# *Curriculum vitae*

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***Address:*** Laboratory of Molecular Genetics of Bacteria, Institute of Microbiology, Czech Academy of Sciences, Vídeňská 1082, Praha 4, tel: +420 241063208
*krasny@biomed.cas.cz*
***Date of Birth:*** 26 April 1969
***Place of Birth:*** Prague, Czech Republic
***Marital status:*** widowed, two daughters

## EDUCATION AND PROFESSIONAL EXPERIENCE:

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| 2016 - | Head of Laboratory of Microbial Genetics and Gene Expression Institute of Microbiology, Academy of Sciences of the Czech Republic, Prague |
| 2007 - 2016 | Head of Department of Bacteriology (within Laboratory of Molecular Genetics of Bacteria headed by Dr. M. Pátek), Institute of Microbiology, Academy of Sciences of the Czech Republic, Prague |
| 2004 - 2006 | Scientist, Department of Gene Expression (Head: Jiří Jonák), Institute of Molecular Genetics, Academy of Sciences of the Czech Republic |
| 2001 - 2004 | Postdoctoral Fellow, Department of Bacteriology (R. L. Gourse lab), University of Wisconsin, Madison, WI, USA |
| 1994 - 2001 | PhD student (Structure and Expression of EF-Tu; Mentor: Dr. Jiří Jonák) Department of Protein Biosynthesis, Institute of Molecular Genetics, Academy of Sciences of the Czech Republic |
| 1993 - 1994 | Research Assistant, Department of Protein Biosynthesis, Institute of Molecular Genetics, Academy of Sciences of the Czech Republic |
| 1988 - 1993 | Faculty of Science (Biology&Chemistry&Teaching Degree), Charles University, Prague, Czech Republic |

## RESEARCH INTERESTS

- Regulation of transcription & gene expression in bacteria (special focus on *Bacilli*, *Mycobacteria*)
  - Bacterial RNA polymerase (RNAP) and associated factors (protein, RNA: structure & function)
  - Regulation of RNAP by small molecule effectors (initiating nucleoside triphosphates, ppGpp, $NAD^+$)
  - Promoter sequence and its interactions with RNAP and effect on transcription
  - Artificial DNA modifications: effect on transcription & development of biorthogonal systems
- Cell-to-cell communication (nanotubes)
- Development of novel antibacterial compounds
- More details can be found at: **http://www.biomed.cas.cz/mbu/krasny/**

## TEACHING

- Charles University, Prague: From the Genome to Proteomes (Semestral lecture based on primary data and focused on interpretation of experiments and logical thinking).
- Courses for PhD students

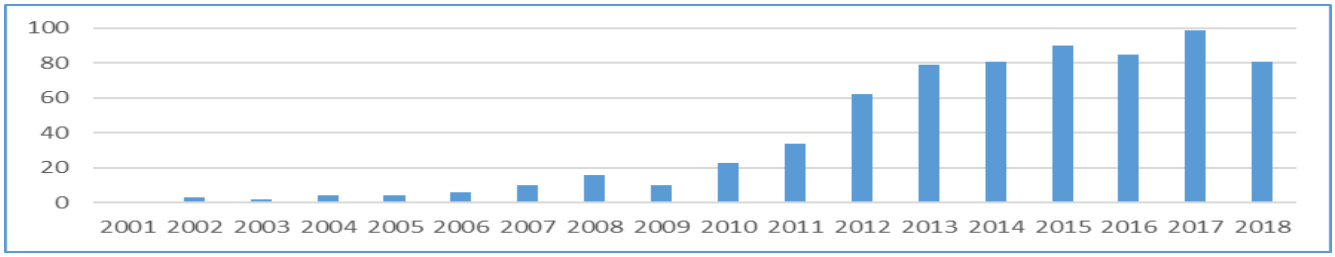
## COLLABORATIONS

- Ivan Barvík, PhD, Charles University, Prague, Czech Republic (*in silico* modeling of biomolecules)
- Hana Cahová, PhD, Institute of Organic Chemistry and Biochemistry, Prague, Czech Republic (NAD-RNA)
- Jan Dohnálek, PhD, Biocev, Vestec, Czech Republic (crystallography)
- Michal Hocek, PhD, Institute of Organic Chemistry and Biochemistry, Prague, Czech Republic (modified DNA)
- Tomáš Látal, PhD, Trios Ltd, Olomouc, Czech Republic (cultivation media development, antibacterial compounds)
- Peter Lewis, PhD, University of Newcastle, Newcastle, Australia (positioning of protein factors on RNAP)
- Bryce Nickels, PhD, Rutgers University, USA (non-canonical transcription initiation)
- Zoltán Pragai, PhD, DSM Nutritionals, Basel, Switzerland (strain development)
- Dominik Rejman, PhD, Institute of Organic Chemistry and Biochemistry, Prague, Czech Republic (antibacterial compounds, nucleotide/nucleoside analogs)
- Lukáš Žídek, PhD, Masaryk University, Brno, Czech Republic (NMR studies, CryoEM)

## INTERNATIONAL PATENTS

• European Patent Office
Lipophosphonoxins, method of their preparation and use (**2013**) EP2527351

## BIBLIOGRAPHY: CITATIONS (WEB OF SCIENCE): 695, H-INDEX 14




## BIBLIOGRAPHY: SELECTED PUBLICATIONS (a total of 42 publications in peer-reviewed Journals; here, publ. for 2015 - PRESENT)


Šiková M, Janoušková M, Ramaniuk O, Páleníková P, Pospíšil J, Bartl P, Suder A, Pajer P, Kubičková P, Pavliš O, Hradilová M, Vítovská D, Šanderová H, Převorovský M, Hnilicová J, Krásný L. (**2018**) Ms1 RNA increases the amount of RNA polymerase in *Mycobacterium smegmatis*. ***Mol Microbiol.*** doi: 10.1111/mmi.14159.

Kouba, T., Pospíšil, J., Hnilicová, J., Šanderová, H. Barvík, I. and Krásný, L. (**2018**) The Core and Holoenzyme forms of RNA Polymerase from *Mycobacterium smegmatis*. ***J Bacteriol*** pii: JB.00583-18. doi: 10.1128/JB.00583-18.

Schäfer, H., Heinz, A., Sudzinová, P., Voß, M., Hantke, I., Krásný, L. & Kürşad Turgay (**2018**) Spx, the central regulator of the heat- and oxidative stress response in *B. subtilis*, can repress transcription of translation-related genes. ***Mol Microbiol*** doi: 10.1111/mmi.14171.

Sykora, M., Pospisek, M., Novak, J., Mrvova, S., Krásný, L., Vopalensky, V. (**2018**) Transcription apparatus of the yeast virus-like elements: Architecture, function, and evolutonary origin. ***PLOS Pathog.*** 14(10):e1007377.

Ramaniuk, O., Převorovský M, Pospíšil J, Vítovská D, Kofroňová O, Benada O, Schwarz M, Šanderová H, Hnilicová J, Krásný L. (**2018**) $\sigma^I$ from *Bacillus subtilis*: Impact on Gene Expression and Characterization of $\sigma^I$-dependent Transcription that Requires New Types of Promoters with Extended -35 and -10 Elements. ***J Bacteriol*** *200(17). pii: e00251-18.*

Vvedenskaya, I. O., Bird, J. G., Zhang, Y, Zhang, Y, Jiao, X., Barvík, I., Krásný, L., Kiledjian, M., Taylor, D. M., Ebright, R. H., Nickels, B. E. (**2018**) "CapZyme-Seq" comprehensively defines promoter-sequence determinants for RNA 5' capping with NAD+. ***Mol Cell*** 70(3):553-564.

Slavíčková, M., Janoušková, M., Šimonová, A., Cahová, H., Kambová, M., Šanderová, H., Krásný, L., Hocek, M. (**2018**) Turning off transcription with bacterial RNA polymerase through CuAAC clisk reactions of DNA containing 5-ethylenuracil. ***Chemistry - A European Journal*** 24(33):8311-8314.

Janoušková, M., Vaníková, Z., Nici, F., Boháčová, S., Šanderová, H., Vítovská, D., Hocek, M., and Krásný, L. (**2017**) 5-(Hydroxymethyl)uracil and -cytosine as potential epigenetic marks enhancing or inhibiting transcription with bacterial RNA polymerase. ***Chem Comm*** 53(99):13253-13255.

Srb, P., Nováček, J., Kadeřávek, P., Rabatinová, A., Krásný, L., Žídková, J., Bobálová, J., Sklenář, V., Žídek, L. (**2017**) Triple resonance 15N NMR relaxation experiments for studies of intrinsically disordered proteins. ***J. Biomol. NMR***. 69(3):133-146.

Seydlová G, Pohl R, Zborníková E, Ehn M, Simak O, Panova N, Kolar M, Bogdanova K, Vecerova R, Fiser R, Šanderová H, Vítovská D, Sudzinová P, Pospíšil J, Benada O, Křížek T, Sedlak D, Bartunek P, Krasny L, Rejman D. (**2017**) Lipophosphonoxins II: Design, Synthesis and Properties of Novel Broad Spectrum Antibacterial Agents. ***J Med Chem***. 60(14):6098-6118.

Ramaniuk O, Černý M, Krásný L, Vohradský J (**2017**) Kinetic modelling and meta-analysis of the B. subtilis SigA regulatory network during spore germination and outgrowth. ***Biochimica et Biophysica Acta (BBA) - Gene Regulatory Mechanisms*** 1860(8):894-904.

Zachrdla M, Padrta P, Rabatinová A, Šanderová H, Barvík I, Krásný L, Žídek L (**2017**) Solution Structure of Domain 1.1 of the $\sigma^A$ Factor from Bacillus subtilis is Preformed for Binding to the RNA Polymerase Core. ***J Biol Chem*** 292(28): 11640-17.

Barvík, I., Rejman, D., Panova, N., Šanderová, H., Krásný, L. **(2017)** Non-canonical transcription initiation: The expanding universe of transription initating substrates ***FEMS Microbiol Rev*** 41(2): 131-8.

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Panova, N., Zborníková,E., Šimák, O., Pohl, R., Kolář, M., Bogdanová, K., Večeřová, R., Seydlová,G., Fišer, R., Hadravová, R., Šanderová, H., Vítovská, D., Šiková, M., Látal, T., Lovecká, P., Barvík, I., Krásný, L., Rejman, R. (**2015**) Insights into the mechanism of action of bactericidal lipophosphonoxins. ***PLOS ONE***, 10(12)e0145918.