

Curriculum vitae

PERSONAL INFORMATION

Family name, First name: Bálint Kintses

Researcher unique identifier(s): ORCID: 0000-0003-0844-0310, Google Scholar: gax-6nEAAAAJ

Nationality: Hungarian

Email: kintses.balint @ brc . hu, balint.kintses @ hce mm . eu

EDUCATION

2009 PhD, Faculty of Biochemistry/Eotvos Lorand University, Hungary/Supervisor: Andras Malnasi-Csizmadia

2005 MSc in Biology/Department of Biochemistry/Eotvos Lorand University, Hungary

CURRENT POSITION

2016 – 2019 Group Leader
Synthetic and Systems Biology Unit/Institute of Biochemistry/
Biological Research Centre, Szeged (BRC), Hungary

2016 – 2019 Junior Group Leader
H-CEMM / Hungarian Centre of Excellence for Molecular Medicine

PREVIOUS POSITIONS

2016 – 2019 Senior Research Associate
Csaba Pál laboratory, Synthetic and Systems Biology Unit/Institute of Biochemistry/
Biological Research Centre of the Hungarian Academy of Sciences (BRC), Hungary

2013 – 2016 Postdoctoral Scientist,
Csaba Pál laboratory, Synthetic and Systems Biology Unit/Institute of Biochemistry/
Biological Research Centre of the Hungarian Academy of Sciences (BRC), Hungary

2009 – 2012 Postdoctoral Scientist (Marie Skłodowska-Curie Fellow)
Department of Biochemistry/University of Cambridge, UK

2005 – 2008 PhD student
Department of Biochemistry/Eotvos Lorand University, Hungary

FELLOWSHIPS

2018 – 2019 New National Excellence Program Bolyai Plus Research Fellowship, BRC, Hungary

2016 – 2019 Bolyai János Research Fellowship of the Hungarian Academy of Sciences, BRC,
Hungary

2013 – 2015 Hungarian Scientific Research Fund Postdoctoral Fellowship, BRC, Hungary

2009 – 2012 Marie Skłodowska-Curie Postdoctoral Fellowship/Department of Biochemistry/
University of Cambridge, UK

2005 – 2008 PhD State Fellowship, Eotvos Lorand University, Hungary

AWARDS

2016 Hungarian Academy of Sciences, Academic Young Investigator Award

2010 Best Poster Award, Novel Enzymes Conference, Exeter, UK

2007 Young Scientist Award, IV. International Conference on Molecular Recognition

ONGOING GRANTS

Project title: Exploring the risk of horizontal gene transfer between the human microbiome and pathogenic bacteria

Funding source: National Research, Development and Innovation Office (NKFIH), Hungary

Project title: Aiding the Development of Precision Anti-virulence Therapy for Inflammatory Bowel Disease

Funding source: H-CEMM / Hungarian Centre of Excellence for Molecular Medicine / European Union's Horizon 2020 research and innovation programme under grant agreement No 739593

SCIENTOMETRY

Number of publications: **20**

Number of D1 publications: **20**

Number of first and last authored publications: **8**

Number of D1 first and last authored publications: **8**

Number of citations: **600** (Web of Science), **991** (Google Scholar)

Hirsch index: **11** (Web of Science), **14** (Google Scholar)

Number of Book chapters: **2**

Other relevant indicators:

Many of my papers were published in high ranked journal such as: Nature Microbiology (2), Nature Structural and Molecular Biology (2), PNAS (4), Nature Communications (1, 2 manuscripts are currently under review), Current Opinion in Biotechnology (1), Current Opinion in Chemical Biology (1), EMBO Journal (1).

LIST OF 5 KEY PUBLICATIONS FROM THE LAST 5 YEARS

(Corresponding authorship is indicated with my name underlined, first authorship with a start)

Kintses B*, Kumar P Jangir , Fekete G, Számel M, Méhi O, Spohn R, Daruka L, Martins A, Hosseinnia A, Gagarinova A, Kim S, Phanse S, Csörgö B, Györkei A, Ari E, Lázár V, Faragó A, Bodai L, Nagy I, Babu M, Pál C, Papp B

Chemical-genetic profiling reveals cross-resistance and collateral sensitivity between antimicrobial peptides

Nature Communications 10 (1) 1-13

Kintses B*, Méhi O, Ari E, Számel M, Györkei Á, Jangir PK, Nagy I, Pál F, Fekete G, Tengölics R, Nyerges Á, Likó I, Bálint A, Molnár T, Bálint B, Vásárhelyi BM, Bustamante M, Papp B, Pál C.

Phylogenetic barriers to horizontal transfer of antimicrobial peptide resistance genes in the human gut microbiota.

Nature Microbiology 2018 Dec 17. doi: 10.1038/s41564-018-0313-5.

Citations: 1 (Google Scholar), 1 (Web of Science)

Nyerges Á, Csörgő B, Draskovits G, **Kintses B**, Szili P, Ferenc G, Révész T, Ari E, Nagy I, Bálint B, Vásárhelyi BM, Bihari P, Számel M, Balogh D, Papp H, Kalapis D, Papp B, Pál C. Directed evolution of multiple genomic loci allows the prediction of antibiotic resistance. **Proc Natl Acad Sci U S A**. 2018 Jun 19;115(25):E5726-E5735.

Citations: 5 (Google Scholar), 2 (Web of Science)

Colin PY, **Kintses B**, F Gielen, C Miton, G Fischer, M Mahomed, M Hyvonen, DP, Morgavi, DB, Janssen, F Hollfelder. Ultrahigh-throughput Discovery of Promiscuous Enzymes by Picodroplet Functional Metagenomics **Nature Communications**, 2015, Dec 7, 6:10008

Citations: 82 (Google Scholar), 65 (Web of Science)

Notebaart RA, Szappanos B, **Kintses B***, Pál F, Györkei Á, Bogos B, Lázár V, Spohn R, Csörgő B, Wagner A, Ruppin E, Pál C, Papp B. Network-level architecture and the evolutionary potential of underground metabolism. **Proc Natl Acad Sci U S A**. 2014, 111(32):11762-7

Citations: 68 (Google Scholar), 51 (Web of Science)

LIST OF OTHER KEY PUBLICATIONS (whole career)

B Kintses*, Hein C, Mohamed MF, Fischlechner M, Courtois F, Laine C, Hollfelder F. Picoliter cell lysate assay in microfluidic droplet compartments for directed enzyme evolution, **Chemistry and Biology**, 2012, 19(8), 1001-9.

Citations: 127 (Google Scholar), 89 (Web of Science)

B. Várkuti, Z. Yang, **B Kintses**, P Erdélyi, I Bárdos-Nagy, A.L. Kovács, P. Hári, M. Kellermayer, T Vellai, A Málnási- Csizmadia. A novel actin binding site of myosin enables effective muscle contraction, **Nature Structural and Molecular Biology** 2012, 19 (3), 299-306.

Citations: 46 (Google Scholar), 31 (Web of Science)

B. Kintses*, L. van Vliet, S. Devenish, F. Hollfelder, Microfluidic Droplets: New Integrated Workflows for Biological Experiments, **Current Opinion in Chemical Biology** 2010, 14 (5), 548-55.

Citations: 153 (Google Scholar), 99 (Web of Science)

B. Kintses*, M. Gyimesi, W. Zeng, D. Pearson, M. Geeves, CR. Bagshaw, A. Malnasi-Csizmadia, Reversible movement of switch 1 loop of myosin determines actin interaction, **EMBO Journal.**, 2007, 26(1):265-74

Citations: 56 (Google Scholar), 38 (Web of Science)

Zinchenko A, Devenish SR, **Kintses B**, Colin PY, Fischlechner M, Hollfelder F. One in a million: flow cytometric sorting of single cell-lysate assays in monodisperse picolitre double emulsion droplets for directed evolution. **Analytical Chemistry.** 2014, 86(5):2526-33

Citations: 82 (Google Scholar), 61 (Web of Science)

B. Kintses*, Z. Yang, A. Malnasi-Csizmadia, Experimental investigation of the seesaw mechanism of the relay region that moves the myosin lever arm, **Journal of Biological Chemistry.**, 2008, 283(49):34121-8

Citations: 23 (Google Scholar), 14 (Web of Science)

Lázár V, Martins A, Spohn R, Daruka L, Grézal G, Fekete G, Számel M, Jangir PK, **Kintses B**, Csörgő B, Nyerges Á, Györkei Á, Kincses A, Dér A, Walter FR, Deli MA, Urbán E, Hegedűs Z, Olajos G, Méhi O, Bálint B, Nagy I, Martinek TA, Papp B, Pál C. Antibiotic-resistant bacteria show widespread collateral sensitivity to antimicrobial peptides. **Nature Microbiology** 2018 Jun;3(6):718-731.

Citations: 16 (Google Scholar), 7 (Web of Science)

Notebaart RA, **Kintses B**, Feist AM, Papp B. Underground metabolism: network-level perspective and biotechnological potential. **Current Opinion Biotechnology.**, 2018, Feb; 49:108-114.

Citations: 14 (Google Scholar), 11 (Web of Science)

Natan E, Endoh T, Haim-Vilmovsky L, Flock T, Chalancon G, Hopper JTS, **Kintses B**, Horvath P, Daruka L, Fekete G, Pál C, Papp B, Oszi E, Magyar Z, Marsh JA, Elcock AH, Babu MM, Robinson CV, Sugimoto N, Teichmann SA. Cotranslational protein assembly imposes evolutionary constraints on homomeric proteins. **Nature Structural and Molecular Biology** 2018 Mar;25(3):279-288.

Citations: 5 (Google Scholar), 0 (Web of Science)

PATENTS

Nyerges A, Pal C, Csorgo B, Kintses B
Mutagenizing Intracellular Nucleic Acids
[PCT/EP2017/082574](https://patents.google.com/patent/PCT/EP2017/082574),

TEACHING ACTIVITIES

- 2018 – Lecturer/Bioinformatics of OMICS approaches PhD course – University of Szeged/
Department of Biochemistry and Molecular Biology/ Hungary
- 2005 – 2008 Assistant Lecturer/ Biochemistry Practical Course/Eotvos University/Department of
Biochemistry, Hungary

INSTITUTIONAL RESPONSIBILITIES

- 2018 – PhD Student Advisor, University of Szeged/PhD school of Biology/Hungary

Selected International presentations

Phylogenetic barriers to horizontal transfer of antimicrobial peptide resistance genes in the human gut microbiome.

Gordon Research conference, 2019

Phylogenetic barriers to horizontal transfer of antimicrobial peptide resistance genes in the human gut microbiome.

Sixth International Symposium on Antimicrobial Peptides, 2018, Poitiers, France

Forecasting Evolutionary Adaptation by Mapping the Innovative Potential of Underground Metabolism.
Annual meeting of the Society for Molecular Biology and Evolution, 2015, Vienna, Austria

Directed enzyme evolution: to put through highly or not?

II ChemProEng Meeting, 2011, Cambridge, UK

Communication between the actin binding site and the relay region of myosin: the molecular mechanism of actin activation.

XXXVII European Muscle Conference 2008, Oxford, UK

Reversible movement of switch 1 loop of myosin determines actin interaction.

IV. International Conference on Molecular Recognition 2007, Pecs, Hungary

Reversible movement of switch 1 loop of myosin determines actin interaction. 7.

Young Scientist Forum 2007, Vienna, Austria