



## Molecular Targeting Technologies, Inc. Development Pipeline

**CLASS:** Therapeutic

**NAME:** LeishCure

**INDICATION:** Cutaneous Leishmaniasis (CL)

**USES:** An affordable and effective topical ointment for treating CL

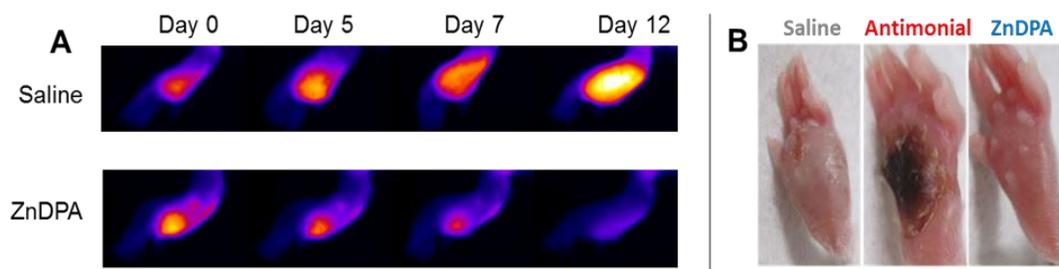
**TECHNOLOGY:** Leishmania protozoan parasites are the causative agents of leishmaniasis, exhibiting a spectrum of manifestations ranging from ulcerative skin lesions to fatal visceral infections. Zinc(II)-dipicolylamine (ZnDPA) complexes can selectively target the anionic surfaces of microbial cells but not the zwitterionic membrane surfaces of healthy host mammalian tissue. The exterior surface of Leishmania parasites is rich in anionic structures. ZnDPA complexes have strong activity against *Leishmania major* (*L. major*), one of the main causative agent of cutaneous leishmaniasis (Antimicrobial Agents and Chemotherapy, 60(5): 2932-2940 (2016)).

**UNMET NEED:** Leishmaniasis represents a major international health problem. Globally, there are an estimated 1.5–2 million new cases of leishmaniasis and 70,000 deaths each year, and 350 million people are at risk of infection and disease. The current chemotherapies to treat leishmaniasis are expensive and/or toxic. Leishmaniasis is classified as an emerging and uncontrolled disease by the World Health Organization (WHO).

### PROOF OF CONCEPT:

Mouse footpads inoculated with a fluorescent CL strain and treated with ZnDPA show 70% less parasite burden compared to saline-treated animals (Fig. 1A). Fig. 1B antimonial treated footpads displayed cutaneous necrosis and scabbing, whereas, footpads treated with ZnDPA exhibited no apparent cutaneous reaction. These results demonstrate that ZnDPA complexes are a promising new class of potent antileishmanial agents with potential for clinical translation.

**Fig 1.** [A] Representative red fluorescence intensity images of BALB/c mouse footpads after inoculation with mCherry-L. major promastigotes (10<sup>8</sup>) followed by treatment with five foot-pad injections per week of saline (top) or ZnDPA (0.1 mg/kg, bottom). [B] Representative photographs of mouse footpads after 12 days of different treatments.



**STAGE OF DEVELOPMENT:** Preclinical. Seeking partner.

**PRINCIPAL COLLABORATOR:** University of Notre Dame (UND)

**IP:** Multiple approved and pending patents on Zn-DPA: US7,179,616; 8,389,223 and 9,211,349.

**FUNDING:** Obtained funding from NIAID.

**OWNERSHIP:** MTTI/UND