



# Istvan Kocsis

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European Institute of Membranes  
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## Graduate experience

- 10.2014 – 10.2017 PhD Student – European Institute of Membranes, Montpellier, France; Director: Dr. Mihail Barboiu
- 07.2016 – 09.2016 Research Internship - Rensselaer Polytechnic Institute, Troy NY; Collaborator: Pr. Dr. Georges Belfort
- 10.2014; 11.2015 Research Internship, Yonsey University, Wonju, South Korea; Science and Technology Amicable Research (STAR) Program, France-South Korea; Directors: Dr. Mihail Barboiu, Pr. Dr. Jae-Min Oh

## Undergraduate experience

- 10.2012 – 07.2014 Master's Degree in Advanced Chemistry - University of Babes-Bolyai, Cluj, Romania
- 09.2012 – 07.2014 Chemical Technician – University of Babes-Bolyai, Cluj, Romania
- 12.2012 – 12.2013 Research Internship – European Institute of Membranes, Montpellier, France
- 10.2009 – 07.2012 Bachelor's Degree in Chemistry - University of Babes-Bolyai, Cluj, Romania

## Science projects involvement

1. “Artificial water channels based thin film nanocomposite membranes” – France
2. “Synthetic polarized water channels in lipidic systems: towards a water diode” – France
3. “Dynamic constitutional materials for self-instructed membranes” – France
4. “Development of guanosine-layered inorganic hybrid materials (GUANOTECH)” – France/Korea
5. “Chemical, Photochemical and electrochemical triggered molecular machines” – Romania
6. “Dynamic constitutional chemistry: hydrogen bonding and/or pi-stacking directed synthesis and amplification of new synthetic receptors for biologically active compounds” – Romania

## Relevant skills

Research: organic synthesis, self-assembly and supramolecular chemistry, dynamic constitutional chemistry, lipid vesicle synthesis and transport phenomena (water and ions), stopped flow analysis, Schiff base organometallic complexes, solid phase peptide synthesis, polyamide thin film membrane preparation, ARGET-ATRP polymer brush synthesis, reverse/forward osmosis filtration

Organizational: leadership - President of Chemistry Students' Organization (2012-2013); mentored 3 undergraduate students during doctoral program

## Publications

1. Oriented chiral water wires in artificial transmembrane channels, **I. Kocsis**, M. Sorci, H. Vanselous, S. Murail, S. E. Sanders, E. Licsandru, Y.-M. Legrand, A. van der Lee, M. Baaden, P. B. Petersen, G. Belfort, M. Barboiu, *submitted*.
2. Atmospheric Pressure Plasma - ARGET ATRP Modification of Poly(ether sulfone) Membranes: A Combination Attack, J. J Keating, M. Sorci, **I. Kocsis**, A. Seatro, M. Barboiu, P. Underhill, G. Belfort, *submitted*.
3. Columnar Self-Assemblies of Triarylaminines as Scaffolds for Artificial Biomimetic Channels for Ion and for Water Transport, S. Schneider; E. Licsandru; **I. Kocsis**; A. Gilles; F. Dumitru; E. Moulin; J. Tan; J.-M. Lehn; N. Giuseppone; M. Barboiu, *J. Am. Chem. Soc.* **2017**, 139, 3721–3727.
4. A class of carbonic anhydrase I - selective activators, E. Licsandru, M. Tanc, **I. Kocsis**, M. Barboiu, C. Supuran, *J. Enzyme Inhib. Med. Chem.* **2017**, 32, 37-46.
5. Salt-excluding artificial water channels exhibiting enhanced dipolar water and proton translocation, E. Licsandru\*, **I. Kocsis\***; Shen, Yuexiao\*; S. Murail, Y.-M. Legrand, A. van der Lee; D. Tsai, M. Baaden, M. Kumar, M. Barboiu, *J. Am. Chem. Soc.* **2016**, 138, 5403-5409. (\*shared first authors)
6. Controlled supramolecular structure of guanosine monophosphate in the interlayer space of layered double hydroxide, G.-H. Gwak, **I. Kocsis**, Y.-M. Legrand, M. Barboiu, J.-M. Oh, *Beilstein J. Nanotechnol.* **2016**, 7, 1928-1935.
7. Squallyl Crown Ether Self-Assembled Conjugates: An Example of Highly Selective Artificial K<sup>+</sup> Channels, Z. Sun, A. Gilles, **I. Kocsis**, Y.-M. Legrand, E. Petit, M. Barboiu, *Chem. Eur. J.* **2016**, 22, 2158–2164.
8. Supramolecular rulers enabling selective detection of pure short ssDNA via chiral self-assembly, **I. Kocsis**, A. Rotaru, Y.-M. Legrand, I. Grosu, M. Barboiu, *Chem. Commun.*, **2016**, 52, 386-389.
9. Self-sorting of Dynamic Metallosupramolecular Libraries DMLs via Metal-Driven Selection, **I. Kocsis**, D. Dumitrescu, Y.-M. Legrand, A. van der Lee, I. Grosu and M. Barboiu, *Chem Commun.*, **2014**, 50, 2621-2623.

## Conferences

*Artificial water channels as simple tools for biomimetic membranes*  
-oral presentation- ICOM 2017 San Francisco, CA USA

*Salt-Excluding Artificial Water Channels in Lipid Systems*  
-oral presentation- NAMS 2016, Bellevue, WA USA

*Dipolar Water Transport through Artificial Water Channels in Lipid Systems*  
-poster- GRC 2016, New London, NH USA

*Self-sorting dynamic metallosupramolecular libraries*

-oral presentation- 10<sup>th</sup> ISMSC 2015, Strasbourg, France

*New cryptands and macrocycles obtained through adaptive synthesis*

-oral presentation- 8<sup>th</sup> Franco-Romanian Seminar on Applied Chemistry, Montpellier, France, 2014

*Towards the synthesis of new molecular photoresponsive switches*

-poster- 32<sup>nd</sup> OLTCHIM 2014, Valcea, Romania

*Chemical tool for the study of Protein Tyrosine Phosphatases (PTPs): Synthesis of a new activity-based probe for PTPs*

-oral presentation- 12<sup>th</sup> Academic Days 2011, Timisoara, Romania

*New redox photoactive macrocyclic derivatives bearing phenothiazine and diazobenzene units as potential adsorbates on gold surfaces*

-oral presentation- 7<sup>th</sup> Students for students 2010, Cluj, Romania

## **Awards**

NAMS Elias Klein Travel Grant, 2017

Scientific Performance Scholarship, University of Babes-Bolyai, 2011-2012

Special Award at the National Chemistry Olympiad, Romania, 2005 and 2006

## **Languages**

Romanian – Mother tongue

Hungarian – Mother tongue

English – Advanced/Native level (C1 Certificate of Advanced English, University of Cambridge, UK)

French – Intermediate (B1+ Attestation Français Langue Etrangère, University of Montpellier, France)

Spanish – Basic