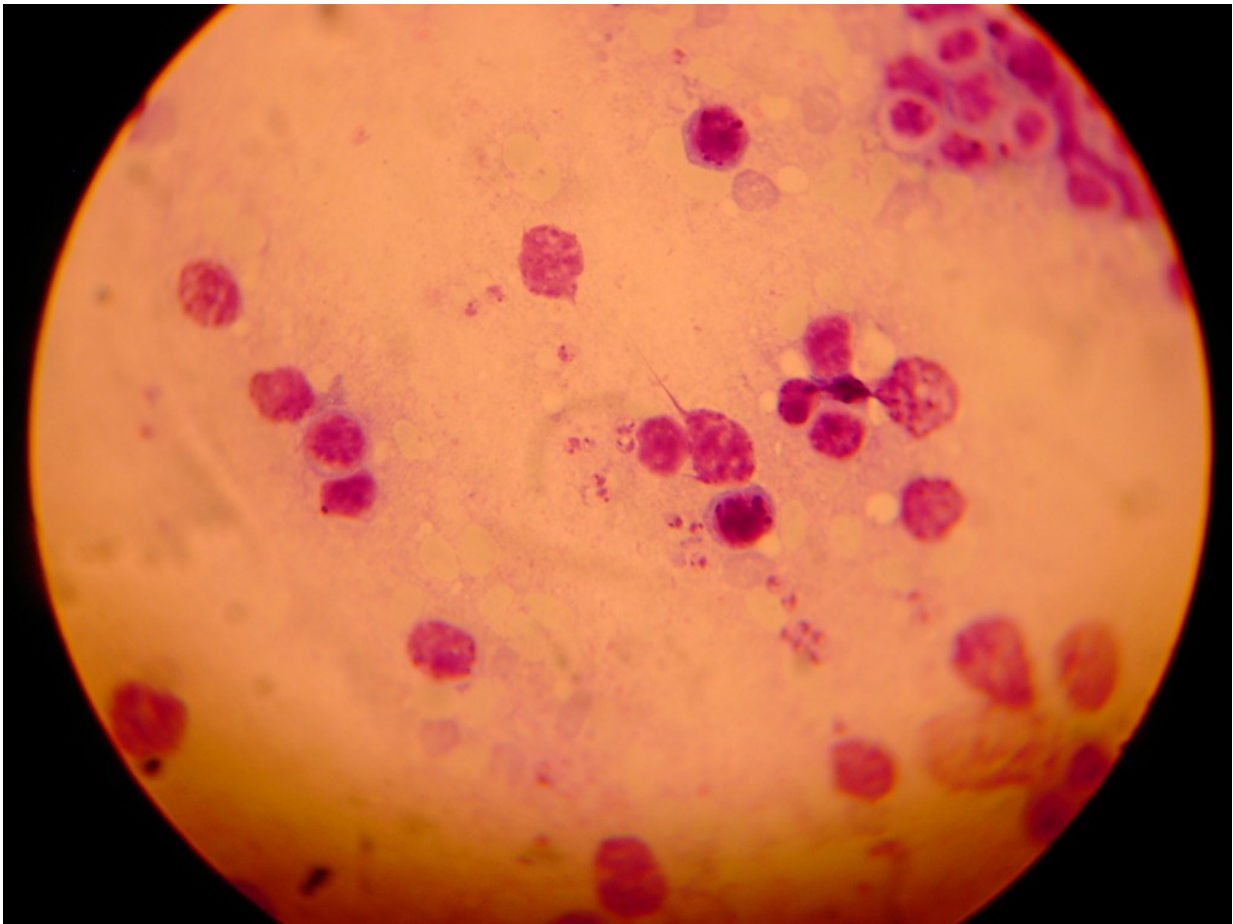


Scientists reveal structure of potential leishmaniasis vaccine

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Scientists reveal structure of potential leishmaniasis vaccine. Credit: Michael Wunderli, Flickr

Leishmaniasis, caused by the bite of a sand fly carrying a *Leishmania* parasite, infects around a million people a year around the world. Now, making progress toward a vaccine against the parasitic disease, researchers reporting in *PLOS Neglected Tropical Diseases* have characterized the structure of a protein from sand flies that can convey immunity to *Leishmania*.

Previous studies have shown that exposing mice or hamsters to sand fly saliva can protect them against infection by the *Leishmania* protozoa. Scientists homed in on a protein called SALO (Salivary Anticomplement of *Lutzomyia longipalpis*) as the key sand fly player in the immune response. The protein is now being pursued as a [vaccine candidate](#) for immunizing humans against leishmaniasis.

In the new work, Oluwatoyin Asojo, of the Sabin Vaccine Institute at Baylor College of Medicine, and colleagues put the SALO gene into yeast cells to produce the SALO protein. Then, they studied the recombinant version of SALO, testing its effect on the immune systems of mice and determining its physical structure.

Recombinant SALO, the researchers showed, produced an immune reaction in mice sufficient to convey long-term protection. The SALO protein, they determined, had no appreciable structure similarities to any human protein, and only limited similarities to other insect proteins. Moreover, they were able to pinpoint three parts of the structure that are predicted to interact with [human immune cells](#).

"This work demonstrates that SALO is suitable for further scale-up, manufacturing, and testing as a vaccine candidate against leishmaniasis," the researchers conclude. "The structure of SALO is novel and unique to [sand flies](#) with no resemblance to any [protein sequence](#) or structure from humans."

More information: Asojo OA, Kelleher A, Liu Z, Pollet J, Hudspeth E, Rezende WC, et al. (2017) Structure of SALO, a leishmaniasis vaccine candidate from the sand fly *Lutzomyia longipalpis*. *PLoS Negl Trop Dis* 11(3): e0005374. [DOI: 10.1371/journal.pntd.0005374](https://doi.org/10.1371/journal.pntd.0005374)

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