UNIVERSIDAD AUTÓNOMADENUEVO LEÓN
SCHOOL OF MEDICINE
Ba CLINICAL CHEMISTRY

SYNTHETIC PROGRAM.

1.Identification data:	
Institution	Universidad Autónoma de Nuevo León
College	Faculty of Medicine
Education program	Clinical Chemistry
Learningunit	Basic Immunology
Total hours of classroom, theory and practice	80
Frequency in classroom per week	4
Total extra hours Outside classroom)	10
Modality	Schooled
Academic period	Fifth Semester
Type of learnigunit	Mandatory
Curricular area	ACFP-F
UANL Credits	3
Date of elaboration	13/04/2018
Date of actualization	27/06/2024
Responsible (s) for the design and	Dr. Ernesto Torres López

Actualization	Dr. Mario César Salinas Carmona**,** Dr. Anna Velia Vázquez Marmolejo, Dr. Nallely López López, Dr. Manuel Mejía Torres. Dr. Adrián G. Rosas Taraco, Dr. Noé Macias Segura

2.Purpose(s):

This Learning Unit (LU) aims to provide the basic elements for applying immunological diagnostics of infectious and immunocompromised diseases, as well as transplants, in order to meet the requirements for effective immunological analysis and diagnosis according to national and international standards.

It promotes the development of general competencies, enabling students to use traditional and cutting-edge research methods and techniques for academic work, professional practice, and knowledge generation. During this LU, students will face challenges related to the values promoted by UANL and societal issues by selecting immunological diagnostic tests within the regional, national, and global regulatory framework concerning the presence or absence of immunological biomarkers in biological samples such as serum, plasma, cells, and/or human tissues. This contributes to consolidating well-being and sustainable development. Students will be able to resolve specific personal and social conflicts by appropriately selecting analysis techniques applicable to different population groups, considering the biomarker to be determined, matrix type, required accuracy and sensitivity, number of samples to be analyzed, and the concentration of the biomarker in the matrices used.

Students will understand the fundamentals for performing useful tests for the immunological diagnosis and prognosis of infectious, autoimmune, allergic, tumor-related, endocrine diseases, immunodeficiencies, and compatibility studies in organ and tissue transplants. They will select pertinent clinical immunological diagnostic procedures to ensure high-quality control in their immunological analyses to identify the immunological biomarkers that determine accurate diagnosis of diseases associated with immunophysiopathological phenomena.

This learning unit leverages knowledge acquired in Biochemistry regarding biological molecules responsible for regulating and immunomodulating the immune response; Cell Biology, as it analyzes membrane receptors involved in signaling and cellular elements in the immune response; and Basic Microbiology, which is key in studying the protective immune response against infectious diseases. The study of Immunology will provide the Blood Bank with the foundations for blood compatibility and immunological testing for safe transfusions. Additionally, Immunology will support the study of diagnostic Medical Microbiology to identify antigens in the immunological diagnosis of infectious diseases.

3. Competence of the graduate profile

- **General skills contributing to this learning unit**

Instrumental skills:

8. Use traditional and cutting-edge research methods and techniques for the development of academic work, professional practice, and knowledge generation.

Personal and social interaction skills:

11.Practice the values promoted by UANL: truth, equity, honesty, freedom, solidarity, respect for life and others, peace, respect for nature, integrity, ethical behavior, and justice in personal and professional spheres to contribute to building a sustainable society.

Integrative skills:
14.Resolve personal and social conflicts using specific techniques within the academic and professional domains to make informed decisions.

- **Specific skills of the graduate profile that contributes to the learning unit**

2. Execute Execute physical, chemical, and biological procedures for the collection, handling, storage, and analysis of samples to contribute to a reliable clinical, chemical, food, forensic, and environmental diagnosis.

4. Validate bioanalytical methods based on established performance criteria to ensure the reliability of results obtained from chemical-biological samples.

5. Incorporate new analytical methodologies that contribute to the functional, economic, and environmental improvement of laboratory processes to address needs in health-related areas.

4. Factors to consider for evaluating the learning unit
- Diagnostic questionnaires   - Conceptual maps   - Comic elaboration   - Written evaluations   - Laboratory reports   - Course integrative project/product
5. Course integrative project/product:
Team presentation of a seminar on the MS/Teams platform of a disease where the immunopathological mechanisms are addressed, the immunological laboratory tests useful in diagnosis or prognosis and the type of immunotherapy applied if it exists.
6. Sources of support and consultation (bibliography, hemerography, electronic sources):

Immunology in Health and Disease. Salinas Carmona, M. C., 3rd ed., 2022. Editorial Médica Panamericana.

Parslow, T.G., Stites, D.P., Terr, A.I., & Imboden, J.B. (2002). Basic and Clinical Immunology. Mexico: Editorial El Manual Moderno.

- **Internet links**

  MEDLINE / PubMed

  https://www.ncbi.nlm.nih.gov/pubmed

  History of Immunology Video

  https://www.youtube.com/watch?v=CnHiz5VOo3g

  Video of organs and cells of the immune system

  https://www.youtube.com/watch?v=lqC9mdhdyz4

- **UANL Databases**