

Rafal Fudala, PhD
Graduate School of Biomedical Sciences
Microbiology, Immunology & Genetics
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Area of Expertise

Dr. Fudala received a Masters degree in Clinical Biochemistry (1999; major B-Cell Leukemia) from the University of Lodz, Poland and Ph.D. in Microbiology and Immunology at the same University (2004; Urinary Tract Infection). Dr. Fudala joined the laboratory at the University of Texas Health Science Center at Tyler, which specialized in studying host reactions to various injuries, including acute lung injuries/acute respiratory distress syndrome (ALI/ARDS) for his first post-doctoral training appointment (2004-2010). For his second post-doctoral training appointment (2010-2012), Dr. Fudala joined the laboratory within the Department of Molecular Biology and Immunology at University of North Texas Health Science Center (UNTHSC) where he was engaged in developing new fluorescence, plasmonics, and nanotechnology techniques in biomedical applications. Currently Dr. Rafal Fudala holds the position of Assistant Professor in the Department of Microbiology, Immunology and Genetics in The Graduate School of Biomedical Science, University of North Texas Health Science Center. Over the last 10 years, Dr. Fudala has worked in the field of fluorescence and probe development. Dr. Fudala is using fluorescence-based methods such as laser confocal microscopy, fluorescence resonance energy transfer (FRET), fluorescence lifetime imaging microscopy (FLIM), fluorescence correlation spectroscopy (FCS) and cellular imaging, as well as polarization-based techniques in his current, ongoing studies. Recently, his interests have expanded to include fluorescence-based methods in molecular and cellular imaging, as well as biochemical/biophysical applications of new nanophotonics processes in the biomedical and diagnostic fields' especially to develop rHDL based delivery systems to cure several cancers.

Qualifications

MS in Biochemistry, University of Łódź
PhD in Microbiology & Immunology, University of Łódź

Recent Publications

Luminescence properties of 5-Bromoindole in PVA films at room temperature: Direct triplet state excitation

Chavez, J., Kimball, J., Ceresa, L., Kitchner, E., Shtoyko, T., Fudala, R., Borejdo, J., Gryczynski, Z. & Gryczynski, I., Feb 2021, In: Journal of Luminescence. 230, 117724.

On the possibility of direct triplet state excitation of indole

Chavez, J., Ceresa, L., Kitchner, E., Kimball, J., Shtoyko, T., Fudala, R., Borejdo, J., Gryczynski, Z. & Gryczynski, I., Jul 2020, In: Journal of Photochemistry and Photobiology B: Biology. 208, 111897.

Erratum: Probing the assembly of HDL mimetic, drug carrying nanoparticles using intrinsic fluorescence (Journal of Pharmacology and Experimental Therapeutics (2020) 373 (113-121) DOI: 10.1124/jpet.119.262899)

Raut, S., Garud, A., Nagarajan, B., Sabnis, N., Remaley, A., Fudala, R., Gryczynski, I., Gryczynski, Z., Dzyuba, S. V., Borejdo, J. & Lacko, A., May 2020, In: Journal of Pharmacology and Experimental Therapeutics. 373, 2, p. 213 1 p.

Probing the assembly of HDL mimetic, drug carrying nanoparticles using intrinsic fluorescences

Raut, S., Garud, A., Nagarajan, B., Sabnis, N., Remaley, A., Fudala, R., Gryczynski, I., Gryczynski, Z., Dzyuba, S. V., Borejdo, J. & Lacko, A., 1 Apr 2020, In: Journal of Pharmacology and Experimental Therapeutics. 373, 1, p. 113-121 9 p.

Photophysical properties of 2-Phenylindole in poly (vinyl alcohol) film at room temperature. Enhanced phosphorescence anisotropy with direct triplet state excitation

Gryczynski, Z., Kimball, J., Fudala, R., Chavez, J., Ceresa, L., Szabelski, M., Borejdo, J. & Gryczynski, I., 1 Jan 2020, In: Methods and Applications in Fluorescence. 8, 1, 014008.

Lipoproteins and the Tumor Microenvironment

Dossou, A. S., Sabnis, N., Nagarajan, B., Mathew, E., Fudala, R. & Lacko, A. G., 2020, *Advances in Experimental Medicine and Biology*. Springer, p. 93-116 24 p. (Advances in Experimental Medicine and Biology; vol. 1272).

Correction: Systemically administered peptain-1 inhibits retinal ganglion cell death in animal models: implications for neuroprotection in glaucoma (Cell Death Discovery, (2019), 5, 1, (112), 10.1038/s41420-019-0194-2)

Stankowska, D. L., Nam, M. H., Nahomi, R. B., Chaphalkar, R. M., Nandi, S. K., Fudala, R., Krishnamoorthy, R. R. & Nagaraj, R. H., 1 Dec 2019, In: Cell Death Discovery. 5, 1, 122.

Spectroscopic method for estimation of MMP-9 enzyme concentration and activity

Synak, A., Serdiuk, I. E., Grobelna, B., Fudala, R., Gryczynski, I. & Bojarski, P., 15 Jul 2019, In: Journal of Molecular Liquids. 286, 110936.

Systemically administered peptain-1 inhibits retinal ganglion cell death in animal models: Implications for neuroprotection in glaucoma

Stankowska, D. L., Nam, M. H., Nahomi, R. B., Chaphalkar, R. M., Nandi, S. K., Fudala, R., Krishnamoorthy, R. R. & Nagaraj, R. H., 2019, In: Cell Death Discovery. 5, 1, 112.

AMCA to TAMRA long range resonance energy transfer on a flexible peptide

Synak, A., Fudala, R., Gryczynski, I., Kułak, L., Shah, S., Serdiuk, I. E., Grobelna, B., Artukowicz, P., Kubicki, A. & Bojarski, P., Nov 2018, In: Dyes and Pigments. 158, p. 60-64 5 p.

Sponsored Projects

Combining the Use of Long-Lived Triangulenium Dyes and Polarization for the Detection of Malignant Melanoma

Fudala, R.

Intramural Research(UNTHSC)

1/04/14 → 31/08/15

Engineering Resonance Energy Transfer for Advanced Immunoassays

Gryczynski, I., Gryczynski, Z. & Fudala, R.

National Science Foundation

1/06/13 → 31/12/17

Interactions between Aquaporin 1 (AQP1) and Actin in Normal and Injured Rat Sciatic Nerve

Fudala, R.

Intramural Research(UNTHSC)

1/05/14 → 31/08/16

Novel Multi-pulse Pumping with Time-gated Detection Technology for Study Dynamics of Molecular Assemblies

Fudala, R. & Stankowska, D.

Intramural Research(UNTHSC)

1/06/17 → 31/05/18

Sequence-Specific Detection of Proteases Using Electronic p-Chips in a Multiplex Format

Fudala, R. & Gryczynski, I.

PharmaSeq, Inc.

1/02/15 → 31/01/17

Sequenece-specific detection of proteases using electronic p-Chips in multiplex format

Fudala, R., MANDECKI, W. & MANDECKI, W.

National Cancer Institute

1/02/15 → 31/01/17

Sequenece-specific detection of proteases using electronic p-Chips in multiplex format

Fudala, R. & MANDECKI, W.

1/02/15 → 31/01/17

Ultrasensitive SPCE technology for early detection and prevention of CVD for underserved and minority populations

Fudala, R. & Gryczynski, I.

NIMHD: Natl Institute on Minority Health

23/09/17 → 31/05/22