CURRICULUM VITAE

1. PERSONAL INFORMATION

Name:	Silva Katušić Hećimović
Academic degree:	PhD
ORCID number:	0000-0001-6077-433X
Date and place of birth:	13. March 1968, Dubrovnik, Croatia
Nationality:	Croatian
Address:	Laboratory for Neurodegenerative Disease Research Division of Molecular Medicine Rudjer Boskovic Institute Bijenicka c. 54, 10000 Zagreb - Croatia Tel: +385-1-4571327 E-mail: silva.hecimovic@irb.hr

2. EDUCATION

09/1991	B.Sc., Faculty of Food Technology and Biotechnology, University of Zagreb, Croatia
04/1995	M.Sc., Faculty of Science, University of Zagreb, , Croatia
03/2000	Ph.D., Faculty of Food Technology and Biotechnology, University of Zagreb and Ruder Boskovic Institute, Croatia
2001 – 2004	Postdoc, Washington University School of Medicine, St. Louis, MO, USA

3. EMPLOYMENT HISTORY INCLUDING CURRENT POSITION(S)

1991 - 1995	Young Research Assistant, Department of Bioshemistry, Faculty of Food Technology and Biotechnology, University of Zagreb, Zagreb, Croatia
1995 - 2000	Research Assistant, Division of Molecular Medicine, Rudjer Boskovic Institute, Zagreb, Croatia
2000 - 2001	Senior Research Assistant, Division of Molecular Medicine, Ruđer Bošković Institute, Zagreb, Croatia
2001- 2004	Research Associate, Department of Psychiatry, Washington University School of Medicine, St. Louis, MO, USA
2004 - 2008	Research Associate, Division of Molecular Medicine, Rudjer Boskovic Institute, Zagreb, Croatia
2009 - 2016	Head of the Laboratory of Molecular Neuropharmacology, Division of Molecular Medicine, Rudjer Boskovic Institute, Zagreb, Croatia
2013 – 2017	Senior Research Associate, Division of Molecular Medicine, Rudjer Boskovic Institute, Zagreb, Croatia
2018 - 2023	Senior scientist, Rudjer Boskovic Institute, Zagreb, Croatia
2016 - present	**Head of the Laboratory for Neurodegenerative Disease Research**, Division of Molecular Medicine, Rudjer Boskovic Institute, Zagreb, Croatia
2023 - present	**Senior scientist with tenure**, Rudjer Boskovic Institute, Zagreb, Croatia

4. RESEARCH PROJECTS (the most recent and/or most relevant to the research interest/s)

PI Projects

1. **Croatian Science Foundation (CSF) – IP-2016-06-2799 (2017-2022)**

Title: Molecular mechanism(s) of neurodegeneration in Niemann-Pick type C disease

2. **Croatian Science Foundation (HRZZ) - "PhD mentorship project" DOK-1-2018 (2018-2022)**
3. **COGITO programme, Croatian-French bilateral project (2019-2021)**,
   Title: The molecular links between lipidome, brain vulnerability and apolipoprotein E
4. **Croatia-Serbia Cooperation in Science and Technology (2016-2018)**
   Title: Elucidating BACE1-substrate processing and distribution in a transgenic mouse model of Alzheimer's disease and their potential role in the disease pathogenesis
5. **International bilateral project between DAAD (Germany) and the Ministry of Science, Education and Sports of the Republic of Croatia (2016-2018)**
   Title: Elucidating BACE1 as a potential target for treating Niemann-Pick type C disease
6. **FP7-PEOPLE-2013-IEF (Marie Curie) (2014-2016)**
   Title:Presenilin 2 - a protector against Alzheimer's disease
   Role: Coordinator/Mentor
7. **Swiss National Science Foundation - SCOPES: Joint Research Project (2014-2016)**
   Title: The molecular links between cholesterol homeostasis, membrane trafficking and Alzheimer's disease
8. **Croatian Science Foundation (HRZZ) - "PhD mentorship project"** - DOK-04-2014 (2014-2018),
9. **Unity Through Knowledge Fund – UKF (2013-2015)**
   Title: Lysosomal dysfunction as a common mechanism of neurodegenerative diseases

Collaborative Projects

10. **Croatian Science Foundation (CSF) - IP-2019-04-3504 (01/2020-02/2021)**
    Title: Cellular parabiosis: the role of cell-to-cell communication in phenotypic suppression
11. **Croatian Science Foundation (CSF) - #9386 (2014-2018)**
    Title: Genetic mechanisms of lysosomal dysfunction in Parkinson's disease

5. SUPERVISION OF JUNIOR RESEARCHERS AT GRADUATE AND POSTGRADUATE LEVEL

8 PhD students - 6 graduated: **Iva Petek Tarnik**, PhD defended in March 2010; **Martina Malnar**, PhD obtained in June 2012; **Marko Košiček**, PhD obtained in May 2013; **Stjepko Čermak**, PhD obtained in April 2016; **Kristina Dominko**, PhD obtained in January 2020; **Ana Rastija**, PhD obtained in March 2023.

- 1 to be graduated: Lea Vidatić, 4th year PhD student (funded by the Ministry of Science and Education, Republic of Croatia)

3 postdoctoral students: Martina Malnar (2013-2018), **Marko Košiček** (2014-2018), **Mirsada Čaušević** (2014-2016, FP7-PEOPLE-2013-IEF (Marie Curie) postdoctoral fellow)

6. TEACHING ACTIVITIES

Course „Molecular biology of neurodegenerative diseases", Doctoral study of Biology, Faculty of Science, University of Zagreb, Croatia, 20h; **Course „Genetics of neurodegenerative diseases"**, Doctoral study Molecular Biosciences, University of Osijek, University of Dubrovnik and Ruder Boskovic Institute, 20h

7. MEMBERSHIPS IN PANELS, BOARDS, ETC., AND INDIVIDUAL SCIENTIFIC REVIEWING ACTIVITIES

Alzheimer Forschung Initiative, Germany; **European Comission / Expert Evaluator - Horizon 2020**; **Health and Medical Research Fund**, Hong Kong; **Portuguese Foundation for Science and Technology**; **Croatian Science Foundation,** The Life Sciences panel; **The Netherlands Organisation for Health Research and Development**, The **Research Foundation Flanders**, Belgium

8. ACTIVE MEMBERSHIPS IN SCIENTIFIC SOCIETIES, FELLOWSHIPS IN RENOWNED ACADEMIES

Croatian Society of Biochemistry and Molecular Biology

9. PRIZES, AWARDS, FELLOWSHIPS

1989 **IAESTE Fellowship** for the exchange of students; 1991 **Dean's award** for the best student work, University of Zagreb; 2001-2002 **Fulbright Postdoctoral Fellowship**; 2002-2004 **The John Douglas French Alzheimer's Foundation Postdoctoral Fellowship**; 2008 **Award „Josip Juraj Strossmayer"** (HAZU/ Zagrebački velesajam) for the best publisher enterprice in 2008: book "Metode u molekularnoj biologiji".

MAJOR SCIENTIFIC INTERESTS AND ACHIEVEMENTS

Silva Hecimovic was a Fulbright postdoctoral fellow at the Washington University School of Medicine in St. Louis, MO, USA in the laboratory of Prof. Alison Goate. Upon her return to Croatia she established the Laboratory for Neurodegenerative Disease Research at the Ruder Boskovic Institute. Silva explores the molecular details of neurodegeneration and neuroinflammation and the interrelationship between the two. To address this she studies the most common neurodegenerative disorder Alzheimer's disease (AD) as well as the rare lipid and lysosomal storage disease Niemann-Pick type C (NPC) that shows several key features of AD. Her recent work is focused on elucidating alterations that are shared between AD and NPC (reviewed in Malnar et al. *Neurobiol Dis* 2014) as well as on identifying the earliest alterations that lead to neurodegeneration and/or neuroinflammation (reviewed in De Marchi et al. *Biomedicines* 2023). More specifically, using divers NPC cellular and mouse models she contributed in deciphering the Alzheimer's-like features in NPC disease (Malnar et al. BBA 2010; Malnar et al. BBA 2012; Causevic et al. PlosOne 2018; Dominko et al. Int J Mol Sci 2020). The results of her research suggest that dysfunction of the endolysosomal pathway could be a common initiator of AD and NPC. In addition, through her collaboration with Tahirovic group (DZNE-Munich) she studies the course of neuroinflammation and impaired function of microglia/astrocytes in NPC (Colombo et al. *Nat Commun* 2021). So far, their findings point that microglia dysfunction is a cell autonomous defect occurring early and before neurodegeneration, i.e. Purkinje cell loss in NPC disease.

Silva Hecimovic's publication list
(last 5 years, 2019-2023 and the most relevant to her research interest/s),

goo.gl/uDfB2n (complete publication list), * last and/or corresponding author

Research Articles:

1. De Marchi F, Munitic I, Vidatic L, Papić E, Rački V, Nimac J, Jurak I, Novotni G, Rogelj B, Vuletic V, Liscic RM, Cannon JR, Buratti E, Mazzini L, **Hecimovic S***. Overlapping Neuroimmune Mechanisms and Therapeutic Targets in Neurodegenerative Disorders. ***Biomedicines***. 2023 Oct 14;11(10):2793. https://doi.org/10.3390/biomedicines11102793.
2. De Marchi F, Franjkic T, Schito P, Russo T, Nimac J, Chami AA, Mele A, Vidatic L, Kriz J, Julien JP, Apic G, Russell RB, Rogelj B, Cannon JR, Baralle M, Agosta F, **Hecimovic S**, Mazzini L, Buratti E, Munitic I. Emerging Trends in the Field of Inflammation and Proteinopathy in ALS/FTD Spectrum Disorder. ***Biomedicines***. 2023 May 31;11(6):1599. https://doi.org/10.3390/biomedicines11061599.
3. Dominko K, Rastija A, Smiljanic K, Mladenovic A, Lešnjaković L, Kanazir S, Milanovic D, **Hecimovic S***. Amyloid-ß plaque formation and BACE1 accumulation in the brains of a 5xFAD Alzheimer's disease mouse model is associated with altered distribution and not proteolysis of BACE1 substrates Sez6 and Sez6L. ***Mech Ageing Dev***. 2022 Oct;207:111726. https://doi.org/10.1016/j.mad.2022.111726Get rights and content.
4. Dominko K, Rastija A, Sobocanec S, Vidatic L, Meglaj S, Lovincic Babic A, Hutter-Paier B, Colombo AV, Lichtenthaler SF, Tahirovic S, **Hecimovic S***. Impaired Retromer Function in Niemann-Pick Type C Disease Is Dependent on Intracellular Cholesterol Accumulation. ***Int J Mol Sci***. 2021 Dec 9;22(24):13256. https://doi.org/10.3390/ijms222413256.
5. Van Hoecke L, Van Cauwenberghe C, Dominko K, Van Imschoot G, Van Wonterghem E, Castelein J, Xie J, Claeys W, Vandendriessche C, Kremer A, Borghgraef P, De Rycke R, **Hecimovic S**, Vandenbroucke RE. Involvement of the Choroid Plexus in the Pathogenesis of Niemann-Pick Disease Type C. ***Front Cell Neurosci.*** 2021 Oct 15;15:757482. https://doi.org/10.3389/fncel.2021.757482.
6. Colombo A, Dinkel L, Müller SA, Sebastian Monasor L, Schifferer M, Cantuti-Castelvetri L, König J, Vidatic L, Bremova-Ertl T, Lieberman AP, **Hecimovic S**, Simons M, Lichtenthaler SF, Strupp M, Schneider SA, Tahirovic S. (2021) Loss of NPC1 enhances phagocytic uptake and impairs lipid trafficking in microglia. ***Nat Commun* 12,** 1158 (2021). https://doi.org/10.1038/s41467-021-21428-5
7. Avrahami L, Paz R, Dominko K, **Hecimovic S**, Bucci C, Eldar-Finkelman H. (2020) GSK-3-TSC axis governs lysosomal acidification through autophagy and endocytic pathways. ***Cell Signal*.** 71:109597. https://doi.org/10.1016/j.cellsig.2020.109597

8. Dominko K, Dikic D, **Hecimovic S***. (2018) Enhanced activity of superoxide dismutase is a common response to dietary and genetically induced increased cholesterol levels. ***Nutrional Neuroscience***. 1-13. https://doi.org/10.1080/1028415X.2018.1511027
9. Causevic M, Dominko K, Malnar M, Vidatic L, Cermak S, Pigoni M, Kuhn PH, Colombo A, Havas D, Flunkert S, McDonald J, Gunnersen JM, Hutter-Paier B, Tahirovic S, Windisch M, Krainc D, Lichtenthaler SF, **Hecimovic S***. (2018) BACE1-cleavage of Sez6 and Sez6L is elevated in Niemann-Pick type C disease mouse brains. ***PLoS One***. 13(7):e0200344. https://doi.org/10.1371/journal.pone.0200344
10. Kosicek M, Gudelj I, Horvatic A, Jovic T, Vuckovic F, Lauc G, **Hecimovic S***. (2018) N-glycome of the lysosomal glycocalyx is altered in Niemann-Pick Type C disease model cells. ***Molecular & Cellular Proteomics***. https://doi.org/10.1074/mcp.RA117.000129
11. Cermak S, Kosicek M, Mladenovic-Djordjevic A, Smiljanic K, Kanazir S, **Hecimovic S***. (2016) Loss of Cathepsin B and L Leads to Lysosomal Dysfunction, NPC-Like Cholesterol Sequestration and Accumulation of the Key Alzheimer's Proteins. ***PLoS One***. 11(11):e0167428. https://doi.org/10.1371/journal.pone.0167428
12. Malnar M, Kosicek M, Lisica A, Posavec M, Krolo A, Njavro J, Omerbasic D, Tahirovic S, **Hecimovic S***.. Cholesterol-depletion corrects APP and BACE1 misstrafficking in NPC1-deficient cells. ***Biochim Biophys Acta***. 2012 Aug;1822(8):1270-83. https://doi.org/10.1016/j.bbadis.2012.04.002
13. Malnar M, Kosicek M, Mitterreiter S, Omerbasic D, Lichtenthaler SF, Goate A, **Hecimovic S***.. Niemann-Pick type C cells show cholesterol dependent decrease of APP expression at the cell surface and its increased processing through the beta-secretase pathway. ***Biochim Biophys Acta***. 2010 Jul-Aug;1802(7-8):682-91. https://doi.org/10.1016/j.bbadis.2010.05.006

Review articles:

14. Malnar M, **Hecimovic S***, Mattsson M, Zetterberg H. (2014) Bidirectional links between Alzheimer's disease and Niemann-Pick type C disease. ***Neurobiol Dis***. 72 Pt A: 37. https://doi.org/10.1016/j.nbd.2014.05.033