

## MÁRTON SIMON CZIKKELY



National Academy of Scientist Education, 3<sup>rd</sup> Ph.D. year

University of Szeged,  
Doctoral School of Multidisciplinary Medical Sciences  
Ph.D. 3<sup>rd</sup> year

### YEAR OF BIRTH

1997

### FORMER SZENT-GYÖRGYI PUPIL

yes

### RESEARCH UNIT

HUN-REN Biological  
Research Centre

### SZENT-GYÖRGYI MENTOR

Csaba Pál

### JUNIOR MENTOR

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### SPECIALIZATION

genetic engineering,  
experimental evolutionary  
biology,  
antibiotic resistance

### SECONDARY SCHOOL

Városmajori High School

### NAME OF TEACHER

Anna Jánossyné Solt

### LANGUAGES

English/advanced  
Spanish/advanced  
German/intermediate  
Latin/intermediate  
Persian/basic

### IMPORTANCE, AIMS AND POSSIBLE OUTCOME OF RESEARCH

Pathogens continuously adapt to therapies through gradual DNA mutations. This evolutionary process leads to antimicrobial resistance, a major clinical challenge. Recent advances allow precise and rapid study of these mutations. A new method enables not only the analysis but also the control of evolution, making it possible to predict resistance to new antibiotics under development.

### AMBITIONS AND CAREER GOALS

My aim is to help the fight against antibiotic resistance – a major crisis in medicine – through the examination of its evolution in clinically important pathogens.

### HONORS AND PRIZES

2026 Forbes 30 under 30  
2025 JATE Award  
2024 Kooperatív Doctor Scholarship  
2023 Pro Scientia Golden Award  
2023 Apáthy István Award  
2023 Talent of The Year - TALENT Scholarship  
2021 Szent-Györgyi Student of the year  
2021 Krisztinicz Iván Award  
2019 Stephen W. Kuffler Research Scholarship

### PUBLICATIONS

Daruka, L., **Czikkely, M. S.**, Szili, P., Farkas, Z., Balogh, D., Grézal, G., Maharramov, E., Vu, T.-H., Sipos, L., Juhász, Sz., et al. (2025). ESKAPE pathogens rapidly develop resistance against antibiotics in development in vitro. *Nat. Microbiol* **10**(2): 313–331.

Maharramov, E., **Czikkely, M. S.**, Szili, P., Farkas, Z., Grézal, G., Daruka, L., Kurkó, E., Mészáros, L., Daraba, A., Kovács, T., et al. (2025). Exploring the principles behind antibiotics with limited resistance. *Nat Commun* **16**(1): 1842

Martins, A., Judák, F., Farkas, Z., Szili, P., Grézal, G., Csörgő, B., **Czikkely, M. S.**, Maharramov, E., Daruka, L., Spohn, R., et al. (2025). Antibiotic candidates for Gram-positive bacterial infections induce multidrug resistance. *Sci Transl Med* **17**(780)

Wannier, T. M., Nyerges, Á., Kuchwara, H. M., Czikkely, M., Balogh, D., Filsinger, G. T., Borders, N. C., Gregg, C. J., Lajoie, M. J., Rios, X., et al. (2020). Improved bacterial recombineering by parallelized protein discovery. *PNAS* **117**(24): 13689–13698.

Szili, P., Draskovits, G., Révész, T., **Czikkely, M.**, Pál, Á. Nyerges, Á., et al. (2019) Rapid evolution of reduced susceptibility against a balanced dual-targeting antibiotic through stepping-stone mutations. *Antimicrob Agents Chemother* **63**: 00207-19.