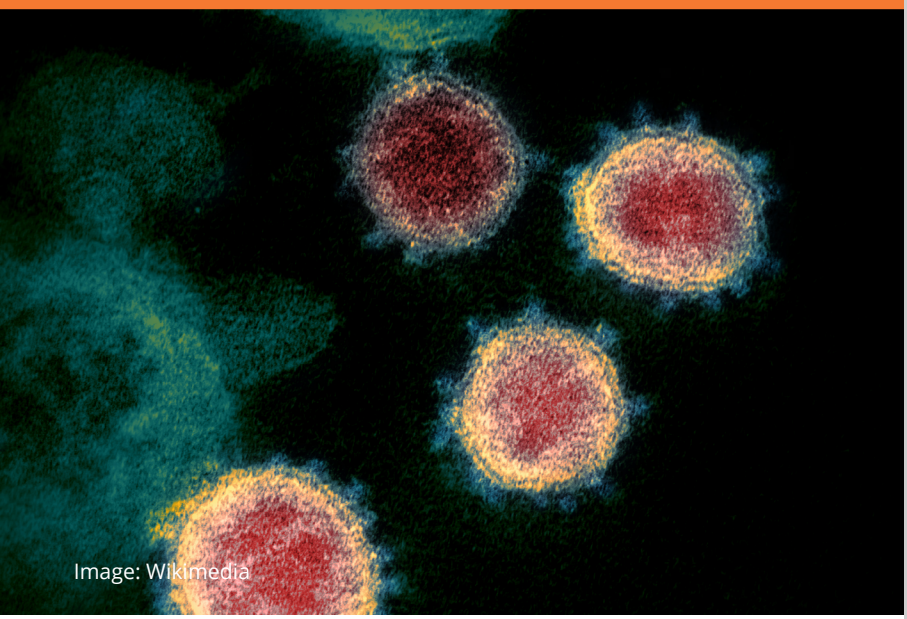
Image: Wikimedia

SHORT TERM MISSIONS

Short Term Missions (STMs) are small travel grants with the aim of:

- Sharing scientific expertise, methodologies, equipment and facilities to harmonise the existing approaches and methodologies within the large
- OHEJP European network
  Driving the research forward in a collaborative and non-duplicative fashion to strengthen both the scientific capacity within the OHEJP
- Contributing to the future prevention, preparedness, detection and response of the EU to foodborne and other emerging threats across human-animal-environmental sectors.

Metagenomic Tools for the Study of SARS-CoV-2 in Animals

...a great personal and professional experience. I closely followed the group's daily activities, and performed specific training activities designed to maximize my learning experience. I had the opportunity of getting acquainted with the National Health System of Portugal, and participated in several cultural and scientific activities carried out at INSA during my stay. I gained valuable skills, that will allow me to use metagenomics in my future research.

Carlos Sacristán Yagüe
INIA, Spain

Theme:	One Health, Skills Development Missions
Home Institute:	INIA, Spain
Mission Hosting Institute:	INSA, Portugal
Duration of Mission:	2 weeks

The aim of this mission was to expand the Carlos' training to a higher and more practical level by learning the application of metagenomics and completing sequencing within a One Health context. These tools are essential for modern surveillance and diagnostics of infectious diseases and are key to shed light on the epidemiology of novel viruses.

During the mission, Carlos had the opportunity to learn how to use the INSaFLUTELE-VIR suite: an easy-to-use open web-based bioinformatics suite that was designed for the genomic surveillance of human seasonal influenza and SARS-CoV-2, and recently adapted to monkey pox virus (now renamed Mpox). This platform was proven to be an excellent surveillance tool during the SARS-CoV-2 pandemic and a new module has been designed by researchers in the mission hosting institute to simplify metagenomic analyses and identify new viruses. Carlos also learned about the ReporTree tool, a surveillance-oriented tool to strengthen the linkage between pathogen genetic clusters and epidemiological data and was trained on the use of nanopore sequencing with MinION. The MinION was used during the mission for the complete sequencing of SARS-CoV-2, the diagnostics of MPox virus and sequencing of a poliovirus. The "Young Researcher Day" and "INSA Day" took place during the mission, showcasing scientific and cultural activities. It allowed Carlos to learn about the different research lines carried out in the three INSA headquarters in Portugal and to expand his professional network.

The mission provided Carlos the training to diagnose and characterize future SARS-CoV-2 cases in animals using metagenomics, which is key to determine whether a virus has changed/mutated during a spill over event. One of the outputs of the project will be the adaptation of modern metagenomics and bioinformatics tools in the COVRIN project. The mission also strengthened further the collaboration between the institutes, with a new collaboration established to research on hepatitis E virus in wildlife.

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