

The *Leishmania* collection of Montpellier (France), a tool for studying taxonomy, phylogeography and epidemiology.

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The Montpellier International Cryobank of *Leishmania* has been operating since 1975. It currently holds more than 6,000 *Leishmania* strains from 72 countries in four continents, which is the largest collection in the world, with high diversity of *Leishmania* species and hosts. The isolates were mainly obtained from human visceral and tegumentary leishmaniasis cases for diagnostic purposes. Isolates were equally obtained from carnivores (essentially dogs), other mammals (mainly rodents) and phlebotomine sandflies, during epidemiological surveys carried out in several endemic foci of both Old and New worlds. All these strains have been identified by isoenzymatic analysis. This collection includes the WHO reference and zymodeme reference strains of Old and New worlds.

In our lab, identification is based on starch gel electrophoresis of 15 isoenzymes, and isoelectric focusing. This is currently the gold standard technique for identification at specific and infra-specific level and for numerical taxonomy. It has been intensively used for 30 years, with typing of several thousands strains. To date, 257 zymodemes have been described, belonging to 27 taxa. This technique allowed our group to propose a numerical classification of the *Leishmania* genus (Rioux *et al.*, *Ann Parasit hum comp*, 1990, 65:111-125), which has been regularly up-dated.

A molecular approach based on multilocus sequence typing (MLST) is currently developed in our lab. About 240 *Leishmania* strains belonging to 24 species of both Old and New worlds were analysed on 7 genomic loci. Preliminary results showed a congruence between molecular and isoenzymatic clusters. Moreover, as shown by an increasing number of works, some taxonomic groups defined by isoenzyme analysis are probably indistinguishable when they are analysed by molecular tools.

In addition to phenetic and phylogenetic classifications, isoenzymatic analysis of large numbers of strains has contributed to the study of the geographical distribution and of epidemiological features of Old World cutaneous foci, showing different patterns of structuration of the populations (Pratlong *et al.*, *Trop Med Intern Hlth*, 2009, 14:1071-1085).

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