

<b>Scientific supervisor</b>	
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Department	Department of Medical Physics
Laboratory	Laboratory of cytometry and spectroscopy of nano-objects
Group webpage	<a href="http://www.zfm.if.uj.edu.pl/en_GB/grupy-badawcze/laboratorium-cytometrii-i-spektroskopii-nanoobektow">http://www.zfm.if.uj.edu.pl/en_GB/grupy-badawcze/laboratorium-cytometrii-i-spektroskopii-nanoobektow</a>
<b>Proposed research topic</b>	
<i>Flow cytometry of egzosomes and extracellular vesicles</i>	
<p>The laboratory measures exosome and extracellular vesicle (EV) samples from cell cultures and body fluids by fluorescence flow cytometry and tunable pulse conductometry.</p> <p>The laboratory is equipped with the following devices:</p> <ul style="list-style-type: none"> <li>• ImageStream Luminex flow cytometer</li> <li>• Sorvall ultracentrifuge with angular rotor; Micro-Ultracentrifuge Sorvall mX150 +; Thermo Scientific</li> <li>• Izon particle size analyzer (qNano)</li> <li>• Izon cell size analyzer (qMikro)</li> </ul> <p>The internship plan provides for:</p> <ol style="list-style-type: none"> <li>1. Getting to know the theoretical basics of performing cytometric and flow resistance measurements,</li> <li>2. Getting to know the rules of working with biological and clinical material</li> <li>3. Getting to know the techniques of exosome preparation by filtration and ultracentrifugation methods</li> <li>4. Performing experiments and measurements depending on the project being carried out: <ul style="list-style-type: none"> <li>• Concentration of urine samples or culture medium by filtration</li> <li>• Differential centrifugation</li> <li>• Ultracentrifugation</li> <li>• Determination of the number of exosomes in a sample</li> <li>• Characteristics of exosome-specific antigens</li> <li>• Evaluation of the extracellular vesicles size distribution</li> </ul> </li> </ol> <p>At the end of the internship, the student prepares a report on the measurements taken.</p>	
<b>Main research tool</b>	
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<b>Additional requirements to the candidate</b>	
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<b>Possibility to continue student internship in the form of:</b>	
Diploma thesis (master's or bachelor's degree)	X
PhD study	X