

Associate professor Petr Bušek, MD. Ph.D. *14.7.1979, Prague, Czech Republic

Education, degrees:

Habilitation Medical biochemistry, pathobiochemistry, First Faculty of Medicine, Charles University, Prague, 2019

Ph.D. Biochemistry, pathobiochemistry, First Faculty of Medicine, Charles University, Prague, 2009

MUDr. (MD.) First Faculty of Medicine, Charles University, Prague, 2005

Core clinical specialization- Internal medicine, 2011

Professional career:

2019– present associate professor and deputy head, Department of biochemistry and experimental oncology, First Faculty of Medicine, Charles University, Prague

2018 – present deputy head, research program 2 Molecular Diagnostic and Therapeutic Targets „Center for Tumor Ecology“

2017 – present board of Grant agency of the Charles University, deputy head of section C-Medicine since 2021, head of section C- Medicine since 2022

2009 – 2019 assistant professor, Department of biochemistry and experimental oncology, First Faculty of Medicine, Charles University, Prague- teaching of medical students, supervision of Ph.D., master and bachelor theses

2005-2009 assistant, Department of biochemistry and experimental oncology, First Faculty of Medicine, Charles University, Prague

2006 – present physician, IV. department of internal medicine, General Teaching Hospital, Prague

2007 – 2017 physician, Internal medicine emergency department, General Teaching Hospital, Prague

Stays, courses:

2019 3D glioblastoma models, short stay at GlioTex, University hospital La Pitié-Salpêtrière, Paris, France

2017 Imaging Peptidases in Cells and Tissues, University of Calgary, Canada

2014 Astrocyte Training school and Research conference, Gothenburg, Sweden, recipient of the COST scholarship

2010 Qualification course for the work with experimental animals, Czech academy of sciences, Prague

2009 Course on Glial cell biology, Paris, 9th European Meeting on Glial Cells in Health and Disease

2009 Intensive course in molecular genetics, Faculty of sciences, Charles University

2007 Obtaining and processing of the microscopy images, Prague, Academy of Sciences of the Czech Republic

2006 Biomedical statistics, Prague

2005 Progress in molecular biology and genetics, Prague

2002-2003 Five month study stay at the Karolinska Institutet, Stockholm, Sweden

Awards:

2017 Award of the deans board for excellent publication Dvořáková P*, Bušek P*, Knedlík T* et al. Inhibitor-Decorated Polymer Conjugates Targeting Fibroblast Activation Protein. J Med Chem. 2017 Oct 26;60(20):8385-8393.*equal contribution

2013 „Best Poster Award“ at the ASBMB symposium „Membrane-Anchored Serine Proteases“, 2013, American Society for Biochemistry and Molecular Biology

2013 The paper Dipeptidyl peptidase-IV inhibits glioma cell growth independent of its enzymatic activity. Busek P et al. Int J Biochem Cell Biol. 44(5):738-47, 2012 received an Award of the Committee of the Czech Society of Oncology.

2009 Price of the Scientia foundation for best student publications of the First Faculty of Medicine, Charles University

2005 3rd place in the Ph.D. section of the student conference of the First Medical Faculty in Prague

2004 award of the Hlávka foundation for outstanding university students and young researchers of the Academy of Sciences of the Czech Republic

Principal investigator

2022-2025 Czech Health Research Council NU22-03-00318-Strategies for specific targeting of brain metastasis microenvironment for diagnostic and therapy.

2007-2009 GAUK 89607 (Grant agency of the Charles University in Prague) Role of Dipeptidyl peptidase-IV Activity and/or Structure Homologues - "DASH system"- in growth, migration and invasion of cell populations isolated from human astrocytic tumours

Co-investigator

2019-present NV19-03-00501, Ministry of health of the CR, Study of PIWI-interacting RNAs in glioblastoma stem cells and their potential clinical implications

Projects- member of the investigation team

- 2018- present „Center for Tumor Ecology – Research of the Cancer Microenvironment Supporting Cancer Growth and Spread“
- 2015- 2019 Novel concepts for the therapeutic targeting of tumor microenvironment in human glioblastomas, Ministry of Health of the Czech Republic, grant nr. 15-31379A
- 2013- 2015 Early Diagnosis of Pancreatic Adenocarcinoma: Surface Proteases and Specific Biomarkers, IGA NT14254
- 2011- 2015 The diagnostic and therapeutic potential of fibroblast activation protein (FAP) in human astrocytic tumors, IGA 12237-5/2011 (Internal Grant Agency of the Czech Ministry of Health)
- 2011- 2015 The impact of DPP-4 inhibitor therapy on immunity functions in patients with type 2 diabetes mellitus, IGA 12407-4/2011 (Internal Grant Agency of the Czech Ministry of Health)

4 PhD students currently supervised

Reviewer in international journals:

International Journal of Cancer, Cancers, Scientific Reports, International Journal of Molecular Sciences, Cells, Glia, Tumor Biology, Biological Chemistry, Future Oncology, Neuropeptides etc.

Membership in societies:

European Association of Neuro-Oncology, Neurooncological section of the Czech Oncological Society of the Czech Medical Association of J.E. Purkyne, Czech Society for Biochemistry and Molecular Biology, Czech Medical Chamber

Scientific interests:

brain tumors; experimental oncology; interactions in the tumor microenvironment; role of proteases in pathophysiology, in particular of malignant tumors; proteases as diagnostic and therapeutic targets

H index according to WOS 14, 555 citations (9/2022)

Selected publications in past 5 years (* as first or corresponding author):

1. Balaziová E, Vymola P, Hrabal P, Mateu R, Zubal M, Tomas R, Netuka D, Kramar F, Zemanova Z, Svobodova K, Brabec M, Sedo A, **Busek P***. Fibroblast Activation Protein Expressing Mesenchymal Cells Promote Glioblastoma Angiogenesis. *Cancers (Basel)*. 2021 Jul 1;13(13):3304. doi: 10.3390/cancers13133304.
2. Krepela E, Vanickova Z, Hrabal P, Zubal M, Chmielova B, Balaziová E, Vymola P, Matrasova I, **Busek P***, Sedo A. Regulation of Fibroblast Activation Protein by Transforming Growth Factor Beta-1 in Glioblastoma Microenvironment. *Int J Mol Sci*. 2021 Jan 21;22(3):1046. doi: 10.3390/ijms22031046.
3. Šimková A, **Bušek P**, Šedo A, Konvalinka J. Molecular recognition of fibroblast activation protein for diagnostic and therapeutic applications. *Biochim Biophys Acta Proteins Proteom*. 2020 Jul;1868(7):140409. doi: 10.1016/j.bbapap.2020.140409.
4. **Busek P***, Mateu R, Zubal M, Kotackova L, Sedo A. Targeting fibroblast activation protein in cancer - Prospects and caveats. *Front Biosci (Landmark Ed)*. 2018 Jun 1;23:1933-1968.
5. Sana J, **Busek P***, Fadrus P, Besse A, Radova L, Vecera M, Reguli S, Stollinova Sromova L, Hilser M, Lipina R, Lakomy R, Kren L, Smrcka M, Sedo A, Slaby O. Identification of microRNAs differentially expressed in glioblastoma stem-like cells and their association with patient survival. *Sci Rep*. 2018 Feb 12;8(1):2836. doi: 10.1038/s41598-018-20929-6.
6. Dvořáková P, **Bušek P***, Knedlík T, Schimer J, Etrych T, Kostka L, Stollinová Šromová L, Šubr V, Šácha P, Šedo A, Konvalinka J. Inhibitor-Decorated Polymer Conjugates Targeting Fibroblast Activation Protein. *J Med Chem*. 2017 Oct 26;60(20):8385-8393. doi: 10.1021/acs.jmedchem.7b00767.