

Title:	TECHNIQUES of PROTEIN BIOCHEMISTRY
Lecture hours:	10 h- lectures, 20 h – laboratory classes
Study period: (summer/winter)	Summer semester
Numbers of credits:	6
Assessment methods:	Lecture – Exam (multiple choice test) Labs – test and quizzes (multiple choice and written tasks), lab reports
Language of instruction:	English
Prerequisites:	English, at least B1 level Basic courses of biochemistry and chemistry
Course content:	<p><u>Lectures:</u></p> <ol style="list-style-type: none"> 1. cDNA production and cloning. Plasmid multiplication and purification. 2. Expression of recombinant protein in Prokaryotic and Eucaryotic systems. 3. Electrophoretic techniques and Western-Blot in analysis of protein expression level. 4. Protein purification from animal tissues. 5. Rentgenografic NMR, and CD methods in the analysis of protein structure. <p><u>Laboratories:</u></p> <ol style="list-style-type: none"> 1. Isolation and purification of actin from chicken muscle tissue 2. Transformation of bacteria cells with the tropomyosin-encoding gene 3. Expression of tropomyosin in bacterial cells 4. Protein-protein interactions: Co-sedimentation method (pelleting) 5. Densitometric analysis and final report preparation
Learning outcomes:	<p><u>By the end of this course students:</u></p> <ol style="list-style-type: none"> 1) will have been exposed to theoretical fundamentals of laboratory methods of protein expression and purification 2) will be able to apply the theory in practice 3) will have performed laboratory work 4) will have written laboratory reports and analysis summaries 5) will be able to draw relevant conclusions from lab tests.
Name of lecturers:	Lecture: Joanna Moraczewska, Ph.D., D.Sc., Professor Laboratory: Małgorzata Śliwiska, Ph.D.

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Literature:	<ol style="list-style-type: none">1. Principles and Techniques of Biochemistry and Molecular Biology, Wilson K., Walker J. eds. , Sixth Edition, Cambridge University Press; 20052. Berg J.M., Tymoczko J.L, Stryer L. Biochemistry. Sixth edition, W.H. Freeman & Co.; 2007. http://bcs.whfreeman.com/biochem6/default.asp