Doporučená hlediska hodnocení pro habilitační řízení

Ing. Daniel Zicha, CSc.

Aplikovaná fyzika

Brno 2024

Pedagogická činnost

Tab. 1 – Přehled výuky

Habilitační řízení	Garant (TMK)	Výuka (TMK)	Garant & výuka kurzu (TEB-A)	Organizace a výuka mezinárodního kurzu o servisních facilitách	Kurzy v zahraničí s potvrzením (York, Velká Británie & Kodaň, Dánsko)	Ostatní kurzy v zahraničí
			Několikadenní až dvoutýdenní kurzy			
Dosaženo	**4 semestry**	**6 semestrů**	**5 kurzů**	**3 kurzy**	**31 kurzů**	**29 kurzů**
Doporučeno	6 semestrů					

Tab. 2 – Přehled vedení

Habilitační řízení	MSc školitel na VUT	MSc školitel na ČVUT	BSc školitel specia-lista na VUT	PhD školitel v zahraničí	PhD školitel specialista v zahraničí	Vedoucí post-doktoranda	Vedoucí MSc praxe v zahraničí
Dosaženo	**1**	**1**	**1**	**3**	**1**	**3**	**1**
Doporučeno	5 bakalářských nebo diplomových prací						

Výuka

2019-dosud Garant, přednášky a praktická cvičení: „Mikroskopie a spektroskopie“ (TMK) program Přesná mechanika a optika (N-PMO-P), FSI VUT v Brně

2018 Přednášky: „Mikroskopie a spektroskopie“ (TMK) program Přesná mechanika a optika (N-PMO-P), FSI VUT v Brně

2017-dosud Garant, přednášky a praktická cvičení: „Experimental Biophotonics“ (TEB-A) program Přesná mechanika a optika (N-PMO-P), FSI VUT v Brně

2013 Přednášky: „Advanced Microscopy Ph.D. Course“, The Danish Research School of Molecular Mechanisms of Disease, BRIC, Kodaň, Dánsko

2013-2019 Hlavní organizátor pěti mezinárodních kurzů a přednášky: „Establishing and Providing Light Microscopy Core Facility Services”, 2x v Londýně s podporou Royal Microscopical Society a 3x na VUT v Brně

2003-2016 Dvakrát ročně přednášky a praktická cvičení pro jednotýdenní kurz: „Confocal microscopy courses“, University of York, UK

2002-2020 Přednášky a praktická cvičení včetně podílu na přípravě dvoutýdenních kurzů s účastí nejdříve 1x ročně a od roku 2009 2x ročně: "Principles of Light and Confocal Microscopy", Panum Institute, Kodaň, Dánsko

2002-2005	Přednášky a praktická cvičení jedenkrát ročně: “Light Microscopy Summer School”, Royal Microscopical Society, Leeds, UK
2000	Přednášky na practickém kurzu EMBO: “Application of Advanced Digital Microscopy in Molecular Cell Biology”, Weizmann Institute of Science, Rehovot, Israel
1999-2015	Organizace a přednášky 1x ročně: „Light microscopy course“ a praktická cvičení průběžně, Imperial Cancer Research Fund/ Cancer Research UK London Research Institute/ The Francis Crick Institute, Lincoln's Inn Fields Laboratories
1997	Přednášky: „Lectures for Biology of Cellular Biomechanics course“, Trans-European Tele-Education Network, Europace, Madrid, Španělsko
1994-1997	Přednášky a praktická cvičení pro mikroskopické kurzy, King’s College London, UK

Vedení

2021	Školitel MSc práce: Zuzana Srmčková, „Motilita leukemických buněk analyzovaná nekoherentním holografickým kvantitativním zobrazováním fáze“, Ústav fyzikálního inženýrství, VUT v Brně (1 publikace s poděkováním pro studentku)
2021	Podpora BSc práce: Hung Anh Hatrinh, „Detekce buněčných procesů v sekvenci snímků“, Ústav biomedicínského inženýrství, VUT v Brně
2019	Školitel specialista BSc práce: Diana Plišková, „Nové nádorové biomarkery odvozené z kvantitativního fázového zobrazování buněk“, Ústav biomedicínského inženýrství, VUT v Brně
2015	Školitel projektu středoškolského studenta: Mahaveer Sangha, Nuffield Research Placements, UK
2014	Školitel projektu středoškolské studentky: Winnie Simeon, Nuffield Research Placements, UK
2013	Školitel projektu středoškolské studentky: Aisha Ben-Younis, Nuffield Research Placements, UK, získala prestižní Gold Crest Award
2012	Školitel projektu během externí praxe MSc studenta se zaměřením na práci v servisní laboratoři světelné mikroskopie: Andrew Walsh, University of York, UK
2008-2012	Školitel specialista PhD práce: Catherine Cowell, „Novel mechanisms of resistance to EGFR inhibitory drugs in non-small cell lung cancer“, Cancer Research UK London Research Institute/ UCL
2007-2010	Vedoucí postdoktoranda: Dr. Frédéric Bollet-Quivogne, Cancer Research UK London Research Institute

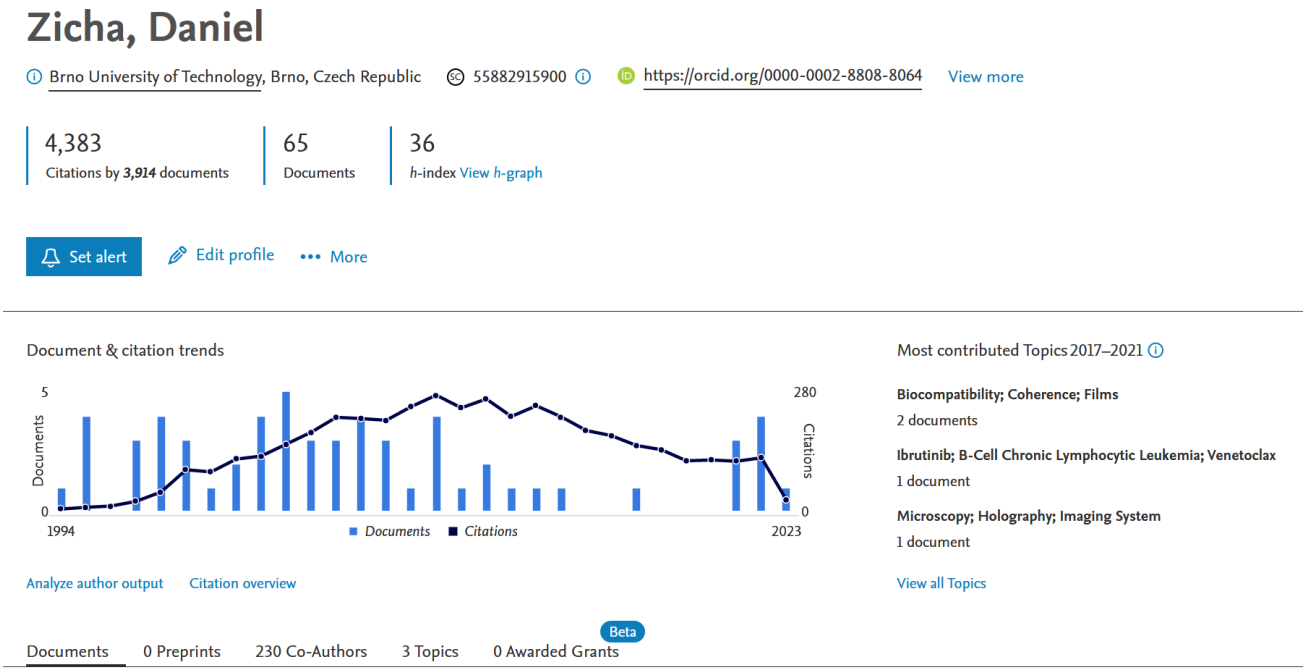
2005-2009	Školitel specialista PhD práce: Samuel Hagglund, „Semi-automatic quantitative assessment of cancer cell invasion in vitro: An image processing approach“, Kingston University London, UK, https://ethos.bl.uk/OrderDetails.do?uin=uk.bl.ethos.506729, (1 společná publikace)
2003-2007	Školitel PhD práce: Tamara Cavanna, „Microarray expression analysis of metastasising sarcoma cells implies a role for protein 4.1b in metastasis“, Cancer Research UK London Research Institute/ UCL, https://discovery.ucl.ac.uk/id/eprint/1445352/, (4 společné publikace)
2002-2004	Vedoucí postdoktoranda: Dr. Yan Gu, Cancer Research UK London Research Institute (2 společné publikace)
1999-2003	Školitel PhD práce: James Monypenny, „The development of quantitative live cell imaging techniques and their applications in the study of inter-cellular communication and sarcoma cell motility“, Imperial Cancer Research Fund, London, UK/ UCL, https://discovery.ucl.ac.uk/id/eprint/10098527/, (8 společných publikací)
1998-2002	Vedoucí postdoktoranda: Dr. Ian Dobbie, Imperial Cancer Research Fund, London, UK, (3 společné publikace)
1990-1991	Školitel magisterské diplomové práce: Bůchová, „Počítačová morfometrie buněk in vitro“, České vysoké učení technické, Praha

Vědecko-výzkumná činnost

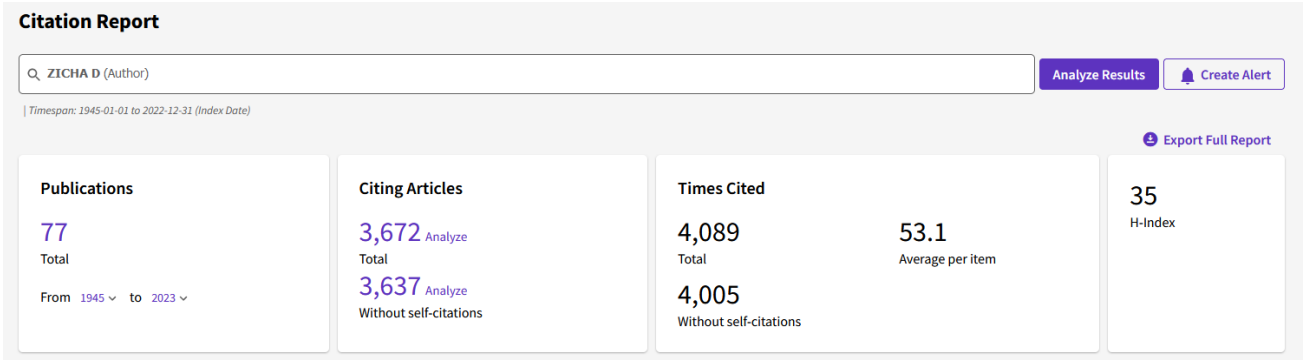
Tab. 3 – Přehled počtu publikací

Habilitační řízení	Publikace Scopus/WoS	Publikace s IF/z toho hlavní nebo korespondující autor	Počet citací dle WoS bez autocitací
Dosaženo	**65/77**	**51/9**	**4005**
Doporučeno pro aplikovanou fyziku	20	10/3	20

Obr. 1 - Přehled publikační činnosti v databázi SCOPUS



Obr. 2 - Přehled publikační činnosti v databázi Web of Science



Vědecké zaměření

Během celé své profesní kariéry se kandidát zabýval vývojem, aplikacemi a výukou pokročilých metod světelné mikroskopie a zpracování obrazu zejména pro buněčnou biologii a výzkum rakoviny.

Publikace

Reference s hlavním nebo korespondujícím autorem jsou označené tučně a jsou doplněny o charakteristiku, podíl uchazeče a počet citací.

1. Zicha D. Addressing cancer invasion and cell motility with quantitative light microscopy. Sci Rep [Internet]. 2022;12(1):1621. Available from: https://doi.org/10.1038/s41598-022-05307-7; IF 2022 je 4,6.

Přehled výzkumu uchazeče v kvantitativní světelné mikroskopii se zaměřením na výzkum nádorového onemocnění včetně nových výsledků. Uchazeč je jediným autorem.

2. Zicha D, Chmelik R. Testing anti-cancer drugs with holographic incoherent-light-source quantitative phase imaging. In: Shukla AK, editor. Methods in Enzymology. Elsevier, Academic Press; 2023.

Metodická publikace se zaměřením na holografickou mikroskopii a její biomedické aplikace. Podíl uchazeče je zásadní.

3. Krajňák T, Černá E, Šuráňová M, Šamořil T, **Zicha D**, Vojtová L, Čechal J. Replica-mold nanopatterned PHEMA hydrogel surfaces for ophthalmic applications. Sci Rep [Internet]. 2022;12(1):14497. Available from: https://doi.org/10.1038/s41598-022-18564-3; IF 2022 je 4,6, citace 1, podíl uchazeče 5%.

4. Lepcio P, Svatík J, Režnáková E, **Zicha D**, Lesser AJ, Ondreáš F. Anisotropic solid-state PLA foaming templated by crystal phase pre-oriented with 3D printing: cell supporting structures with directional capillary transfer function. J Mater Chem B [Internet]. 2022; Available from: http://dx.doi.org/10.1039/D1TB02133H; IF 2022 je 7,0, citace 5, podíl uchazeče 10%.

5. Seda V, Vojackova E, Ondrisova L, Kostalova L, Sharma S, Loja T, Pavlasova GM, **Zicha D**, Peskova MK, Krivanek J, Liskova K, Kren L, Benes V, Litzmanova KM, Borsky M, Oppelt J, Verner J, Pospisilova S, Brychtova Y, Panovska A, Tan Z, Zhang SX, Doubek M, Cerna KA, Mayer J, Mraz M. FoxO1-GAB1 axis regulates homing capacity and tonic AKT activity in chronic lymphocytic leukemia. Blood. 2021;138(9):758–72; IF 2021 je 25,669, citace 12 podíl uchazeče 16%.

6. Strbkova L, **Zicha D**, Vesely P, Chmelik R. Automated classification of cell morphology by coherence-controlled holographic microscopy. J Biomed Opt [Internet]. 2017 Aug 23 [cited 2018 Jun 14];22(08):1. Available from: https://www.spiedigitallibrary.org/journals/journal-of-biomedical-optics/volume-22/issue-08/086008/Automated-classification-of-cell-morphology-by-coherence-controlled-holographic-microscopy/10.1117/1.JBO.22.8.086008.full; IF 2017 je 2,367, citace 20.

7. Brownlow N, Pike T, **Zicha D**, Collinson L, Parker PJ. Mitotic catenation is monitored and resolved by a PKCepsilon-regulated pathway. Nat Commun [Internet]. 2014;5:5685. Available from: http://www.ncbi.nlm.nih.gov/pubmed/25483024; IF 2014 je 11,470, citace 18.

8. Willenbrock F, **Zicha D**, Hoppe A, Hogg N. Novel automated tracking analysis of particles subjected to shear flow: Kindlin-3 role in B cells. Biophys J. 2013;105(5):1110–22; IF 2013 je 3,832, citace 5.

9. Mallucci L, Lotti L V, Mariani-Costantini R, Wells V, **Zicha D**. Killing of Kras mutant colon cancer cells by the aGBP cytokine, a physiological PI3K inhibitor therapeutically effective in vivo. CANCER Res. 2012 Apr;72(8); IF 2012 je 8,650.

10. Mallucci L, Shi DY, Davies D, Jordan P, Nicol A, Lotti L, Mariani-Costantini R, Verginelli F, Wells V, **Zicha D**. Killing of Kras-mutant colon cancer cells via Rac-independent actin remodeling by the betaGBP cytokine, a physiological PI3K inhibitor therapeutically effective in vivo. Mol Cancer Ther [Internet]. 2012;11(9):1884–93. Available from: http://www.ncbi.nlm.nih.gov/pubmed/22752425; IF 2012 je 5,599, citace 3.

11. Lara R, Mauri F, Taylor H, Derua R, Shia A, Gray C, Nicols A, Shiner RJ, Schofield EE, Bates P, Waelkens E, Dallman M, Lamb J, **Zicha D**, Downward J, Seckl M, Pardo O. Identification of RSK1 as a key modulator of lung cancer metastasis. J Thorac Oncol. 2011 Jun;6(6, 2):S514–5.

12. Lara R, Mauri FA, Taylor H, Derua R, Shia A, Gray C, Nicols A, Shiner RJ, Schofield E, Bates PA, Waelkens E, Dallman M, Lamb J, **Zicha D**, Downward J, Seckl MJ, Pardo OE. An siRNA screen identifies RSK1 as a key modulator of lung cancer metastasis. Oncogene [Internet]. 2011;30(32):3513–21. Available from: http://www.ncbi.nlm.nih.gov/pubmed/21423205; IF 2011 je 6,373, citace 71.

13. D'Amico G, Jones DT, Nye E, Sapienza K, Ramjuan AR, Reynolds LE, Robinson SD, Kostourou V, Martinez D, Aubyn D, Grose R, Thomas GJ, Spencer-Dene B, **Zicha D**, Davies D, Tybulewicz V, Hodivala-Dilke KM. Regulation of lymphatic-blood vessel separation by endothelial Rac1 (vol 136, pg 4043, 2009). DEVELOPMENT. 2010 Jan;137(2):359; IF 2009 je 7,194, citace 39.

14. Lara R, Mauri F, Gray C, Nicols A, Schofield E, Bates P, **Zicha D**, Downward J, Seckl M, Pardo O. An siRNA screen identifies RSK family members as key regulator of lung cancer metastasis. CANCER Res. 2009 May;69(9).

15. Seckl M, Pardo OE, Lara R, Mauri F, Bates P, **Zicha D**, Downward J. RNAi library screen reveals RSK1 as a key regulator of lung cancer metastasis. J Thorac Oncol. 2009 Sep;4(9):S559–60.

16. Hagglund S, Hoppe A, Aubyn D, Cavanna T, Jordan P, Zicha D. Novel shear flow assay provides evidence for non-linear modulation of cancer invasion. Front Biosci (Landmark Ed) [Internet]. 2009;14:3085–93. Available from: http://www.ncbi.nlm.nih.gov/pubmed/19273259, citace 3.

Vývoj a aplikace nové metodiky pro studium nádorové invazivity in vitro s přítomností průtoku media. Zásadní podíl uchazeče, neboť byl školitelem specialistou prvního autora/ PhD studenta.

17. D'Amico G, Jones DT, Nye E, Sapienza K, Ramjuan AR, Reynolds LE, Robinson SD, Kostourou V, Martinez D, Aubyn D, Grose R, Thomas GJ, Spencer-Dene B, **Zicha D**, Davies D, Tybulewicz V, Hodivala-Dilke KM. Regulation of lymphatic-blood vessel separation by endothelial Rac1. Development [Internet]. 2009;136(23):4043–53. Available from: http://www.ncbi.nlm.nih.gov/pubmed/19906871; IF 2009 je 7,194, citace 39.

18. Tattersall D, Scott CA, Gray C, **Zicha D**, Kelsell DP. EKV mutant connexin 31 associated cell death is mediated by ER stress. Hum Mol Genet [Internet]. 2009;18(24):4734–45. Available from: http://www.ncbi.nlm.nih.gov/pubmed/19755382; IF 2009 je 7,386, citace 42.

19. Monypenny J, **Zicha D**, Higashida C, Oceguera-Yanez F, Narumiya S, Watanabe N. Cdc42 and Rac family GTPases regulate mode and speed but not direction of primary fibroblast migration during platelet-derived growth factor-dependent chemotaxis. Mol Cell Biol [Internet]. 2009;29(10):2730–47. Available from: http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2682035&tool=pmcentrez&rendertype=abstract; IF 2009 je 6,057, citace 53.

20. Stanley P, Smith A, McDowall A, Nicol A, **Zicha D**, Hogg N. Intermediate-affinity LFA-1 binds alpha-actinin-1 to control migration at the leading edge of the T cell. EMBO J [Internet]. 2008;27(1):62–75. Available from: http://emboj.embopress.org/content/27/1/62.abstract; IF 2008 je 8,295, citace 97.

21. Mustapa MF, Bell PC, Hurley CA, Nicol A, Guenin E, Sarkar S, Writer MJ, Barker SE, Wong JB, Pilkington-Miksa MA, Papahadjopoulos-Sternberg B, Shamlou PA, Hailes HC, Hart SL, Zicha D, Tabor AB. Biophysical characterization of an integrin-targeted lipopolyplex gene delivery vector. Biochemistry [Internet]. 2007;46(45):12930–44. Available from: http://www.ncbi.nlm.nih.gov/pubmed/17935306; IF 2007 je 3,368, citace 33.

Vývoj a aplikace fluorescenční korelační spektroskopie pro charakterizaci látky používané na GMO. Významný podíl uchazeče.

22. Rooprai HK, Kyriazis I, Nuttall RK, Edwards DR, **Zicha D**, Aubyn D, Davies D, Gullan R, Pilkington GJ. Inhibition of invasion and induction of apoptosis by selenium in human malignant brain tumour cells in vitro. Int J Oncol [Internet]. 2007;30(5):1263–71. Available from: http://www.ncbi.nlm.nih.gov/pubmed/17390030; IF 2007 je 2,295, citace 37.

23. Cavanna T, Pokorná E, Veselý P, Gray C, Zicha D. Evidence for protein 4.1B acting as a metastasis suppressor. J Cell Sci. 2007;120(Pt 4):606–16; IF 2007 je 6,383, citace 30.

Objev nového supresoru metastáz. Zásadní podíl uchazeče, neboť byt hlavním školitelem první autorky/ PhD studentky.

24. Foo SS, Turner C, Schmidt T, Adams S, Compagni A, **Zicha D**, Shani M, Adams RH. Control of blood vessel wall assembly by Eph/ephrin molecules. Vascul Pharmacol. 2006 Sep;45(3):180–1.

25. Cavanna T, Monypenny J, Gray C, Jordan P, Nicol A, Zicha D. Quantitative light microscopy in metastasis research. J Anat. 2006 Sep;209(3):418.

26. Foo SS, Turner CJ, Adams S, Compagni A, Aubyn D, Kogata N, Lindblom P, Shani M, **Zicha D**, Adams RH. Ephrin-B2 controls cell motility and adhesion during blood-vessel-wall assembly. Cell [Internet]. 2006;124(1):161–73. Available from: http://www.ncbi.nlm.nih.gov/pubmed/16413489; IF 2006 je 29,194, citace 349.

27. Hammond GR V, Dove SK, Nicol A, Pinxteren JA, **Zicha D**, Schiavo G. Elimination of plasma membrane phosphatidylinositol (4,5)-bisphosphate is required for exocytosis from mast cells. J Cell Sci. 2006;119(Pt 10):2084–94; IF 2006 je 6,427, citace 54.

28. Jonsson PF, Cavanna T, **Zicha D**, Bates PA. Cluster analysis of networks generated through homology: automatic identification of important protein communities involved in cancer metastasis. BMC Bioinformatics. 2006;7:2; IF 2006 je 3,617, citace 129.

29. Bullock SL, Nicol A, Gross SP, **Zicha D**. Guidance of Bidirectional Motor Complexes by mRNA Cargoes through Control of Dynein Number and Activity. Curr Biol. 2006;16(14):1447–52; IF 2006 je 10,988, citace 101.

30. Domin J, Harper L, Aubyn D, Wheeler M, Florey O, Haskard D, Yuan M, **Zicha D**. The class II phosphoinositide 3-kinase PI3K-C2 beta regulates cell migration by a PtdIns(3)P dependent mechanism. J Cell Physiol. 2005 Dec;205(3):452–62; IF 2005 je 4,362, citace 60.

31. Di WL, Gu Y, Common JE, Aasen T, O'Toole EA, Kelsell DP, Zicha D. Connexin interaction patterns in keratinocytes revealed morphologically and by FRET analysis. J Cell Sci [Internet]. 2005;118(Pt 7):1505–14. Available from: http://www.ncbi.nlm.nih.gov/pubmed/15769851; IF 2005 je 6,543, citace 39.

Aplikace metody FRET pro studium proteinu connexin. Významný podíl uchazeče, neboť byl vedoucím druhého autora/ postdoktoranda.

32. Parsons M, Monypenny J, Ameer-Beg SM, Millard TH, Machesky LM, Peter M, Keppler MD, Schiavo G, Watson R, Chernoff J, **Zicha D**, Vojnovic B, Ng T. Spatially distinct binding of Cdc42 to PAK1 and N-WASP in breast carcinoma cells. Mol Cell Biol [Internet]. 2005;25(5):1680–95. Available from: http://www.ncbi.nlm.nih.gov/pubmed/15713627; IF 2005 je 7,093, citace 82.

33. Gu Y, Di L, Kelsell DP, Zicha D. Quantitative fluorescence resonance energy transfer (FRET) measurement with acceptor photobleaching and spectral unmixing. J Microsc. 2004 Aug;215(2):162–73; IF 2004 je 1,739, citace 71.

34. Kermorgant S, **Zicha D**, Parker PJ. PKC controls HGF-dependent c-Met traffic, signalling and cell migration. EMBO J [Internet]. 2004;23(19):3721–34. Available from: http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=522795&tool=pmcentrez&rendertype=abstract; IF 2004 je 10,492, citace 115.

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36. Kannouche P, Fernandez de Henestrosa AR, Coull B, Vidal AE, Gray C, **Zicha D**, Woodgate R, Lehmann AR. Localization of DNA polymerases eta and iota to the replication machinery is tightly co-ordinated in human cells. EMBO J [Internet]. 2003;22(5):1223–33. Available from: http://www.ncbi.nlm.nih.gov/pubmed/12606586; IF 2003 je 10,456, citace 98.

37. Pokorna E, **Zicha D**, Chaloupkova A, Matouskova E, Vesely P. Two dynamic morphotypes of sarcoma cells, asymmetric stellate and triangle with leading lamella, are related to malignancy. Folia Biol [Internet]. 2003;49(1):33–9. Available from: http://www.ncbi.nlm.nih.gov/pubmed/12630666; IF 2003 je 0,527, citace 6.

38. Zicha D, Dobbie IM, Holt MR, Monypenny J, Soong DYH, Gray C, Dunn GA. Rapid actin transport during cell protrusion. Science [Internet]. 2003;300(5616):142–5. Available from: https://www.science.org/doi/10.1126/science.1082026; IF 2003 je 29,781, citace 135.

Vývoj a aplikace metody FLAP, a objev aktivního transportu monomerického aktinu v nádorových buňkách. Zásadní podíl uchazeče, neboť byl prvním autorem, vedoucím druhého autora/ postdoktoranda a hlavním školitelem čtvrtého autora/ PhD studenta.

39. Bullock SL, **Zicha D**, Ish-Horowicz D. The Drosophila hairy RNA localization signal modulates the kinetics of cytoplasmic mRNA transport. EMBO J. 2003;22(10):2484–94; IF 2003 je 10,456, citace 58.

40. Kermorgant S, **Zicha D**, Parker PJ. Protein kinase C controls microtubule-based traffic but not proteasomal degradation of c-Met. J Biol Chem. 2003;278(31):28921–9; IF 2003 je 6,482, citace 55.

41. Jones GE, **Zicha D**, Dunn GA, Blundell M, Thrasher A. Restoration of podosomes and chemotaxis in Wiskott-Aldrich syndrome macrophages following induced expression of WASp. Int J Biochem Cell Biol [Internet]. 2002;34(7):806–15. Available from: http://www.ncbi.nlm.nih.gov/pubmed/11950596; IF 2002 je 3,044, citace 83.

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43. Dunn GA, Dobbie IM, Monypenny J, Holt MR, **Zicha D**. Fluorescence localization after photobleaching (FLAP): A new method for studying protein dynamics in living cells. J Microsc. 2002;205(1):109–12; IF 2002 je 1,212, citace 45.

44. Peckham M, Miller G, Wells C, **Zicha D**, Dunn GA. Specific changes to the mechanism of cell locomotion induced by overexpression of beta-actin. J Cell Sci [Internet]. 2001;114(Pt 7):1367–77. Available from: http://www.ncbi.nlm.nih.gov/pubmed/11257002; IF 2001 je 6,213, citace 60.

45. Ng T, Parsons M, Hughes WE, Monypenny J, **Zicha D**, Gautreau A, Arpin M, Gschmeissner S, Verveer PJ, Bastiaens PI, Parker PJ. Ezrin is a downstream effector of trafficking PKC-integrin complexes involved in the control of cell motility. EMBO J [Internet]. 2001;20(11):2723–41. Available from: http://www.ncbi.nlm.nih.gov/pubmed/11387207; IF 2001 je 12,459, citace 247.

46. Jones GE, Ridley AJ, **Zicha D**. Rho GTPases and cell migration: measurement of macrophage chemotaxis. Methods Enzym [Internet]. 2000;325:449–62. Available from: http://www.ncbi.nlm.nih.gov/pubmed/11036626; IF 2000 je 2,340, citace 12.

47. Zicha D, Dobbie IM, Gray C. Quantitative analysis of the relationship between intracellular distribution of specific molecules and cell behaviour. Mol Biol Cell. 1999 Nov;10(S):380A; abstrakt – IF 1999 je 7,527.

Metodický příspěvek. Zásadní podíl uchazeče, neboť byl prvním autorem a vedoucím druhého autora/ postdoktoranda.

48. Peckham M, Wells C, **Zicha D**, Dunn GA. Effects of overexpressing beta-actin on crawling myoblast locomotion. Biophys J. 1999 Jan;76(1, 2):A275; abstrakt – IF 1999 je 4,580.

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Objev detailního působení růstového faktoru na pohyb epiteliálních buněk. Významný podíl uchazeče, neboť byl prvním autorem a provedl experimentální práci a velkou část vyhodnocení.

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Výzkum mechanismu u chronického granulomatozního onemocnění. Zásadní podíl uchazeče jako prvního autora, který provedl experimentální práci a většinu vyhodnocení.

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Výzkum mechanismu chemotaxe ukazující možnost nepřímého působení sekundárních faktorů vylučovaných buňkami. Zásadní podíl uchazeče, který jako první autor provedl experimentální činnost a vyhodnocení.

64. Zicha D, Dunn GA. An image-processing system for cell behavior studies in subconfluent cultures. J Microsc Oxford. 1995;179:11–21; citace 70.

Vývoj počítačového systému pro analýzu chování buněk in vitro. Zásadní podíl uchazeče, který jako první autor provedl většinu vývoje a implementace.

65. Dunn G a, **Zicha D**. Dynamics of fibroblast spreading. J Cell Sci. 1995;108:1239–49; citace 84.

66. Pokorna E, Jordan PW, O'Neill CH, **Zicha D**, Gilbert CS, Vesely P. Actin cytoskeleton and motility in rat sarcoma cell populations with different metastatic potential. Cell Motil Cytoskelet [Internet]. 1994;28(1):25–33. Available from: http://www.ncbi.nlm.nih.gov/pubmed/8044847; citace 58.

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Vývoj nové chemotaktické komůrky. Významný podíl uchazeče, který jako první autor provedl experimenty s návrhem komůrky druhého autora.

70. Matouskova E, **Zicha D**, Urbanec P, Vesely P. Quasi-dynamic test of in vitro cell migration developed to characterize dividing cells of spontaneously metastasizing rat sarcomas. Folia Biol [Internet]. 1990;36(2):117–29. Available from: http://www.ncbi.nlm.nih.gov/pubmed/2358100; citace 3.

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Dodatečné informace

Granty

2021-2022 Mentor projektu KinG, „Exploration of the potential for nanostructured hydrogel surface in prevention of cells upregulating cytoskeletal structures and loosing transparency“, VUT Brno

2018-2020 MSCA Operational Programme Research, Development and Education from Ministry of Education, Youth and Sports: “Strategy for personalised cancer treatment based on live-cell dry-mass profiling”, VUT Brno

2005-2008 The Wellcome Trust: “The role of Cx26 in epidermal differentiation and repair” with David Kelsell, Centre for Cutaneous Research, Barts and London School of Medicine and Dentistry, Queen Mary, University of London

2003-2006 EPSRC: “Development of a live-cell image processing system for studying cell adhesion and visual extravasation under live flow conditions” with Andreas Hoppe, Digital Imaging Research Centre, Kingston University, London

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Oponent dizertačních prací

2023 Jana Báčová, Univerzita Pardubice

2016 Manuel Vincenzo Marzullo, CNR-Istituto di Biochimica delle Proteine-IBP Napoli, Itálie

2013 Delphine J Thenet, Kingston University, Velká Británie

2008 Imtiaz Khan, Cardiff University Hospital, Velká Británie

2001 Andreas Hoppe, University of Glamorgan, Velká Británie

Člen komise státní doktorské zkoušky

2021 Michaela Turčanová, FSI VUT

Posudky publikací pro časopisy

Science

Journal of Cell Science

Experimental Cell Research

Journal of Microscopy

Externí jmenování

2016-dosud	Člen Řídicího výboru Czech BioImaging
2008	Honorary Senior Research Associate, Division of Medicine, UCL
2007-dosud	Member of the Editorial Board of the Journal of Microscopy
2002	Member of the Light Microscopy Advisory Board of the Max Planck Institute of Molecular Cell Biology and Genetics, Dresden, Germany
2000	Member of the Light Microscopy Section Committee of the Royal Microscopical Society
1999	Honorary Senior Research Fellow, Department of Anatomy and Developmental Biology, UCL

Účast ve výborech mezinárodních konferencí

2022	Member of Scientific Committee, CEITEC International Seminar Phase in Brno, Czech Republic
2019	19th International European Light Microscopy Initiative Meeting, Brno, Czech Republic
2018	Member of Scientific Committee, CEITEC International Seminar Phase in Brno, Czech Republic
2014	CEITEC International Seminar Phase in Brno, Czech Republic
2007	7th International European Light Microscopy Initiative Meeting on Advanced Light Microscopy, York, UK
2005	Image acquisition, processing and analysis in biomedical research, Anatomical Society of Great Britain and Ireland meeting, London, UK
2004	8th International Symposium on Microscopy of Live Cells in the Post Genomics Era, Hradec Králové, Czech Republic
2003	CYTO2003: Biofluorescent Proteins, Oxford, UK
2002	Microscopy in Time and Space, Annual Light Microscopy Meeting of the Royal Microscopical Society, London, UK
2000	International Symposium Cytokinematics 2000, Hradec Králové, Czech Republic

Zvané přednášky na mezinárodních konferencích

2019 *System for personalised cancer therapy: Dynamic Analysis for Neoplasia Treatment with Explants (DANTE) using Holographic Incoherent Quantitative Phase Imaging (hiQPI)*. 19th International European Light Microscopy Initiative Meeting, Brno, Czech Republic

2018 *System for personalised cancer treatment "DANTE" (Dynamic Analysis for Neoplasia Treatment with Explants) using quantitative phase imaging*. Imaging Principles of Life 2018 – Czech-BioImaging Scientific Conference, Lednice, Czech Republic

2015 *Interferometric system for profiling dry mass of live cells and its potential for personalised cancer treatment*. 8th Annual Global Discovery & Development Innovation Leaders Forum 2015, London, UK

2014 *A system for fast determination of growth and motility of cells in vitro and its application for testing chemotherapeutic agents*. 7th Annual Global Discovery & Development Innovation Leaders Forum 2014, London, UK

2014 *Testing Chemotherapeutic Agents with Interference Microscopy*. CEITEC International Seminar Phase in Brno, Czech Republic

2014 *Quantitative interferometry and its potential for personalised cancer treatment*. Association of Basic Science Teachers in Dentistry 6th European Meeting, Madrid, Spain

2013 *Suitability of 2D and 3D in vitro Assays for Screening with Metastatic Cells*. Cell Based Assays 2013, London, UK

2013 *Potential of interference microscopy in cancer diagnosis and treatment*. 6th Annual Global Discovery & Development Innovation Leaders Forum 2013, London, UK

2012 *Interferometry of cancer cells in tissue culture*. CEITEC International Conference Cell Interaction with Surfaces, Brno, Czech Republic

2012 *Systematic quantitative light microscopy of metastatic cells in vitro – potential for diagnosis*. Bioprocessing & Stem Cells Europe, London, UK

2012 *2D versus 3D quantitative imaging assays in vitro applied to metastatic cells*. European Lab Automation, Hamburg, Germany

2011 *Imaging-based assays for invasion of metastatic cells in vitro*. Cell-Based Assays, London, UK

2011 *Developments in light microscopy applied to dynamic analysis of metastatic cells*. 4th Annual Global Discovery & Development Innovation Leaders Forum 2011, London, UK

2011 *Analysis of Cell Migration Mechanisms by State-of-the-Art Imaging*. International symposium ”Novel Cardiovascular Therapies Based on the Modulation of Cell Migration and Cell Differentiation”, Berlin, Germany

2010 *Quantitative light microscopy employed in analysing motion and chemotaxis of metastatic cells*. Cell-Based Assays, London, UK

2010 *FLAP (Fluorescence Localisation After Photobleaching) and FRET (Fluorescence Resonance Energy Transfer) in sarcoma metastasis*. Life in 4D – Bioimaging in Space and Time, 38th Annual Meeting of the Danish Society for Biochemistry and Molecular Biology, Helsingør, Denmark

2010 *Overcoming the challenge of building complex 3D models in metastasis research*. Non-Clinical Efficacy & Toxicity Assessment 2010, 5th Annual Cell-Based Assays, Cologne, Germany

2009 *Exploring the latest innovations in quantitative light microscopy of live cells: applications in metastasis research*. 5th Annual Global Imaging Summit, Berlin, Germany

2009 *Analysing mechanisms of metastasis.* Cytokinematics, 11th symposium on live cell imaging, Hradec Králové, Czech Republic

2009 *Functional imaging of metastatic cells*. Molecular Imaging in Drug Development, London, UK

2009 *Quantitative light microscopy of sarcoma cells in tissue culture allows identification of a metastasis suppressor – protein 4.1B.* Cellular Imaging & Analysis, Dublin, Ireland

2008 *Quantitative light microscopy in investigating mechanisms of metastasis*. 2nd Imaging in Drug Development, Active Communications International, London, UK

2007 *Quantitative imaging in metastasis research*. Global Imaging Summit: The Application of Molecular and Cellular Imaging in Drug Discovery, Zurich, Switzerland

2007 *Quantitative light microscopy and microarray analysis of rat sarcoma cells provides evidence for protein 4.1B acting as a metastasis suppressor*. 7th International European Light Microscopy Initiative Meeting on Advanced Light Microscopy, York, UK

2006 *Development of quantitative light microscopy techniques at Cancer Research UK London Research Institute*. 6th International Meeting of European Light Microscopy Initiative, Ofir, Portugal

2004 *High content screening at Cancer Research UK London Research Institute*. 3rd European Drug Discovery Meeting, Harlow, UK

2004 *Development and application of time-lapse cell imaging techniques for functional analysis of connexins with disease-related mutations.* 8th International Symposium on Microscopy of Live Cells in the Post Genomics Era, Hradec Králové, Czech Republic

2003 *Time-lapse fluorescence and phase-contrast video microscopy using GFP-fusion proteins: quantitative analysis of motility and chemotaxis*. Cell-Based Assays, Zurich, Switzerland

2003 *Mechanisms of motility and chemotaxis in metastasising sarcoma cells studied by quantitative light microscopy*. 3rd International Meeting of European Light Microscopy Initiative, Barcelona, Spain

2002 *Multi-dimensional quantitative analysis of live cells subjected to engineered tissue culture environment*. Multi-dimensional microscopy & cell-tissue engineering, Guang Zhou, China

2001 *Motility and chemotaxis in metastasising sarcoma cells*. 1st International Meeting and Workshop on Advanced Light Microscopy: European Light Microscopy Initiative, Santa Maria Imbaro, Italy

2000 *Quantitative analysis of chemotaxis in cancer cells*. XIth International Congress of Histochemistry and Cytochemistry, York, UK

2000 *Correlation between dynamic distribution of specific molecules and directional movement in cancer cells*. International Microscopy Conference and Exhibition Micro 2000, London, UK

1996 *Direct observation and quantitative evaluation of chemotaxis*. Cytokinematics'96 International Symposium, Hradec Králové, Czech Republic

1996 *Direct chemotaxis evaluation for sarcoma cells and neutrophil leucocytes*. Statistics and Clinical Practice, 34th ICB seminar, Warszawa, Poland

1994 *Phase stepping interference microscopy in cell behaviour*. 4th European Congress of Cell Biology, Prague, Czech Republic

1992 *Relating intracellular motility with locomotion*. 9th International Congress of Histochemistry and Cytochemistry, Maastricht, Netherlands

1989 *The use of a production system for simulation analysis of tumour cell migration in vitro - Development of a specialized control strategy*. 2nd Eupean Conference on Artificial Intelligence in Medicine, London, UK

1989 *Computer-aided analysis of tumour cell migration in vitro using knowledge-based modelling of image-extracted parameters*. 5th International Conference on Artificial Intelligence and Information-Control Systems of Robots, Štrbské Pleso, Slovakia

1988 *Patterns of in vitro locomotory behaviour characterizing cells of spontaneously metastasizing rat sarcomas*. 14th International Congress of Biochemistry, Prague, Czech Republic

1986 *An application of artificial intelligence to the evaluation of image information about cell behaviour in vitro*. 6th International Colloquium on Microcinematography as a Research Method in Cytology, Hradec Králové, Czech Republic

Další zvané přednášky a semináře

2020 *Challenges of personalised cancer treatment with quantitative phase imaging that could be addressed by AI production rules*. Czech Institute of Informatics, Robotics and Cybernetics (CIIRC CTU), Prague, Czech Republic

2012 *Interferometry at Cancer Research UK London Research Institute*. Brno Technology University, Czech Republic

2011 *Light microscopy approaches addressing mechanisms of complex biological phenomena: quantitative analysis of cell behaviour in metastatic sarcomas*. Rutherford Appleton Laboratory, Harwell Science and Innovation Campus, Didcot, UK

2011 *Advances in the Microscopy of Living Cells*. Euroscicon Discussion Workshop: Cell Culture, London, UK

2010 *FRAP, FLAP and FRET employed in quantitative dynamic analysis of individual sarcoma cells*. UCL, UK

2009 *Behaviour of metastatic cells analysed by light microscopy*. University of Sheffield, UK

2008 *Novel metastasis suppressor, protein 4.1B, identified by quantitative light microscopy and microarrays*. Institute of Molecular Genetics, Academy of Sciences of the Czech Republic, Prague

2007 *Quantitative light microscopy and microarray analysis of metastatic sarcoma cells*. Institute of Cell & Molecular Science, QMUL, London

2007 *Identification of protein 4.1B as a metastasis suppressor using quantitative light microscopy and microarrays*. National Institute for Medical Research, London, UK

2007 *Quantitative light microscopy and microarray analysis of sarcoma cells reveal a novel metastasis inhibitor - protein 4.1B*. Charles University, Prague, Czech Republic

2006 *Metastasising sarcoma cells studied by quantitative light microscopy and microarray analysis*. Kyoto University, Japan

2005 *Motility of metastasising sarcoma cells analysed using FRAP, FLAP and FRET*. Microscopy & Imaging in Tissue Engineering, Royal Microscopical Society meeting, QMUL, London, UK

2005 *Quantitative light microscopy in metastasis research*. Image acquisition, processing and analysis in biomedical research, ASGBI meeting, UCL, London, UK

2005 *Motility of metastasising sarcoma cells*. Carl Zeiss workshop, Bristol, UK

2005 *Quantitative light microscopy techniques in a study of metastasising sarcoma cells*. University of Ulster, Coleraine, UK

2004 *New light microscopy approaches in studying genetically defined complex functions*. Institute of Molecular Genetics, Academy of Sciences of the Czech Republic, Prague

2004 *Motility and chemotaxis of metastasising sarcoma cells studied by quantitative light microscopy*. Confocal microscopy course, York, UK

2003 *Chemotaxis and motility of metastasising rat sarcoma cells*. Albert Einstein College of Medicine, New York, US

2003 *Quantitative time-lapse analysis of cell behaviour in tissue culture*. University of Leeds, UK

2003 *Light Microscopy at Cancer Research UK London Research Institute*. Charles University, Prague, Czech Republic

2002 *Quantitative light microscopy with live tissue culture cells: random walk, chemotaxis and intercellular communication*. Microscience, London, UK

2002 *Motility and chemotaxis of metastasising sarcoma cells*. Gray Institute of Cancer, London, UK

2001 *Combination of contrast enhancement transmission light microscopy and epifluorescence applied to quantitative analysis of chemotaxis in metastasising sarcoma cells.* Scripps, La Jolla, US

2001 *Motility and chemotaxis of metastasising sarcoma cells.* Harvard Medical School, Boston, US

2001 *Digital light microscopy at the ICRF*. Digital Imaging: Microscopy of the Future, Annual Light Microscopy Meeting of the Royal Microscopical Society, London, UK

2001 *Motility and chemotaxis of metastasising sarcoma cells.* Yale University, New Haven, US

2001 *Motility and chemotaxis of metastasising sarcoma cells.* University of North Carolina, Chapel Hill, US

2000 *Light microscopy at Imperial Cancer Research Fund*. EMBL, Heidelberg, Germany

2000 *Analysis of Cdc42 function in the chemotaxis of metastasising sarcoma cells using low light level fluorescence time-lapse microscopy*. University of Essex, Colchester, UK

1998 *TGFβ1 effect on motility and growth of epithelial cells analysed by Digitally recorded interference microscopy with automatic phase-shifting.* Modern Microscopy seminar, Czech Academy of Sciences, Prague

Souhrnné vlastní vyjádření k hodnocení

Jsem přesvědčen, že jsem doporučené požadavky splnil. Ve výuce jsem garantoval dva předměty na FSI po dobu 5 a 4 semestrů, kde jsem zároveň přednášel a vedl praktická cvičení po dobu 6 a 4 semetrů. Mimo to jsem se podílel na organizaci a výuce 63 několikadenních až dvoutýdenních kurzů v zahraničí. Doporučený rozsah výuky je 6 semestrů.

Byl jsem hlavní školitel u 2 diplomových prací a 3 doktorských disertací, a školitel specialista u jedné bakalářské práce a dalších doktorské disertace. Navíc jsem byl vedoucím externí praxe MSc studenta a 3 postdoktorandů s 5 společnými publikacemi v impaktovaných mezinárodních časopisech. Doporučený rozsah vedení je 5 bakalářských nebo diplomových prací.

Doporučená kritéria pro vědeckou práci jsem splnil s přehledem, jelikož jsem dosáhl 51 publikací s IF, z toho v 9 jsem byl hlavní nebo korespondující autor. Doporučený počet je 20 celkem, 10 s IF a 4 s hlavním či korespondenčním autorem. Publikace získaly celkem 4005 citací bez autocitací a doporučený počet je 20.

V příštích letech se plánuje pokračování a další rozšiřování všech uvedených aktivit.