**Šebo, P. – Publications and patents (as of April 2017), stuctured by fileds of research**

***1) Invited review articles:***

Masin\*, J., Osicka, R., Bumba L. and **P. Sebo** (2015). Bordetella adenylate cyclase toxin: a unique combination of a pore-forming moiety with a cell-invading adenylate cyclase enzyme. *Pathog. Dis.* Nov;73(8):ftv075. doi: 10.1093/femspd/ftv075

Villarino, R., Osička, R. and P. Šebo\* (2014). Filamentous hemagglutinin of Bordetella pertussis: A key adhesin with immunomodulatory properties? ***Future Microbiol.*** **9**:1339-60. doi: 10.2217/fmb.14.77.

**Šebo\*, P**, Osička, R. and J. Mašín (2014). Adenylate cyclase toxin-hemolysin (CyaA) relevance for pertussis vaccines. ***Expert Rev. Vaccines* 13**:1215-1227 doi:10.1586/14760584.2014.94490

Linhartova, I., Bumba, L., Masin, J., Basler, M., Osička, R., Kamanová, J., Procházková, K., Adkins, I., Holubová-Hejnová, J., Sadílková, L., Morová, J. and P. Šebo\* (2010). RTX proteins: a highly diverse family secreted by a common mechanism. ***FEMS Microbiol. Reviews* 34**:1076–1112

Vojtova, J. Kamanova, J. and **P. Sebo\***. (2006) *Bordetella* adenylate cyclase toxin: a swift saboteur of host defense. ***Curr. Op. Microbiol.*9**, 69-75.

Šimšova, M., **Šebo, P**. and C. Leclerc\* (2004). The adenylate cyclase toxin from *Bordetella pertussis* – a novel promising vehicle for antigen delivery to dendritic cells. ***Int. J. Med. Microbiol.,* 293**, 571-576.

***2) Research on molecular mechanisms of action of Bordetella pertussis adenylate cyclase toxin:***

Skopova, K., Tomalova, B, Kanchev, I., Rossmann, P, Svedova, M, IAdkins, I, Bibova, I., Tomala, J., Masin, J., Guiso, N., Osicka, R., Sedlacek, R., Kovar M. and P. Sebo\* (2017). cAMP-elevating capacity of the adenylate cyclase toxin-hemolysin is sufficient for lung infection but not for full virulence of *Bordetella pertussis.* ***Infect. Immun*. 85 (6) e00937-16. doi: 10.1128/IAI.00937-16.**

Cerny. O, Anderson, K.E., Stephens, L.R., Hawkins, P.T. and **P. Sebo\*** (2017). cAMP Signaling of Adenylate Cyclase Toxin Blocks the Oxidative Burst of Neutrophils through Epac-Mediated Inhibition of Phospholipase C Activity. ***J. Immunol*. 198:** 1285-1296. DOI: 10.4049/jimmunol.1601309

Masin J.\*, Osickova A., Sukova A., Fiser R., HaladaP., Bumba L., Linhartova I., Osicka R.\* and **P. Sebo** (2016). Negatively charged residues of the segment linking the enzyme and cytolysin moieties restrict the membrane-permeabilizing capacity of adenylate cyclase toxin. ***Sci. Rep.*** ***6:29137 | DOI: 10.1038/srep29137***

Wald T., Osickova A., Masin J.,Matyska Liskova P., Petry-Podgorska I., Matousek T., **Sebo P**. and R. Osicka\* (2016). Transmembrane segments of complement receptor 3 do not participate in cytotoxic activities but determine receptor structure required for action of Bordetella adenylate cyclase toxin. ***Pathog. Dis.*** **74(3). pii: ftw008. doi: 10.1093/femspd/ftw008**

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. ***Mol. Cell*** **62:**47-62. doi: 10.1016/j.molcel.2016.03.018.

Svedova, M., Masin, J, Fiser, R, Cerny, O, Tomala, J, Freudenberg, M, Tuckova, L, Kovar, M, Dadaglio, G, Adkins, I\* and P. Sebo\* (2016). Pore-formation by adenylate cyclase toxoid activates dendritic cells to prime CD8+ and CD4+ T cells. ***Immunol. Cell. Biol.* 94:**322-333doi: 10.1038/icb.2015.87

Ahmad, JN, Cerny, O, Linhartova, I, Masin, J, Osicka, R and **P. Sebo\*** (2016). cAMP signaling of *Bordetella* adenylate cyclase toxin through the SHP-1 phosphatase activates the BimEL-Bax pro-apoptotic cascade in phagocytes. ***Cell. Microbiol***. **18**: 384–398 doi: 10.1111/cmi.12519.

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. eLife **eLife 2015;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.1402941

Hasan S, Osickova A, Bumba L, Novák P, Sebo P, Osicka (2015 ). Interaction of Bordetella adenylate cyclase toxin with complement receptor 3 involves multivalent glycan binding. ***FEBS Lett***. **589**:374-9. doi: 10.1016/j.febslet.2014.12.023

Adkins, I, Kamanova, J, Kocourkova, A, Svedova, M, Tomala, J, Janova, H, Masin, J., Chladkova, B., Bumba, L., Kovar, M, Ross, PJ, Tuckova, L, Spisek, R, Mills, KHG and P. Sebo (2014). Bordetella adenylate cyclase toxin differentially modulates Toll-like receptor-stimulated activation, migration and T cell stimulatory capacity of dendritic cells. ***PLoS* *One*** **9(8):e104064.** doi:10.1371/journal.pone.0104064. eCollection 2014.

Wald, T., Petry-Podgorska, I., Fiser, R., Matousek, T., Dedina, J., Osicka, R., Sebo, P. and J. Masin\* (2014). Quantiﬁcation of potassium levels in cells treated with *Bordetella* adenylate cyclase toxin. ***Anal. Biochem.* 450**: 57-62 doi:/10.1016/j.ab.2013.10.039

Masin J, Fiser R, Linhartova I, Osicka R, Bumba L, Hewlett EL, Benz R and P. Sebo. (2013). Differences in Purinergic Amplification of Osmotic Cell Lysis by the Pore-Forming RTX Toxins Bordetella pertussis CyaA and Actinobacillus pleuropneumoniae ApxIA: The Role of Pore Size. ***Infect Immun.*** **81**:4571-4582 doi:10.1128/IAI.00711-13

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

Holubova, J., Kamanova\*, J., Jelinek, J., Tomala, J., Masin, J., Kosova, M., Stanek, O., Bumba, L., Michalek, J., Kovar, M. and P. Sebo (2012). Delivery of large heterologous polypeptides across the cytoplasmic membrane of antigen presenting cells by *Bordetella* RTX 'hemolysin' moiety lacking the adenylyl cyclase domain. ***Infect. Immun.*** **80**:1181-92.

Dunne, A., Ross,P.J., Pospisilova,E., Masin, J., Meaney, A., Sutton, C.E., Iwakura, Y., Tschopp, J., Sebo, P., and K.H.G. Mills\* (2010). Inflammasome activation by adenylate cyclase toxin directs Th17 responses and protection against *Bordetella pertussis*. ***J. Immunol.* 185:** 1711–1719***.***

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.

Osičková, A., Mašín, J., Fayolle, C., Krůšek, J., Basler, M., Pospíšilová, E., Leclerc, C., Osička, R. and P. Šebo\* (2010). Adenylate Cyclase Toxin Translocates Across Target Cell Membrane without Forming a Pore.***Mol. Microbiol.* 75,** 1550-1562.

Vojtova-Vodolanova, J., Basler, M., Osicka, R.,  Knapp, O.,  Maier., E., Cerny, J., Benada, O., Benz, R. and **P. Sebo**\*(2009). Oligomerization is involved in pore formation by *Bordetella* adenylate cyclase toxin. ***FASEB J*. 23,** 2381-2843.

Morova, J., Osicka, R.\*, Masin, J. and **P. Sebo** (2008). RTX Cytotoxins Recognize β2 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.

Knapp, O., Maier, E., Masin, J., Sebo, P. and R. Benz\*(2007). Pore formation by the Bordetella adenylate cyclase toxin in lipid bilayer membranes: Role of voltage and pH. ***BBA Biomembr.* 1778**, 260-269.

Basler, M., Knapp, O., Masin, J., Fiser, R., Maier, E., Benz, R., **Sebo, P.** and R. Osicka\* (2007). Segments crucial for membrane translocation and pore-forming activity of Bordetella adenylate cyclase toxin. ***J. Biol. Chem.*****282**, 12419-12429.

Fiser, R., Masin, J, Basler, M., Krusek, J., Spulakova, V., Konopasek, I. and **P. Sebo**\* (2007). A third activity of Bordetella adenylate cyclase toxin-hemolysin: Membrane translocation of AC domain polypeptide promotes calcium influx into CD11b+ monocytes independently of the catalytic and hemolytic activities. ***J. Biol. Chem.*****282**, 2808-2820.

Vojtova, J. Kofronova, O., Sebo, P. and O. Benada\*. (2006) *Bordetella* Adenylate cyclase toxin induces a cascade of Morphological Changes of Sheep erythrocytes and localizes into clusters in erythrocyte membrane. ***Microscop. Res. Tech.*****69,** 119-129.

Basler, M., Masin, J., Osicka, R. and **P. Sebo\*** (2006). Pore-forming and enzymatic activities of Bordetella adenylate cyclase toxin synergize in promoting lysis of monocytes. ***Infect. Immun.* 74**, 2207-2214.

Masin, J., Basler, M., Knapp, O., El-Azami-El-Idrissi, M., Maier, E., Konopasek, I., Benz, R., Leclerc, C. and **P. Sebo**\* (2005) Acylation of lysine 860 allows tight binding and cytotoxicity of *Bordetella* adenylate cyclase on CD11b-expressing cells. ***Biochemistry* 44**, 12759-12766.

Martín, C., Requero, M.-A., Masin, J., Konopasek, I., Goni, F., Sebo, P. and H. Ostolaza\* (2004) Membrane Restructuring by *Bordetella pertussis* Adenylate Cyclase Toxin, A Member of the RTX Family. *J. Bacteriol*. 186, 3760-3765.

Mašín, J., Konopásek, I., Svobodová, J. and and P. Šebo\* (2004). Different Structural Requirements for Adenylate Cyclase Toxin Interactions with Erythrocyte and Liposome Membranes. *Biochem. Bipohys. Acta – Biomembranes* 1660, 144-154.

El-Azami-El-Idrissi, M., Bauche, C., Loucká, J., Osička, R., **Šebo, P**., Ladant, D., Leclerc\*, C. (2003) Deciphering the interaction of *Bordetella cyclase* with CD11b/CD18: Role of acylation and identification of the integrin interaction domain of CyaA. ***J. Biol. Chem.* 278**, 38514-38521

Knapp, O. Maier, E. Polleichtner, G, Mašín, J., **Šebo, P**. and Benz\*, R. (2003). Channel formation in model membranes by adenylate cyclase toxin (CyaA) of Bordetella pertussis. ***Biochemistry*,** **42**, 8077-8084.

Basar, T., Havlíček, V., Bezoušková, S., Hackett, M. and **P. Šebo\*** (2001) Acylation of Lysine 983 Is Sufficient for Toxin Activity of *Bordetella* *pertussis* Adenylate Cyclase: Substitutions of Alanine 140 Modulate Acylation Site Selectivity of the Toxin Acyltransferase CyaC. ***J. Biol. Chem****.* **276**, 348-354.

Havlíček, V., Higgins, L., Chen, W., Halada,, P., **Šebo, P.**, Sakamoto, H. and M. Hackett\*(2001) Mass Spectrometric Analysis of Recombinant Adenylate Cyclase Toxin from *Bordetella pertussis* strain 18323/pHSP9. ***J. Mass Spectro****.*, **36**, 384-391.

Osičková, A., Osička, R., Meyer, E., Benz, R. and **P. Šebo**\*. (1999) An Amphipathic -helix Including Glutamates 509 and 516 is Crucial for Membrane Translocation of Adenylate Cyclase Toxin and Modulates Formation and Cation Selectivity of Its Membrane Channels. ***J. Biol. Chem.*****274**, 37644-37650.

Basar, T., Havlíček, V., Bezoušková, S., Halada, P., Hackett, M. and **P. Šebo**.\* (1999) The Conserved Lysine 860 in the Additional Fatty-acylation site of *Bordetella pertussis* Adenylate Cyclase Toxin is Crucial for Toxin Function Independently of its Acylation Status. ***J. Biol. Chem****.* **274**, 10777-10783.

Lee, S., M. Gray, L. Guo, **P. Šebo**, and E. Hewlett\*. (1999). Epitope mapping of monoclonal antibodies against *Bordetella pertussis* adenylate cyclase toxin. *Infect. Immun.* **67**, 2090-2095.

Rose, T., **Šebo, P**., Bellalou, J. and D. Ladant\* (1995): Interaction of Calcium with *Bordetella pertussis* Adenylate cyclase toxin. Characterization of multiple calcium-binding sites and calcium-induced conformational changes. ***J. Biol. Chem.* 270,** 26370-26376

M. Iwaki, A. Ullmann, and P. **Šebo**\* (1995): Identification by *in vitro* Complementation of Regions Required for Cell-Invasive Activity of Bordetella pertussis Adenylate Cyclase Toxin. ***Mol. Microbiol*.** **17,** 1015-1024

F. Betsou, **P. Šebo**, and N. Guiso\* (1995): The C-terminal domain is essential for protective activity of the Bordetella pertussis adenylate cyclase-hemolysin. ***Infect. Immun*. 63,** 3851-3857

M. Hackett, C.B. Walker, L. Guo, M.C. Gray, S. Van Cuyk, A. Ullmann, J. Shabanowitz, D.F. Hunt, E.L. Hewlett\* and **P. Šebo** (1995): Hemolytic, but not cell-invasive activity, of adenylate cyclase toxin is selectively affected by differential fatty-acylation in Escherichia coli. ***J. Biol. Chem*.**  **270**, 20250-20253

R. Benz\*, E. Maier, D. Ladant, A. Ullmann and **P. Šebo** (1994): Adenylate Cyclase Toxin (CyaA) of Bordetella pertussis: Evidence for the Formation of Small Ion-permeable Channels and Comparison with HlyA of Escherichia coli. ***J. Biol. Chem***. **269**, 27231-27239.

F. Betsou, **P. Šebo** and N. Guiso\* (1993): The CyaC-mediated activation is important not only for toxin but also for protective activity of Bordetella pertussis adenylate cyclase hemolysin. ***Infect. Immun*.** **61**, 3583-3589.

**P. Šebo\*** and D. Ladant (1993): Repeat sequences in the Bordetella pertussis adenylate cyclase toxin can be recognized as alternative carboxy-proximal secretion signals by the Escherichia coli a-haemolysin translocator. ***Mol. Microbiol*.** **9**, 999-1009.

H. Sakamoto\*, J. Bellalou, **P. Šebo** and D. Ladant (1992): Bordetella pertussis adenylate cyclase toxin: structural and functional independence of the catalytic and hemolytic activities. ***J. Biol. Chem*.** **267**, 13598-13602.

**Šebo**, P. Glaser, H. Sakamoto and A. Ullmann\* (1991): High-level synthesis of active adenylate cyclase toxin of Bordetella pertussis in a reconstructed Escherichia coli system. ***Gene*,** **104**, 19-24.

***3) Adenylate cyclase toxoid or streptavidin as antigen delivery tools for novel vaccines***

Dadaglio, G\*, Fayolle, C, Zhang, X, Ryffel, B, Oberkampf, M, Felix, T, Hervas-Stubbs, S, Osicka, R, Sebo, P, Ladant, D. and C. Leclerc (2014). Antigen targeting to CD11b+ DCs in association with TLR4/TRIF signaling promotes strong CD8+ T cell responses. ***J. Immunol.*** **193**:**1787-98.** doi: 10.4049/jimmunol.1302974

Tartz S, Deschermeier C, Retzlaff S, Heussler V, **Sebo P**, Fleischer B and T. Jacobs (2013). Plasmodium berghei sporozoite challenge of vaccinated BALB/c mice leads to the induction of humoral immunity and improved function of CD8(+) memory T cells. *Eur J Immunol.* **43**:693-704. doi: 10.1002/eji.201142262

Dong, H., Stanek, O., Rudilla Salvador, F., Länger, U., Morillon, E., Ung, C., Sebo, P., Leclerc\*, C. and L. Majlessi\* (2013). Induction of protective immunity against Mycobacterium tuberculosis by delivery of ESX antigens into airway dendritic cells. *Mucosal Immunol.* ***Mucosal Immunol.*** **6**:522-34.

Stanekova, Z., Adkins, I., Kosova, M., Janulikova, J., Sebo P. and E. Vareckova (2013). Heterosubtypic protection against influenza induced by adenylate cyclase toxoids delivering conserved HA2 subunit of hemagglutinin. *Antiviral. Res.* **97:**24-35. doi: 10.1016/j.antiviral.2012.09.008.

Stanek, O., Linhartova, I., Majlessi, L., Leclerc, C. and **P. Sebo\*** (2012). Complexes of Streptavidin-Fused Antigens with Biotinylated Antibodies Targeting Receptors on Dendritic Cell Surface: A Novel Tool for Induction of Specific T-Cell Immune Responses. ***Mol. Biotechnol***. 51:221-232 **doi:10.1007/s12033-011-9459-6**

Jelinek\*, J., Adkins, I. Mikulkova, Z., Jagosova, J., Pacasova, R., Michlickova, S., **Sebo, P**. and J. Michalek (2012). In vitro activation of CMV-specific human CD8+ T cells by CyaA toxoids delivering pp65 epitopes. ***Bone Marrow Transpl.*****47**:243-50.

Kolbaum, J., Tartz, S., Hartmann, W., Helm, S., Nagel, A., Heussler, V., **Sebo, P**., Fleischer, B., Jacobs, T., Breloer\*, M. (2012). Nematode-induced interference with anti-Plasmodium CD8(+) T-cell response can be overcome by optimizing antigen administration. ***Eur. J.Immunol.*** **42**, 890-900 doi: 10.1002/eji.201141955.

Tartz, S., Rüssmann, H., Kamanova, J., **Sebo, P**., Sturm, A., Heussler, V., Fleischer, B. and Jacobs, T. (2008). Complete Protection against *P. berghei* Malaria upon Heterologous Prime/Boost Immunization using Recombinant *Salmonella* and *Bordetella* Adenylate Cyclase Vaccines. ***Vaccine* 26**, 5935-5943**.**

Connell, T.G., Shey, M.S., Seldon, R., Ranggaka, M.X., van Cutsem, G., Simsova, M., Marcekova, Z., **Sebo, P.**, Curtis, N., Diwakar, L., Meintjes, G.A., Leclerc, C., Wilkinson, R.J. and Wilkinson, K.A.\* (2007). Enhanced Ex vivo stimulation of *Mycobacterium tuberculosis*-specific T cells in HIV1-infected persons via antigen delivery by the *Bordetella pertussis* adenylate cyclase vector. ***Clin. Vacc. Immunol****.* **14**, 847-854.

Mackova, J., Stasikova, J., Kutinova, J., Masin, J., Hainz, P., Simsova, M., Gabriel, P., Hamsikova, E., **Sebo, P**. and S. Nemeckova\*. (2006) Prime/Boost Immunotherapy of HPV16-Induced Tumors With E7 Protein Delivered By *Bordetella* Adenylate Cyclase and Modified Vaccinia Virus Ankara. ***Cancer. Immunol. Immun.*****55**, 39-46.

Hervas-Stubbs, S., Majlessi, L., Simsova, M.. Morova, J., Rojas, M.-J., Nouze, C., Brodine, P., **Sebo,. P.** and C. Leclerc (2006). High Frequency of CD4\_ T Cells Specific for the TB10.4 Protein Correlates with Protection against *Mycobacterium tuberculosis* Infection. ***Infect. Immun.* 74**, 3396-3407.

Anderson, S.T., Williams, A.J., Brown, J.R., Newton, S.M.,Simsova, M., Nicol, M.P., **Sebo, P.**, Levin, M., Wilkinson, R.J. and K. A. Wilkinson (2006). Transmission of *Mycobacterium tuberculosis* undetected by tuberculin skin testing. ***Amer. J. Resp. Crit. Care Med.* 173**, 1038-42.

Majlessi, L., Šimšová, M., Jarvis, Z., Brodin, P., Rojas, M.-J., Bauche, C., Nouze, C., Ladant., D., Cole, S.T., **Sebo, P.** and C. Leclerc. (2006). Increasing anti-mycobacterial Th1 cell responses by prime-boost protocols of immunization does not enhance protection against tuberculosis. ***Infect. Immun.*** **74,** 2128–2137.

Tartz, S., Kamanova, J., Simsova, M., Sebo, P., Bolte, S., Heussler, V., Fleischer, B. and T Jacobs. (2006). Immunization with a circumsporozoite epitope fused to Bordetella adenylate cyclase in conjunction with CTLA-4 blockade confers protection against P. berghei liver stage malaria. ***Infect. Immun.* 74**, 2277–2285

Wilkinson, K.A., Simsova, M., Schölvinck, E., **Sebo, P**., Leclerc, C., Vordermeier, H.M., Dickson, S.J., Brown, J.R., Davidson, R.N., Pasvol, G., Levin, M. and Robert J. Wilkinson\*. (2005). Efficient *ex vivo* stimulation of *Mycobacterium tuberculosis* specific T cells by genetically detoxified *Bordetella pertussis* adenylate cyclase (CyaA) antigen toxoids. ***Infect. Immun.*** **73**, 2991-2998

Schlecht, G., Loucka, J., Najar, H., Sebo P. and C. Leclerc\*. (2004). Antigen targeting to CD11b allows efficient presentation of CD4+ and CD8+ T cell epitopes and *in vivo* Th1 polarized T-cell priming. *J. Immunol.* 173, 6089-6097.

Vordermeier\*, H.M., Simsova, M., Wilkinson, R.J., Hewinson, R.G., **Sebo, P.** and C. Leclerc. (2004). Recognition of mycobacterial antigens delivered by inactivated *Bordetella pertussis* adenylate cyclase (CyaA) toxoids by T cells from cattle with bovine tuberculosis. ***Infect. Immun.* 72**, 6255–6261.

Loucká, J., Schlecht, G., Vodolánová, J., Leclerc, C. and **P. Šebo**\* (2002). Delivery of a MalE CD4+ T-Cell Epitope Into MHC Class II Antigen Presentation Pathway by *Bordetella pertussis* Adenylate Cyclase. ***Infect. Immun****.* **70**, 1002-1005.

Fayolle, C., Osičková, A., Osička, R., Henry, T., Rojas, M.-J., Saron, M.-F., **Šebo, P**. and C. Leclerc (2001) Delivery of Multiple Epitopes by Recombinant Detoxified Adenylate Cyclase of *Bordetella pertussis* Induces Protective Antiviral Immunity. ***J. Virol****.* **75**,7330-7338.

Dadaglio, G., Z. Moukrim, R. Lo-Man, V. Sheshko, **P. Šebo** and C. Leclerc\* (2000) Induction of a polarized Th1 response by insertion of multiple copies of a viral T-cell epitope into adenylate cyclase of *Bordetella pertussis*. ***Infect. Immun*.** **68**, 3867-3872.

Osička, R., Osičková, A., Basar, T., Guermonprez, P., Rojas, M., Leclerc, C. and **P. Šebo**\* (2000) Delivery of CD8+ T-Cell Epitopes into Major Histocompatibility Complex Class I Antigen Presentation Pathway by *Bordetella pertussis* Adenylate Cyclase: Delineation of Cell-Invasive Structures and Permissive Sites. ***Infect. Immun.*** **68**, 247-256.

**Šebo\*, P**., Moukrim, Z., Kalhous, M., Schaft, N, Dadaglio, G., Sheshko, V., Fayolle, C. and C. Leclerc. (1999) *In vivo* Induction of CTL Responses by Recombinant Adenylate cyclase of *Bordetella pertussis* Carrying Multiple Copies of a Viral CD8+ T-Cell Epitope. ***FEMS Immun. Med. Microbiol****.* **26**, 167-173.

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

Fayolle, C., **Šebo, P**., Ladant, D., Ullmann, A. and C. Leclerc\* (1996): *In vivo* induction of CTL responses by recombinant adenylate cyclase of *Bordetella pertussis* carrying viral CD8+ T-cell epitopes. ***J. Immunol****.***156,** 4697-4706*.*

**Šebo, P.**, Fayolle, P., d'Andria, O., Ladant, D., Leclerc, C. and A. Ullmann\*(1995): Cell-invasive activity of the epitope-tagged adenylate cyclase of *Bordetella pertussis* allows *in vitro* presentation of foreign epitope to CD8+ cytotoxic T-cells. ***Infect. Immun.*****63,** 3309-3315

***4) Other bacterial virulence factors, antigenicity, proteomics, biochemistry and genomics***

Lamberti Y., Cafiero J.H., Surmann K., Valdez H., Holubova J., Večerek B., Sebo P., Schmidt F., Völker U. and M.E. Rodriguez (2016). Proteome analysis of Bordetella pertussis isolated from human macrophages. *J. Proteomics* **136**: 55-67. doi: 10.1016/j.jprot.2016.02.002

Villarino Romero R., Hasan S., Faé K., Holubova J., Geurtsen J., Schwarzer M., Wiertsema S., Osicka R., Poolman J.,and **P. Sebo\*** (2016). Bordetella pertussis filamentous hemagglutinin itself does not trigger anti-inflammatory interleukin-10 production by human dendritic cells.*Int J Med Microbiol.* **306**:38–47 doi: 10.1016/j.ijmm.2015.11.003

Bibova I, Skopova K, Masin J, Cerny O, Hot D, Sebo P, Vecerek B. (2013) The RNA Chaperone Hfq is Required for Virulence of Bordetella pertussis. ***Infect Immun.*** **81:**4081-4090. doi: 10.1128/IAI.00345-13

Villarino Romero, R., Bibova, I., Cerny, O., Vecerek, B., Wald, T., Benada, O., Zavadilova, J., Osicka R. and P. Sebo (2013). *Bordetella pertussis* T3SS tip complex protein Bsp22 is not a protective antigen and fails to elicit serum antibody responses during infections of men or mice. ***Infect. Immun.* 81:**2761-7. doi: 10.1128/IAI.00353-13***.***

Sadilkova, L., Nepereny, J., Vrzal, V., Sebo, P. and R. Osicka (2012). Type IV fimbrial subunit protein ApfA contributes to protection against porcine pleuropneumonia. ***Veterinary Res.*** **43:2.**

Bibova\*, I., Linhartova, I., Stanek, O., Rusnakova, V., Kubista, M., Suchanek, M., Vasakova, M., and P. Sebo (2012). Detection of immune cell response to M. tuberculosis-specific antigens by qPCR. ***Diagn. Microbiol. Inf. Dis***. **72:** 68-78.

Marcekova, Z., Psikal, I., Kosinova, E., Benada, O., Sebo, P. and L. Bumba (2009). Heterologous expression of full-length capsid protein of porcine circovirus 2 in *Escherichia coli* and its potential use for detection of antibodies. ***J. Virol. Meth****.* **162,** 133–141**.**

Sadilkova, L., Osicka, R., Šulc, M., Linhartova, I., Novak, P. and **Šebo, P**. (2008). Single-step affinity purification of recombinant proteins using a self-excising module from *Neisseria meningitidis* FrpC. ***Protein Sci.* 17,** 1834-1843.

Sewald, X., Gebert-Vogl, B., Prassl, S., Weiss, E., Fabbri, M., Osicka, R. Schiemann, M., Busch, D.H., Semmrich, M., Holzmann, B., **Sebo, P**. and R. Haas\* (2008). CD18 is the T-lymphocyte receptor of the *Helicobacter* *pylori* Vacuolating Cytotoxin. ***Cell Host & Microbe* 3,** 20-29.

Basler, M.\*, Linhartova, I., Halada, P., Novotna, J., Osicka, R., Weiser, J., Vohradsky, J. and **P. Sebo** (2006). The iron-regulated transcriptome and proteome of *Neisseria meningitidis* serogroup C. ***Proteomics*** **6**, 6194-6206.

Hejnova, J., Pages, D., Rusniok, C., Glaser, P., Sebo, P. and C. Buchrieser\* (2006). Specific Regions of Genome Plasticity and Genetic Diversity of the commensal *E. coli* A0 34/86. ***Int. J. Med. Microbiol.* 296**, 541-546

Linhartova\*, I., Basler, M.; Ichikawa, J., Pelicic, V., Osicka, R., Lory, S., Nassif, X. and **P. Sebo** (2006). Meningococcal adhesion suppresses pro-apoptoticbgene expression and promotes expression of genes supporting early embryonic and cytoprotective signaling of human endothelial cells. ***FEMS Microb. Lett.*,** **263**, 109-118.

Sheshko, V., Hejnova, J., Rehakova, Z., Sinkora, J., Faldyna, M., Alexa, P., Felsberg, J., Nemcova, R., Bomba, A. and **P. Sebo\*** (2006). HlyA- knock out yields a safer *Escherichia coli* A0 34/86 variant with unaffected colonization capacity in piglets. ***FEMS Imm. Med. Microbiol****.* **47**, 257-266.

Prochazkova, K., Osicka, C., Linhartova, I., Halada, P., Sulc, M. and **P. Sebo**\*. (2005). The Novel *Neisseria meningitidis* Outer Membrane Lipoprotein FrpD Binds the RTX Protein FrpC. ***J. Biol. Chem.* 280**, 3251-3258

Hejnova,J., Dobrindt, J., Nemcova, R., Rusniok, C., Bomba, A., Frangeul, L., Hacker, J., Glaser, P., Sebo, P. and C. Buchrieser\*. (2005). Characterization of the flexible genome complement of the commensal *Escherichia coli* strain A0 34/86 (O83:K24:H31). *Microbiology* 151,385-98

Osička, R., Procházková, K., Šulc, M., Linhartová, I., Havlíček, V. and P. Šebo\* (2004). A Novel 'Clip-and-Link' Activity of RTX Proteins from Gram-negative Pathogens: Covalent Protein Cross-linking by an Asp-Lys Isopeptide Bond upon Calcium-dependent Processing at an Asp-Pro Bond. *J. Biol. Chem.* 279, 24944-24956

Forman, S., Linhartová, I., Osička, R., Nassif, X., **Šebo, P**. and V. Pelicic\* (2003). *Neisseria meningitidis* RTX proteins are not required for virulence in infant rats ***Infect. Immun****.* **71**, 2253-7.

Osička, R., Kalmusová, J., Křížová, P. and P. **Šebo\*** (2001). The *Neisseria meningitidis* RTX Protein FrpC Induces High Level of Serum Antibodies During Invasive Disease: Polymorphism of *frpC* Alleles and Purification of Recombinant FrpC. ***Infect. Immun****.* **69,** 5509-5519**.**

**P. Šebo**\*, T. Bennardo, F. De la Torre and J. Szulmajster (1990): Delineation of the minimal portion of the Bacillus sphaericus 1593M toxin required for the expression of larvicidal activity. ***Eur. J. Biochem*.** **194**, 161-165.

F. De la Torre, T. Bennardo, **P. Šebo** and J. Szulmajster\* (1989): On the respective roles of the two proteins encoded by the Bacillus sphaericus 1593M toxin genes expressed in Escherichia coli and Bacillus subtilis. ***Biochem. Biophys. Res. Commun*.** **164**, 1417-1422.

***5) Miscellaneous***

Wald, T., Spoutil, F., Osickova, A., Prochazkova, M., Benada, O., Kasparek, P., Bumba, L., Klein, O.D., Sedlacek, R., Sebo, P., Prochazka, J. and R. Osicka\* (2017). Intrinsically disordered proteins drive enamel formation via an evolutionarily conserved self-assembly motif. ***Proc. Natl. Acad. Sci. USA*** 2017 Feb 14. pii: 201615334. doi: 10.1073/pnas.1615334114.

Bernelin-Cottet, C., Deloizy, C., Stanek, O., Barc, C., Bouguyon, E, Urien, C., Boulesteix, O., Pezant, J., Richard,C.-A., Moudjou, M., Da Costa, B., Jouneau, L., Chevalier, C., Leclerc, C., Sebo, P., Bertho, N. and Isabelle Schwartz-Cornil\* (2016). A universal influenza vaccine can lead to disease exacerbation or viral control depending on delivery strategies. ***Front. Immunol.* 7:641** [doi.org/10.3389/fimmu.2016.00641](https://doi.org/10.3389/fimmu.2016.00641) published on Dec 26, 2016

Arciniega J, Wagner L, Prymula R, **Sebo P**, Isbrucker R, Descampe B, Chapsal JM, Costanzo A, Hendriksen C, Hoonaker M, Nelson S, Lidster K, Casey W, Allen D (2016). Alternatives to HIST for acellular pertussis vaccines: progress and challenges in replacement. *Pharmeur Bio Sci Notes* 2016;2015:82-96.

Maly\* J., Stanek O., Frolik J., Maly M., Ennen F., Appelhans D., Semeradtova A., Wrobel D.,. Stofik M., Knapova T., Kuchar M., Stastna L.C., Cermak J., Sebo P. and P. Maly (2016). Biocompatible Size-Defined Dendrimer-Albumin Binding Protein Hybrid Materials as a Versatile Platform for Biomedical Applications. *Macromol Biosci.* **16**:553-66. doi: 10.1002/mabi.201500332.

Deloizy C., Bouguyon E., Fossum E., **Sebo P.**, Osicka R., Bole A., Pierres M., Biacchesi S., Dalod M., Bogen B., Bertho N. andIsabelle Schwartz-Cornil\* (2016). Expanding the tools or identifying mononuclear phagocyte subsets in swine: reagents to porcine CD11c and XCR1. ***Dev. Comp. Immunol.* 65:**31-40

Černý J, Biedermannová L, Mikulecký P, Zahradník J, Charnavets T, Šebo P, and B. Schneider (2015). Redesigning protein cavities as a strategy for increasing affinity in protein-protein interaction: interferon- γ receptor 1 as a model. ***Biomed. Res. Int***. **2015:716945**. doi: 10.1155/2015/716945.

Kuchař, M., Vaňková, L., Petroková, H., Černý, J., Osička, R., Pelák, O., Šípová, H., Schneider, B., Homola, J., Šebo, P., Kalina, T. and Petr Malý (2014). Human interleukin-23 receptor antagonists derived from an albumin-binding domain scaffold inhibit IL-23-dependent ex vivo expansion of IL-17-producing T-cells. ***Proteins* 82:** 975-989. doi: 10.1002/prot.24472.

Mikulecký P, Černý J, Biedermannová L, Petroková H, Kuchař M, Vondrášek J, Malý P, Šebo P, Schneider B.\* (2013). Increasing Affinity of Interferon-γ Receptor 1 to Interferon-γ by Computer-Aided Design. ***Biomed Res Int.*** **2013:752514**. doi: 10.1155/2013/752514

Wald, T., Osickova, A., Sulc, M., Benada, O., Semeradtova, A., Rezabkova, L., Veverka, V., Bednarova, L., Maly, J., Macek, P., **Sebo, P.**, Slaby, I., Vondrasek, J. and R. Osicka\* (2013). Intrinsically Disordered Enamel Matrix Protein Ameloblastin Forms Ribbon-like Supramolecular Structures via an N-terminal Segment Encoded by Exon 5. ***J. Biol. Chem.* 288:** 22333-45 doi: 10.1074/jbc.M113.456012

Ahmad, J.N., Li, J., Biedermannová, L., Kuchař, M., Šípová, H., Semerádtová, A., Černý, J., Petroková, H., Mikulecký, P., Polínek, J., Staněk, O., Vondrášek, J., Homola, J., Malý, J., Osička, R., Šebo, P. and P. Malý\* (2012). Novel High-affinity Binders of Human Interferon Gamma Derived from Albumin-binding Domain of Protein G. ***Proteins* 80**:774-89**.**

Chladkova, B., Kamanova, J., Palova-Jelinkova, L., Cinova, J., Sebo, P. and L. Tuckova\* (2011). Gliadin fragments promote migration of dendritic cells. ***J. Cell. Mol. Med.* 15,** 938-948.

Sviridova, E., Bumba, L., Rezacova, P., Prochazkova, K., Kavan, D., Bezouska, K., Kuty, M., Sebo, P. and I. Kuta-Smatanova\* (2010). Crystallization and preliminary crystallographic characterization of the iron-regulated outer membrane lipoprotein FrpD from Neisseria meningitidis. ***Acta Crystallogr. Sect. F Struct. Biol. Cryst. Commun.*** **66**(Pt 9):1119-23.

Sánchez, D., Tučková\*, L., **Šebo, P.**, Michalak, M., Whelan, A., Šterzl, L. Jelínková, L., Havrdová, M. Imramovská and H. Tlaskalová-Hogenová (2000) Occurence of IgA and IgG Autoantibodies to calreticulin in coeliac disease and various autoimmune diseases. ***J. Autoimmun****.* **15**, 441-449.

J. Weiser\* and **P. Šebo** (1988): Molecular properties of elongation factor Tu from Streptomyces aurerofaciens and Escherichia coli. ***Folia Microbiol***. **33**, 81-87.

**P. Šebo**\*, and J. Šťastná (1987): Identification of an inducible penicillinase of the lithoautotrophic hydrogen-oxidizing bacterium Alcaligenes eutrophus. *F****olia Microbiol.*** **32**, 376-381.

**P. Šebo**\* (1986): Hydrogen-oxidizing bacteria in biotechnology*.* ***Trends in Biotechnol*.** **4**, 321-323.

***6) Book chapters:***

Simsova, M., Karimova, G., Sebo, P. And D. Ladant: Biotechnological Applications of the *Bordetella pertussis* Adenylate Cyclase Toxin. *In:* *Bordetella* Molecular Microbiology. Ed. C. Locht. Horizon Biocience 2007. ISBN 978-1-904933-31-1. pp. 209-244

Mašín, J., Šebo, P. and C. Locht: *Bordetella* Toxins. *In*: The Comprehensive Source Book of BACTERIAL PROTEIN TOXINS. 3rd ed.. J.E. Alouf and M.R. Popoff, editors. Academic Press 2006, ISBN 13: 978-0-12-088445-2 / ISBN 10: 0-12-088445-3. pp. 291-309

Šebo, P. - Ullmann, A.: Adenylate cyclase toxin (*Bordetella* sp.). *In*: Guidebook to Protein Toxins and Their Use In Cell Biology. - (Ed. Rappuoli, R.; Montecucco, C.). - Oxford, A Samrook and Tooze Publication 1997. - S. 38-40.

***7) Patents:***

**P. Šebo** J. Pohl. & V. Kostka: Method of isolation of cystatins, the natural inhibitors of cystein proteinases from extracts of natural materials by the use of immobilized cystein proteinases. *Czechoslovak Patent No*. 242 391 (1988).

D. Ladant, C. Leclerc, **P. Šebo** and A. Ullmann: Recombinant mutants for inducing specific immune responses. ***US Patent* No. 5,503,829 of April 2, 1996, No. 5,679,784 of October 21, 1997 and No. 5,935,580 of August 10, 1999**

F. Betsou, **P. Šebo** et N. Guiso (2001): Protective epitopes of adenyl cyclase-haemolysin (AC-Hly), their application to the treatment or to the prevention of Bordetella infections. **EP787796B1 from 14.01.2009,**  ***US Patent No*. 6,309,648 from October 30, 2001**.

C. Leclerc, M. El-Azami El-Idrissi, D. Ladant, C. Bauche, P. Šebo, J. Loucká, R. Osička: Modified *Bordetella* adenylate cyclase comprising or lacking CD11b/CD18 interaction domain and use thereof. **EP1633776, published 15.03.2006, US Patent No. 7906123 of March 15, 2011.**

C. Lerlerc, L. Majlessi, G. Louf, P. Sebo, M. Simsova, M. Vordermeier, R. Wilkinson, E. Scholvinck, J. Loucka: Recombinant Adenylate cyclase of *Bordetella sp.* for diagnostic and immunomonitoring uses, method of diagnosing or immunomonitoring using said recombinant adenylate cyclase, and kit for diagnosing ot immunomonitoring comprising said adenylate cyclase. *US Patent Application* ***US Prov 03495, 6094 (2003)***

**P. Šebo**, Leclerc, C., Osickova, A. Fayolle, C., Masin, J., Krusek, J., Osicka, R., Basler, M.: Mutant CyaA polypeptide derivatives suitable for the delivery of immunogenic molecules into a cell. European patent application of March 23, 2009 under No. 09155929.4 and US Patent application of March 23, 2009 under No. 12/409,324. International application **PCT/EP2010/053795** of 13.03.2010, published as **WO/2010/136231 on 02.12.2010, US Patent 8,017,132 B2, from September 13, 2011. EP 2 233 569 B1 from 25.6.2014, CA2755694 (A1), CN102439146 (A), CN105602924 (A), DK2233569 (T3), EP2233569 (A1), EP2233569 (B1), EP2411513 (A1), P2411513 (B1), ES2505324 (T3), HRP20140886 (T1), JP2012521207 (A), JP5770711 (B2), PT2233569 (E), RU2011138706 (A), RU2585216 (C2), SI2233569 (T1), US2010239550 (A1), US8017132 (B2), US2012071393 (A1), US9222143 (B2), US9708596 (B2), US2012052083 (A1), US2016083714 (A1), WO2010136231 (A1), European Patent** No. 2 **411 513, delivered on November 9, 2016, based on application** EP 10 713 874.5 of 23 March 2010: *Mutant CyaA polypeptides and polypeptide derivatives suitable for the delivery of immunogenic molecules into a cell* Priority: EP N 09155929.4 of 23 /03/2009 and US N 12/409,324 of  23/03/2009

C. Leclerc, P. Šebo, O. Stanek, L. Majlessi, H. Dong. A versatile delivery system for antigens or biologically active molecules. **European patent application of 21 December 2009 under No.**: **EP 09 290 987.8., International application on 21 December 2010 as** PCT/IB2010/003497 and published as WO/2011/077258

Vrzal, V., Bittner, L., Nepeřený, J., Sadílková, L., Osička, R., **Šebo, P.**, Sobotka, M.: Konstrukce, produkce, purifikace a využití rekombinantních faktorů virulence *Actinobacillus pleuropneumoniae* k diagnostice a k imunoprofylaxi prasat proti aktinobacilové pleuropneumonii. Czech patent appl. No.. 2010-540, published 18.01.2012

**Malý P.**, Šebo P., Kuchař M., Vaňková L. and Petroková H. Polypeptides for treatment of autoimmune diseases based on human IL-23 receptor blockade, Czech patent application, PV\_2012-829, 2012. WO2014079399 A1, **EP2922560 B1**