

# Curriculum vitae

## Personal data:

Name: **Márton Simon Czikkely**  
Date of birth: Budapest, 1997.06.03.  
E-mail: [czikkely23@gmail.com](mailto:czikkely23@gmail.com)  
Nationality: Hungarian



## Studies:

**Since 2017** **University of Szeged**  
Faculty of medicine

**2012-2017:** **Városmajori Grammar School - Budapest**  
Specialization on biology, chemistry and Spanish language

**2008-2012** **Budapesti Fasori Evangélikus Gimnázium**  
Specialization on biology, arts and Latin language

## Professional and work experience:

### **Biomedical research since 2017:**

Hungarian Academy of Sciences – Biological Research Centre Szeged, Synthetic and Systems Biology Unit, Pál Csaba Lab – Application of genome engineering to study antibiotic resistance (PI: Dr. Csaba Pál)

([group.szbk.u-szeged.hu/sysbiol/pal-csaba-lab-member.html#marton-czikkely](http://group.szbk.u-szeged.hu/sysbiol/pal-csaba-lab-member.html#marton-czikkely))

### **Biomedical research 2014 - 2016:**

Semmelweis University – Institute of Pathophysiology - The role of genetic background on the progression of kidney fibrosis (PI: Dr. Miklós Mózes)

## Spoken languages:

English	advanced (C1)
Spanish	advanced (C1)
Latin	intermediate (B2)
German	basic-intermediate (B1-B2)
Russian	basic (A1-A2)

### **Student Conferences:**

- XXXIV National Scientific Student's Associations Conference, 2019  
Molecular Biology Section
- University of Szeged Scientific Student's Associations Conference, 2018  
Genetic and Molecular Biology Section, 1. prize
- The Carpathian Basin Conference of Scientific Student Associations, 2016  
Ecology section – 1. prize

### **Scholarships, awards and prizes:**

- Municipality of Szeged: University Scholarship 2018/2019
- Szeged Scientists Academy: Szent-Györgyi Student Scholarship 2017/2018; 2018/2019
- New National Excellence Program of the Ministry of Human Capacities 2018/2019
- 8. Junior Bolyai Prize - 2017  
Title of my essay: "Artificial evolution: Creation and utilization of new bacteria for the improvement of human life quality - reprogramming the genetic code in bacteria by reframing the genome"
- University Study Scholarship – 2017, 2018, 2019
- Stockholm Junior Water Prize –national winner of Hungary - 2016  
(representation of Hungary in the international final in Sweden)
- 2016: Certificate of appreciation from the President of Hungary, János Áder on the occasion of the Budapest Water Summit 2016
- Hungarian Research Student Association, Essay Competition - 2nd place

### **Science promotion:**

- MEMO Science&Innovation, 2019  
Science Show organization in Budapest at the MEMO House

link: <http://bit.do/memobudapest>

## **Publications:**

### **1., original papers:**

- Petra Sziliş, Gábor Draskovitsş, Tamás Révészş, Ferenc Bogar, Dávid Balogh, Tamás Martinek, Lejla Daruka, Réka Spohn, Bálint Márk Vásárhelyi, Márton Czikkely, Bálint Kintses, Gábor Grézal, Györgyi Ferenc, Csaba Pál\*, Ákos Nyerges\*

„Rapid evolution of reduced susceptibility against a balanced dual-targeting antibiotic through stepping-stone mutations”

Antimicrobial Agents and Chemotherapy, June 24, 2019.

<https://aac.asm.org/content/early/2019/06/18/AAC.00207-19.abstract>

- Márton Czikkely, Tamás Gergely Iványi, Tamás Márkus, Dr. Anna Solt

„Fight against PET bottles”

Élet és Tudomány LXXI. évfolyam, 6. szám

2016. február 5., 174-175.

### **2., scientific talks:**

- Márton Czikkely  
„Application of Genome Engineering to Study Antibiotic Resistance”  
12th Meeting of Nobel Laureates and Talented Students  
Szeged, 2018
- Márton Czikkely  
„ Application of Genome Engineering to Study Antibiotic Resistance”  
Fazekas+ Fesztivál  
Budapest, 2019
- Márton Czikkely, Tamás Gergely Iványi, Tamás Márkus  
„The Secrets of Drinking Water”  
Budapest Water Summit  
Budapest, 2016
- Márton Czikkely, Tamás Gergely Iványi, Tamás Márkus  
“The Secrets of Drinking Water”  
Waterlution Canada - Water Innovation Lab (nyári iskola)  
Comrie Croft, Perthshire – Scotland, 2015
- Márton Czikkely, Mózes Miklós\*  
„The role of genetic background in kidney fibrosis”  
6th Meeting of Nobel Laureates and Talented Students  
Szeged, 2015

### **3., poster presentations:**

- 5th International Synthetic & Systems Biology Summer School - Certosa di Pontignano, Siena, Italy – 2018 július 25-29

Márton Czikkely, Ákos Nyerges\*, Csaba Pál\*

„Precise and portable method for broad host bacterial genome engineering”

- World Water Week – Stockholm, Sweden 2015

Márton Czikkely, Tamás Gergely Iványi, Tamás Márkus

“The Secrets of Drinking Water”

- Hungarian Research Student Association, Poster Competition, Molecular Biology, Medicine and Health Section - 1<sup>st</sup> place

Márton Czikkely, Miklós Mózes\*

„The basics of genetic recombineering and the role of genetic backgrounds in kidney fibrosis: the examination of EGR2 gene expression”

### **Scientific interest**

I started my actual scientific work in 2017 in the Biological Research Centre of the Hungarian Academy of Sciences with the leadership of Dr. Csaba Pál, and the previous Kuffler Prize awarded Dr. Ákos Nyerges ([www.brc.hu/sysbiol/](http://www.brc.hu/sysbiol/)).

My aim is to facilitate the fight against antibiotic resistance – a current global medical and social crisis – through the study of bacterial evolution, and the development of novel technologies.

Pathogens seem invariably to attempt to survive the immune system of the invaded host or the pressures of applied therapies. During this accommodation process, DNA-level changes and mutations occur in the cells. These invisible, but important evolutionary processes lead to one of our biggest clinical challenges: antimicrobial resistance. Thanks to scientific advances of recent decades, it has become possible to manipulate the DNA in a precise manner, which enables a rapid and targeted examination of these very mutations. This approach offers a breakthrough in the investigation of antimicrobial resistance.

In our work we use the toolbox of evolutionary genome engineering and try to predict preclinically how resistance can evolve against an antimicrobial. A technique developed in the laboratory of my mentor, Csaba Pál, makes the rapid examination and manipulation of evolution possible with unprecedented accuracy. Our aim is the further development and utilization of this method. We also strive to be able to fully understand the evolutionary processes of accommodation, and this way to develop more resistance proof antibiotics.

During my university years I would like to study the field of molecular and synthetic biology and evolutionary genome engineering in as much depth as possible in order to be able to master and develop clinical applications with a special emphasis on the problem of antimicrobial resistance. As a member of the Szeged Scientists' Academy, my aim is to better myself not only in my academic skills, but also to become an open-minded research scientist ready to explore new ideas. In further stages of my career, what I hope to do is not only to follow in the footsteps of other great minds but rather to shape science myself.