AKADEMIA WYCHOWANIA FIZYCZNEGO I SPORTU
IM. JĘDRZEJA ŚNIADECKIEGO W GDAŃSKU
ZAKŁAD BIOLOGII MOLEKULARNEJ
dr hab. AGNIESZKA MACIEJEWSKA-SKRENDO, prof. AWFiS

Curriculum vitae

dr hab. Agnieszka Maciejewska-Skrendo, prof. AWFiS

Date of birth: 22.02.1979
Place of birth: Szczecin, Poland

Research profile

My research activity is focused on searching for:

- genetic basis of physical performance phenotypes (including endurance capacity, muscle performance, physiological attitude to train and ability of tendons and ligaments to withstand injury), genetic determinants of athletes' mental skills and genetic background of pain tolerance analyzed on the genomic level
- gene expression changes observed in response to training on transcriptomic level

Keywords: Sports genetics, Molecular genetics, Molecular biology, Molecular diagnostic techniques, Polygenic profiles, Expression profiles

Academic Degrees

1. Postdoctoral degree in Physical Culture Sciences

- Obtained on 08.07.2014 at the Faculty of Physical Education, the Jerzy Kukuczka Academy of Physical Education in Katowice
- Monothematic cycle of scientific publications entitled: "The polymorphism of *PPAR* genes encoding Peroxisome-Proliferator Activated Receptors and other associated genes in elite athletes"
- Reviewers: prof. dr hab. Jędrzej Antosiewicz (Gdansk University of Physical Education and Sport), prof. dr hab. Cezary Żekanowski (Mossakowski Medical

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Research Centre Polish Academy of Sciences, Józef Piłsudski University of Physical Education in Warsaw), dr hab. Piotr Gronek (Poznań University of Physical Education)

2. Doctor of Philosophy (PhD) in Biological Sciences

- Obtained on 12.01.2006 at the Faculty of Natural Sciences, University of Szczecin,
- Doctoral dissertation entitled: "Phylogenetic analysis and genetic polymorphism in *Paramecium jenningsi*"
  Thesis supervisor: prof. dr hab. Bogumiła Skotarczak (Department of Genetics, University of Szczecin)
- Reviewers: prof. dr hab. Ewa Przyboś (Institute of Systematics and Evolution of Animals, Polish Academy of Science in Cracow) and prof. dr hab. Stanisław Kazubski (Institute of Zoology, Polish Academy of Science in Warsaw)

3. Master of Science (MSc) in Biological Sciences

- Obtained on 04.06.2003 at the Faculty of Natural Sciences, University of Szczecin,
- Master's dissertation entitled: "RAPD markers in *Paramecium jenningsi*"
- Thesis supervisor: prof. dr hab. Bogumiła Skotarczak (Department of Genetics, University of Szczecin)

Academic and Research Career - employment in academic units

form 01.10.2019

Gdansk University of Physical Education and Sport, Faculty of Physical Culture, Department of Molecular Biology

- position: tenured research-and-teaching Associate Professor

06.11.2018 – 30.09.2019

Gdansk University of Physical Education and Sport, Faculty of Physical Education, Department of Molecular Biology

- position: tenured research-and-teaching Associate Professor

01.10.2017 – 05.11.2018

Gdansk University of Physical Education and Sport, Faculty of Physical Education, Department of Natural Sciences

- position: tenured research-and-teaching Associate Professor

02.01.2017 – 30.09.2017

University of Szczecin, Faculty of Physical Education and Health Promotion

- position: Disciplinary Proceedings Representative

16.11.2016 – 30.09.2017

University of Szczecin, Faculty of Physical Education and Health Promotion, Centre for Human Structural and Functional Research

- position: Coordinator of Centre for Human Structural and Functional Research

01.10.2016 – 30.09.2017

University of Szczecin, Faculty of Physical Education and Health Promotion, Department of Biological Bases of Physical Culture

- position: Head of Department of Biological Bases of Physical Culture

09.05.2016 – 30.09.2017

Gdansk University of Physical Education and Sport, Faculty of Physical Education, Department of Natural Sciences

- position: tenured research Associate Professor

21.01.2016 – 01.10.2016

University of Szczecin, Faculty of Physical Education and Health Promotion, Centre for Human Structural and Functional Research

- position: Head of Genetics Laboratory

01.10.2015 – 30.09.2017

University of Szczecin, Faculty of Physical Education and Health Promotion, Department of Biological Bases of Physical Culture

- position: tenured research-and-teaching Associate Professor

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01.12.2012 – 30.09.2015

University of Szczecin, Faculty of Physical Education and Health Promotion, Department of Biological Bases of Physical Culture

- position: tenured research-and-teaching Assistant Professor

01.04.2006 – 31.11.2012

University of Szczecin, Faculty of Natural Sciences/Faculty of Biology, Department of Genetics

- position: tenured research-and-teaching Assistant Professor

23.02.2004 – 31.03.2006

University of Szczecin, Faculty of Natural Sciences, Department of Genetics

- position: tenure-track research-and-teaching Assistant

Academic record

My academic record contains 123 positions: 90 articles published in journals indexed by Thomson Reuters Database (with Impact Factor), 14 articles published in international and Polish journals (without Impact Factor), 1 monography, and 18 chapter in international monograph and a national scale.
The overall Impact Factor of the above works is 160,43 rating scale, 2650 points of Polish Ministry of Science and Higher Education. The number of citations of my works from Web of Science is 951, h-index = 19.
Original papers are mostly research works on widely understood use of genetic testing in sport – mainly genetic background of predisposition to practice specific sports discipline and genetic background of an increased risk of soft tissue injuries.
The results of my research have been presented during numerous congresses, conventions and conferences, both national and international.

Research projects

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The vast majority of my scientific works that have been published is the result of research grants. The most important projects financed by way of national and international competitions, which I was the main investigator are as follows:

1. Project title: „**Genes expression changes observed in response to high intensity exercises in trained athletes and non-trained controls"** (2018-2019)

- ID number: 2018/02/X/NZ7/00081
- Principal investigator: dr hab. Agnieszka Maciejewska-Skrendo, Gdansk University of Physical Education and Sport
- Source of funding: Polish National Science Centre (NCN)3.

2. Project title: **"Analyzing genotypes, haplotypes and methylation levels of chosen genes in context of the dopaminergic theory of motivation and thrill seeking in athletes training various sports"** (2017-2020)

- ID number: UMO-2016/21/B/NZ7/01068
- Principal investigator: dr hab. Paweł Cięszczyk, Gdansk University of Physical Education and Sport
- Main research tasks: principal researcher
- Source of funding: Polish National Science Centre (NCN)3.

3. Project title: **"Centre for Human Structural and Functional Research"** (2013-2017)

- ID number: UDA-RPZP.01.02.02-32-001/14-00
- Main research tasks: coordinator of the project
- Source of funding: Regional Operational Programme for Zachodniopomorskie Voivodeship

4. Project title: **"Genetic backgrounds of training achievements"** (2015-2016)

- ID number: 2015.058/40/BP/DWM
- Principal investigator: dr Piotr Żmijewski, Institute of Sport
- Main research tasks: principal researcher
- Source of funding: Ministry of Sport and Tourism of the Republic of Poland

5. Project title: "**Effects of polymorphisms of selected genes (*ACE*, *AMPD1*, *ATP1A2*, *HIF1*, *PPARD*, *NRF1*, *VEGF*, *PPARG*, *ACTN3*, *IGF1*, *IL5*, *TNF*) on the characteristics and extent of the body's adaptive response to training**" (2013-2016)

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- ID number: UMO-2012/07/B/NZ7/01155
- Principal investigator: dr. Agata Leońska-Duniec, Faculty of Physical Culture and Health Promotion, University of Szczecin
- Main research tasks: principal researcher
- Source of funding: Polish National Science Centre (NCN)

6. Project title: "**Polymorphisms of selected genes of highly skilled athletes as the basis for the construction of genetic profiles for pre-selection of players**" (2008-2011)

- ID number: N N404 166334
- Principal investigator: dr Marek Sawczuk, Department of Genetics, Faculty of Natural Sciences, University of Szczecin
- Main research tasks: principal researcher
- Source of funding: Polish Ministry of Science and Higher Education (MNiSW)

7. Project title: **"Application of highly specific Reverse Line Blot (RLB) technique for differentiation of pathogenic protozoans isolated form natural water bodies in West Pomerania"** (2008-2011)

- ID number: N N404 248635
- Principal investigator: prof. dr hab. Bogumiła Skotarczak, Department of Genetics, Faculty of Natural Sciences, University of Szczecin
- Main research tasks: researcher
- Source of funding: Polish Ministry of Science and Higher Education (MNiSW)

8. Project title: **"Genetic analyses of structure and relationships in complex species *Paramecium aurelia* (Ciliophora, Protista) by classical and molecular methodes"** (2004-2006)

- ID number: 2P04C 01126
- Principal investigator: prof. dr hab. Ewa Przyboś, Institute of Systematics and Evolution of Animals, Polish Academy of Science in Cracow
- Main research tasks: principal researcher
- Source of funding: State Committee for Scientific Research (KBN)

9. Project title: **"*Paramecium jennningsi* – phenotypic, genetic and phylogenetic analyses of species structure"** (2002-2004)

- ID number: 3P04C 099 22

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- Principal investigator: prof. dr hab. Bogumiła Skotarczak, Department of Genetics, Faculty of Natural Sciences, University of Szczecin
- Main research tasks: principal researcher
- Source of funding: State Committee for Scientific Research (KBN)

10. Project title: **"Improvement of detection methods and risk assessment in animal borne diseases and food contamination (borreliosis in dogs and humans)"** (2002-2005)

- ID number: PCZ 014-26
- Principal investigator: prof. dr hab. Bogumiła Skotarczak, Department of Genetics, Faculty of Natural Sciences, University of Szczecin
- Main research tasks: researcher
- Source of funding: State Committee for Scientific Research (KBN)

Academic training sessions

1. Country: **Czech Republic**
- Institution: Charles University in Prague
- Type of research stay: Visiting professor in the field of applying genomics in the biochemistry and physical performance
- Duration: 18.06.2018 – 07.11.2018

2. Country: **Ukraine**
- Institution: Vasyl Stefanyk Precarpathian National University
- Type of research stay: Visiting professor in the field of methodology of scientific research and designing of physiological research
- Duration: 31.07.2015 - 31.08.2015

3. Country: **Poland**
- Institution: The Jerzy Kukuczka Academy of Physical Education in Katowice, Department of Physiological and Medical Sciences
- Type of research stay: Academic Training in the laboratory of the Exercise Physiology Laboratory
- Duration: 21.05.2012 - 25.05.2012

4. Country: **Poland**

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- Institution: Gdansk University of Physical Education and Sport
- Type of research stay: Academic training in the field of methodology of physiological research in sport
- Duration: 16.01.2012 - 27.01.2012

Achievements in academic supervision

- *As a supervisor of doctoral dissertations:*

1. author: **Piotr Szumiło**
   the title of doctoral dissertation: "The use of *ACE* I/D and *ACTN3* R577X polymorphisms in sports genetic tests"

2. author: **Maciej Buryta**
   the title of doctoral dissertation: "The association between variation of genes encoding Peroxisome Proliferator-Activated Receptors and their coactivators and post-training response in women"

3. author: **Monika Michałowska-Sawczyn**
   the title of doctoral dissertation: "Selected polymorphisms of *COL5A1* gene as potential markers for genetic predisposition to the occurrence of anterior cruciate ligament injuries in football" (*as* ***assistant supervisor***)

- *As a reviewer:*

1. The doctoral dissertation of **Filip Humpa**, the candidate for the doctoral degree in Physical Culture Sciences, entitled "Influence of knee joint extensor training on its stability in people after reconstruction of the anterior cruciate ligamnet". Supervisor: professor Krzysztof Ficek, The Jerzy Kukuczka Academy of Physical Education in Katowice, 2019.

2. The doctoral dissertation of **Katarzyna Pawlak**, the candidate for the doctoral degree in Medical Sciences, entitled "The role of *IGF2* and *GCK* genes polymorphisms in

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pathogenesis of Gestational Diabetes Mellitus". Supervisor: professor Sylwia Słuczanowska-Głąbowska, Pomeranian Medical University in Szczecin, 2019.

3. The doctoral dissertation of **Michał Czerewaty**, the candidate for the doctoral degree in Medical Sciences, entitled "Expression of cancer testis genes in human gastric cancers". Supervisor: professor Maciej Tarnowski, Pomeranian Medical University in Szczecin, 2018.

4. The doctoral dissertation of **Monika Nawrocka**, the candidate for the doctoral degree in Physical Culture Sciences, entitled "The optimization of training process in race walking with use of mathematical modelling". Supervisor: professor Adam Maszczyk, The Jerzy Kukuczka Academy of Physical Education in Katowice, 2018.

5. The doctoral dissertation of **Krzysztof Kamiński**, the candidate for the doctoral degree in Medical Sciences, entitled "The role of adiponectin and leptin genes polymorphisms in pathogenesis of coronary artery disease". Supervisor: professor Andrzej Pawlik, Pomeranian Medical University in Szczecin, 2018.

6. The doctoral dissertation of **Damian Malinowski**, the candidate for the doctoral degree in Medical Sciences, entitled "The role of IL21 and IL23 genes polymorphisms in pathogenesis of rheumatoid arthritis". Supervisor: professor Andrzej Pawlik, Pomeranian Medical University in Szczecin, 2016.

7. The doctoral dissertation of **Marta Bichowska**, the candidate for the doctoral degree in Physical Culture Sciences, entitled "The correlation between high intensity interval training with performance of young soccer players". Supervisor: professor Zbigniew Jastrzębski, Gdansk University of Physical Education and Sport, 2015.

- ***As a tutor of the trainees:***

1. Internship of Anna Cwynar, PhD, at the Centre for Human Structural and Functional Research at University of Szczecin (February 2017). The main purpose of the internship was training in molecular techniques.

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2. Internship of Elżbieta Piskorska, PhD, at the Centre for Human Structural and Functional Research at University of Szczecin (February 2017). The main purpose of the internship was training in molecular techniques.

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