Curriculum vitae

Professor PETER Š E B O , PhD., (*1960)

POSITIONS:

1995-present **Head, Laboratory of Molecular Biology of Bacterial Pathogens, Institute of Microbiology of the ASCR, v.v.i., Czech Academy of Sciences**

2008-2009 **Founding Director of the Institute of Biotechnology of the ASCR, v.v.i. and founding Head of the Laboratory of Ligand Engineering (www.ibt.cas.cz)**

2007-2009 founder and leader of the BIOCEV research center project http://www.biocev.eu/en.html

2012 **Associated Professor of Microbiology at the Institute of Chemical Technology in Prague**

2014 **Professor of Microbiology at the Institute of Chemical Technology in Prague**

EDUCATIONAL HISTORY :

1979-1981 Faculty of Chemical technology, Slovak Polytechnic University Bratislava

1981-1984 Department of Fermentation Chemistry and Bioengineering, Faculty of Foodstuff and Biochemical Technologies, Institute of Chemical Technology, Prague (Czech Republic).

1984 **MSc. Diploma in Chemical Engineering.**

1985-1989 Doctoral research. Division of General Microbiology, Institute of Microbiology of the Czech Academy of Sciences, Prague.

1990 **CSc. in Microbiology (**Eqv. **PhD.).**

POSTDOCTORAL RESEARCH TRAINING:

1990-1995 Prof. Agnes Ullmann; Institut Pasteur, Paris, France; Structure-function relationships, secretion and activation and applications of the *Bordetella pertussis* adenylate cyclase toxin; molecular biology of bacterial pathogens.

1989-1990 Prof. Jekisiel Szulmajster; Centre National de la Recherche Scientifique, Laboratory of Enzymology, Gif sur Yvette, France; larvicidal toxins of *B. sphaericus*; molecular biology.

HONORS AND AWARDS:

2015 elected to the European Academy of Microbiology
2013 elected EMBO member
2008 European Research Council starting grant LS6 panel member (till 2014)
2007 Czech delegate to FP7 EU Programme Committee - Food, Agriculture, Fisheries and Biotechnology
2006 Czech delegate to the Program committee Priority Life Sciences – Health**,** 6th FP EU
2005 Chevalier de l`Ordre des Palmes Academiques, awarded by Prime minister of France
2005 Expert commission on Life science at the Czech Government Council for R&D
2005 Czech Academy of Sciences Prize for outstanding research results in grant projects
2001-5 Howard Hughes Medical Institute International Research Scholar
2003 Chair of the international scientific and organization committee of ETOX11 meeting
1994 Fellowship of the National Agency for AIDS Research (ANRS), France
1993 Jacques Monod Prize awarded by FONDATION DE FRANCE
1992 Fellowship of the National Agency for AIDS Research (ANRS), France
1991 Researcher associated to Centre National de la Recherche Scientifique, France
1990 Postdoctoral Fellowship of the Ministry for Research and Technology, France
1987 FEBS Fellowship (Institut Jacques Monod, CNRS, Paris, France)
1981 IAESTE fellowship (EPFL Lausanne, Switzerland)

115 peer-reviewed publications, 7 international patents, **>2900 citations, H-34 on Web of Science**
>4200 citations, H=40 on Google Scholar

Language proficiency: English, French, German, Russian, Czech (native Slovak)

RESEARCH INTERESTS:

- Molecular biology and immunology of host-pathogen interactions
- Structure-function mechanisms of action of the adenylate cyclase toxin (ACT).

- Vaccine development for delivery of antigens into antigen-presenting cells and induction of specific cellular responses for prevention of infections and immunotherapy of tumors (http://www.genticel.com/)

HISTORY OF MENTORING AND SUPERVISION

PhD Supervision: 20 (6 current, 14 completed)

Postdoctoral Fellows: 12 supervised (5 current, 7completed, 4 of them tenured in academic posts).

GRANTS AND INDUSTRIAL CONTRACTS:

- awarded as PI 17 Czech Science Foundation grant projects from Czech Science Foundation since 1995 and also 10 other grants of the GA ASCR and Czech ministries
- Howard Hughes Medical Institute International research Scholarship (2001-2005)
- Co-PI on 6 European grant projects under the FP5, FP6, H2020 and IMI-2 schemes
- Industrial contract research agreements with GSK, Crucell B.V. Holland, Revabiotech SE
- Co-inventor on international patents licensed to Genticel S.A. (France) and Janssen Pharmaceticals Inc.

8 most relevant publications:

Bumba L., Masin J., Macek P., Wald T., Motlova L., Bibova I., Klimova N., Bednarova L., Veverka V., Kachala M., Svergun D.I.,Barinka C. and **P. Sebo*** (2016). Calcium-driven folding of RTX domain β-rolls ratchets translocation of RTX proteins through Type I secretion ducts. ***Molecular Cell* 62:**47-62.

Osicka* R., Osickova A., Hasan S., Bumba L., Cerny J. and P. **Sebo P** (2015). Bordetella adenylate cyclase toxin is a unique ligand of the integrin complement receptor 3. **e*Life*** 2015;4:e10766 doi: 10.7554/eLife.10766.

Cerny, O, Kamanova, J, Masin, J, Bibova I, Skopova, K and **P. Sebo*** (2015). *Bordetella pertussis* Adenylate Cyclase Toxin Blocks Induction of Bactericidal Nitric Oxide in Macrophages through cAMP-dependent activation of the SHP-1 Phosphatase. ***J. Immunol.* 194**: 4901–4913. doi: 10.4049/jimmunol.14029410

Fiser, R., Masin, J., Bumba, L., Pospisilova, E., Fayolle, C., Basler, M., Sadilkova, L., Adkins, I., Kamanova, J., Cerny, J., Konopasek, I., Osicka, R., Leclerc, C. and **P. Sebo*** (2012). Calcium influx rescues adenylate cyclase-hemolysin from rapid cell membrane removal and enables phagocyte permeabilization by toxin pores. ***PLoS Pathog* 8(4): e1002580.** doi:10.1371/journal.ppat.1002580

Bumba, L., Masin. J, Fiser, R. and P. Sebo* (2010). *Bordetella* adenylate cyclase toxin mobilizes its β2 integrin receptor into lipid rafts to accomplish translocation across target cell membrane in two steps. ***PLOS Pathogens* 6 (5),| e1000901 (14 May 2010)** doi:10.1371/journal.ppat.1000901.

Morova, J., Osicka, R.*, Masin, J. and **P. Sebo** (2008). RTX Cytotoxins Recognize β_2 Integrin Receptors through N-linked Oligosaccharides. ***Proc. Natl. Acad. Sci. USA* 105,** 5355-5360

Kamanova, J., Kofronova, O., Masin, J., Genth, H., Vojtova, J., Linhartova, I., Benada, O., Just, I. and **P. Sebo*** (2008). Adenylate cyclase toxin subverts phagocyte function by RhoA inhibition and unproductive ruffling. ***J. Immunol.* 181,** 5587-5597.

Saron, M.F., Fayolle, C., **Šebo, P**., Ladant, D., Ullmann, A. and C. Leclerc* (1997): Anti-viral protection conferred by recombinant adenylate cyclase toxins from Bordetella pertussis carrying a $CD8^+$ T cell epitope from lymphocytic choriomeningitis virus. ***Proc. Natl. Acad. Sci. USA*** . **94,** 3314-3319