KAPITAŁ LUDZKI
NARODOWA STRATEGIA SPÓJNOŚCI

Projekt współfinansowany przez Unię Europejską w ramach Europejskiego Funduszu Społecznego

UNIA EUROPEJSKA
EUROPEJSKI
FUNDUSZ SPOŁECZNY

Course title	ECTS code
The molecular basis of the amyloidogenic diseases	13.3.1226

Name of unit administrating study

null

Studies

faculty	field of study		
Wydział Chemii	Biznes chemiczny	type	drugiego stopnia
		form	stacjonarne
		specialty	wszystkie
		specialization	wszystkie
Wydział Chemii	Chemia	type	drugiego stopnia
		form	stacjonarne
		specialty	wszystkie
		specialization	wszystkie
Wydział Chemii	Ochrona środowiska	type	drugiego stopnia
		form	stacjonarne
		specialty	wszystkie
		specialization	wszystkie

Teaching staff

prof. dr hab. Sylwia Rodziewicz-Motowidło; dr hab. Aneta Szymańska, profesor uczelni

Forms of classes, the realization and number of hours

Forms of classes

Lecture

The realization of activities

classroom instruction

Number of hours

Lecture: 15 hours

ECTS credits

2
classes - 15 h
tutorial classes - 15 h
student's own class - 20 h
TOTAL: 50 h - 2 ECTS

The academic cycle

2024/2025 winter semester

Type of course

an elective course

Language of instruction

English

Teaching methods

Lecture with multimedia presentation of basic issues in the drug discovery process

Form and method of assessment and basic criteria for eveluation or examination requirements

Final evaluation

Graded credit

Assessment methods

- participation in classes,
- a multimedia presentation prepared (optionally in groups of several people): its content (factual correctness of the presented information) and the manner of presentation (clarity and clarity).

The basic criteria for evaluation

Performance of presentation (The topics will be prepared by the academic teacher), positive note from presentation. Assessment criteria in accordance with the University of Gdansk Study Regulations.

Method of verifying required learning outcomes

Required courses and introductory requirements

A. Formal requirements

lack

B. Prerequisites

– knowledge of basic issues in the field of organic chemistry: functional groups occurring in organic compounds, structure of amino acids, peptides and proteins, influence of external factors on conformational changes of peptides and proteins, knowledge of basic physico-chemical techniques used in peptide and protein chemistry

Aims of education

- To acquaint students with the definition of amyloid and its formation
- To acquaint students with information on the mechanisms of amyloid fibril formation
- To acquaint students with physico-chemical techniques used in research on amyloid fibrils
- The role of amyloid fibrils in the development of amyloid diseases
- Make students aware of the importance of environmental factors in the development of amyloid diseases

Course contents

The lecture will cover the following issues: classification of amyloidogenic diseases; structure of amyloid fibril; folding of amyloid proteins; the role of post-translational modifications in the formation of amyloid fibrils; the role of lipid modulators in the formation of amyloid; the mechanism of formation of amyloid fibrils; amyloidogenic proteins, structure and function (eg. b-amyloid, prion protein, immunoglobulin, transthyretin, gelsolin, lysozyme, fibrynogen, b-microglobulin, cystatin C, amyloid-forming hormones), amyloid diseases (amyloidosis).

Bibliography of literature

Literature required to pass the course
Monographic materials provided by the teacher
Scientific texts indicated by the teacher

Extracurricular readings

1. Amyloid, prions and other protein aggregates / ed. By Ronald Wetzel. Methods in Enzymology vol. 309, San Diego, Calif.,: Academic Press, cop. 1999
2. Protein misfolding diseases: current and emerging principles and therapies / ed. By Marina Ramirez-Alvarado, Jeffrey W. Kelly, Christopher M. Dobson, Wiley Series in Protein and Peptide Science, Hoboken: Wiley, A. John Wiley & Sons, cop. 2010
3. Studies of human plasma amyloid A protein fibrillization and its short N-terminal fragments / Marta Sosnowska; University of Gdansk. Faculty of Chemistry. Sosnowska, Marta (biochemistry). PhD thesis, Gdańsk, 2015
4. Amyloid structure, function, and molecular mechanisms. Fri. 2 / guest eds .: Sheena Radford and Jonathan Weissman., JMB Journal of Molecular Biology, vol. 421, iss. 4/5, Amsterdam [etc.]: Elsevier, 2012.
5. Amyloid structure, function, and molecular mechanisms. Fri. 1 / guest eds .: Shenna Radford and Jonathan Weissman. JMB Journal of Molecular Biology, vol. 421, iss. 2/3, Amsterdam [etc.]: Elsevier, 2012.
6. Characterization of the complex of human cystatin C (hCC) with serum amyloid A protein (SAA) / Marta Spodzieja; University of Gdansk. The chemistry department. Department of Medical Chemistry Spodzieja, Marta Marcelina. PhD thesis, Gdańsk 2011.
7. Synthesis, studies of conformation and aggregation of ß-amyloid peptides / Paulina Juszczyk. Juszczyk, Paulina. PhD thesis, Gdańsk 2005.
8. Research on ß-amyloid peptide and its fragments / Kornelia Wiśniewska. Wiśniewska, Kornelia. PhD thesis, Gdańsk 2003.

The learning outcomes (for the field of study and specialization)

Chemistry:
K_W05: has extended knowledge in the field of the specialization studied
K_W11: demonstrates in-depth knowledge about the current trends in the development of chemistry as a science and the latest discoveries in this field
K_U04: applies acquired knowledge of chemistry and related scientific disciplines
K_U10: reads with understanding scientific and popular science chemical texts in English
K_K05: understands the need for independent search of information in scientific literature and popular science magazines

Chemical Business:
K_BChII_W01: knows and understands in-depth complex physicochemical processes and is able to analyse their coursee in connection with other fields of science
K_BChII_U03: is able to present, based on the current state of knowledge, scientific discoveries and the results of own research in the field of chemical and economic sciences, through skilful debate and public speeches
K_BChII_K03: is willing to critically assess the level of

Knowledge

Student:
- knows the mechanisms of the formation of amyloid fibrils
- knows the structure of various amyloid fibrils
- knows the causes of amyloid diseases at the molecular level

Skills

Student:
- uses the acquired knowledge about the molecular basis of the formation of amyloid diseases.

Social competence

Student:
-understands the role of environmental factors in the development of amyloid diseases and the importance of appropriate pro-health behaviors in reducing the risk of amyloidosis
- knows how to work in a group

his/her own knowledge in the light of the achievements of the studied scientific discipline K_BChII_K09: is willing to conduct research and develop his/her scientific and creative achievements in the studied field Environmental Protection: K_OŚII_W01: describes in an in-depth manner complex phenomena and processes occurring in nature, including those related to the spread of anthropogenic pollution K_OŚII_U06: defines her/his interests and develops them within the chosen specialisation and themes of her/his master's thesis while implementing the process of self-education and planning of own future career K_OŚII_K05: critically assesses her/his own knowledge and the knowledge of the teams in which s/he works, can critically assess the content received	

Contact

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