

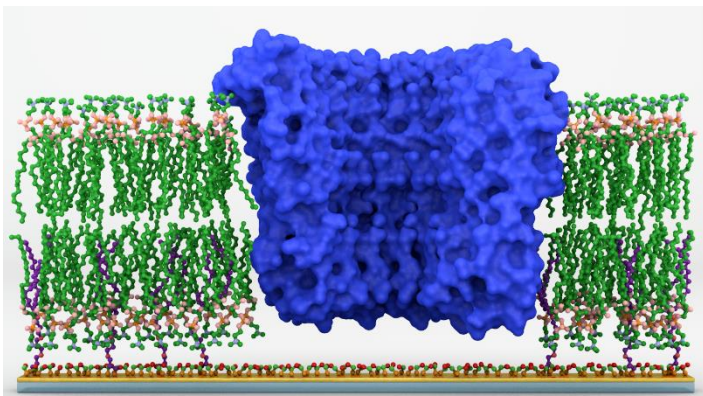
Enabling technology platform to study proteins in membranes



Vilnius
University

BRIEF DESCRIPTION OF A TECHNOLOGY

The variety of tools to mimic a biological membrane as a functional barrier in fundamental research and biotechnological application are available. One of them – tethered bilayer lipid membranes (tBLM) – is the most relevant model with a controllable sub-membrane reservoir. Our technology based on anchoring of lipid-like compounds, enables the production of the stable artificial lipid membranes in a quicker and convenient way. This platform is more suitable for electrochemical approach while also mimics a cell plasma membrane in in vitro experiments better.



PROPOSAL

A broad spectrum of tBLM architecture allows to mimic different cell membranes (blood cells, neurons, bacterial, etc.) or investigate particular biological/biochemical processes in various biological fluids such as blood, urine or saliva.

APPLICATION

The tBLM-based biosensoric system might be utilized in point of care diagnostics, drug discovery and other pharmaceutical research.

TECHNOLOGY READINESS LEVEL

Technology development (4 level) – components and breadboard validation in laboratory environment.

INTELLECTUAL PROPERTY

Patent: LT2015 080. Applicant: Vilnius University.

INVENTORS

Dr. Gintaras Valinčius, electrochemistry impedance spectroscopy method development; dr. Rima Budvytytė, misfolded proteins in neurodegenerative disease development; dr. Tadas Ragaliauskas, lipid membrane models development; dr. Marija Jankunec, visualisation and nanomechanical properties of proteins interaction with lipid bilayer by AFM; PhD student Tadas Penkauskas, practical and theoretical development of lipid-based EIS biosensor.

PUBLICATIONS

Ragaliauskas et al. (2017) *Biochim Biophys Acta Biomembr.*, 2017, 1859(5):669-678
Ragaliauskas et al. (2019) *Sci Rep.*, 2019, 9(1):10606

CONTACTS

- Dr. Gintaras Valinčius
Life Sciences Center, Vilnius University
E-mail: gintaras.valincius@gmc.vu.lt
Phone: +370 5 223 4435
- Dr. Ramūnas Grigonis
Innovation Office, Vilnius University
E-mail: ramunas.grigonis@cr.vu.lt
Phone: +370 5 268 7006