic disease; - Project acronym: BIOVEA.

16. 2018-2020 - Grants of the Romanian National Authority for Scientific Research, CNCS-UEFISCDI - Complex Projects Completed in Consortia CDI (PCCDI), under Program 1. Developing national CD, Subprogram 1.2. Institutional performance - "Institutional Development Project". Project no. PN-III-P1-1.2-PCCDI-2017-0797/ Contract no. 66 PCCDI/2018 - Project title: Pathogenic mechanisms and personalized treatment in pancreatic cancer using multi-omics technologies; - Project acronym: PANCNGS.

17. 2023-2026- Grant of the Ministry of Research, Innovation and Digitization of Romania - Romania's National Recovery and Resilience Plan. Component C9. SUPPORT FOR THE PRIVATE SECTOR, RESEARCH, DEVELOPMENT AND INNOVATION - "I8. Development of a program to attract highly specialised human resources from abroad in research, development and innovation activities" (PNRR /2022/C9/MCID/I8) (PNRR-III-C9-2022–I8)**- Project Code 93. Project title:** New nanotherapeutic strategies for cardiac fibrosis targeting the mechanisms underlying the fibroblast to myofibroblast transition; Project Acronym: HeartCure; Project Manager: Dr. ROSTYSLAV BILYY. Principal Investigators IBPC-NS: PhD Manuela Calin, PhD Adriana Georgescu, PhDElena Butoi.

<u>Collaborator in following international Grant</u>

1. International Project: SERA 2005-2008 -"Specific Support Action, PC6, Strengthening the European Research Area by Reinforcement of Romanian Research Competency in Genomics and Proteomics of Major Global Risk Diseases: Atherosclerosis, Diabetes and its Complications".

2. 2012-2014: Capacity project: ERC-like – type "Grant Support" - ID PNII-CT-ERC-2012–1, **Grant of the Romanian National Authority for Scientific Research, CNCS – UEFISCDI:** Circulating platelet microparticles and endothelial progenitor cells in vascular atherosclerosis: new pathophysiological and therapeutic implications. *Grant nr.6/18.07.2012. - the project was* funded with: 1 500 000 RON

Awards

National prizes

1. 'Scientific Achievements – Original Article' Award offered by Ministry of Education and Research-CNCSIS/ Awarding research results – January 2008 for article: Platelet free cytosolic calcium concentration during ageing of type 2 diabetic patients – *Platelets* 18 (7): 473-480, 2007(**N. Alexandru** et al.).

2. 'Scientific Achievements – Original Article' Award offered by Ministry of Education and Research- CNCSIS/ Awarding research results – December 2008 for article: Carbonylation of platelet proteins occurs as consequence of oxidative stress and thrombin activation, and is stimulated by ageing and type 2 diabetes. *Clin Chem Lab Med*; 46(4):528–536, 2008 (**N. Alexandru** et al.).

3. 'Scientific Achievements – Original Article' Award offered by Ministry of Education and Research -CNCSIS/ Awarding research results – January 2009 for article: Effect of homocysteine on calcium mobilisation and platelet function in type 2 diabetes mellitus. *J. Cell. Mol. Med. Vol 12, No 5B, pp. 2015-2026, 2008* (**N. Alexandru** et al.).

4. Prize awarded by Romanian Academy, Institute of Cellular Biology and Pathology -N. Simionescu *to Nicoleta Alexandru for successful scientific* activity and published papers in "The sixth frame work program of the European Community". Specific Support Action, INCO project. "Strengthening the European Research Area by Reinforcement of Romanian Research Competency in Genomics and Proteomics of Major Global Risk Diseases", 2005-2008, SERA"- at the International Symposium Translational Research in Vascular Medicine, Bucharest, Romania, 27 - 29 March 2008.

5. 'Scientific Achievements – Original Article' Award offered by Ministry of Education and Research -CNCSIS/ Awarding research results – March 2010 for article: Chronic venous insufficiency is associated with elevated level of circulating microparticles. *Journal of Thrombosis and Haemostasis*, 7(9): 1566–1575, 2009 (A. Georgescu, **N. Alexandru** et al.).

6. 'Scientific Achievements – Original Article' Award offered by Ministry of Education, Research, Youth and Sports: uefiscdi/ Awarding research results – June 2011 for article: Platelet activation in hypertension associated with hypercholesterolemia; effects of irbesartan. *Journal of Thrombosis and Hemostasis*, 9(1):173-84, 2011 (**N. Alexandru** et al.**)**.

7. 'Scientific Achievements – Original Article' Award offered by Ministry of Education and Research, Youth and Sports***:*** uefiscdi/ Awarding research results – June 2011 for article: Dysfunction of human subcutaneous fat arterioles in obesity alone or obesity associated with Type 2 diabetes. *Clinical Science,* 120(10): 463-472, 2011 (A. Georgescu**,** D.Popov, A.Constantin, M.Nemecz, **N. Alexandru**, D.Cochior, A. Tudor).

8. 'Scientific Achievements – Original Article' Award offered by Ministry of Education and Research, Youth and Sports: uefiscdi/ Awarding research results – September 2011 for paper: The promise of EPC-based therapies on vascular dysfunction in diabetes. *European Journal of Pharmacology* 669: 1–6, 2011 (Georgescu A., **Alexandru N.**, et al.).

9. 'Scientific Achievements – Original Article' Award offered by Ministry for Education and Research – April 2012 for the paper" Platelet dysfunction in vascular pathologies and how can it be treated" in Thrombosis Research, 129:116-126, 2012 (**Alexandru N.**, D. Popov, A. Georgescu).

10. 'Scientific Achievements – Original Article' Award offered by Ministry for Education and Research – April 2012 for the article" Circulating microparticles and endothelial progenitor cells in atherosclerosis; pharmacological effects of irbesartan" in Journal of Thrombosis and Haemostasis, 10: 680-691, 2012 (Georgescu A., **Alexandru N.,** et al.).

11. 'Scientific Achievements – Original Article' Award offered by Ministry for Education and Research – December 2013 for the paper 'Circulating endothelial progenitor cell and platelet microparticle impact on platelet activation in hypertension associated with hypercholesterolemia', in PLoS ONE*,* 8(1): e52058, 2013 (**Alexandru N.**, D. Popov, E. Dragan, E. Andrei and A. Georgescu).

12. ,Scientific Achievements – Original Article' Award offered by Ministry for Education and Research – December 2013 for the paper 'Irbesartan administration therapeutically influences circulating endothelial progenitor cell and microparticle mobilization by involvement of pro-inflammatory cytokines', in European Journal of Pharmacology, 711: 27-35, 2013. (Georgescu A., **Alexandru** N., **et al.)**

13. 'Scientific Achievements – Original Article' Award offered by Executive Agency for Higher Education, Research, Development and Innovation Funding - UEFISCDI and Ministry for Education and Research – November 2015 for the paper 'Interaction of platelets with endothelial progenitor cells in the experimental atherosclerosis: Role of transplanted endothelial progenitor cells and platelet microparticles' in *Biology of the Cell,* Vol. 107(6): 189–204, 2015. (**N. Alexandru**, E. Andrei, E. Dragan, and A. Georgescu)

14. 'Scientific Achievements – Original Article' Award offered by Executive Agency for Higher Education, Research, Development and Innovation Funding - UEFISCDI and Ministry for Education and Research – November 2015 for the paper 'Midkine in cardio-vascular disease: Where do we come from and where are we heading to?' in *European Journal of Pharmacology*, 762:464-471, 2015.(E. Bãdilã, A.M. Daraban, E. Ţintea, D. Bartoş, **N. Alexandru**, A. Georgescu).

15. 'Scientific Achievements – Original Article' Award offered by Executive Agency for Higher Education, Research, Development and Innovation Funding - UEFISCDI and Ministry for Education and Research – December 2016 for the paper 'Effects of transplanted circulating endothelial progenitor cells and platelet microparticles in atherosclerosis development' in *Biology of the Cell,* Vol. 108(8):219-243, 2016. (A. Georgescu, **N. Alexandru**, E. Andrei, E. Dragan, D. Cochior, S. Dias)

16. 'Scientific Achievements – Original Article' Award offered by Executive Agency for Higher Education, Research, Development and Innovation Funding - UEFISCDI and Ministry for Education and Ministry of Research and Innovation– October 2017 for the paper 'Role of microRNA in endothelial dysfunction and hypertension' in *Current Hypertension Reports,* 18(12):87, 2016. (M. Nemecz*, **N. Alexandru*,** G. Tanko, A. Georgescu).

17. 'Scientific Achievements – Original Article' Award offered by Ministry for Education and Research – June 2018 for the paper 'Microparticles of healthy origins improve endothelial progenitor cell dysfunction via microRNA transfer in an atherosclerotic hamster model' in Acta Physiologica, 221, 230-249, 2017. (**N. Alexandru,** E. Andrei, L. Niculescu, E. Dragan, V. Ristoiu, A. Georgescu).

18. 'Scientific Achievements – Original Article' Award offered by Ministry for Education and Research – October 2019 for the paper 'Platelets of healthy origins promote functional improvement of atherosclerotic endothelial progenitor cells' in *Frontiers in Pharmacology/ Inflammation Pharmacology*. 10 (Article 424):1-14, 2019. (**N. Alexandru**, E F. Safciuc, A. Constantin, M. Nemecz, G. Tanko, A. Filippi, E. Dragan, E. Bãdilã, A. Georgescu).

19. 'Scientific Achievements – Original Article' Award offered by Ministry for Education and Research – October 2019 for the paper 'Sera of obese Type 2 diabetic patients undergoing metabolic surgery instead of conventional treatment exert beneficial effects on beta cell survival and function: Results of a randomized clinical study' in *'Obesity Surgery'*, 29(5):1485-1497, 2019. (A. Constantin, M. Dumitrescu, M. Nemecz, A. Picu, B. Smeu, C. Guja, **N. Alexandru**, A. Georgescu, G. Tanko)

20. 'Scientific Achievements – Original Article' Award offered by Ministry for Education and Research – October 2019 for the paper 'The distinct effects of palmitic and oleic acid on pancreatic beta cell function: the elucidation of associated mechanisms and effector molecules' in *'Frontiers in Pharmacology/Ethnopharmacology'* 9:1554, 2019. (M. Nemecz, A. Constantin, M. Dumitrescu, **N. Alexandru**, A. Filippi, G. Tanko, A. Georgescu).

21. 'Scientific Achievements – Original Article' Award offered by Ministry for Education and Research and Uefiscdi, Subprogram 1.1 - Human Resources - Awarding research results - Articles, Competition 2020, Evaluation results List 1_partial 2- Award applications submitted for articles published in 2019_09.11.2020, – November 2020, for the paper 'Hypertension associated with hyperlipidemia induced different microRNA expression profiles in plasma, platelets, and platelet-derived microvesicles; effects of endothelial progenitor cell therapy' in '*Frontiers in Medicine'*, 6 (Article 280):1-10, 2019. (**N. Alexandru**, A. Constantin, M. Nemecz, I.K. Comariţa, A. Vîlcu, A. Procopciuc, G. Tanko and A. Georgescu).

22. 'Scientific Achievements – Original Article' Award offered by Ministry for Education and Research and Uefiscdi, Subprogram 1.1 - Human Resources - Awarding research results - Articles, Competition 2020, Evaluation results List 1_partial 3- Award applications submitted for articles published in 2020_19.11.2020, – November 2020, for the paper 'Intravenous administration of allogenic cell-derived microvesicles of healthy origins defends against atherosclerotic cardiovascular disease development by a direct action on endothelial progenitor cells' in '*Cells',* 9 (2),423:1-24, 2020. (**N. Alexandru**†, E. Andrei†, F. Safciuc, E. Dragan, A.M. Balahura, E. Badila, A. Georgescu).

23. 'Scientific Achievements – Original Article' Award offered by Ministry for Education and Research and Uefiscdi, Subprogram 1.1 - Human Resources - Awarding research results - Articles, Competition 2020, Evaluation results List 3- Award applications submitted for articles published in 2020_27.11.2020, – November 2020 for the paper 'Integrins α4β1 and αVβ3 are reduced in endothelial progenitor cells from diabetic dyslipidemic mice and may represent new targets for therapy in aortic valve disease' in *Cell Transplantation*, Volume 29:1–8, 2020.(Filippi A., Constantin A., **Alexandru N.**, Voicu G., Constantinescu C.A., Rebleanu D.,Fenyo M., Simionescu D., Simionescu A., Manduteanu I., Georgescu A.).

24. 'Scientific Achievements – Original Article' Award offered by Ministry for Education and Research and Uefiscdi, Subprogram 1.1 - Human Resources - Awarding research results - Articles, Competition 2020, Evaluation results List 2- Award applications submitted for articles published in 2020_18.11.2021, – December 2021 for the paper 'Extracellular vesicles from adipose tissue stem cells in

diabetes and associated cardiovascular disease; pathobiological impact and therapeutic potential' in *International Journal of Molecular Sciences,* 2020, 21(24):9598. (Constantin A. *, Filippi A. *, **Alexandru N.**, Nemecz M., Georgescu A.)

25. 'Scientific Achievements – Original Article' Award offered by Ministry for Education and Research and Uefiscdi, Subprogram 1.1 - Human Resources - Awarding research results - Articles, Competition 2020, Evaluation results List 2- Award applications submitted for articles published in 2021_18.11.2021, – December 2021 for the paper 'Extracellular vesicles - incorporated microRNA signature as biomarker and diagnosis of prediabetes state and its complications' in *Reviews in Endocrine and Metabolic Disorders*, 2021. DOI: 10.1007/s11154-021-09664-y. (**Alexandru N**., A. Procopciuc, A. Vîlcu, I. K. Comarița, E. Bădilă, Georgescu A.).

26. 'Scientific Achievements – Original Article' Award offered by Ministry for Education and Uefiscdi, PNCDI IV - Program 5.2 Human Resources- Subprogram 5.2.3- - Awarding research results – Articles Web of Science (PRECISI) Competition 2023, PRECISI 2023 List 1- Award applications submitted for articles published in 2022– December 2023 for the paper ' 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' in *Frontiers in Pharmacology,* 2022, 13:1003684. (Constantin A., Comarița I. K., **Alexandru N**., Filippi A., Bojin F., Gherghiceanu M., Vîlcu A., Nemecz M., Niculescu L.S., Păunescu V., Georgescu A.)

27. 'Scientific Achievements – Original Article' Award offered by Ministry for Education and Uefiscdi, PNCDI IV - Program 5.2 Human Resources- Subprogram 5.2.3- - Awarding research results – Articles Web of Science (PRECISI) Competition 2023, PRECISI 2023 List 1- Award applications submitted for articles published in 2022– December 2023 for the paper 'VLA4 enhanced allogeneic endothelial progenitor cell-based therapy preserves aortic valve function in a mouse model of dyslipidemia and diabetes' in Special Issue "Targeted Therapies in Diabetes and Its Complications", Pharmaceutics, 14, 1077-1094, 2022, https://doi.org/10.3390/pharmaceutics14051077**.** (Filippi A., Constantin A., **Alexandru N.,** Mocanu C. A., Vlad M. L., Fenyo M. I., Simionescu A., Simionescu D.T., Manduteanu I. , Georgescu A.)

28. 'Scientific Achievements – Original Article' Award offered by Ministry for Education and Uefiscdi, PNCDI IV - Program 5.2 Human Resources- Subprogram 5.2.3- - Awarding research results – Articles Web of Science (PRECISI) Competition 2023, PRECISI 2023 List 1- Award applications submitted for articles published in 2022– December 2023 for the paper 'Therapeutic potential of stem cell-derived extracellular vesicles on atherosclerosis-induced vascular dysfunction and its key molecular players' in *Frontiers in Cell and Developmental Biology*, 10:817180: 1-30, 2022, doi: 10.3389/fcell.2022.817180. eCollection 2022. (Comarița I. K., Vîlcu A., Constantin A., Procopciuc A., Safciuc F., **Alexandru N.**, Dragan E., Nemecz A.M., Filippi A., Chitoiu L., Gherghiceanu M., Georgescu A.)

<u>International prizes</u>

1. Prize awarded by the Award Committee of the "4th European Meeting on Vascular Biology and Medicine" for poster presentation: Obesity and insulin resistance induce structural-functional changes in small arteries of human adipose tissue. A. Georgescu, **N. Alexandru**, et al., offered at "4th European Meeting on Vascular Biology and Medicine", Bristol 17-20 September 2007.

2. Prize awarded by the Award Committee of the ISTH 2009 Developing World Scientist Grants for poster presentation: Elevation of endothelial and platelet microparticles in patients with chronic venous insufficiency. A. Georgescu, **N. Alexandru**, et al., at *XXII Congress of International Society on Thrombosis and Haemostasis* , July 11-16 2009, Boston , USA.

3. Prize awarded by the Award Committee of the 3rd International Congress and 29th Annual scientific session of Romanian Society for Cell Biology for poster presentation: Circulating endothelial progenitor cells, microparticles and atherosclerosis. A. Georgescu, **N. Alexandru**, et al., at the 3rd International Congress and 29 th Annual scientific session of Romanian Society for Cell Biology, June 8-12, 2011, Arad (RO)-Szeged (HU).

4. Prize awarded by the Award Committee of the 44th Anniversary Symposium Of The Institute Of Cellular Biology And Pathology "Nicolae Simionescu" held jointly with 40th Annual Scientific Session Of The Romanian Society For Cell Biology, for poster presentation: 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. I.K. Comarița, G. Tanko, L. Anghelache, A. Constantin, M. Nemecz, **N. Alexandru-Moise**, A. Georgescu, at the 44th Anniversary Symposium Of The Institute Of Cellular Biology And Pathology "Nicolae Simionescu" held jointly with 40th Annual Scientific Session Of The Romanian Society For Cell Biology, November 16-18, 2023, Bucharest, Romania.