France Continues its Research Commitment to Fighting Monkeypox

Monkeys, a disease endemic in Central and West Africa, saw its first cases of human-to-human transmission in France and other European countries in early May 2022. In their wake, an emergency research program was set up by ANRS | Emerging Infectious Diseases – an autonomous agency of Inserm, in conjunction with France’s Ministry of Higher Education and Research and Ministry of Health and Prevention.

On May 16, 2022, ANRS | Emerging Infectious Diseases activated a crisis mechanism as part of the research component dedicated to monkeypox, with the first case of the disease reported in the UK on May 7, 2022.

To ensure a coordinated and effective response, the agency immediately deployed activities of scientific news monitoring and information aimed at public authorities and the media.

In parallel, the agency brought together a multidisciplinary group of over 50 experts to review the scope of scientific knowledge and define research priorities for the response to the monkeypox epidemic in France. This was done in close conjunction with the research roadmap discussed at an international meeting held by the World Health Organization (WHO) in early June.

The research priorities selected are as follows:

- **Studies of animal reservoirs**: identification of the species responsible for spillover in endemic areas (crossing of the species barrier with animal-to-human transmission via rodents, bats, non-human primates, etc.), risk and prevention of spillback in areas having experienced recent epidemic outbreaks (reverse-crossing of the species barrier with human-to- animal transmission via pets, local wildlife, etc.).

- **Development of suitable diagnostic methods**: molecular, serological, in humans and animals.

- **Dynamics of virus circulation (in animals and humans) and modes of person-to-person transmission**: seroprevalence, sexual transmission, droplet-borne transmission, persistence of the virus in biological fluids, study of the duration of contagiousness, modeling study to anticipate and guide public health policies.

- **Natural history and pathophysiology of the infection**: virus/host interactions, pathogenesis, virulence studies (role of mutations in pathogenesis), studies of immune response.

- **Human and social sciences studies, particularly in the most exposed populations**: analysis of the perception and understanding of the infection, socio-environmental determinants of exposure, prevention and awareness for exposed
populations, perception of barrier measures, analysis of the dynamics of collective mobilizations, logic of the public authorities’ response.

To ensure the correct circulation of the information and promote the development of research projects centered around these priorities, ANRS | Emerging Infectious Diseases has mobilized the scientific community and set up working groups.

Two flagship research projects are now underway following their evaluation by an independent scientific council and thanks to financial support by the Ministry of Health and Prevention:

- **Launch of an international cohort of people infected with the monkeypox virus (ANRS MOSAIC)**, in collaboration with the University of Oxford, Geneva University Hospitals, and coordinated by ANRS | Emerging Infectious Diseases for Europe. The objectives are to better understand the disease and evaluate the impact of the care of infected patients. In France, the first patients were enrolled on July 13, 2022.

- **Set-up of a cohort of contacts at risk of monkeypox infection (MONKEY VAX)**, sponsored by the Paris public hospitals group AP-HP, to study the efficacy of post-exposure vaccination (third-generation vaccine developed for smallpox). The first patients were enrolled in France on July 13, 2022.

Following the French National Authority for Health (HAS) opinion of July 7, 2022 recommending the extension of pre-exposure smallpox vaccination to those most at risk of contracting monkeypox, a component has been added to the ANRS DOXYVAC study following ethics committee approval, making it possible to evaluate the benefit of this vaccination against monkeypox infection.

In mid-June, with the support of the team from ERINHA, the pan-European Research Infrastructure on Highly Pathogenic Agents, ANRS | Emerging Infectious Diseases launched a flash call for proposals in order to fund research projects that will provide knowledge on monkeypox in the short-term.

Thanks to the support of the Ministry of Higher Education and Research, ten projects were selected for funding representing a total of almost three million euros. These projects partially address the priorities defined previously.

As monkeypox is endemic in Central and West Africa, this call for proposals was also open to low- and middle-income countries. ANRS | Emerging Infectious Diseases, the National Institute for Biomedical Research (INRB) in the Democratic Republic of the Congo, and the National Institute of Allergy and Infectious Diseases in the United States (NIAID/NIH), in collaboration with the WHO, held two consultations in June and July 2022 to develop a CORE protocol for the evaluation of treatments in people infected with monkeypox. A multi-country clinical trial evaluating the tolerability and efficacy of the treatments on the basis of this protocol, will be launched shortly.

These various studies covering a diversity of themes and disciplines, and driven by multiple research institutions in France and abroad in conjunction with Europe and the WHO, have been or will be deployed shortly – less than two months after the first cases were declared in Europe. The knowledge they provide will be useful in implementing the response to this epidemic and will help guide public health decisions tailored to each population.

Find out more about the projects selected following the flash call for proposals on monkeypox: [https://www.anrs.fr/fr/actualites/1129/resultats-de-lappel-projets-flash-sur-la-variole-simienne](https://www.anrs.fr/fr/actualites/1129/resultats-de-lappel-projets-flash-sur-la-variole-simienne)

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