MAREK BARTOSOVIC

I am highly motivated, ambitious, and enthusiastic scientist, exploring epigenetic regulation of cell differentiation and disease. I have developed single-cell and multimodal chromatin profiling technologies and pioneered spatial epigenomics. Now I want to use the novel methods to understand and model epigenetic regulation of gene expression in health and disease.

PERSONAL INFORMATION

Njurundagatan 3
152 63 Stockholm
Sweden

+46 76 918 65 18
marek.bartosovic@ki.se
https://github.com/mardzix

Born August 14th, 1988 in Trnava, Slovakia

ACADEMIC EDUCATION AND WORK EXPERIENCE

2017 – 2022 POST-DOCTORAL FELLOW IN MOLECULAR NEUROBIOLOGY.
DEPARTMENT OF MEDICAL BIOCHEMISTRY AND BIOPHYSICS, KAROLINSKA INSTITUTET, STOCKHOLM, SWEDEN

Group of Goncalo Castelo-Branco
Funded by Marie Sklodowska-Curie actions (MSCA), Vinnova seal of excellence programme
Advanced in both bioinformatics and wet lab expertise
Development of single-cell CUT&Tag and nano-CUT&Tag technology
Epigenetic analysis of oligodendrocyte lineage
Functional CRISPR screenings of oligodendrocyte lineage differentiation

2011 – 2016 PHD IN BIOMOLECULAR CHEMISTRY
CEITEC, MASARYK UNIVERSITY, BRNO, CZECH REPUBLIC

Group of Stepanka Vanacova (lab of RNA processing and degradation)
Roles of post-transcriptional RNA modifications in nuclear RNA processing.

2009 – 2011 MASTER IN BIOCHEMISTRY
COMMENIUS UNIVERSITY IN BRATISLAVA, SLOVAKIA
Graduated with honours

2006 – 2009 BACHELOR IN BIOCHEMISTRY
COMMENIUS UNIVERSITY IN BRATISLAVA, SLOVAKIA
Graduated with honours

SCHOLARSHIPS AND FUNDING

2021 Swedish research council starting grant, Single-cell epigenomics in the central nervous system, 4 years, € 600,000, Principal investigator

2018 Marie Sklodowska-Curie Actions, Individual fellowship, score 92,6, Seal of Excellence, In reserve list and funded by Vinnova (Swedish government agency.) € 170,000. 2-year fellowship.

2011-2014 Brno PhD talent: Scholarship for the best PhD student's projects in the Brno region. Total € 13500, 3-year fellowship

2006-2011 University scholarship for excellent studying results and attendance of conferences. Total € 2500 (bachelor and master)

2018 Karolinska Institutet travel grant**,** € 800

2016 EMBO complex life of mRNA travel grant. € 400

2012 Award for best poster at RNA club in Prague, Czech Republic (€ 200 and RNA society membership for one year)

ACADEMIC REVIEWING

2020-2022 External reviewer for Slovak Grant Agency APVV General Grants.

2021 - External reviewer of ESET Science award price.

Frontiers in Neuroscience

Frontiers in Oncology

Scientific Reports

INTERNSHIPS AND COLLABORATIONS

2022 Internship and collaboration with the laboratory of Prof. Rong Fan (Yale University) on spatial epigenomic profiling

2022 Ongoing collaboration with company Life Technologies regarding CUT&Tag technology

2021 Collaboration and paid consultantion for company Abcam regarding CUT&Run and CUT&Tag technologies.

2015-2016 Internship in the laboratory of Dr. Grzegorz Kudla (University of Edingburgh, MRC) with focus on bioinformatic analysis of CLIP-seq data (4 months)

SELECTED CONFERENCES AND PRESENTATIONS

November 2020 Oral presentation at EMBO Neuro-epigenetics conference, Virtual

October 2020 Oral presentation at Abcam Epigenetics in the Nervous System, Virtual

September 2019 Oral presentation at Meeting of Swedish RNA society, Lycksele, Sweden

July 2018 Oral presentation at EMBO workshop RNA structure meets function, Stockholm, Sweden

September 2016 Oral presentation at Nucleic acids and immunity conference, Brno (Czech Republic)

September 2015 Oral presentation at RNA Club, Ceske Budejovice (Czech Republic)

STUDENT MENTORING AND SUPERVISION

2020 - now Mukkund Kabbe – PhD student co-supervisor

2021 Negi Sadeghi Hassanabadi – Master student

2019 Shreya Sarangi – Master student

2018 Florian Gabriel – Master student

2017 Bastienne Zaremba – Exchange Erasmus student

2014 - 2016 Pavlina Gregorova – Master student

2014 - 2016 Helena Covelo-Molares – Mentor for PhD student

DISSEMINATION ACTIVITIES

Founding member of webpage www.zijemvedu.sk (translation: I live science), which is focused on scientific networking of Slovak scientists working abroad and promotion of popular science in Slovakia.

Co-organizer of conference zijem vedu nazivo (English translation: I live science, 2017)

Co-creator of podcast and youtube channel (Zijem vedu) used for popularization of science (https://www.youtube.com/c/ŽijemVedu, in Slovak)

TEACHING ACTIVITIES

2022 – Single cell genomics for beginners, Braga, Portugal teaching

2021 – Lecture, Epigenomics Data Analysis: from Bulk to Single Cell

2021 – Basic science course, Karolinska Institute, Stockholm

LIST OF PUBLICATIONS

Orcid number: 0000-0003-2057-6050

Peer-reviewed original publications

Bartosovic, M., Kabbe, M. & Castelo-Branco, G. Single-cell CUT&Tag profiles histone modifications and transcription factors in complex tissues. *Nat Biotechnol* 39, 825–835 (2021). https://doi.org/10.1038/s41587-021-00869-9

Bartosovic M., Covelo Molares H, Gregorova P, Hrossova D, Kudla D, Vanacova S, N6-methyladenosine demethylase FTO targets pre-mRNAs and regulates alternative splicing and 3′-end processing, *Nucleic Acids Research*, Volume 45, Issue 19, 2 November 2017, Pages 11356-11370, https://doi.org/10.1093/nar/gkx778

Deng Y, **Bartosovic M**, Kukanja P, et al. Spatial-CUT&Tag: Spatially resolved chromatin modification profiling at the cellular level. *Science*. 2022;375(6581):681-686. doi:10.1126/science.abg7216

Meijer M, Agirre E, Kabbe M, van Tuijn CA, Heskol A, Zheng C, Falcão AM, **Bartosovic M**, Kirby L, Calini D, Johnson MR, Corces R, Montine T, Chen X, Chang H, Malhotra D, Castelo-Branco G, Epigenomic priming of immune genes implicates oligodendroglia in multiple sclerosis susceptibility, *Neuron*, 2022 Jan 28;S0896-6273(21)01089-8. doi: 10.1016/j.neuron.2021.12.034.

Hrossova D, Sikorsky T, Potesil D, **Bartosovic M**, Pasulka J, Zdrahal Z, Stefl R, Vanacova S, RBM7 subunit of the NEXT complex binds U-rich sequences and targets 3′-end extended forms of snRNAs, *Nucleic Acids Research*, Volume 43, Issue 8, 30 April 2015, Pages 4236–4248, https://doi.org/10.1093/nar/gkv240

Preprint publications

Bartosovic M, Castelo-Branco G. Multimodal chromatin profiling using nanobody-based single-cell CUT&Tag. Published online March 8, 2022:2022.03.08.483459. doi:10.1101/2022.03.08.483459 (*In revision in Nature Biotechnology*)

Bartosovic M, Kabbe M, Castelo-Branco G. Single-cell profiling of histone modifications in the mouse brain. bioRxiv. Published online September 3, 2020:2020.09.02.279703. doi:10.1101/2020.09.02.279703 (*Published in Nature Biotechnology*)

Deng Y, **Bartosovic M**, Ma S, et al. Spatial-ATAC-Seq: Spatially Resolved Chromatin Accessibility Profiling of Tissues at Genome Scale and Cellular Level.; 2021:2021.06.06.447244. doi:10.1101/2021.06.06.447244 (*In revision in Nature*)

Cavallin I, **Bartosovic M**, Skalicky T, et al. HITS-CLIP analysis of human ALKBH8 points towards its role in tRNA and noncoding RNA regulation. Published online January 17, 2022:2022.01.17.476611. doi:10.1101/2022.01.17.476611 (*In revision in RNA biology*)

Research review articles

Covelo-Molares, H, **Bartosovic, M**, Vanacova, S. RNA methylation in nuclear pre-mRNA processing. *WIREs RNA*. 2018; 9:e1489. https://doi.org/10.1002/wrna.1489

Patents

European patent application on multimodal single-cell chromatin profiling EP22160860.7