Curriculum Vitae

1. **Name, surname, data of birth:** Gintaras Valinčius, 1957.05.26

2. **Education:** Faculty of Chemistry, Vilnius University Diploma 1980.

3. **Science degree**: Doctor of Natural Sciences, 1988, dissertation: „Estance of platinum and adsorption of inorganic ions". Degree nostrified by the Research Council of Lithuania in registration No. 2734 (1993.12.02).

4. **Employment**:
    a. Vilnius university, Department of Physical Chemistry (1980-1998), junior researcher (1980-1984); assistant (1984-1988); associate professor (1988-1998).
    b. National Institute of Standards and Technology, Department of Biotechnology, Gaithersburg, Maryland, USA. Guest researcher (1998-2002);
    c. Vilnius Gediminas Technical University, Department of Chemistry and Bioengineering. Associate professor (2002-2011). Professor (2011- 2017).
    d. Institute of Biochemistry, Department of Bioelectrochemistry and Biospectroscopy, Vilnius University. Senior research fellow (2002 – 2010), chief research fellow, professor and Chief of the Department of Bioelectrochemistry and Biospectroscopy (2010-now).
    e. Life Science Center, Vilnius University, Director (2017-2022)
    f. Life Sciences Center, Partnership Institute for Genome Editing Technologies, Executive Director (2022-now)

5. **Scientific activity fields:** Electrochemistry and spectroscopy of biomolecules and biological models. Phospholipid tethered bilayer membranes, interaction with proteins, peptides, including bacterial toxins, antimicrobial peptides and misfolded proteins associated with neurodegeneration and other chronic diseases. Biosensing technologies of membrane damaging toxins: proteins, peptides and organic/inorganic substances. Neutron-based techniques for biomolecular studies. Electrochemical impedance: theory and application in biosensing. Integration of genome editing tools for biosensor technologies.

6. **Research articles in peer reviewed journals with citation index.** More than 90 articles included into in Thomson Reuters WOS and Scopus databases. Articles were published in internationally acclaimed scientific journals including, JACS, Langmuir, J.Phys.Chem, Anal.Chem., Biophysical Journal and others. At the moment of the application articles were cited more than 2300 times with, h = 25 (Thomson Reuters WOS).

7. **Academic mobility (2015-2020):**

- 2015 1 research project at Neutron Research Center at NIST (Gaithersburg, Maryland, USA) Visit funded by the European Social Fund (Lithuania), project Minifob (VP1-3.1-ŠMM-10-V-02-024). Access to the instruments and the beam-time cost was covered by the NIST Center for Neutron Research.
- 2015 1 month research project at Maryland University, College Park, Institute for bioscience and biotechnology Research, Rockville, Maryland USA. Project funded by the UMD.
- 2017 1 month research project at Maryland University, College Park, Institute for bioscience and biotechnology Research, Rockville, Maryland USA. Project funded by the UMD

8. **Principal investigator/leader of the following research projects:**

   a. „Immobilized Phospholipid Membranes for Protein Membrane Interaction Studies (Imfabite)“, Contract No. MIP-096/2011,2012 project leader.
   b. „Molecualr Mechanisms of Alzheimer‘s Disease (Malpalma)“, Contract No. LIG-004/2011-2013, principal investigator at partner Institution (project leader).
   c. Separation and Characterization of Toxic Amyloid Species Implicated in Alzheimers Disease. Bilateral Collaboration in Research and Development Program “Gilibert” Contract No. TAP-15/2011 (principal investigator).
   d. “Miniaturized Phospholipid Biosensors (MiniFob)”, European Social Fund project. Contract No. VP1-3.1-ŠMM-0-V-02-024, project leader (2013-2015).
   e. Quantitative assessment of the phospholipid membrane damage exerted by the pore-forming toxins QAPHOMEDA. Nr. S-MIP-19-33 (2019-2022). Research Council of Lithuana. Project leader.
   f. Biosensors for the detection of toxins BIOSENTOX Joint project with industrial partner UAB Energenas, funded by Lithuanian Business Support Agency (porject leader).
   g. Spectroscopic and electrochemical investigation of biological and model self-assembled systems. No. RD/2013/28 UAB ALTECHNA R&D (2013). Principal investigator.
   h. Investigation and testing of SERS active substrates. Contract No. RD/2012/80 UAB ALTECHNA R&D, (2012). Principal investigator.

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9. **Participation at International Scientific Conferences.** More than 30 presentations at Internartional and National Research Conferences. Representative talks:
   1) G. Valincius, R. Budvytyte, D.J. Vanderah. Interaction of β-amyloid with phospholipid membranes: implications for bioanalysis. *International Translational Neuroscience Conference. Kaunas. June 16-17, 2011* (invited talk).
   2) G. Valincius, T. Meskauskas, M. Mickevicius. Electrochemical Impedance of Tethered Bilayer Membranes. *ICNT, International Conference on Nanoscience +Technology, Paris, France. July 23-27, 2012*. (oral presentation),
   3) G.Valinčius, R.Budvytytė, M.Jankunec, T.Penkauskas. Reconstitution of cholesterol dependent cytolysins into tethered bilayer membranes. *Pore-Forming Toxins: a meeting in memory of Gianfranco Menestrina, 28 - 30 August 2014*, Trento, Italy. (oral presentation).
   4) G. Valinčius, R. Budvytyte, T. Penkauskas, M. Pleckaityte, and A. Zvirbliene Phospholipid Sensors for Detection of Bacterial Pore-Forming Toxins. *2014 ECS and SMEQ Joint International Meeting, Cancun, Mexico (October 5-10, 2014)*. (oral presentation).
   5) G.Valinčius, M.Mickevičius, T.Penkauskas. Characterization of Tethered Bilayer membranes by the Electrochemical Impedance Spectroscopy. *PacSurf (Pacific Rim Symposium on Surfaces, Coatings and Interfaces), Kohala Coast, Hawaii, December 7-11, 2014,* (oral presentation).
   6) G.Valinčius „Activity of pore-forming cholesterol dependent cytolysins assessed by dielectric damage of tethered bilayer membranes. May 11-14, 2015, Prato, Italy (oral presentation).
   7) G.Valinčius “Electrochemical Impedance of Tethered Bilayer Membranes”. International ISI sponsored conference „Chemistry and Chemical Technology 2016. April 28-29, 2016, Vilnius (invited talk).
   8) G.Valincius “Fabrication of phospholipid biosensors for bacterial toxins, June 14-17, 2016. Helsinki (oral presentation).
   9) G.Valincius, G.Dreizas, T.Penkauskas, T.Meskauskas. Electrochemical Impedance Spectroscopy of Tethered Bilayers: Effect of Random Distribution of Defects in Membrane.

International Society of Electrochemistry Meeting. Providence. RI, USA. Aug.29-Sept.02, 2017 (invited talk).

10) G.Valincius et al. Electrochemical Impedance Spectroscopy: Tool for Structure and Function Studies of Bilayers Populated with Ion-Conducting Pores. Biannual meeting of Bioelectrochemical Society. 2022 April 2-9, Antwerp. (Keynote lecture).

10. **PhD thesis supervisor activities.** During the last 10 years, the following PhD projects were commited under the supervision of Gintaras Valinčius: **Finished projects:** Ilja Ignatjev, Tadas Ragaliauskas, Mindaugas Mickevičius, Tadas Penkauskas, Indrė Aleknavičienė, **Ongoing projects:** Shiva Bilan, Filipas Ambrulevičius. **Serving as a consultant:** Martynas Talaikis (defended in 2021), VU ChGF, Inga Gabriūnaitė (defended in 2021) and Tomas Sabirovas (defended in 2020), VU ChGF;

11. **Teaching activities.** Teaching activities started in 1983 as an assistant at the Department of Physical Chemistry at Vilnius University. 1990-1998 Associate professor at the department of General and Inorganic Chemistry at Vilnius university, teaching courses (both lectures and seminars) in Crystal Chemistry (1989-1996) and Physical Chemistry and Colloids (1995-1998) for biological program students. Lectures „Disperse Systems“ for biochemistry program students, and Physical Chemistry for Bioinformatics program students at Vilnius University. Starting 2002 teaching two courses at Vilnius Gediminas Technical University: Chemical Thermodynamics and Chemical Kinetics for Chemistry and Bioengineering program students. Starting 1988 I was supervising more than 20 bachelor and 20 master degree seeking student projects at Vilnius University and Vilnius Gediminas technical University. I supervised 7 doctoral dissertation projects. One of my students Tadas Penkauskas was awarded „Best master degree project 2015“ in the field of Biomedical sciences from the Lithuanian Academy of Sciences.

12. **Awards and acknowledgements:**

    a. 2016 m. Lithuanian Science Prize “2D- ir 3D-bomimetic self-assembled systems: properties and applications” (2001-2015) (together with V.Razumas)

    b. 2018 m. Order of Grand Duke Gediminas for contribution in the development of Life Sciences and Smart Specialization Program in Lithuania.

    c. 2020 Aknowlegement and Medal awarded by the Prime Minister of Lithuania S.Skvernelis for the contribution in fight against COVID-19.

    d. 2020 Aknowlegement and Medal by the Minister of Health of Lithuania „For significant contribution towards health of Lithuanian People“

13. **Other professional activities.**

    a. Member of the NATO Secretary General Expert group on emerging and disruptive technologies (2022-now)
    b. Lithuanian representative in INSTRUCT R&D infrastructure consortium (2020-now).
    c. Signatory of Vilnius university Life Sciences Center and European Molecular Biology Laboratory International Partnership Agreement;
    d. Founder and first executive director of VU LSC-EMBL Partnership institute for Genome Editing technologies (2020-now);
    e. Chairman of the Board of Vilnius valleys association (2019-now).
    f. Member of the research Council of Lithuania, deputy chairman for the Studies commission(2003-2008),

g. Lithuanian representative at the European Strategy Forum for Research Infrastructures (2004-2012),
h. Chairman of the Lithuanian National Research Infrastructures Roadmap (2009-2011),
i. Initiator and first director of the „National Summer Undergraduate Research Fellowship Program“ (2005-2010),
j. Expert at Research and Studies Monitoring Agency (MOSTA) (2010 until now),
k. Scientific chairman of the „Health Technology and Biotechnology“ priority area expert group for preparation of the Lithuanian Smart Specialization Strategy,
l. Member of Lithuanian Biochemical Society, Lithuanian Biophysical Society, Lithuanian Biotechnology Association and International Society of Electrochemistry and International Society of Bioelectrochemistry.
m. Reviewer for Langmuir, Journal of Physical Chemistry, Electrochemistry Communications, Bioelectrochemistry, Journal of Electroanalytical Chemistry, Journal of American Chemical Society and other international research journals.

Gintaras Valinčius
2022-11-25

Selected Publication List

1. Rima Budvytyte, Filipas Ambrulevičius, Evelina Jankaityte, **Gintaras Valincius** Electrochemical assessment of dielectric damage to phospholipid bilayers by amyloid β-oligomers. *Bioelectrochemistry*. 145 (2022) 108091.

2. Filipas Ambrulevičius and **Gintaras Valinčius**. Electrochemical impedance spectrum reveals structural details of distribution of pores and defects in supported phospholipid bilayers. *Bioelectrochemistry* 146 (2022) 108092.

3. Tomas Raila, Tadas Penkauskas, Filipas Ambrulevicius, Marija Jankunec, Tadas Meskauskas, **Gintaras Valincius**. AI-based atomic force microscopy image analysis allows to predict electrochemical impedance spectra of defects in tethered bilayer membranes. *Scientific Reports*. Vol. 12 (2022) Iss. 1, Article number 1127.

4. Indre Aleknaviciene, Marija Jankunec, Tadas Penkauskas, **Gintaras Valincius**, Electrochemical properties of tethered lipid bilayers on thin film silver substrates. *Electrochimica Acta*. Vol. 389, (2021) 138726.

5. Tomas Sabirovas, Ausra Valiuniene, **Gintaras Valincius**. Hybrid bilayer membranes on metallurgical polished aluminum. *Scientific Reports*. Vol. 11, Issue 1, Article number 9648, (2021), https://doi10.1038/s41598-021-89150-2 .

6. Tomas Raila, Filipas Ambrulevicius, Tadas Penkauskas, Marija Jankunec, Tadas Meškauskas, David J. Vanderah, **Gintaras Valincius**. Clusters of protein pores in phospholipid bilayer membranes can be identified and characterized by electrochemical impedance spectroscopy. *Electrochimica Acta*. Vol. 364, 137179 (2020); https://doi.org/10.1016/j.electacta.2020.137179 .

7. Katryna Pampuscenko, Ramune Morkuniene, Tomas Sneideris, Vytautas Smirnovas, Rima Budvytyte, **Gintaras Valincius**, Guy C. Brown, Vilmante Borutaite. Extracellular tau induces microglial phagocytosis of living neurons in cell cultures. *Journal of Neurochemistry*. Vol.154, Iss. 3, 316-329, (2020).

8. Tadas Penkauskas, Aistė Zentelyte, Shamish Ganpule, **Gintaras Valincius**, Giulio Preta. Pleiotropic effects of statins via interaction with the lipid bilayer: A combined approach. *BBA-Biomembranes*. Vol. 1862 Iss. 9, article number: 183306, (2020).

9. Saulius Tumenas, Tadas Ragaliauskas, Tadas Penkauskas, Audrone Valanciute, Filipas Andriulevicius, **Gintaras Valincius**. Solvent effects on composition and structure of thiolipid molecular anchors for tethering phospholipid bilayers. *Applied Surface Science*. 509 (2020) 145268.

10. Tomas Raila, Tadas Penkauskas, Marija Jankunec, Gintaras Dreizas,Tadas Meškauskas, **Gintaras Valincius**. Electrochemical impedance of randomly distributed defects in tethered phospholipid bilayers: Finite element analysis. *Electrochimica Acta.* 2019, **299**, 863-874.

11. Inga Gabriunaite, AausraValiuniene, **Gintaras Valincius**. Formation and properties of phospholipid bilayers on fluorine doped tin oxide electrodes. *Electrochimica Acta* 2018, **283**, 1351-1357.

12. Tadas Ragaliauskas, Mindaugas Mickevicius, Bozena Rakovska, Tadas Penkauskas, David J. Vanderah, Frank Heinrich and **Gintaras Valincius**. Fast formation of low-defect-density tethered bilayers by fusion of multilamellar vesicles. *BBA-Biomembranes* 2017, **1859** (5), 669-678.

13. **Gintaras Valincius**, Mindaugas Mickevicius, Tadas Penkauskas, Marija Jankunec. Electrochemical Impedance Spectroscopy of Tethered Bilayer Membranes: An Effect of Heterogeneous Distribution of Defects in Membranes. *Electrochimica acta.* 2016, **222**, 904-613.

14. **Gintaras Valincius,** Tadas Meškauskas and Feliksas Ivanauskas. Electrochemical Impedance Spectroscopy of Tethered Bilayer Membranes. *Langmuir*. 28, (1) 977-990, (2012).

15. Kwang Joo Kwak, **Gintaras Valincius**, Wei-Ching Liao, Xin Hu, Xuejin Wen, Andrew Lee, Bo Yu, David J. Vanderah, Wu Lu, and L. James Lee. Formation and Finite Element Analysis of Tethered Bilayer Lipid Structures. *Langmuir*, 26 (23), pp 18199–18208, (2010),

16. Paulius Cizas, Rima Budvytyte. Ramune Morkuniene, Radu Moldovan, Matteo Broccio, Mathias Loesche M, Gediminas Niaura, **Gintaras Valincius**, Vilmante Borutaite. Size-dependent neurotoxicity of beta-amyloid oligomers *Archives of biochemistry and biophysics*. 496 (2) 84-92 (2010).

17. Duncan J. McGillivray, **Gintaras Valincius**, Frank Heinrich, Joseph W.F. Robertson, David J. Vanderah, Wilma Febo-Ayala, Ilja Ignatjev, Mathias Lösche, John J. Kasianowicz. Structure of Functional Staphylococcus aureus α-Hemolysin Channels in Tethered Bilayer Lipid Membranes *Biophys. J*, 96(4) 1547 - 1553, (2009).

18. **Gintaras Valincius**, Frank Heinrich, Rima Budvytyte, David J. Vanderah, Yuri Sokolov, James E. Hall, and Mathias Loesche. Soluble amyloid ß oligomers affect dielectric membrane properties by bilayer insertion and domain formation: Implications for cell toxicity. *Biophys. J*. **95** 4845-4861, (2008).

19. McGillivray, D.J.; **Valincius, G**.; Vanderah, D.J.; Febo-Ayala, W.; Woodward, T.J.; Heinrich, F. Kasianowicz, J.J.; Losche, M. Molecular-scale structural and functional characterization of sparsely tethered bilayer lipid membranes. *Biointerphases.* **2**, 21-32 (2007).

20. Vitalii I. Silin, Herbert Wieder, John T. Woodward, **Gintaras Valincius**, A.Offenhausser, and Anne L. Plant. "The Role of Surface Free Energy on the Formation of Hybrid Bilayer Membranes", *J. Am. Chem. Soc*. **124** 14676-14683, (2002).