

# ESSENCIAL MOLECULAR BIOLOGY – A HANDS-ON LABORATORY COURSE

## 27<sup>th</sup> EDITION

Laboratory of Support to Research in Molecular Medicine  
16 Jun – 4 July 2025

### OPTIONS OF EXPERIMENTAL FOCUS

**Name:** \_\_\_\_\_

Please choose up to two of the five options below. Options can be chosen within the same category.  
The total number of days is limited to 10.

#### Genomics:

- ☐ G1. Gene expression studies (1+2+3+6). Duration: 5 days
- ☐ G2. DNA cloning in E.Coli (1+2+4+5). Duration: 5 days
- ☐ G3. DNA-protein interaction studies (8+9+7+10+11). Duration: 5 days

#### Proteomics:

- ☐ P2. Protein expression studies (8+9+10+11). Duration: 5 days
- ☐ P3. Protein-protein interaction studies (12+10+11+8+9). Duration: 5 days

#### **Genomics:**

- 1: Nucleic acids extraction (DNA or RNA) from cells, tissues or fluids;
- 2: Quantification techniques and quality control;
- 3: cDNA synthesis by reverse transcription (RT);
- 4: DNA amplification by conventional PCR
- 5: Recombinant DNA techniques (enzymatic restriction, transformation, molecular cloning);
- 6: Gene expression studies (cDNA amplification by real time PCR)
- 7: DNA-protein interaction studies (Electrophoretic Mobility Shift Assay, DNA pull-down essays)

#### **Proteomics:**

- 8: Protein extraction from cells or tissues;
- 9: Quantification techniques;
- 10: Electrophoresis (SDS-PAGE);
- 11: Western blotting;
- 12: Protein co-immunoprecipitation.