Europass Curriculum Vitae

Personal information

First name(s) / Surname(s)	**Anca Volumnia / Sima**
Address(es)	128, Iancului Ave, bl. G, apt. 45, Sector 2, Bucharest, Romania
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E-mail	anca.sima@icbp.ro
Nationality	Romanian
Gender	Female

Desired employment / Occupational field

Institute of Cellular Biology and Pathology „Nicolae Simionescu" of the Romanian Academy, Bucharest, Romania
Cellular and molecular biology (scientific research, education)

Position

Scientific secretary, Head of Lipidomics Depart.

Work experience

Dates	1994 - present
Occupation or position held	Principal Investigator I, Head, Lipidomics Department Member of the Romanian Academy (2004) Scientific Secretary of ICBP "Nicolae Simionescu" (2016)
Main activities and responsibilities	Organization of the department of Lipidomics; writing proposals and coordinating the research projects; development of experimental models; supervising the processing and analysis of experimental data; writing and reviewing the scientific manuscripts for article publication.
Name and address of employer	Institute of Cellular Biology and Pathology "Nicolae Simionescu" of the Romanian Academy 8, B.P. Hasdeu Street, Sector 5, Bucuresti 050568, Romania [www.icbp.ro]
Type of business or sector	Academic scientific research (Cellular and molecular biology, Genetics)
Dates	1993- 1994
Occupation or position held	Principal Investigator II
Main activities and responsibilities	Proposal of projects and coordination of the research; development of experimental models; processing and analysis of samples obtained from experiments, statistical analysis of the data, writing the scientific manuscripts for article publication.
Name and address of employer	ICBP "Nicolae Simionescu"
Type of business or sector	Academic scientific research (Cellular and molecular biology)
Dates	1991- 1993
Occupation or position held	Principal Investigator III
Main activities and responsibilities	Accumulation of knowledge on techniques used in research, development of experimental models,

	processing and analysis of samples obtained from experiments, data statistical analysis, writing the scientific manuscripts for article publication.
Name and address of employer	ICBP "Nicolae Simionescu"
Type of business or sector	Academic scientific research (Cellular and molecular biology)
Dates	1985-1991
Occupation or position held	Scientific Researcher
Main activities and responsibilities	Accumulation of knowledge on techniques used in research, development of experimental models, processing and analysis of samples obtained from experiments, writing the scientific manuscripts for article publication
Name and address of employer	ICBP "Nicolae Simionescu"
Type of business or sector	Academic scientific research (Cellular and molecular biology)
Dates	1979-1985
Occupation or position held	Scientific Research assistant
Main activities and responsibilities	Biophysics, Biochemistry
Name and address of employer	ICBP "Nicolae Simionescu"
Type of business or sector	Academic scientific research (Cellular and molecular biology)
Dates	1976-1979
Occupation or position held	Professor of Physics at "Electronica" Highschool and "Sanitary" Highschool, Bucharest
Main activities and responsibilities	Teaching physics
Type of business or sector	Teaching (Highschool)

Education and training

Dates	1985-1993
Title of qualification awarded	PhD in Life Sciences, Biology
Principal subjects/occupational skills covered	PhD program in Life Sciences, Biology
Name and type of organization providing education and training	Institute of Cellular Biology and Pathology "Nicolae Simionescu" of the Romanian Academy
Dates	1974 - 1976
Title of qualification awarded	Master (postgraduate) in Biophysics
Principal subjects/occupational skills covered	Biophysics and bioenergetics of biological systems, biophysics and biochemistry of cell membranes, molecular biophysics
Name and type of organisation providing education and training	Faculty of Physics, Department of Biophysics, University of Bucharest
Dates	1971 – 1974
Title of qualification awarded	B.Sc. in Physics
Principal subjects/occupational skills covered	Physics (3 years) - classical and quantum mechanics, electricity and electronics, optics, special mathematics applied in physics, solid physics; Master in Biophysics (2 years) - biophysics and bioenergetics of biological systems, biophysics and biochemistry of cell membranes, molecular biophysics, interaction of radiation with biological systems, environmental biophysics
Name and type of organisation providing education and training	Faculty of Physics, Department of Biophysics, University of Bucharest

Personal skills and competences

Mother tongue(s)	Romanian		
Other language(s)	English, French, German		
Self-assessment	**Understanding**	**Speaking**	**Writing**

European level (*)	Listening		Reading		Spoken interaction		Spoken production			
English	C1	Proficient user	C1	Proficient user	C1	Proficient user	C1	Proficient user	C1	Proficient user
French	C2	Independent user	C2	Independent user	C2	Independent user	C2	Independent user	C2	Independent user

(*) Common European Framework of Reference for Languages

Social skills and competences

• Ability to work in a team obtained following the activity in the Institute of Cellular Biology and Pathology "Nicolae Simionescu" of the Romanian Academy

• Ability to coordinate the implementation of tasks to achieve an objective, obtained from the coordination of research projects both as project manager and collaborator;

• Ability to adapt to multicultural communication, obtained from the stages of preparation, and as a result of attendance the international scientific meetings and courses.

Organizational skills and competences

• **Management of the research activity**: organization and Head of a new Department dedicated to Lipidomics Research (2012).

• **Managerial Competences**
• President of the Commission 19 (Biology-Biochemistry) of the National Council for the Certification of University Titles, Diplomas and Certificates (CNADTCU), Ministry of Education;
• Manager of the 8 editions of the Postgraduate Course "From the Molecular and Cell Biology to the Medicine of 21st Century" (2000 - 2008), ICBP "N. Simionescu", organized under the aegis of the Romanian Academy;
• Expert evaluator for: European Research Commission - *Marie Curie Conferences and Training Courses and Excellence Actions*, Romanian Academy, Ministry of Education and Research.

• **Main National Collaborations**
2006-2008 University of Medicine and Pharmacy „Carol Davila" and Cardiology Clinic of University Emergency Hospital Floreasca (CEEX OBEDIAGEN grant, Prof. dr. Maria Dorobanţu);
2006-2008 National Endocrinology Institute „C.I. Parhon" (CEEX GENAGE grant, Dr. Olga Ianăş), resulting 2 published articles;
2007-2010 University of Medicine and Pharmacy „Carol Davila" (Prof. dr. Denisa Margină) and National Institute for Diabetes, Nutrition and Metabolic Diseases „ N. Paulescu" (Dr. Maria Vladică) (Partnerships grant LIPIDERI), resulting 2 published articles;
2012-2016 University of Medicine and Pharmacy „Carol Davila" and Cardiology Clinic of University Emergency Hospital Elias (Partnerships grant BIOMARCAD, Prof. dr. Doina R. Dimulescu), resulting 3 published articles.

• **Main International Collaborations**
2012 - 2015 Prof. Shlomo Sasson, Hebrew Univ., Jerusalem, Israel, resulting 1 published article (Stancu CS, et al., A.V. Sima, Molec Nutr Fodd Res, 2015).
2008 - 2011 Dr. Marius R. Robciuc, National Institute for Health and Welfare, Helsinki, Finland, resulting 1 published article (Niculescu LS, et al., A.V. Sima, Biochem Biophys Res Commun, 2011).
2003 - 2007 Prof. Jean-Charles Fruchart and Dr. Jamila Fruchart-Najib, Institute Pasteur din Lille and Univ. Lille 2, Lille, France, resulting 2 published articles (Fruchart-Najib et al., Biochem Biophys Res Commun, 2004; Niculescu et al., A.V. Sima, Clin Chem Lab Med, 2007).

Coordinated Grants
• Project Manager of 9 grants financed by Ministry of Education and Research (UEFISCDI);
• Coordinator of "work package" or team member in 6 international grants (NIH, USA, NATO, EU).

International Grants

International grants as work-package coordinator:

• **2001-2004** Grant FP5 ICA1-CT-2000-70020, Centre of Excellence of the European Community, *Function and dysfunction of blood vessels: transcytosis in normal/ pathological states, alterations in atherosclerosis and diabetes; their therapeutic control*, 100.000 Euro.

• **2005-2007** Grant FP6, SSA-EC 16873 *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*, 950.000 Euro.

International grants as participant:

• **2002- 2004** NATO SCIENCE PROGRAMME, *Role of Apo E in Cholesterol and Triglycerides Homeostasis, 3000 Euro.*

• **2008-2011** COST Action BM0602 (WG3 and WG 4) *Adipose Tissue: A Key Target for Prevention of the Metabolic Syndrome*, European Community Funds.

• **2008-2012** POS-CCE 143/SMIS CSNR 2667 *Extension and modernization of the research infrastructure in order to increase competitiveness in the field of cardiovascular diseases, diabetes and obesity (CARDIPPRO)*, 53.999.733 Lei (aprox 12 million Euro).

• **2014-2015** POS-CCE ID-1877/SMIS-CSNR 49154 *Structuration of a new compartment for cellular sorting and tissue cryo-preservation for research and therapeutic purposes (SORTIS)*, 8 million Lei (aprox. 1.8 million Euro).

National Grants as Project Manager (selected)

• **2001-2003** VIASAN PNCDI Grant *The role of endothelium in atheroma formation: the comparative study on protective effect of various statins on cells from atherosclerotic plaque* (40,000 Euro)*;*

• **2003-2005** VIASAN PNCDI Grant, partners: National Institute for Diabetes, Nutrition and Metabolic Diseases „N. Paulescu" and Anthropology Institute „Fr. Rainer", *The impact of obesity in generating diabetes and cardiovascular diseases in urban communities from Romania - a populational, physio-pathologic and genetic study* (OBEDIAGEN, 60,000 Euro),

• **2004-2006** BIOTECH PNCDI Grant, *The employment of APOA5 and APOE gene polymorphisms as molecular markers in the study of evaluation of genetic risk factors of subjects with obesity and its associated disorders (diabetes, hypertension and atherosclerosis)* (APOGEN, 30,000 Euro);

• **2005-2007** IDEI PNCDI Grant, *The role of transcription factors PPARα and PPARγ in the regulation of genes for atherogenic lipoprotein receptors on endothelial and smooth muscle cells* (55,000 Euro);

• **2007-2010** PARTNERSHIP PNCDI-2 Grant, partners: University of Medicine and Pharmacy „Carol Davila" and National Institute for Diabetes, Nutrition and Metabolic Diseases „N. Paulescu", *The study of the cellular, molecular and genetic mechanisms by which dyslipidemia induces insulin resistance; identification of probiotic active compounds and treatment methods* (LIPIDERI, 300,000 Euro);

• **2008-2011** IDEI PNCDI-2 Grant, *Molecular strategies for the reversal of atherosclerotic process by the modulation of secretion and cellular signalling pathways and intracellular assembly of anti-atherogenic lipoprotein*s (120,000 Euro).

• **2012-2016** PARTNERSHIP PNCDI-2 Grant, partner: Cardiology Clinic of University Emergency Hospital Elias, *New predictive biomarkers for the evolution of the stable and unstable coronary artery disease identified by lipidomic, proteomic and molecular biology technologies* (450,000 Euro).

Technical skills and competences

• Preclinical studies on patients with cardiovascular diseases, diabetes and metabolic syndrome; experimental animal models; light, electron and fluorescent microscopy; lipoproteins characterization; cell culture; techniques of immunology, electrophoresis, chromatography and molecular biology

• ***Technical expertise*:**
biochemical determinations in plasma/serum, lipoprotein fractions, cellular/tissue homogenates; separation of lipoproteins (ultracentrifugation, gel permeation FPLC); lipid peroxides assay in cellular membranes and serum/plasma (TBARS methods, TRAP assay); cell cultures (human circulating monocytes-macrophages and THP-1 monocytic line; EA.hy926 human endothelial cell line); flow cytometry analysis of circulating endothelial progenitor cells (EPC) and monocytes; optical and fluorescence microscopy; immunology techniques: ELISA, Western-blot, electrophoretic techniques - agarose and polyacrylamide gels for proteins and DNA); chromatographic techniques: FPLC and UHPLC; molecular biology techniques: miRNA/RNA reverse transcription, cDNA/gDNA amplification (PCR, Real-Time PCR – SyBr Green-based and TaqMan assays), PCR-RFLP technique, microRNA analysis in circulation and cells/tissues; experimentation using animal models – metabolic studies (diet-induced hyperlipidemic/hyperglycemic hamsters).

Other skills and competences

• **Member of the Romanian Academy (2004), Advisor for Ph.D. programs (2000);**

• **Secretary,** Bucharest branch of Romanian Society for Cell Biology (1995-present);

• **Scientific secretary** (2016-present) and Member in Scientific Council of ICBP „N. Simionescu" (1994-present);

• **108 published articles** (over 70 as main author), 56 published articles *in extenso* in journals from Web of Science (24 in Q1), 32 published articles in the last 10 years (7/5 in Q1/Q2);

• **6 book chapters** (4 at international Publishing Houses, 2 at Romanian Academy Publishing House);

• **1.194 citations** in Web of Science; 3 published articles with over 100 de citations;

• **Hirsch index 17**.

AWARDS

• **1990 Romanian Academy "Victor Babes"** Award, for experimental studies of cellular and molecular events initiating atherosclerosis.

• **1994 Romanian Society for Cell Biology "Constantin Velican"** Award.

• **1998** ***"Sanofi" Thrombosis*** Award ***- for Atherosclerosis and Thrombosis Research***, for clinical and laboratory research on athero-thrombosis and thrombogenesis.

• **1999** ***"Maya and Nicolae Simionescu"*** Award ***of*** **the Romanian Society for Cell Biology**, for research on cellular and molecular biology and pathology.

• **2003** ***"Images in Cellular and Molecular Medicine" Prize*** of **Foundation of Cellular and Molecular Medicine** and of the ***Journal of Cellular and Molecular Medicine***.

• **2004 Romanian Academy "Nicolae Simionescu" Award** for "Cellular Dysfunction in Atherosclerosis and Diabetes- Reports from Bench to Bedside", eds. M. Simionescu, **A.V. Sima**, D. Popov, Editura Academiei Romane, 2004.

• **2008 Special Award** „For the contribution to integration in European Research Area, by excellent publication and succesful grant application" - European Community FP6 Specific Support Action (SSA) SERA 16873/2005.

• **2012 „Herbert Berler" Award** for Excellence in Research for the study „Molecular mechanism of HDL secretion from lipid-loaded macrophages", Niculescu L.S., Sanda G.M., **Sima A.V.**, communicated at The 7th International Symposium „Acad. Nicolae Cajal", Bucharest, 2012.

• **2016 Romanian Cardiology Society Award** for Excellence in Research for the study "Hyperglycemia is associated with increased circulating microRNAs levels in acute coronary syndrome patients' sera and determines the upregulation of microRNA production in human macrophages", Niculescu L.S. et al., **A.V. Sima**, communicated at The 55th Romanian Congress of Cardiology, Sinaia, 22-23 sept. 2016.

Driving licence | Driving license category B from 1972

Additional information | - Member of European Atherosclerosis Society (EAS)
- Member of the Romanian Society for Cell Biology (SRBC)

Annexes | List of published papers and communications (selected)

SELECTED LIST OF PUBLISHED PAPERS IN JOURNALS WITH ISI THOMSON IMPACT FACTOR (2007- 2019)

Sima A., A. Iordan, C. Stancu. Apolipoprotein E polymorphism – a risk factor for the metabolic syndrome. *Clin.Chem. Lab. Med.* **45**(9): 1149-53, 2007 (IF 3.432, **Q1**).

Niculescu L.S., J. Fruchart-Najib, J.-C. Fruchart, **A. Sima**. Apolipoprotein A-V gene polymorphisms in subjects with metabolic syndrome. *Clin. Chem. Lab. Med.* **45**(9): 1133-9, 2007 (IF 3.432, **Q1**).

Simionescu M., D. Popov, **A. Sima**. Endothelial transcytosis in health and disease. *Cell Tissue Res.* **335**(1):27-40, 2009.

Sima AV, Stancu C., Simionescu M. Vascular endothelium in atherosclerosis. *Cell Tissue Res.* **335**(1):191-203, 2009.

Toma L, Stancu CS, Botez GM, **Sima AV**, Simionescu M. Irreversibly glycated LDL induce oxidative and inflammatory state in human endothelial cells; added effect of high glucose. *Biochem Biophys Res Commun.* **390**(3):877-82, 2009.

Sima A.V., Botez GM, Stancu CS, Manea A, Raicu M, Simionescu M. Effect of irreversibly glycated LDL in human vascular smooth muscle cells: Lipid loading, oxidative and inflammatory stress. *J Cell Mol Med*. **14**: 2790-2802, 2010 (IF 4.499, **Q1**)

Niculescu L.S., M. Vlădică, **A.V. Sima**. Association of APOA5 and APOC3 gene polymorphisms with plasma apolipoprotein A5 level in patients with metabolic syndrome. *Biochem. Biophys. Res. Comm.* **391**(1): 587–591, 2010.

Constantin A, Costache G, **Sima AV**, Glavce CS, Vladica M, Popov DL. Leptin G-2548A and leptin receptor Q223R gene polymorphisms are not associated with obesity in Romanian subjects. *Biochem Biophys Res Commun.* **391**(1): 282-286, 2010.

Robciuc MR, Metso J, **Sima A**, Ehnholm C, Jauhiainen M., Human apoA-I increases macrophage foam cell derived PLTP activity without affecting the PLTP mass, *Lipids Health Dis*., **9**: 59-65, 2010.

Constantinescu E., Safciuc F., **Sima A.V.,** A Hyperlipidemic Diet Induces Structural Changes in Cerebral Blood Vessels, *Current Neurovascular Research*, 8(2):131-44, 2011.

Heltianu C., Robciuc A., Botez G., Musina C., Stancu C., **Sima A.V**., Simionescu M., Modified Low Density Lipoproteins decrease the activity and expression of lysosomal acid lipase in human endothelial and smooth muscle cells, *Cell Biochemistry and Biophysics*, **61**(1): 209-16, 2011.

Toma L, Stancu C.S., Sanda G.M., **Sima A.V.**, Anti-oxidant and anti-inflammatory mechanisms of amlodipine action to improve endothelial cell dysfunction induced by irreversibly glycated LDL. *Biochem Biophys Res Commun.* **411**(1): 202- 207, 2011.

Niculescu L.S., M.R. Robciuc, G.M. Sanda, **A.V. Sima**. Apolipoprotein A-I stimulates cholesteryl ester transfer protein and apolipoprotein E secretion from lipid-loaded macrophages; the role of NF-κB and PKA signaling pathways, *Biochem Biophys Res Commun*. **415**(3): 497-502, 2011.

Stancu C.S., Toma L, **Sima A.V.,** Dual role of lipoproteins in endothelial cell dysfunction in atherosclerosis, *Cell Tissue Res.*, 349(2):433-46, 2012

Niculescu LS, Sanda GM, **Sima AV**, HDL inhibit endoplasmic reticulum stress by stimulating apoE and CETP secretion from lipid-loaded macrophages, *Biochem Biophys Res Commun* **434**: 173–178, 2013.

Stancu CS, Sanda GM, Deleanu M, **Sima AV**, Probiotics determine hypolipidemic and antioxidant effects in hyperlipidemic hamsters, *Mol. Nutr. Food Res.*, 58(3): 559-568, 2014 (IF 4.259, **Q1**).

Simionescu, N., Niculescu, L.S., Sanda, G.M., Margina, D., **Sima, A.V.**, Analysis of circulating microRNAs that are specifically increased in hyperlipidemic and/or hyperglycemic sera, *Molecular Biology Reports*, **41**(9): 5765-5773, 2014.

Niculescu L.S., N. Simionescu, G.M. Sanda, M.G. Cărnuţă, C.S. Stancu, A.C. Popescu, M.R. Popescu, A. Vlad, D.R. Dimulescu, M. Simionescu, **A.V. Sima**. MiR-486 and miR-92a identified in circulating HDL discriminate between stable and vulnerable coronary artery disease patients. *PLoS One* **10**(10): e0140958, **2015** (FI 3,057, **Q1**)

Stancu CS, Carnuta MG, Sanda GM, Toma L, Deleanu M, Niculescu LS, Sasson S, Simionescu M, **Sima A.V**. Hyperlipidemia-induced hepatic and small intestine ER stress and decreased paraoxonase 1 expression and activity is associated with HDL dysfunction in Syrian hamsters. *Mol Nutr Food Res*. **59**(11): 2293-302, 2015 (IF 4.259, **Q1**).

Simionescu N., L. S. Niculescu, G.M. Sanda, M.G. Cărnuţă, C.S. Stancu, A.C. Popescu, M.R. Popescu, A. Vlad, D.R. Dimulescu, M. Simionescu, **A.V. Sima**. Hyperglycemia determines increased specific microRNAs levels in sera and HDL of acute coronary syndrome patients and stimulates microRNAs production in human macrophages. *PLoS One* **11**(8): e0161201, **2016** (IF 3.54, **Q1**).

Cărnuță M.G., C..S Stancu, L. Toma, G.M. Sanda, L.S. Niculescu, M. Deleanu, A.C. Popescu, M.R Popescu., A. Vlad, D.R. Dimulescu, M. Simionescu, **A.V. Sima**. Dysfunctional high-density lipoproteins have distinct composition, diminished anti-inflammatory potential and discriminate acute coronary syndrome from stable coronary artery disease patients, *Scientific Rep*. **7**(1): *7295,* **2017** (IF 4.26, **Q1**).

Sanda G.M., M. Deleanu, L. Toma, C.S. Stancu, M Simionescu., **A.V. Sima**. Oxidized LDL-exposed human macrophages display increased MMP-9 expression and secretion mediated by endoplasmic reticulum stress. *J Cell Biochem*. 118(4): 661-669, **2017** (IF 3.08, **Q2**).

Toma L., G.M. Sanda, L. Niculescu, M Deleanu., C. Stancu, **A.V. Sima**. Caffeic acid attenuates the inflammatory stress induced by glycated LDL in human endothelial cells by mechanisms involving inhibition of AGE-receptor, oxidative and endoplasmic reticulum stress", Biofactors, **2017** (IF 3.23, **Q1**).

Carnuta M.G., Deleanu M., Barbalata T., Toma L., Raileanu M., **Sima A.V.**, Stancu C.S. Zingiber officinale extract administration diminishes steroyl-CoA desaturase gene expression and activity in hyperlipidemic hamster liver by reducing the oxidative and endoplasmic reticulum stress, Phytomedicine 48: 62-69, **2018** (FI 3,6, Q1)

Toma L., Raileanu M., Deleanu M., Stancu C.S., **Sima A.V.**, Novel molecular mechanisms by which ginger extract reduces the inflammatory stress in TNFα – activated human endothelial cells; decrease of Ninjurin-1, TNFR1 and NADPH oxidase subunits expression, Journal of Functional Foods 48: 654-664, **2018** (FI 3,47, Q1)

Niculescu, L.S., Simionescu, N., Fuior, E.V., Dragan, E., **Sima A.V**., Inhibition of miR-486 and miR-92a decreases liver and plasma cholesterol levels by modulating lipid-related genes in hyperlipidemic hamsters, Molecular Biology Reports 45(4): 497-509, **2018** (FI 1,9, Q2).

Niculescu L. S., Dulceanu M. D., Stancu C. S., Carnuta M.G., Barbalata T., **Sima A.V**., Probiotics administration or the high-fat diet arrest modulates microRNAs levels in hyperlipidemic hamsters, Journal of Functional Foods 56: 295–302, **2019** (FI 3,47, Q1).

Barbalata T, Deleanu M, Carnuta MG, Niculescu LS, Raileanu M, **Sima A.V**, Stancu CS. Hyperlipidemia Determines Dysfunctional HDL Production and Impedes Cholesterol Efflux in the Small Intestine; Alleviation by Ginger Extract. Mol Nutr Food Res. **2019** e1900029. doi: 10.1002/mnfr.201900029.(IF 5.1, Q1).