

CURRICULUM VITAE

NAME: Mgr. Karel Souček, Ph.D.

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PROFESSIONAL EXPERIENCE

Activity/ Occupation	Start Year	Ending Year	Institution
postdoctoral fellow	2003	2005	University of California, Davis, USA
junior researcher	2005	2006	Institute of Biophysics, Academy of Sciences of the Czech Republic, Brno, Czech Republic
Associate Scientist	2007	2010	Institute of Biophysics, Academy of Sciences of the Czech Republic, Brno, Czech Republic
Senior Scientist/group leader	2010	-	Institute of Biophysics, Academy of Sciences of the Czech Republic, Brno, Czech Republic
Group leader	2011	-	The International Clinical Research Center of St. Anne's University Hospital Brno (FNUSA-ICRC), Brno, Czech Republic
Deputy head of department	2017	-	Department of cytokinetics, Institute of Biophysics, Academy of Sciences of the Czech Republic, Brno, Czech Republic

OVERALL RESEARCH INTERESTS

The understanding of plasticity, stemness, and differentiation capacity of normal and diseased cells. The role of plasticity, heterogeneity and tumor microenvironment in regulation of disease progression, regulation and mechanisms of cell cycle and apoptosis, the cell signaling and role of growth factors in regulation of cytokinetics, mechanisms of carcinogenesis, identification and validation of novel anti-cancer targets. Development of the techniques for multiparametric single cell analysis for studying cell phenotypes and cell composition of tissues.

EDUCATION AND ACADEMIC QUALIFICATIONS

1991-1994 - B.S. in General Biology Masaryk University, Brno, Czech Republic

1994-1996 – M.Sc. in Animal Physiology, Faculty of Sciences, Masaryk University, Brno, Czech Republic

1996-2003 - PhD. in Animal Physiology and Immunology, Faculty of Sciences, Masaryk University, Brno, Czech Republic

MEMBERSHIPS IN PROFESSIONAL SOCIETIES AND BOARDS

• Chair of the Czech Society for Analytical Cytometry • Member of the International Society for Analytical Cytometry • Member of the American Association for Cancer Research • Member of European Association for Cancer Research • Associate Editor in *Frontiers of Cancer Cell Biology* and in *American Journal of Pathology* • Guest Associate Editor in *Frontiers in Molecular Diagnostics and Therapeutics* • Member of Scientific Board of Faculty of Medicine, Masaryk University Brno, 2014-2018

TEACHING AND SUPERVISION

Faculty of Science, Masaryk University, Brno, Czech Republic:

- One semester course in Analytical Cytometry
- Two semester courses in Journal Club – Animal Physiology
- One semester course in Mechanisms of Carcinogenesis
- One semester course in Biology of Animal Cell
- One semester course in Physiology of Cell Systems

• Number of supervised/defended PhD students – 9 • Number of currently supervised PhD students – 3

Member of Doctoral Board of Degree Program Animal Physiology, Faculty of Science Masaryk University, Brno

Member of Doctoral Board of Degree Program Medical Biology, Faculty of Medicine, Masaryk University, Brno

MAIN GRANTS AND OTHER PROFESSIONAL ACTIVITIES

- “Development of novel small molecules anticancer compounds with synthetic lethal effect”, Ministry of Health of the Czech Republic (15-33999A), 2015-2018, **Principal-co-investigator (Awarded by the Ministry of Health CR, 2019)**
- “Multiparametric single cell analysis of tumor cells and microenvironment in the triple-negative breast cancer”, Ministry of Health of the Czech Republic (NV18-08-00245), 2018-2021, **Principal investigator**
- “Circulating tumor cells as a preclinical tool for analysis of cancer heterogeneity and therapy response”, Czech Science Foundation (20-22984S), 2020-2022, **Principal investigator**
- “Dynamics of cancer cell surface fingerprint plasticity in epithelial-to-mesenchymal transition”, Czech Science Foundation (21-11585S), 2021-2023, **Principal investigator**

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- “Elucidation of Haspin kinase interactome and its role in the context of cell plasticity “, Czech Science Foundation (23-06472S), 2023-2025, **Principal investigator**

PATENTS AND APPLIED RESULTS

Co-author of Patent Application WO 2017/108015 A1: Achbergerova E. et al. 2017 "Fluorescent Cypate Conjugate Of Hyaluronic Acid Or Salt Thereof, Hydrophobized Conjugate, Methods Of Perparation And Use Thereof" (Contipro a.s.).

PEER-REVIEWED PUBLICATIONS

- **Number of papers: 126, Times cited: >2100, h-index: 25 (WOS 6/2023)**

SELECTED ORIGINAL PAPERS (**related to the topic of the grant proposal – novel anti-cancer drugs and targets**):

- Kvakackova B, Fedr R, Kuzilkova D, Stuchly J, Vavrova A, Navratil J, Fabian P, Ondrussek R, Ovesna P, Remsik J, Bouchal J, Kalina T, **Soucek K**. Single-cell protein profiling defines cell populations associated with triple-negative breast cancer aggressiveness. **Mol Oncol**, 17(2023) 1024-1040. IF:7,449, Q1, 0 citat. (WOS, 6/2023)
- S. Drapela, P. Khirsariya, W.M. van Weerden, R. Fedr, T. Suchankova, D. Buzova, J. Cervený, A. Hampl, M. Pühr, W.R. Watson, Z. Culig, L. Krejci, K. Paruch, **K. Soucek**, The CHK1 inhibitor MU380 significantly increases the sensitivity of human docetaxel-resistant prostate cancer cells to gemcitabine through the induction of mitotic catastrophe, **Mol Oncol**, 14 (2020) 2487-2503. IF: 6,603, Q1, 8 citat. (WOS, 6/2023)
- M. Boudny, J. Zemanova, P. Khirsariya, M. Borsky, J. Verner, J. Cerna, A. Oltova, V. Seda, M. Mraz, J. Jaros, Z. Jaskova, M. Spunarova, Y. Brychtova, **K. Soucek**, S. Drapela, M. Kasparkova, J. Mayer, K. Paruch, M. Trbusek, Novel CHK1 inhibitor MU380 exhibits significant single-agent activity in TP53-mutated chronic lymphocytic leukemia cells, **Haematologica**, (2019). IF: 7,116, 1. decil, 16 citat. (WOS, 6/2023)
- V. Nemeč, M. Hylšova, L. Maier, J. Flegel, S. Sievers, S. Ziegler, M. Schroder, B.T. Berger, A. Chaikuad, B. Valcikova, S. Uldrijan, S. Drapela, **K. Soucek**, H. Waldmann, S. Knapp, K. Paruch, Furo[3,2-b]pyridine: A Privileged Scaffold for Highly Selective Kinase Inhibitors and Effective Modulators of the Hedgehog Pathway, **Angew Chem Int Ed Engl**, 58 (2019) 1062-1066. IF: 12,959, 1. decil, 19 citat. (WOS, 6/2023)
- A. Verlande, M. Krafčikova, D. Potesil, L. Trantirek, Z. Zdrahal, M. Elkalaf, J. Trnka, **K. Soucek**, N. Rauch, J. Rauch, W. Kolch, S. Uldrijan, Metabolic stress regulates ERK activity by controlling KSR-RAF heterodimerization, **EMBO Rep**, 19 (2018) 320-336. IF: 8,383, Q1, 7 citat. (WOS, 6/2023)
- P. Samadder, T. Suchankova, O. Hylse, P. Khirsariya, F. Nikulenkov, S. Drapela, N. Strakova, P. Vanhara, K. Vasickova, H. Kolarova, L. Bino, M. Bittova, P. Ovesna, P. Kollar, R. Fedr, M. Esner, J. Jaros, A. Hampl, L. Krejci, K. Paruch, **K. Soucek**, Synthesis and Profiling of a Novel Potent Selective Inhibitor of CHK1 Kinase Possessing Unusual N-trifluoromethylpyrazole Pharmacophore Resistant to Metabolic N-dealkylation, **Mol Cancer Ther**, 16 (2017) 1831-1842. IF: 5,365, Q1, 10 citat. (WOS, 6/2023)

SELECTED REVIEWS:

- Drapela S, Bouchal J, Jolly MK, Culig Z, **Soucek K**. ZEB1: A Critical Regulator of Cell Plasticity, DNA Damage Response, and Therapy Resistance. **Front Mol Bio**, Mar 2020, 7. IF: 5,246, Q2, 76 citations (WOS, 6/2023)
- E. Slabakova, Z. Culig, J. Remsik, **K. Soucek**, Alternative mechanisms of miR-34a regulation in cancer, **Cell Death Dis**, 8 (2017) e3100. IF: 5,638, Q1, 172 citat. (WOS, 6/2023)

AD HOC REFEREE FOR:

Journals: Molecular Cancer, PlosONE, Cytometry Part A, Life Sciences, PNAS, Carcinogenesis, American Journal of Pathology, Cell Death & Disease, Theranostics and others. Grant agencies: Grant Agency of Charles University Prague, Czech Republic, Agency for Healthcare Research Czech Republic, Technological grant agency of the Czech Republic, Slovak Research and Development Agency and others.

ORGANIZATION of CONFERENCES & MEETINGS

- Bi-annual Conferences of Czech Society for Analytical Cytometry (since 2000)

INTERNATIONAL CONTACTS AND RECOGNITION:

My team is engaged in active collaborations with research groups across the world including laboratories of prof. Zoran Culig, Medical University Innsbruck, Austria, prof. Regine Schneider-Stock, University Hospital Erlangen, Germany, Wytske van Weerden, Erasmus University, Rotterdam, The Netherlands.

ABILITY TO LEAD TEAMS AND COORDINATE NETWORKS:

Group leader at Institute of Biophysics AS CR (number of current team members: 12, including 3 postdoctoral fellows, 3 PhD students, 5 undergraduate students and 1 research technician). Principal investigator or co-investigator of several successfully finished standard grants of Czech Science Foundation and Internal Grant Agency of Ministry of Health of the Czech Republic.
