

The CLIOC Workflow: Ensuring Conservation of the Diversity of Leishmania Parasites Available for Scientific and Technological Development

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Microbial collections of pathogens are essential for the advance of research in different areas, development of diagnostic methods, treatments, and vaccines. They are of great importance for the understanding and control of the diseases they cause. They are also used to detect the emergence of new strains of pathogens and to monitor the evolution of existing ones. The Leishmania Collection from Oswaldo Cruz Foundation (CLIOC) is an important repository of strains of Leishmania parasites serving for these purposes. CLIOC includes different Leishmania strains from all over the world, mainly from American countries, endemic regions for leishmaniasis, a serious and neglected global public health threat. Isolation and cultivation of Leishmania spp., followed by correct identification, storage - employing appropriated methods - and associating to clinical and epidemiological information, are essential to preserve the diversity of natural population of these parasites, a source for the development of researchers in different subject. Here we'll outline the complex workflow that was implemented for 1670 Leishmania spp strains available for donation for different purposes, which represent about 40% of the strains already deposited at CLIOC. These strains correspond to 34 species, classified into five subgenera, representing the taxonomic groups of Leishmania worldwide distributed, some of them responsible for causing leishmaniasis. From their reception, through species identification by different biochemical (multilocus enzyme electrophoresis) and molecular (partial sequencing of different genes) approaches, followed by cryopreservation, quality control checks, and ultimately, the transfer of the associated data to an online catalogue, all procedures are conducted in accordance with the quality management system, adhering to the ABNT NBR ISO/IEC 17025:2017 (General requirements for the competence of testing and calibration Laboratories) standards. Furthermore, we will also present all services incorporated into the routine of CLIOC, which comprises, in addition to the aforementioned: distribution of strains, human resources training, provision of information and procedures, scientific-technical consulting, development and supervision of research projects. We aim to bring to the light the need of accurately describe the information associated with Leishmania spp in scientific publications, in order to ensure reproducibility of research. Finally, we will highlight the importance of depositing Leishmania spp strains in institutional collections to ensure their availability for future research and promote scientific rigor, since the deposit of Leishmania spp parasites in microbiological collections is not commonly adopted by the scientific community and is not mandatory even for new species description.