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## Education

- 2013 - present** M. Sc. studies at the Faculty of Physics, University of Warsaw
- 2011-2014** B.Sc., Chemistry, University of Warsaw, Faculty of Chemistry
- *Incorporation of modified nucleotides into PLGA – new therapeutic nanoparticles*, thesis supervised by Dr hab. Maciej Mazur (Faculty of Chemistry, UW)
- 2010-2013** B.Sc., Biophysics, University of Warsaw, Faculty of Physics
- *Application of fluorophosphate and its derivatives for obtaining  $^{19}\text{F}$  NMR nucleotide probes*, thesis supervised by Dr Joanna Kowalska (Faculty of Physics, UW)

## Research Interests

- Synthesis and properties of nucleotide molecular probes.
- Nuclear magnetic resonance spectroscopy (NMR), especially  $^{19}\text{F}$  NMR.
- Bioorganic chemistry in medicine.
- Delivery nucleotides into cells.

## Publications and Patents

- „Synthesis and properties of nucleotides bearing a fluorophosphate moiety” Joanna Kowalska, **Marek R. Baranowski**, Anna Nowicka, Renata Kasprzyk, Joanna Zuberek, Jacek Wójcik, Jacek Jemielity, XVIth Symposium on Chemistry of Nucleic Acid Components Cesky Krumlov Czech Republic, Institute of Organic Chemistry and Biochemistry Academy of Sciences of Czech Republic 8-13.06.2014, Volume 14, 2014, ISBN 978-80-86241-50-0
- Joanna Kowalska, Jacek Jemielity, **Marek R. Baranowski**, Anna Nowicka, Reneta Kasprzyk, „Fluorophosphate analogs of mRNA 5' end (cap), their preparation and applications” - Polish patent application, 28.01.2014, Nr P 406893

## Ongoing Research Support

**LIDER/000/14003/L-5/12/NCBR/2013** PI: Kowalska

2014-2017

Grant from National Centre of Science and Development

*New high throughput methods for screening for inhibitors of therapeutically relevant pyrophosphatases based on fluorophosphate analogs of nucleotides.*

Role: Co-investigator

**0149/DIA/2014/43**

PI: Baranowski

2014-2018

Grant from Ministry of Science and Higher Education

*Fluorophosphate nucleotide analogs as molecular probes for studying Fhit (fragile histidine triad protein) tumor suppressor protein*

Role: PI

## Research Experience

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**July 2012** one month training in prof. Jacek Jemielity Group at the University of Warsaw. Faculty of Physics, Warsaw, Poland – synthesis of triphosphate guanosine and adenosine analogs with fluorophosphate moiety.

**August 2012** one month training on prof. Jacek Wójcik supervisor in Institute of Biochemistry and Biophysics, Polish Academy of Science, Warsaw, Poland - teaching on principles in magnetic resonance spectroscopy (NMR).

**July 2013** one month training in prof. Jacek Jemielity Group at the University of Warsaw. Faculty of Physics, Warsaw, Poland – synthesis of nucleotides with fluorophosphates moiety.

**July 2014** one month training in prof. Jacek Jemielity Group at the University of Warsaw. Faculty of Physics, Warsaw, Poland – synthesis of "cap" analogs with fluorophosphate moiety.

## Distinctions and Awards

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- Finalist of the III Edition of "Golden Medal of Chemistry competition" for the best B.Sc. thesis, Organized by the Institute of Physical Chemistry, Polish Academy of Sciences (2013).
- Special Award from DuPont Company in the finals of "Golden Medal of Chemistry" (2013)
- Scholarship of Polish Ministry of Science and Higher Education for superior achievements (2012-2013)
- Scholarship at Faculty of Physics at University of Warsaw (2010-2012) and at Faculty of Chemistry (2012-2014)
- Scholarship of Rector of University of Warsaw for the Best Students (2010-2011, 2011-2012, 2012-2013, 2013-2014)

## Conferences

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- Kasprzyk R., Baranowski M. R., Osówniak A., Kowalska J., Jemielity J., *Synthesis of fluorophosphate analogs of nucleoside mono-, di- and triphosphates*, **poster**, 13th Tetrahedron Symposium, Amsterdam.
- Kowalska J., Baranowski M. R., Kasprzyk R., Osówniak A., Jemielity J., *Synthesis of Nucleotides Bearing Fluorophosphate Moiety and Their Non Hydrolyzable Analogs Useful Probes for NMR Studies*, **poster**, International Round Table on Nucleosides, Nucleotides & Nucleic Acids, Montreal (5-9.08.2012).
- Baranowski M. R., Kasprzyk R., Osówniak A., Kowalska J., Jemielity J., *Synteza fluorofosforanowych analogów mono-, di- i trifosforanów nukleozydów*, **poster**, 55. PTChem-SITPChem Symposium, Białystok (16-20.09.2012).
- Kowalska J., Wojtczak B., Strenkowska M., Ziemiak M., Baranowski M.R., Dąbrowski-Tumański P., Fac K., Kasprzyk R., Nowakowska M., Osówniak A., Tomaszewicz Z., Ubych K., Walczak S., Wanat P., Warmiński M., Jemielity J., *Chemicznie modyfikowane analogi nukleotydu jako różnorodne narzędzia do badań biofizycznych i biochemicznych oraz potencjalne terapeutyki*, **poster**, I Ogólnopolskie Sympozjum Interdyscyplinarne Inter-Mix 2013, Pułtusk (21-24.03.2013).
- Baranowski M., Kasprzyk R., Osówniak A., Kowalska J., Jemielity J., *Fluorofosforanowe analogi nukleotydu, jako narzędzia do badania enzymów o aktywności pirofosfataz*, **poster**, Ogólnopolskie Studenckie Mikrosympozjum Chemików „Chemia-przyszłość zaczyna się dziś” II edycja, Białystok (17-19.05.2013).
- Baranowski M.R., Kasprzyk R., Osówniak A., Kowalska J., Jemielity J., *Fluorophosphate nucleotide analogs as a useful tool to study enzyme activity of pyrophosphatase*, **poster**, II International Conference of Biophysics Students, Kraków, Poland (24-26.05.2013).
- Baranowski M.R., Kasprzyk R., Osówniak A., Wójcik J., Kowalska J., Jemielity J., *Synthesis of fluorophosphate nucleotide analogues - useful compounds for enzymatic and <sup>19</sup>F NMR studies*, **poster**, 14<sup>th</sup> Tetrahedron Symposium, Vienna, Austria (25-28.06.2013).
- Baranowski M.R., Gapińska M., Kowalska J., Jemielity J., *Synteza, właściwości i potencjalne zastosowania nukleotydu adeninowych zawierających resztę fluorofosforanową*, **poster**, 56. PTChem-SITPChem Symposium, Siedlce (16-20.09.2013).
- Baranowski M. R., Kasprzyk R., Osówniak A., Kowalska J., Jemielity J., *Zastosowanie fluorofosforanu i jego pochodnych do otrzymywania nukleotydowych sond do badań <sup>19</sup>F NMR*, **oral communication**, 56. PTChem-SITPChem Symposium, Siedlce (16-20.09.2013).

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- Marek R. Baranowski, Anna Nowicka, Renata Kasprzyk, Jacek Wojcik, Joanna Kowalska and Jacek Jemielity, *(oligo)nucleotides bearing fluorophosphate moiety – synthesis, biological properties and <sup>19</sup>F NMR studies*, **poster**, XXI Round Table on Nucleosides, Nucleotides and nucleic acids, chemical biology of nucleic acids, Poznań, Polska (24-28.08.2014).
  - Anna Nowicka, Marek Baranowski, Marcin Ziemniak, Jacek Jemielity, Joanna Kowalska, *Fluorescence-based techniques for exploring inhibitors of cap-dependent processes and drug discovery*, **poster**, XXI Round Table on Nucleosides, Nucleotides and nucleic acids, chemical biology of nucleic acids, Poznań, Polska (24-28.08.2014).
  - Marek R. Baranowski, Anna Nowicka, Joanna Kowalska, Jacek Jemielity, *Nukleotydy znakowane fluorem w łańcuchu fosforanowym jako sondy molekularne w badaniach enzymatycznych*, **poster**, 57 Zjazd PTChem i SITPChem, Częstochowa, Polska (14-18.09.2014).
  - Anna Nowicka, Marek R. Baranowski, Joanna Kowalska, Jacek Jemielity, *Opracowanie nowej metody poszukiwania inhibitorów enzymu Dcps*, **poster**, 57 Zjazd PTChem i SITPChem, Częstochowa, Polska (14-18.09.2014).
  - Paulina Głowala, Marek Baranowski, Maciej Mazur, *"Magnetyczne, polistyrenowe mikrocząstki core-shell znakowane pirenem"*, **poster**, VIII Kopernikańskie Seminarium Doktoranckie, Chomiąża Szlachecka k. Żnina, 25-27.06.2014.
  - Paulina Głowala, Marek Baranowski, Maciej Mazur, *"Magnetic polystyrene core-shell microbeads tagged with pyrene"*, **poster**, BioTech Conference, Gdańsk; 04-05.07.2014.

## Other activities

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July 2011 member of Student Scientific Association "Nukleotydy"