

Małgorzata Anna Marć, Master of Pharmacy

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39-200 Dębica, Poland**

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Education

- 10.2013-03.2018 **PhD studies in Pharmaceutical Sciences** (estimated term of PhD defense – 2019). Faculty of Pharmacy, Department of Technology and Biotechnology of Drugs, **Jagiellonian University Medical College**, Kraków, Poland.
Dissertation subject: *'Pharmaceutical profile evaluation of selected selenoorganic compounds and hydantoin derivatives with potential use in the therapy of cancer'*
- 10.2006 - 04.2012 **Pharmaceutical studies** at:
-Jagiellonian University, Faculty of Pharmacy, Poland (main university).
-Università della Calabria, Italy, Faculty of Pharmacy (Erasmus, 6 months).
- 09.2011 **Master of Pharmacy** at Jagiellonian University Medical College, Faculty of Pharmacy, Kraków, Poland. Thesis at Dept. Technology and Biotechnology of Drugs. Thesis: *'Vibrio harveyi test in the evaluation of anti/mutagenic properties of compounds with anticonvulsant activity'*
- 09.2002 - 05.2005 I High School King Władysław Jagiełło in Dębica
- 09.2000 - 06.2002 Music School (II degree in Dębica)
- 09.1994 - 06.2000 The State Krzysztof Penderecki Music School in Dębica (I degree)

Working experience

- 01.2019- **Research assistant** at University of Szeged, Department of Inorganic and Analytical Chemistry
- 04.2018 – 07.2018 **Pre-doctoral researcher** in pharmaceutical biotechnology, metabolism and toxicology (scientific academic internship) at Instituto de Ciencia y Tecnología de Alimentos y Nutrición (ICTAN), Departamento de Metabolismo y Nutrición (DMN), CSIC, Madrid, (under supervision of Dr. Sonia Ramos Rivero)
- 10.2013 – 03.2018 **Pre-doctoral researcher** in ADME Tox, Jagiellonian University, Medical College, Kraków, Poland (under supervision of Prof. Jadwiga Handzlik and Dr Gniewomir Latacz)
- 01.2017 – 07.2017 **Pre-doctoral researcher** at Universidad Complutense de Madrid, Departamento de Farmacología (Farmacognosia y Farmacología Experimental), Spain (Erasmus+ studies framework, scientific PhD internship under supervision of Prof. Olga María Palomino Ruiz-Poveda), intensive Spanish language course
- 01.2015 - 06.2015 **Pharmacist** at Austrian Pharmacy in Kraków, Poland

09.2012 - 04.2013	Pharmacist at Mediq Pharmacy in Dębica, Poland
10.2011 - 04.2012	Pharmaceutical professional training at Krakowska Pharmacy, Poland
31.01.2011 - 31.07.2011	Laboratory practical Socrates / Erasmus scholarship stay at Università della Calabria, Rende, Italy, with intensive Italian language courses at Università per Stranieri di Perugia and at Università della Calabria
02.2011 - 31.07.2011	Participation in research projects directed by Prof. Marcello Maggiolini at Laboratory of Molecular Pathology, Department of Pharmaco-Biology, Università della Calabria. Research in the transduction pathways of hormone-dependent progression of tumors. General laboratory practice , training with molecular methods
2007-2011	President of the Students Circle of Pharmaceutical Biotechnology
07.2009	Participation in the Scientific Expedition to Lake Baikal organized by Jagiellonian University Medical College to gather information about the medicinal properties of Siberian plants.

Languages

English:	Advanced, C1 level
Italian:	Advanced, C1 level, certificate Celi 3
Spanish:	Advanced, C1 level
Polish:	Mother tongue, native proficiency

Research techniques handled

alternative tests: evaluation of **safety** (anti/mutagenicity tests) of new drug candidates (*Vibrio harveyi* and Ames tests - traditional and microplate); studies of **metabolic pathways:** microbiological model with *Cunninghamella* fungi and biochemical models with human, rat or mice liver microsomes

in vitro tests: bacterial, human (normal and cancer), animal and fungal **cell culture techniques**, cytotoxic potential evaluation (**MTT**, **MTS** and **crystal violet** method), **DCFH-DA** intracellular ROS formation assay; **drug combinational assays** with doxorubicin; **Pgp - Glo** assay test; **chemopreventive** activity of new drug candidates; analysis of the **glucose uptake** by using a fluorescent method (2-NBDG probe); study of the monocyte adhesion to EAhy926 by labelling the monocytes with a fluorescence probe; determination of creatinine and uric acid levels in urine

instrumental techniques: analysis of the results of **LC-MS/MS** (metabolism, fragmentation); **capillary electrophoresis**

physicochemical properties determination: lipophilicity, solubility (**UV spectrometry**), chemical **stability** tests (using TLC monitoring), permeability experiments (**PAMPA** assay); antioxidant properties (**DPPH** free radical scavenging activity)

pharmacological and bromatological tests on obese Zucker diabetic rats

molecular biology methods: DNA and RNA isolation, protein extraction, Western blotting, PCR, RT-PCR method, ChIP procedure, immunofluorescence methods, DNA sequencing, molecular cloning and expression of cloned genes in *E. coli* cells

Publications, conferences, congress reports

First author of review article: Nucleic acid vaccination strategies against infectious diseases, Expert Opinion on Drug Delivery., **2015**,12(12):1851-65. doi: 10.1517/17425247.2015.1077559. **IF 2015 = 5.434**

First author of original research article: *In Vitro* Biotransformation, Safety, and Chemopreventive Action of Novel 8-Methoxy-Purine-2,6-Dione Derivatives, Applied Biochemistry and Biotechnology, **2018**, 184(1):124-139, doi: 10.1007/s12010-017-2527-z. **IF 2016 = 1.751**

Co-author of 7 original publications:

The Anticancer and Chemopreventive Activity of Selenocyanate-Containing Compounds, Current Pharmacology Reports, **2018**, 4: 468, doi: <https://doi.org/10.1007/s40495-018-0160-3>

Aromatic Selenocyanates as a New Class of Non-Mutagenic Antimicrobial Selenium Compounds with Pronounced Activity against Multidrug Resistant ESKAPE Bacteria, <https://www.preprints.org/manuscript/201802.0142/v1>

The role of aryl-topology in balancing between selective and dual 5-HT₇R/5-HT_{1A} actions of 3,5-substituted hydantoins, Medicinal Chemistry Communication, **2018**, 9, 1033-1044, doi: 10.1039/C8MD00168E, **IF = 2.608**

Selenides and Diselenides: A Review of Their Anticancer and Chemopreventive Activity, Molecules, **2018** Mar 10;23(3). pii: E628. doi: 10.3390/molecules23030628., **IF 2016 = 2.861**

Selenoesters and selenoanhydrides as novel multidrug resistance reversing agents: A confirmation study in a colon cancer MDR cell line, Bioorganic & Medicinal Chemistry Letters, **2017**, 27(4):797-802. doi: 10.1016/j.bmcl.2017.01.033., **IF 2016 = 2.486**

Selenazolinium Salts as "Small Molecule Catalysts" with High Potency against ESKAPE Bacterial Pathogens, Molecules, **2017** Dec 8;22(12). pii: E2174. doi: 10.3390/molecules22122174., **IF 2016 = 2.861**

Identification of selenocompounds with promising properties to reverse cancer multidrug resistance, Bioorganic & Medicinal Chemistry Letters., **2016**, 26(12):2821-4. doi: 10.1016/j.bmcl.2016.04.064. **IF 2015 = 2.486**

First author of review article in polish: Characteristics and clinical applications of the recent prodrugs, Farmacja Polska, **2015**, 71(7): 461-468, p-ISSN: 0014-8261

First author of 7 posters: 'A comparison of safety profiles for two groups of anticancer agents: selenoesters and hydantoins' (oral poster presentation in English), 'Biological activity evaluation in a group of new 8-methoxy-purine-2,6-diones' (poster presentation in English), 'Safety and metabolism of new 8-methoxy-purine-2,6-dione derivatives with analgesic and anti-inflammatory activity', 'Cunninghamella biotransformation model on new 8-methoxy-purine-2,6-dione derivatives with analgesic and anti-inflammatory activity', 'Safety of new 8-methoxy-1,3-dimethyl-2,6-dioxo-purin-7-yl derivatives with anti-inflammatory and analgesic activity', 'Biotransformacja *in vitro* nowych pochodnych 8-metoksypuryno-2,6-dionów', 'DNA vaccines - breakthrough, or just the scientific advancements in vaccinology?' (oral presentation)

Co-author of 3 posters: 'Selenazolinium salts with high potency against ESKAPE pathogens - a novel scaffold for the development of antimicrobial drug candidates', 'Porównanie właściwości anty/mutagennych w grupie pochodnych aminoalkanoli przy użyciu testu Ames oraz mikropłytkowego testu UmuC Easy CS', 'Estimation of the lipophilicity of bupranolol and its analogues'

First author of abstracts and 3 oral presentations in English: 'Pharmaceutical profile of selenoester derivatives with noteworthy anticancer activity', 'Anticancer and neuroprotective effect evaluation

for new organic selenocarbonyl derivatives ', 'Pharmaceutical profile of selenoesters derivatives with significant anticancer action'

Computer skills:

Windows, Microsoft Office Microsoft Excel Molinspiration	Microsoft Power Point, Microsoft Word CorelDRAW, BIOVIA Draw,	ChemDraw, MetaSite, OSIRIS, GraphPad	SwissADME Chemicalize Lazar toxicity predictor Database search (Pubmed...)
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Driving license category B

Interests:

pharmaceutical biotechnology, metabolism, alternative tests, nucleic acid vaccination,	molecular biology, chemistry of drugs, pharmacognosy, pharmacology,	technology of drugs, microbiology, travels, languages, playing musical instruments
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Workshops and training

Nanotechnology & Applications of New Materials
At the crossroads of stem cell biology and omics technology, Workshop
Evidence - based medicine and the truths and myths in medicine
Practical aspects of design, monitoring and analysis of randomized clinical experiments
Intellectual property protection
A new look at senior age - from the medical and psychosocial point of view
Innovative technologies in biomedicine
Processing and protection of personal data in research projects
Art of communication
Proper implementation of projects financed from external sources
Evidence-based medicine (EBM): the new strategy of the registration of the drug to the health policy
Modern methods of organic chemistry in drug research
Advanced spectroscopic methods in the studies of new drugs
Methods of obtaining funds for individual research
Relationships master - student: tutoring
How well do you design a course? (Science and nature)