

# Šimon Džatko

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Date of birth: 16<sup>th</sup> July 1991

## Education

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- 07/2016 – 05/2021      **Ph.D.** | Masaryk University, Brno, Czech Republic  
Subject: **Biomolecular Chemistry and Bioinformatics**  
*Thesis title:* In-cell NMR spectroscopy of nucleic acids in human cells  
*Supervisor:* doc. Mgr. Lukáš Trantírek, Ph.D.
- 07/2014 – 06/2016      **Mgr.** | Masaryk University, Brno, Czech Republic  
Subject: **Molecular Biophysics**  
*Thesis title:* DNA quadruplex forming segments in noncoding regions of FGFR3 gene
- 07/2011 – 06/2014      **Bc.** | Masaryk University, Brno, Czech Republic  
Subject: **Biophysics**  
*Thesis title:* Identification and characterization of quadruplex forming motifs in promoter DNA

## Employment experience

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- 05/2022 –                      **Postdoc / Research scientist** | Centre for advanced materials application SAS (CEMEA), Bratislava, Slovakia

My project involves the development and characterization of alginate-based biocompatible hydrogels with dual covalent/non-covalent crosslinking designed for protection of pancreatic islets in treatment of diabetes.

- 10/2013 – 08/2021              **PhD student / Research scientist** | Central European Institute of Technology (CEITEC), Brno, Czech Republic

Main focus of my PhD research was the structural behaviour of nucleic acids and their interactions in the complex intracellular environment of living mammalian cells. I worked on development of the methodology for in-cell NMR spectroscopy of nucleic acids in human cells.

### Skills/expertise :

- (in-cell) NMR
- CD, UV/VIS spectroscopy
- work with mammalian cell cultures
- FACS
- confocal microscopy
- click chemistry
- molecular biology techniques
- western blotting

## Publications

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Broft, P., **Dzatkó, S.**, Krafcikova, M., Wacker, A., Hänsel-Hertsch, R., Dötsch, V., Trantirek L, Schwalbe, H. **In-cell NMR spectroscopy of functional riboswitch aptamers in eukaryotic cells**

*Angewandte Chemie International Edition* **2021**, 60, 865

<https://doi.org/10.1002/anie.202007184>

Krafcikova M.\*, **Dzatkó S.\***, Caron C., Granzhan A., Fiala R., Loja T., Teulade-Fichou M.P., Fessl T., Hänsel-Hertsch R., Mergny J.L., Foldynova-Trantirkova S., Trantirek L. **Monitoring DNA-ligand interactions in living human cells using NMR spectroscopy**

*Journal of the American Chemical Society* **2019** 141 (34), 13281-13285

<https://doi.org/10.1021/jacs.9b03031>

\* These authors contributed equally to this work.

**Dzatkó S.\***, Krafcikova M.\*, Hänsel-Hertsch R., Fessl T., Fiala R., Loja T., Krafcik D., Mergny J.-L., Foldynova-Trantirkova S., Trantirek L. **Evaluation of the stability of DNA i-motifs in the nuclei of living mammalian cells**

*Angewandte Chemie International Edition* **2018**, 57, 2165.

<https://doi.org/10.1002/anie.201712284>

\* These authors contributed equally to this work.

## Book chapters

**Dzatkó, S.**, Fiala, R., Hänsel-Hertsch, R., Foldynova-Trantirkova, S., Trantirek, L.

**Chapter 16 In-Cell NMR Spectroscopy of Nucleic Acids. In In-cell NMR Spectroscopy: From Molecular Sciences to Cell Biology**

*The Royal Society of Chemistry*, **2020**; pp 272–297.

ISBN: 978-1-78801-217-1

<https://doi.org/10.1039/9781788013079-00272>

## Awards

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2021	Dean's awards for the Best Students in the Doctoral study program
2019	Award for Exceptional Scientific Contribution   CEITEC Masaryk University
2018	Josef Dadok Prize (2 <sup>nd</sup> place)

## Research stays

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06/2019	National Institute of Chemistry, Ljubljana
11/2018	Curie Institute, Paris
04/2015	Karolinska Institute, Stockholm

## Conferences

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### *Oral Presentations*

04/2018                      33rd Central European NMR Meeting Valtice, Czech Republic

### *Poster Presentations*

10/2018                      ANNA (Advances in Noncanonical Nucleic Acids), Portorož, Slovenia

09/2017                      42nd FEBS Congress, Jerusalem, Israel

05/2017                      G4thering (6th International Meeting on Quadruplex Nucleic Acids),  
Prague, Czech Republic

## Skills & Languages

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English                      advanced

French                        advanced

Driving license        **B**

## Interests

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Mountain biking, skiing, hiking, football, reading, movies, video games