

CURRICULUM VITAE

Name Robert Bajgar
Date of birth April 16, 1975
Appointment status Full-time
Academic positions Assistant Professor
Citizenship Czech

Education and Qualifications

2001-2007 M.D. (Medicinae Universae Doctor), Faculty of Medicine and Dentistry, Palacký University, Olomouc, Czech Republic
1998-2002 Ph.D. (Doctor of Philosophy), Degree in Biophysics and Chemical Physics, Department of Experimental Physics, Palacký University, Olomouc, Czech Republic
1993-1998 M.Sc. (Master of Science), Degree in Biophysics and Chemical Physics, Department of Experimental Physics, Palacký University, Olomouc, Czech Republic

Working experience

2002- present Assistant Professor, Department of Medical Biophysics, Faculty of Medicine and Dentistry, Palacký University, Olomouc, Czech Republic
2012- present Junior Researcher, Institute of Molecular and Translational Medicine, Faculty of Medicine and Dentistry, Palacký University, Olomouc, Czech Republic
2007-2008 Clinician, Department of Nuclear Medicine and PET Centre, University Hospital, Olomouc, Czech Republic
1998-2001 Visiting Research Scholar, Department of Biochemistry and Molecular Biology, Oregon Graduate Institute of Science & Technology, P.O. Box 91000, Portland, OR 97291

Current academic responsibilities

Teaching and Research

Teaching/Contact hours in the current academic year

Over 250 hours of lectures and practical trainings and 60 hours of consultations. Special courses given in the subject of Clinical Biophysics (Biophysical principles of non-invasive and invasive diagnostic and therapeutic methods).

Research interest

Mitochondrial bioenergetics, Potassium transport, Oxygen free radicals, Mechanism of necrosis and apoptosis, Photodynamic therapy of malignant tumours, Photophysical properties of porphyrin sensitizers.

Projects

2005-2011 Co-investigator, MSM6198959216 - Modulation of signalling and regulatory pathways in normal and cancer cells.

2009-2012 Co-investigator, CZ.1.07/2.2.00/07.0054 - Using modern technologies in teaching medicine biophysics and biostatistics at medical faculties of Palacký University Olomouc, Charles University in Hradec Králové and Plzeň

Publications 2007-2011

Abstracts

Krestyn E, Kolarova H, **Bajgar R**, Tomankova K, Macecek J. Photodynamic properties of zinc-5,10,15,20-tetrakis(4-sulphonatophenyl) porphyrine in G361 cells. *XXX. Dny lékařské biofyziky*, p. 34, Jindřichův Hradec, 2007.

Macecek J, Kolarova H, **Bajgar R**, Halek J, Dolezal L, Strnad M. Comparison of light emitting diodes and semiconductor laser induced photodynamic therapy and its combination with sonodynamic therapy of cancer cells. *XXX. Dny lékařské biofyziky*, p. 37, Jindřichův Hradec, 2007.

Tománková K, Kolářová H, **Bajgar R**. Studium fotodynamického a sonodynamického efektu na buněčných liniích pomocí mikroskopie atomárních sil a měření produkce volných radikálů. *XXX. Dny lékařské biofyziky*, p. 58, Jindřichův Hradec, 2007.

Binder S, Tománková K, Kolářová H, **Bajgar R**. Analýza DNA poškození po SDT kombinované s PDT. *XXXII. Dny lékařské biofyziky*, p. 15, Košice, 2009.

Kolářová H, Tománková K, **Bajgar R**, Kolář P, Binder S. Změny v nádorových buňkách indukované fotodynamickou a sonodynamickou terapií. *XXXII. Dny lékařské biofyziky*, p. 40, Košice, 2009.

Kolářová H, Tománková K, **Bajgar R**, Binder S, Kolář P, Strnad M. Photodynamic and sonodynamic treatment of cancer cells. *37th Annual Meeting of the European Radiation Research Society*, p. 167, 2009.

Kolářová H, Tománková K, Binder S, Kolář P, **Bajgar R**, Strnad M. Evaluation of cell damage after photodynamic and sonodynamic treatment. *European Biophysics Journal* 38(1), p. 50, 2009.

Binder S, Kolářová H, Tománková K, **Bajgar R**, Dašková A. Phototoxic effect of porphyrin photosensitisers at different irradiation doses on HeLa cells. *XXXIII. Dny lékařské biofyziky*, p. 5, Brno, 2010.

Binder S, Tománková K, Dašková A., **Bajgar R**, Kolářová H. Phototoxic effect of TPPS4 and MgTPP4 on DNA fragmentation of HeLa Cells. *16th Congress on Alternatives to Animal Testing*, p. 24, Linz, 2010.

Kolářová H, Tománková K, **Bajgar R**, Binder S, Dašková A. In vitro photodynamic effect study on MCF7 cell lines. *16th Congress on Alternatives to Animal Testing*, p. 71-72, Linz, 2010.

Dašková A, Tománková K, Binder S, **Bajgar R**, Pížová K, Mosinger J, Kolářová H. Photodynamic therapy applied on NIH 3T3 and HeLa cell lines. *XXXIV. Dny lékařské biofyziky*, p. 50, Plzeň, 2011.

Binder S, **Bajgar R**, Tománková K, Kolářová H, Dašková A, Pížová K. Utilization of porphyrin sensitizers in tumour cell treatment. *XXXIV. Dny lékařské biofyziky*, p. 58, Plzeň, 2011.

Bajgar R, Kolářová H, Binder S, Dašková A, Pížová K, Tománková K. Immunofluorescence detection of apoptotic signaling biomolecules in human melanoma cells after photodynamic treatment. *XXXIV. Dny lékařské biofyziky*, p. 44, Plzeň, 2011.

Proceeding articles

Nevrelouva P, Kolarova H, **Bajgar R**, Strnad M. In vitro photodynamic effect by phthalocyanine in A549 cell line. *14th International School on Quantum Electronics: Laser Physics and Applications*. Proceeding SPIE 66042B, 1-5, 2007.

Macecek J, Kolarova H, **Bajgar R**, Strnad M. Comparison of light emitting diodes and semiconductor laser inducing photodynamic therapy of cancer cells in vitro. *14th International School on Quantum Electronics: Laser Physics and Applications*. Proceeding SPIE 66042J, 1-5, 2007.

Journal articles

Kolarova H, Nevrelouva P, **Bajgar R**, Jirova D, Kejlova K, Strnad M. In vitro photodynamic therapy on melanoma cell lines with phthalocyanine. *Toxicology in Vitro*, 21(2), 249-253, 2007.

Kolarova H, **Bajgar R**, Tomankova K, Nevrelouva P, Mosinger J. Comparison of sensitizers by detecting reactive oxygen species after photodynamic reaction in vitro. *Toxicology In Vitro*, 21(7), 1287-91, 2007.

Kolarova H, **Bajgar R**, Tomankova K, Krestyn E, Dolezal L, Halek J. In vitro study of reactive oxygen species production during photodynamic therapy in ultrasound pretreated cancer cells. *Physiological Research*, 56(1), 27-32, 2007.

Tomankova K, Kolarova H, Vujtek M, **Bajgar R**. Photodynamic effect on melanoma cells investigated by atomic force microscopy. *General Physiology and Biophysics*, 26(3), 200-6, 2007.

Kolarova H, Nevrelouva P, Tomankova K, Kolar P, **Bajgar R**, Mosinger J. Production of reactive oxygen species after photodynamic therapy by porphyrin sensitizers. *General Physiology and Biophysics*, 27(2), 101-5, 2008.

Kolarova H, Tomankova K, **Bajgar R**, Kolar P, Kubinek R. Photodynamic and sonodynamic treatment by phthalocyanine on cancer cell lines. *Ultrasound in Medicine and Biology*, 35(8), 1397-404, 2009.

Tomankova K, Kolarova H, **Bajgar R**, Jirova D, Kejlova K, Mosinger J. Study of the photodynamic effect on the A549 cell line by atomic force microscopy and the influence of green tea extract on the production of reactive oxygen species. *Annals of the New York Academy of Sciences*, 1171, 549-58, 2009.

Krestyn E, Kolarova H, **Bajgar R**, Tomankova K. Photodynamic properties of ZnTPPS(4), ClAlPcS(2) and ALA in human melanoma G361 cells. *Toxicology In Vitro*, 24(1), 286-291, 2010.

Patents

Bajgar R, Kolářová H. Light source with homogeneity of light field, primarily for induction and monitoring of photodynamic effect in vitro. *Patent n. 302084, Czech Republic, 2010.*

Tomečka M, **Bajgar R**, Kolářová H. Light source with uniform energy density for in vitro induction of photodynamic effect in cells. *Patent n. 302829, Czech Republic, 2011.*

Involvement in professional organisations

2007-present Member of the Czech Medical Chamber – Česká lékařská komora, Lékařská 2/291, 150 00 Praha, www.lkcr.cz

1998- 2000 Member of the Biophysical Society, 9650 Rockville Pike, Bethesda, Maryland 20814-3998, www.biophysics.org