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# *Closing Workshop PROVNA project phase 2*


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# Virology group – activities overview

- A two-week practical training course was organized during the weeks of 10–14 and 17–21 November 2025
- This initiative aimed to strengthen laboratory capacity for detection of arbovirus
- The course provided hands-on training in virological diagnostic techniques, BSL-3 laboratory operations principles and sequencing

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# Virology group – activities overview

- Group 1 participant from Algeria; Mauritania, Tunisia
- Group 2 participant from Libya and Marocco

- Strengthened knowledge of biosafety, biosecurity, and internationally recognised diagnostic standards
- Harmonisation of diagnostic capacities among North African partners, in line with WOAH recommendations

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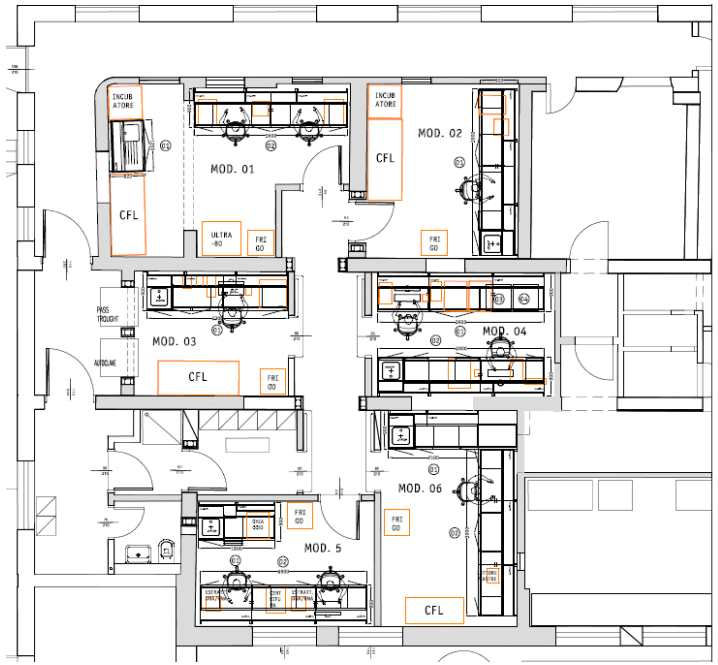
# Visit of the BLS3 laboratory




- Standardised requirements, workflows, and procedures for safe and compliant operations in a BSL-3 laboratory setting

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# Virology group – activity details

- Enhances molecular biology skills of participating countries in veterinary and public health contexts
- Focus on key mosquito-borne viruses: West Nile Virus (WNV), Rift Valley Fever Virus (RVFV), and Lumpy Skin Disease (LSD) (Including DIVA)
- Standard molecular diagnostic workflows used in veterinary and public health laboratories
- Hands-on training across the diagnostic process, from sample reception to result interpretation

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# Virology group – activity details

- Laboratory Environment and Biosafety (Safety Protocols);
- Core Equipment for Molecular Virology Surveillance (Standard operating procedures SOPs sharing).

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# Virology group – practical activities

- Entomological sample preparation for viral detection;
- Nucleic acid extraction and sample processing
- PCR workflow execution:
  - Master mix preparation;
  - Plate setup and Real-time PCR amplification;
  - Data analysis and interpretation;
  - Optional module (Morocco participants): sequencing and genomic analysis of microorganisms

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# Virology group – practical activities

- Participants carried out WNV, LSD, RVF real-time PCR procedures under staff supervision, replicating the protocols;
- Overall, the training provided participants with a comprehensive view of diagnostic practice, combining routine molecular testing, interpretation of results, biosafety-oriented laboratory work, and exposure to complementary surveillance and research tools.

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# Complementary modules

- Dedicated module on Next Generation Sequencing (NGS) workflow, including analytical validation of NGS data, library preparation, and target enrichment.
- Additional scientific sessions including:
  - development of an IgM serological method in camelids for RVF
  - Italian national West Nile Disease planthe H5N1 and WND simulation exercise/scenario
  - overview of orbiviruses and related diagnostic and research activities at IZS Teramo

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# WNV as a training model

- West Nile Virus (WNV) was used as the primary training model to simulate a complete diagnostic workflow;
- The training started from entomological sample processing (insect matrix) to reproduce field conditions;
- Different PCR targets were applied to discriminate WNV lineages, introducing participants to advanced diagnostic interpretation;
- This approach allowed trainees to gain a comprehensive and realistic understanding of end-to-end laboratory workflows.

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# Post-training collaboration and follow-up

- Collaboration activities continued after the training phase, strengthening the network among partner laboratories;
- PCR diagnostic kits were provided to selected countries to support local testing activities;
- Partner laboratories tested their own field samples, applying the methodologies acquired during the training;
- Ongoing collaboration includes genomic sequencing activities at IZS Teramo, supporting further characterisation of detected.

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# Conclusions

- The training successfully combined theory, practical laboratory work, and technical discussion, ensuring effective knowledge transfer
- Participants developed both technical skills and critical understanding of diagnostic workflows, from sample to result interpretation
- The use of standardised protocols and shared approaches supported the harmonisation of diagnostic capacities across partner countries
- Overall, the programme strengthened regional cooperation and laboratory preparedness for arbovirus detection and surveillance

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# Thank you for your attention and participation