

Prospective supervisor's form

Name of the supervisor: Dorota Martysiak-Żurowska

Academic title: PDh, DSc

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Discipline: chemical sciences [NCh] none

Optional

Key words (obligatory four key words describing research interests / expertise):

human milk

food analysis

nutrients

food technology

Bibliometric indicators

1. Number of journal publications in WoS/ Scopus 24/23

2. Citations excluding self-citations WoS 193 Scopus 195

3. Hirsch index WoS 7 Scopus 7

1. The number of PhD students who have graduated under your supervision: 1

2. The number of PhD students currently supervised:

a. within the current doctoral school 0

b. within doctoral studies (previous system) 0

3. Are you currently accepting new PhD students:

a. Polish Yes/No Yes

b. Foreign Yes/No Yes

Prospective supervisor's form

Research interests or topics offered for PhD research (no more than 2000 characters)ⁱⁱ

The influence of neonatal gut microbiome on the digestibility and absorption of nutrients by the infant. Human milk is recommended as the optimal nutrient source for infants. In addition to the ingredients necessary to satisfy the needs of the child (nutritional, immune), human milk also contains ingredients that facilitate digestion of food (digestive enzymes) and probiotic ingredients (oligosaccharides) conditioning the development of infants microflora. Scientific studies carried out in recent years have shown that the child's state of health largely depends on the quality of the microbiota and its ability to defend against pathogens. Colonization of the infant gut begins in early life. A newborn acquires a various bacteria from his mother during delivery. Additionally, microbial colonization of the gut neonatal has a strong relationship with the way of feeding the newborn baby (formula feeding versus breastfeeding). We are able to monitoring the change in the microbiome of neonatal/infant by using genetic typing methods. On the basis of the actual state of knowledge, however, it is not sure how colonization of the gut effect this process has on the absorption of nutrients by the child. Therefore, extremely important becomes the understanding of the correlation between the mother's microbiome, human milk composition, baby's microbiome and digestibility and absorption of nutrients by neonates.

The colonization of an infant's gut with optimal bacteria may help reduce the risk of disease later in life. The result of the research will be there will be an indication of the criteria enabling the design of optimal food for infants, especially premature, whose digestive system is not fully functional.

Due to the interdisciplinary research, cooperation with Department of Molecular Biotechnology and Microbiology (Chemical Faculty) is planned.

Funding or special equipment needed to carry out a PhD projectⁱⁱⁱ:

1. Is funding available for experimental work: *Yes/No/not needed*

No

2. Is the equipment needed to complete a PhD project

available in your lab/department: *Yes/No/not needed*

Yes

Most important publications – no more than 5 published after 1.01.2018

No	Authors/title/journal	Number of points according to the current list of the Ministry of Science and Higher Education	Publication year
1.	Zalewski K., Lahuta L.B., Martysiak-Żurowska D., Okorski A., Nitkiewicz B., Zielonka Ł. The effect of exogenous application of methyl jasmonate on the lipid and carbohydrate content of winter triticale grain and the severity of fungal infections in triticale plants and grain. <i>Journal of Agricultural and Food Chemistry</i> .	140	2019
2.	Martysiak-Żurowska D., Puta M., Kielbratowska B. The effect of convective heating and microwave heating on antioxidant enzymes in pooled mature human milk. <i>International Dairy Journal</i> 91, 41-47,	100	2019

Prospective supervisor's form

3.	Malinowska-Pańczyk E., Królik K., Skorupska K., Puta M., Martysiak-Żurowska D., Kielbratowska, B. Microwave heat treatment application to pasteurization of human milk. Innovative Food Science & Emerging Technologies, 52, 42-48.	140	2019
4.			
5.			

Most recent externally funded projects you were involved in – no more than 3

No	Project title, the name of the Principal Investigator (PI) and the institution the project was carried out	Years	Role in the project ⁱ
1.	The effect of pasteurization, high-pressure in subzero temperature and microwave heating on the nutrition and biological value and microbiological quality of human milk. Dorota Martysiak-Żurowska (PI), Gdansk University of Technology	2014-2017	PI
2.	Potential discriminants and biodiscriminants for the assessment of technologies for the production of pro-health food in terms of the behavior of bioactive phytochemicals - verification using extracts of wild growing edible fruit and products obtained from them. Agnieszka Bartoszek-Pączkowska (PI), Gdansk University of Technology	2010-2013	Co-I
3.			PI

Prospective supervisor's form

Additional relevant information – (no more than 1600 characters)^v



ⁱ You may select up to two disciplines out of 12 disciplines represented in the Doctoral School

ⁱⁱ Observe the limit of not more than 2000 characters

ⁱⁱⁱ Leave only one answer

^{iv} Select the role in the project: PI stands for principal investigator (refers to the holder of an independent grant and the lead researcher for the grant project), Co-I for co-investigator (Co-I assists the principal investigator in the management and leadership of the research project), R for researcher

^v Add any other relevant information e.g. awards for PhD students whom you supervised (no more than 1600 characters)