

<b>Scientific supervisor</b>	
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Department	Department of Medical Physics
Laboratory	Centrum Teranostyki
Group webpage	<a href="https://zfm.if.uj.edu.pl/projekty">https://zfm.if.uj.edu.pl/projekty</a>
<b>Proposed research topic</b>	
<i>2D and 3D cell cultures</i>	
<p>In the laboratory, cell cultures of both primary cell lines (endothelial cells) and immortalized cell lines (human melanoma cells) are conducted.</p> <p>The practice plan includes the following steps:</p> <ol style="list-style-type: none"> <li>1. Familiarization with the theoretical basics of performing cell cultures.</li> <li>2. Understanding the principles of working with biological material under sterile conditions.</li> <li>3. Learning techniques for cell line preparation.</li> <li>4. Conducting experiments and measurements based on the specific project: <ul style="list-style-type: none"> <li>• Cell viability tests.</li> <li>• Differential centrifugation.</li> <li>• Characterization of specific antigens on cell surfaces.</li> <li>• Microscopic observations.</li> <li>• 3D cell culture (spheroids).</li> </ul> </li> </ol> <p>At the end of the practice, students compile a report summarizing their measurements.</p>	
<b>Main research tool</b>	
<p>The laboratory is equipped with the following devices:</p> <ul style="list-style-type: none"> <li>• Imaging flow cytometer Celligo</li> <li>• CO2 incubator with automatic temperature and CO2 concentration control (ICO150med)</li> <li>• Laminar flow hood (MSC-Advantage)</li> <li>• Centrifuge (Z300K; Hermle)</li> <li>• Inverted laboratory microscope</li> <li>• Automated cell counter (LUNA II)</li> <li>• 3D cell culture reactor (ClinoStar)</li> </ul>	
<b>Additional requirements to the candidate</b>	
Students of biophysics, biotechnology, medical chemistry, biology, pharmacy, and medical analytics	
<b>Possibility to continue student internship in the form of:</b>	
Diploma thesis (master's or bachelor's degree)	X
PhD study	X