

Seznam publikací ústavu v roce 2017:

Vybrané publikace uvedené ve Výroční zprávě ozn. modře.

Laboratoř biomolekulárního rozpoznávání – Bohdan Schneider

1. **Schneider B**, Bozikova P, Cech P, Svozil D, Cerny J. A DNA Structural Alphabet Distinguishes Structural Features of DNA Bound to Regulatory Proteins and in the Nucleosome Core Particle. *Genes (Basel)*. 2017 Oct 18; 8(10). pii: E278.
2. Cerny J, **Schneider B**, **Biedermannova L**. WatAA: Atlas of Protein Hydration. Exploring synergies between data mining and ab initio calculations. *Phys Chem Chem Phys*. 2017 Jul 14; 19 (26):17094-17102.
3. Palyzova A, **Zahradnik J**, Maresova H, Sokolova L, Kyslikova E, Grulich M, Stepanek V, Řezanka T, Kyslik P. Potential of the strain Raoultella sp. KDF8 for removal of analgesics. *Folia Microbiol (Praha)*. 2017 Nov 11.

Laboratoř inženýrství vazebných proteinů - Petr Malý

1. **Krizova L**, **Kuchar M**, **Petrokova H**, Osicka R, Hlavnickova M, Pelak O, Cerny J, Kalina T, **Malý P**. p19-targeted ABD-derived protein variants inhibit IL-23 binding and exert suppressive control over IL-23-stimulated expansion of primary human IL-17+ T-cells. *Autoimmunity*. 2017 Mar; 50 (2):102-113.

Laboratoř strukturní biologie – Cyril Bařinka

1. **Skultetyova L**, **Ustinova K**, **Kutil Z**, **Novakova Z**, **Pavlicek J**, **Mikesova J**, **Trapl D**, **Baranova P**, **Havlinova B**, Hubalek M, Lansky Z, **Barinka C**. Human histone deacetylase 6 shows strong preference for tubulin dimers over assembled microtubules. *Sci Rep*. 2017 Sep 14; 7 (1): 11547
2. Lv W, Zhang G, **Barinka C**, Eubanks JH, Kozikowski APOD. Design and Synthesis of Mercaptoacetamides as Potent, Selective, and Brain Permeable Histone Deacetylase 6 Inhibitors. *ACS Med Chem Lett*. 2017 Apr 7; 8(5):510-515.
3. **Novakova Z**, Foss CA, Copeland BT, Morath V, **Baranova P**, **Havlinova B**, Skerra A, Pomper MG, **Barinka C**. Novel Monoclonal Antibodies Recognizing Human Prostate-Specific Membrane Antigen (PSMA) as Research and Theranostic Tools. *Prostate*. 2017 May; 77 (7):749-764.
4. Rais R, Vavra J, Tichy T, Dash RP, Gadiano AJ, Tenora L, Monincova L, **Barinka C**, Alt J, Zimmermann SC, Slusher CE, Wu Y, Wozniak K, Majer P, Tsukamoto T, Slusher BS. Discovery of a para-acetoxy-benzyl ester prodrug of a hydroxamate-based Glutamate Carboxypeptidase II inhibitor as oral therapy for neuropathic pain. *J Med Chem*. 2017 Sep 28; 60(18): 7799-7809
5. Kopka K, Benesova M, **Barinka C**, Haberkorn U, Babich J. Glu-Ureido-Based Inhibitors of Prostate-Specific Membrane Antigen: Lessons Learned During the Development of a

Novel Class of Low-Molecular-Weight Theranostic Radiotracers. *J Nucl Med.* 2017 Sep;58(Suppl 2):17S-26S.

6. Tavares MT, Shen S, Knox T, Hadley M, **Kutil Z**, **Barinka C**, Villagra A, Kozikowski AP. Synthesis and Pharmacological Evaluation of Selective Histone Deacetylase 6 Inhibitors in Melanoma Models. *ACS Med Chem Lett.* 2017 Sep 5;8(10):1031-1036.

Laboratoř struktury a funkce biomolekul – Jan Dohnálek

1. Stranova M, Man P, **Skalova T**, **Kolenko P**, Blaha J, Fojtikova V, Martinek V, **Dohnalek J**, Lengalova A, Rosulek M, Shimizu T, Martinkova M. Coordination and redox state-dependent structural changes of the heme-based oxygen sensor AfGCHK associated with intraprotein signal transduction. *J Biol Chem.* 2017 Dec 22;292(51):20921-20935.
2. **Koval T**, **Dohnalek J**. Characteristics and application of S1-P1 nucleases in biotechnology and medicine. *Biotechnol Adv.* 2017 Dec 14. pii: S0734-9750(17)30159-3.

Laboratoř strukturních proteinů – Zdeněk Lánský

1. **Braun M**, **Lansky Z**, Szuba A, Schwarz FW, Mitra A, Gao M, Lüdecke A, Ten Wolde PR, Diez S. Changes in microtubule overlap length regulate kinesin-14-driven microtubule sliding. *Nat Chem Biol.* 2017 Dec;13(12):1245-1252.
2. Havelka D, Deriu MA, Cifra M, **Kucera O**. Deformation pattern in vibrating microtubule: Structural mechanics study based on an atomistic approach. *Sci Rep.* 2017 Jun 26; 7(1):4227.
3. Skultetyova L, Ustinova K, Kutil Z, Novakova Z, Pavlicek J, Mikesova J, Trapl D, Baranova P, Havlinova B, Hubalek M, **Lansky Z**, Barinka C. Human histone deacetylase 6 shows strong preference for tubulin dimers over assembled microtubules. *Sci Rep.* 2017 Sep 14; 7 (1): 11547
4. Hernandez-Vega A, **Braun M**, Scharrel L, Jahnel M, Wegmann S, Hyman BT, Alberti S, Diez S, Hyman AA. Local Nucleation of Microtubule Bundles through Tubulin Concentration into a Condensed Tau Phase. *Cell Rep.* 2017 Sep 5;20(10):2304-2312

Laboratoř strukturní bioinformatiky proteinů - Ing. Jiří Černý, Ph.D.

1. Schneider B, **Bozikova P**, Cech P, Svozil D, **Cerny J**. A DNA Structural Alphabet Distinguishes Structural Features of DNA Bound to Regulatory Proteins and in the Nucleosome Core Particle. *Genes (Basel).* 2017 Oct 18; 8(10). pii: E278.
2. Rohlenova K, Sachaphibulkij K, Stursa J, Bezawork-Geleta A, Blecha J, Endaya B, Werner L, **Cerny J**, Zobalova R, Goodwin J, Spacek T, Alizadeh Peddar E, Yan B, Nguyen MN, Vondrusova M, Sobol M, Jezek P, Hozak P, Truksa J, Rohlena J, Dong LF, Neuzil J. Selective Disruption of Respiratory Supercomplexes as a New Strategy to Suppress Her2high Breast Cancer. *Antioxid Redox Signal.* 2017 Jan 10; 26 (2):84-103.

3. **Cerny J**, Schneider B, Biedermannova L. WatAA: Atlas of Protein Hydration. Exploring synergies between data mining and ab initio calculations. *Phys Chem Chem Phys*. 2017 Jul 14; 19 (26):17094-17102.
4. Krizova L, Kuchar M, Petrokova H, Osicka R, Hlavnickova M, Pelak O, **Cerny J**, Kalina T, Maly P. p19-targeted ABD-derived protein variants inhibit IL-23 binding and exert suppressive control over IL-23-stimulated expansion of primary human IL-17+ T-cells. *Autoimmunity*. 2017 Mar; 50 (2):102-113.

Laboratoř molekulární terapie – Jiří Neuzil

1. Dong LF, **Kovarova J**, **Bajzikova M**, Bezawork-Geleta A, Svec D, Endaya B, Sachaphibulkij K, **Coelho AR**, Sebkova N, **Ruzickova A**, Tan AS, **Kluckova K**, **Judasova K**, **Zamecnikova K**, Rychtarcikova Z, Gopalan V, **Andera L**, Sobol M, Yan B, Pattnaik B, Bhatraju N, Truksa J, Stopka P, Hozak P, Lam AK, Sedlacek R, Oliveira PJ, Kubista M, Agrawal A, Dvorakova-Hortova K, **Rohlena J**, Berridge MV, **Neuzil J**. Horizontal transfer of whole mitochondria restores tumorigenic potential in mitochondrial DNA-deficient cancer cells. *Elife*. 2017 Feb 15; 6. pii: e22187.
2. Rychtarcikova Z, Lettlova S, Tomkova V, Korenkova V, Langerova L, Simonova E, Zjablovskaja P, Alberich-Jorda M, **Neuzil J**, Truksa J. Tumor-initiating cells of breast and prostate origin show alterations in the expression of genes related to iron metabolism. *Oncotarget*. 2017 Jan 24; 8(4):6376-6398.
3. **Rohlenova K**, Sachaphibulkij K, Stursa J, Bezawork-Geleta A, **Blecha J**, Endaya B, Werner L, Cerny J, **Zobalova R**, Goodwin J, Spacek T, Alizadeh Peddar E, Yan B, Nguyen MN, Vondrusova M, Sobol M, Jezek P, Hozak P, Truksa J, **Rohlena J**, Dong LF, **Neuzil J**. Selective Disruption of Respiratory Supercomplexes as a New Strategy to Suppress Her2high Breast Cancer. *Antioxid Redox Signal*. 2017 Jan 10; 26(2):84-103.
4. **Blecha J**, **Novais SM**, **Rohlenova K**, **Novotna E**, **Lettlova S**, Schmitt S, Zischka H, **Neuzil J**, **Rohlena J**. Antioxidant defense in quiescent cells determines selectivity of electron transport chain inhibition-induced cell death. *Free Radic Biol Med*. 2017 Jul 31; 112:253-266.
5. Peredo-Silva L, Fuentes-Retamal S, **Sandoval-Acuna C**, Pavani M, Maya JD, Castro-Castillo V, Madrid-Rojas M, Rebolledo S, Kemmerling U, Parra E, Ferreira J. Derivatives of alkyl gallate triphenylphosphonium exhibit antitumor activity in a syngeneic murine model of mammary adenocarcinoma. *Toxicol Appl Pharmacol*. 2017 Aug 15; 329:334-346.
6. Tomasetti M, Amati M, **Neuzil J**, Santarelli L. Circulating epigenetic biomarkers in lung malignancies: From early diagnosis to therapy. *Lung Cancer*. 2017 May;107:65-72.
7. Bezawork-Geleta A, **Rohlena J**, Dong L, Pacak K, **Neuzil J**. Mitochondrial Complex II: At the Crossroads. *Trends Biochem Sci*. 2017 Apr;42(4):312-325.
8. Grimolizzi F, Monaco F, Leoni F, Bracci M, Staffolani S, Bersaglieri C, Gaetani S, Valentino M, Amati M, Rubini C, Saccucci F, **Neuzil J**, Tomasetti M, Santarelli L.

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Laboratoř reprodukční biologie – Kateřina Hortová

1. Dong LF, Kovarova J, Bajzikova M, Bezawork-Geleta A, Svec D, Endaya B, Sachaphibulkij K, Coelho AR, **Sebkova N**, Ruzickova A, Tan AS, Kluckova K, Judasova K, Zamecnikova K2, Rychtarcikova Z, Gopalan V, Andera L, Sobol M, Yan B, Pattnaik B, Bhatraju N, Truksa J, Stopka P, Hozak P, Lam AK, Sedlacek R, Oliveira PJ, Kubista M, Agrawal A, **Dvorakova-Hortova K**, Rohlena J, Berridge MV, Neuzil J. Horizontal transfer of whole mitochondria restores tumorigenic potential in mitochondrial DNA-deficient cancer cells. *Elife.* 2017 Feb 15; 6. pii: e22187.
2. Pavlinkova G, **Margaryan H, Zatecka E, Valaskova E, Elzeinova F, Kubatova A, Bohuslavova R, Peknicova J.** Transgenerational inheritance of susceptibility to diabetes-induced male subfertility. *Sci Rep.* 2017 Jul 10;7(1):4940
3. Drab T, **Ren S, Manaskova-Postlerova P**, Ticha M, **Jonakova V**, Liberda J. Glycosidases in porcine follicular fluid and their effect on zona pellucida-AWN 1 spermadhesin interaction. *Theriogenology.* 2017 Sep 15; 100: 80-87.
4. **Dostalova P, Zatecka E, Dvorakova-Hortova K.** Of Oestrogens and Sperm: A Review of the Roles of Oestrogens and Oestrogen Receptors in Male Reproduction. *Int J Mol Sci.* 2017 Apr 25; 18(5). pii: E904.
5. Jankovicova J, Michalkova K, Secova P, Horovska L, **Maňaskova-Postlerova P**, Antalikova J. Evaluation of protein phosphorylation in bull sperm during their maturation in the epididymis. *Cell Tissue Res.* 2017 Oct 23.
6. **Bukovsky A.** Novel Immunological Aspects for the Treatment of Age-induced Ovarian and Testicular Infertility, Other Functional Diseases, and Early and Advanced Cancer Immunotherapy. *Human Reproduction.* Vol. 4. New Jersey: John Wiley and Sons Inc., 2017 - (Schatten, H.), s. 143-267.

Laboratoř molekulární patogenetiky – Gabriela Pavlínková

1. **Bohuslavova R, Dodd N, Macova I, Chumak T, Horak M, Syka J, Fritsch B, Pavlinkova G.** Pax2-Islet1 Transgenic Mice Are Hyperactive and Have Altered Cerebellar Foliation. *Mol Neurobiol.* 2017 Mar; 54(2):1352-1368.
2. **Pavlinkova G, Margaryan H, Zatecka E, Valaskova E, Elzeinova F, Kubatova A, Bohuslavova R, Peknicova J.** Transgenerational inheritance of susceptibility to diabetes-induced male subfertility. *Sci Rep.* 2017 Jul 10;7(1):4940

3. **Bohuslavova R, Cerychova R, Nepomucka K, Pavlinkova G.** Renal injury is accelerated by global hypoxia-inducible factor 1 alpha deficiency in a mouse model of STZ-induced diabetes. *BMC Endocr Disord.* 2017 Aug 3; 17(1):48.

Laboratoř nádorové rezistence – Jaroslav Truksa

1. Dong LF, Kovarova J, Bajzikova M, Bezawork-Geleta A, Svec D, Endaya B, Sachaphibulkij K, Coelho AR, Sebkova N, Ruzickova A, Tan AS, Kluckova K, Judasova K, Zamecnikova K, **Rychtarcikova Z**, Gopalan V, Andera L, Sobol M, Yan B, Pattnaik B, Bhatraju N, **Truksa J**, Stopka P, Hozak P, Lam AK, Sedlacek R, Oliveira PJ, Kubista M, Agrawal A, Dvorakova-Hortova K, Rohlena J, Berridge MV, Neuzil J. Horizontal transfer of whole mitochondria restores tumorigenic potential in mitochondrial DNA-deficient cancer cells. *Elife.* 2017 Feb 15; 6. pii: e22187.
2. Kralova J., Kolar M, Kahle M, **Truksa J, Lettlova S**, Balusikova K, Bartunek P. Glycol porphyrin derivatives and temoporfin elicit resistance to photodynamic therapy by different mechanisms. *Sci Rep.* 2017 Mar 15; 7:44497.
3. Gurieva I, Frydlova J, **Rychtarcikova Z**, Vokurka M, **Truksa J**, Krijt J. Erythropoietin administration increases splenic erythroferrone protein content and liver TMPRSS6 protein content in rats. *Blood Cells Mol Dis.* 2017 May; 64: 1-7.
4. **Rychtarcikova Z, Lettlova S, Tomkova V**, Korenkova V, Langerova L, **Simonova E**, Zjablovskaja P, Alberich-Jorda M, Neuzil J, **Truksa J**. Tumor-initiating cells of breast and prostate origin show alterations in the expression of genes related to iron metabolism. *Oncotarget.* 2017 Jan 24; 8 (4):6376-6398.
5. Rohlenova K, Sachaphibulkij K, Stursa J, Bezawork-Geleta A, Blecha J, Endaya B, Werner L, Cerny J, Zobalova R, Goodwin J, Spacek T, Alizadeh Pesdar E, Yan B, Nguyen MN, Vondrusova M, Sobol M, Jezek P, Hozak P, **Truksa J**, Rohlena J, Dong LF, Neuzil J. Selective Disruption of Respiratory Supercomplexes as a New Strategy to Suppress Her2high Breast Cancer. *Antioxid Redox Signal.* 2017 Jan 10; 26 (2):84-103.
6. Frydlova J, **Rychtarcikova Z**, Gurieva I, Vokurka M, **Truksa J**, Krijt J. Effect of erythropoietin administration on proteins participating in iron homeostasis in Tmprss6-mutated mask mice. *PLoS One.* 2017 Oct 26;12 (10):e0186844.

Laboratoř genové exprese – Mikael Kubista

1. **Androvic P, Valihrach L**, Elling J, Sjoback R, **Kubista M**. Two-tailed RT-qPCR: a novel method for highly accurate miRNA quantification. *Nucleic Acids Res.* 2017 Sep 6; 45(15): e144.
2. Dong LF, Kovarova J, Bajzikova M, Bezawork-Geleta A, **Svec D**, Endaya B, Sachaphibulkij K, Coelho AR, Sebkova N, Ruzickova A, Tan AS, Kluckova K, Judasova K, Zamecnikova K2, Rychtarcikova Z, Gopalan V, Andera L, Sobol M, Yan B, Pattnaik B, Bhatraju N, Truksa J, Stopka P, Hozak P, Lam AK, Sedlacek R, Oliveira PJ, **Kubista M**, Agrawal A, Dvorakova-Hortova K, Rohlena J, Berridge MV, Neuzil J. Horizontal transfer

of whole mitochondria restores tumorigenic potential in mitochondrial DNA-deficient cancer cells. *Elife*. 2017 Feb 15;6. pii: e22187.

3. Forootan A, Sjöback R, Björkman J, Sjögreen B, Linz L, **Kubista M**. Methods to determine limit of detection and limit of quantification in quantitative real-time PCR (qPCR). *Biomol Detect Quantif*. 2017 Apr 29;12:1-6.
4. **Sindelka R, Sidova M, Abaffy P, Kubista M**. Asymmetric Localization and Distribution of Factors Determining Cell Fate During Early Development of *Xenopus laevis*. *Results Probl Cell Differ*. 2017;61:229-241.
5. Bredemeier M, Edimiris P, Mach P, **Kubista M**, Sjöback R, Rohlova E, Kolostova K, Hauch S, Aktas B, Tewes M, Kimmig R, Kasimir-Bauer S. Gene Expression Signatures in Circulating Tumor Cells Correlate with Response to Therapy in Metastatic Breast Cancer. *Clin Chem*. 2017 Aug 3. pii: clinchem.2016.269605.
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