UNIVERSITÀ DI PAVIA

## Anno Accademico 2021/2022

# ANALYSIS OF BIOTECHNOLOGICAL PHARMACOLOGIES

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| **Enrollment year** | 2019/2020 |
| **Academic year** | 2021/2022 |
| **Regulations** | DM270 |
| **Academic discipline** | CHIM/08 (PHARMACEUTICAL CHEMISTRY) |
| **Department** | DEPARTMENT OF BIOLOGY AND BIOTECHNOLOGY "LAZZARO SPALLANZANI" |
| **Course** | BIOTECHNOLOGY |
| **Curriculum** | PERCORSO COMUNE |
| **Year of study** | 3° |
| **Period** | 2nd semester (01/03/2022 - 14/06/2022) |
| **ECTS** | 6 |
| **Lesson hours** | 48 lesson hours |
| **Language** | Italian |
| **Activity type** | ORAL TEST |
| **Teacher** | MASSOLINI GABRIELLA (titolare) - 6 ECTS |
| **Prerequisites** | Basic knowledge of the main spectroscopic techniques (UV-Vis, DC). Fundamentals of chromatography and mass spectrometry. |
| **Learning outcomes** | The main objective of the course is to provide the student with basic knowledge on the analytical methods necessary for the characterization and analysis of drugs produced by biotechnological processes.<br>The evaluation of the quality of therapeutic proteins requires a complete and detailed structural characterization, the qualitative and quantitative analysis of impurities and contaminants and the evaluation of biological activity. At the end of the course, the student must be able to identify the most suitable techniques for the specific characterization of a biotechnological product. |
| **Course contents** | Structural characterization: determination of the molecular weight by mass spectrometry, peptide fingerprinting by LC-MS / MS, peptide map, |

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| | isoform profile, glycosylation maps, study of post-translational modifications (PTM), conformational integrity, higher order structures. Impurities: qualitative and quantitative analysis of the impurities related to the product: determination of variants such as truncated forms, modified forms and aggregates (soluble and insoluble). |
| **Teaching methods** | The course is organized in lectures carried out with PowerPoint presentations and lessons with experiences |
| **Reccomended or required readings** | Scientific articles and material reworked by the teacher |
| **Assessment methods** | The exam consists of a check at the end of the lessons. The exam will be oral.<br>During the exam, the ability to reason on the course contents and the achievement of the training objectives will be assessed.<br>Critical reading of a scientific article. |
| **Further information** | |
| **Sustainable development goals - Agenda 2030** | The goals |