


Annex no 1 to the Rules for submitting research topics for admission to the Doctoral School of
Medical and Health Sciences programmes for the academic year 2023/2024

Research topic submission form for the doctoral programme	
Doctoral programme <i>Please indicate</i>	<input type="checkbox"/> in the discipline of medical sciences, 8-semester <input type="checkbox"/> in the discipline of pharmacology and pharmacy, 8-semester <input type="checkbox"/> in the discipline of health sciences, 8-semester <input checked="" type="checkbox"/> <u>interdisciplinary, 6-semester, taught in English</u>
Discipline <i>Please indicate</i>	<input checked="" type="checkbox"/> <u>medical sciences</u> <input type="checkbox"/> pharmacology and pharmacy <input type="checkbox"/> health sciences
Submitter - a person willing to act as a supervisor	
Title/degree Full Name	Dr hab Halina Dobrzynski Dr Marcin Kuniewicz (auxiliary supervisor)
Category <i>please select the relevant category according to the DSMHS Regulations</i>	<input type="checkbox"/> JU Medical College employees with a professor or post-doctoral habilitation degree who have declared that their academic achievements correspond at least in 75% with the doctoral programme discipline in which the topic is submitted <input type="checkbox"/> persons with a professor or post-doctoral habilitation degree who do not fulfil the conditions specified in the previous point but who are employed in a university or academic institution in Poland, and who have declared to assign at least 25% of their academic achievements to the discipline relevant for the doctoral programme, and who will present the consent of the person fulfilling the criteria specified in section 1a to act as an auxiliary supervisor, with a positive opinion from the Doctoral School Board according to DSMHS Regulations <input checked="" type="checkbox"/> <u>persons who do not meet the conditions specified in section 1 and who are employees of a foreign university or research institution, given the respective research discipline board recognises their significant achievements in the academic field to which the PhD dissertation refers</u>
Date of obtaining a) doctoral degree	July 2000
b) post-doctoral habilitation degree	May 2023
c) professor degree	
Place of employment	Manchester University, UK (full time) Jagiellonian University, Poland (visiting academic 25%)
Email address	Halina.dobrzynski@manchester.ac.uk Halina.dobrzynski@uj.edu.pl
Contact phone	+447542248207

<p>Academic achievements List of max. five publications from the last three calendar years</p>	<ol style="list-style-type: none"> 1. Kuniewicz M, Budnicka K, Dusza M, Jakob N, Cholewa N, Defonseka R, Gosnell M, Wadhwa T, Walocha J, Dobrzynski H, Holda M. Gross anatomic relationship between the human left atrial appendage and the left ventricular summit region: implications for catheter ablation of ventricular arrhythmias originating from the left ventricular summit. <i>J Interv Card Electrophysiol</i>. 2023. doi: 10.1007/s10840-022-01172-6. 2. Li N, Artiga E, Kalyanasundaram A, Hansen BJ, Webb A, Pietrzak M, Biesiadecki B, Whitson B, Mokadam NA, Janssen PML, Hummel JD, Mohler PJ, Dobrzynski H, Fedorov VV. Altered microRNA and mRNA profiles during heart failure in the human sinoatrial node. <i>Sci Rep</i>. 2021 Sep 29;11(1):19328. doi: 10.1038/s41598-021-98580-x. 3. Soattin L, Borbas Z, Caldwell J, Prendergast B, Vohra A, Saeed Y, Hoschtitzky A, Yanni J, Atkinson A, Logantha SJ, Borbas B, Garratt C, Morris GM, Dobrzynski H. Structural and Functional Properties of Subsidiary Atrial Pacemakers in a Goat Model of Sinus Node Disease. <i>Front Physiol</i>. 2021. doi: 10.3389/fphys.2021.592229. 4. Aminu AJ, Petkova M, Atkinson AJ, Yanni J, Morris AD, Simms RT, Chen W, Yin Z, Kuniewicz M, Holda MK, Kuzmin VS, Perde F, Molenaar P, Dobrzynski H. Further insights into the molecular complexity of the human sinus node - The role of 'novel' transcription factors and microRNAs. <i>Prog Biophys Mol Biol</i>. 2021. doi: 10.1016/j.pbiomolbio.2021.04.008. 5. Nakao S, Atkinson AJ, Motomochi T, Fukunaga D, Dobrzynski H. Common arterial trunk in a cat: a high-resolution morphological analysis with micro-computed tomography. <i>J Vet Cardiol</i>. 2021. doi: 10.1016/j.jvc.2020.12.003.
<p>Impact Factor summary</p>	<p>506,633</p>
<p>Web of Science Core Collection index</p>	<p>4979</p>
<p>Hirsch index</p>	<p>39</p>
<p>Number of promoted doctoral degree holders</p>	<p>10 as main supervisor – all in Manchester 8 as co-supervisor/auxiliary – all in Manchester</p>
<p>Number of promoted MA degree holders</p>	<p>7 – all in Manchester</p>
<p>Proposed research topic</p>	<p>Further understanding of molecular make-up, structure and function of the cardiac conduction system in health, ageing, obesity – sexy approach</p>
<p>Please provide reasons for the topic-discipline compliance (max. 100 words)</p>	<p>Cardiovascular disease (CVD) remains a major cause of death worldwide. Regulation of electrical activity through the heart is controlled by a collection of specialised cells that form the cardiac conduction system (CCS). Dysfunction in electrical activity transmission in the heart can lead to diseases such as slow or fast heart beat, atrial and ventricular fibrillation, AV and bundle branch block. Investigating functional anatomy of the CCS and molecules (e.g. microRNAs, mRNAs) that regulate structure/function of the CCS may enhance clinical uses; and to improve current therapies for abnormal heart function.</p>
<p>Brief description of research methods</p>	<p>As indicated below for tasks description for a potential PhD student</p>

(max. 250 words)		
Expected place for the project implementation	Department of Anatomy, UJ MC	
Tasks description for the PhD student	<ul style="list-style-type: none"> • Analysis clinical data sets (MRI, CT, Cartomaps) from healthy young, old, obese, MI patients of both sexes • Analysis of postmortem hearts at gross anatomy level, micro-anatomy (micro-CT, histology) • 3D printing of previously reconstructed detailed 3D anatomy of the heart from postmortem hearts (healthy young, old, obese, MI patients) • Analysis of RNAseq data sets, binding sites and interaction of microRNA with mRNA • Statistical analysis (e.g., GraphPrism) • Preparation of abstracts to attend national and international conferences, reports, publications 	
Expectations towards the PhD student: specific skills and experience <i>(the description of expectations cannot indicate a particular candidate)</i>	<p>Knowledge of anatomy and physiology of cardiovascular system in health and diseased is essential</p> <p>Experience in some skills:</p> <ul style="list-style-type: none"> • Image analysis from clinical data sets: Cartomaps, MRI, CT • Image analysis from microCT slices, histology-stained tissue sections (using e.g., Amira/Avizo, image J software) • 3D printing and 3D scanning • Bioinformatics (e.g., pathway analysis, gene ontology ect to analyse RNAseq data sets for mRNA and microRNA) • Virtual Reality, Artificial Intelligence 	
Temporary availability of the PhD student (number of hours/weeks) necessary for the project implementation	Approximately 20 h/week	
Does the research project require PhD student's independent performance of medical procedures? <i>Underline the applicable</i>	<u>NO</u> <u>Proposed work will mainly involve image/data analysis</u>	<u>YES</u> <i>explain briefly below why and what sort of professional licence is required</i>
Date 24/05/2023	 Submitter's signature	