

Short-Term Scientific Missions (STSMs)

Outputs and Impact Assessment

COST Action CA23142 – Delve-into-Pneumocystis | Grant Period 1: 1 November 2024 – 31 October 2025

Overview

During the first Grant Period (GP1), COST Action CA23142 Delve-into-Pneumocystis supported two Short-Term Scientific Missions (STSMs), aimed at strengthening research capacities, facilitating the transfer of specialised methodological expertise, and promoting sustainable scientific collaboration between participating institutions. Both missions addressed strategic priorities of the Action, particularly the improvement of Pneumocystis diagnostic approaches and the development of innovative laboratory methodologies.

STSM 1 – Molecular detection of *Pneumocystis* spp.

Doloresa Mullaliu, a young female researcher from the Directory of Public Health in Durrës, Albania, undertook an STSM at Wrocław Medical University, Poland (21–27 September 2025), under the supervision of Dr Marta Kicia.

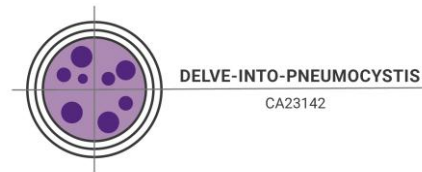
The mission provided practical training in conventional PCR and nested PCR techniques for the molecular detection of *Pneumocystis* spp., including assay preparation, optimisation of amplification conditions, contamination prevention, sample handling, and interpretation of molecular results.

The principal output was the acquisition of technical competencies directly applicable to improving molecular diagnostic capabilities at the grantee's home institution. The mission also established a basis for continued collaboration between the Albanian public health system and Wrocław Medical University, with potential applications in epidemiological surveillance and the adaptation of molecular methods to other infectious pathogens.

Beyond its technical achievements, this STSM contributed substantially to the Action's inclusiveness objectives by supporting knowledge transfer to a young researcher from an Inclusiveness Target Country (ITC) and facilitating access to specialised laboratory expertise.

STSM 2 – Development of recombinant protein-based immunodiagnostic approaches

Rocío Salsoso Rodríguez, a young female researcher from the Institute of Biomedicine of Seville (IBiS), Spain, undertook an STSM at the Instituto de Higiene e Medicina Tropical, Universidade NOVA de Lisboa, Portugal (6–21 October 2025), under the supervision of Dr Fernando Cardoso.



This mission focused on the development of alternative immunodiagnostic approaches for Pneumocystis infection, involving the expression and purification of recombinant proteins and their potential conjugation to functionalised latex microspheres.

The planned scientific outputs included purified recombinant Pneumocystis proteins, protein-functionalised microspheres, and preliminary immunoassay prototypes for detecting specific antibodies or antigens in clinical specimens. The methodological approach was intended to provide a foundation for developing affordable diagnostic tools complementary to PCR-based methods, with potential future applications in point-of-care testing.

The mission strengthened scientific collaboration between the Spanish and Portuguese research teams and provided a framework for subsequent assay optimisation, validation, and joint scientific outputs. However, the available GP1 activity report describes these as anticipated outputs rather than experimentally confirmed results.

Overall assessment of STSM outputs and contribution to Action objectives

The two STSMs represented an important initial achievement in implementing the Action's capacity-building and scientific networking strategy. They facilitated complementary forms of knowledge transfer, encompassing established molecular diagnostic techniques and emerging immunodiagnostic technologies.

1. **Scientific and methodological capacity building:** Strengthening laboratory competencies in Pneumocystis molecular detection and supporting the development of alternative diagnostic approaches aligned with the objectives of Working Group 2 (Development and Evaluation of Novel Diagnostic Methods).
2. **International collaboration and knowledge transfer:** Establishing and reinforcing institutional links between Albania, Poland, Spain, and Portugal, thereby facilitating future collaborative research, methodological harmonisation, and exchange of expertise.
3. **Inclusiveness and career development:** Supporting the professional development of two young female researchers, including one from an ITC, and promoting equitable access to specialised training opportunities across the Action network.

Overall, the GP1 STSM programme established a promising foundation for sustained scientific exchange and capacity building. Its principal documented achievements concern the acquisition of methodological expertise, the strengthening of international partnerships, and the initiation of innovative diagnostic research. During subsequent Grant Periods, particular emphasis should be placed on documenting the implementation of transferred methodologies at home institutions, validating emerging diagnostic prototypes, and translating these exchanges into measurable collaborative scientific outputs.