A new method for treating parasitic diseases using dichloroacetate

THE INVENTION

The inventors found that glycolytic parasites —those basing ATP production and biomass generation mainly on aerobic fermentation, including Leishmania spp., Toxoplasma spp., Plasmodium spp. or Trypanosoma spp.—, can be inhibited by blocking the glycolytic pathway with dichloroacetate (DCA), thus providing a new method for treating parasitic diseases caused by these parasites.

Innovative aspects and advantatges

Leishmanises control, both human and canine, is confined to chemotherapy. There are limited number of drugs available for treating leishmaniases and other diseases caused by glycolytic parasites, most requiring long periods of administration, inducing serious side effects, and prone to resistance development. The invention allows the treatment of these parasitic diseases through a radically different approach, potentially avoiding the inconveniences of former treatments. Glycolysis is a highly conserved metabolic pathway in parasites and therefore appearance of resistances are not expected. So far, the efficacy of this approach seems to be even better than when using Glucantime.

IP Rights

European Patent Application filed in 2014

Scientific Team

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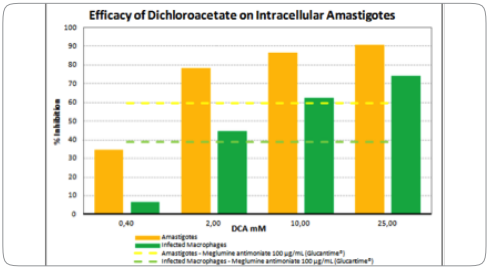
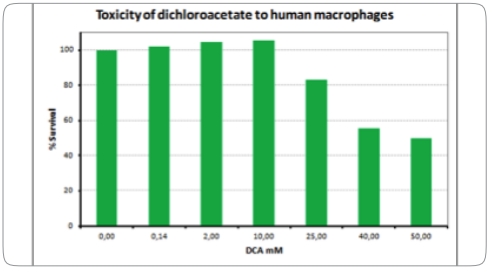
Results and State of Development

To date, the efficacy of dichloroacetate has been tested in vitro for Leishmania spp. and results show a promising efficacy of DCA, showing an inhibitory activity even greater than when compared to Glucantime, the reference drug for Leishmania (Fig. 1).

Preliminar toxicological studies in macrophages show that the compound does not affect the survival of cells up to high concentrations (Fig. 2)

Ongoing research is focused on efficacy studies for Plasmodium spp., Trypanosoma and Toxoplasma. In vivo results are expected before ending 1Q2015.





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