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IIT, IMS join hands for Kala Azar vaccine

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A study carried out at Indian Institute of Technology, Banaras Hndu University (IIT-BHU) in collaboration with Institute of Medical Sciences (IMS-BHU) offers a hope for a vaccine against Kala Azar, a major health challenge in India caused by Leishmania parasite. There is no vaccine yet available in the market for humans against this disease. The treatment of the disease mainly depends on some handful of drugs with limitations which is a serious concern towards the complete elimination programme of World Health Organisation (WHO).

Vaccination is the safest and one of the most effective ways to fight against any infectious diseases. A vaccine molecule trains our immune system to fight against a given pathogen. It stimulates several immune cells in our body that produce antibodies, cytokines and other active molecules that collectively work and protect us from infection and provides long-term protection. A vaccine would be helpful for complete eradication of leishmaniasis.

Scientists from IIT-BHU Prof Vikash Kumar Dubey, Coordinator of School of Biochemical Engineering in collaboration with Prof Shyam Sundar, Department of Medicine, IMS-BHU investigated and tested a new recombinant vaccine against Leishmania parasite that halt the progression of the infection. Dr Sunita Yadav, a National Postdoctoral Fellow with Prof Dubey, is lead investigator.

The prophylactic potential of this vaccine was evaluated in preclinical studies in mice model that showed a significant reduction in parasite load in liver and spleen organs of vaccinated infected mice than infected control mice. 'Clearance of the parasite burden in vaccinated challenged mice is correlated with immune response expected in a vaccine candidate,' said Prof Dubey. It is a type of defence mechanism that happens in our body after vaccination and helpful for prevention of disease progression. This research is recently reported in the prestigious journal 'Cellular Immunology'.

This study provides insight towards the evaluation of vaccine molecules against Leishmania infection. In future, it might be utilised as a vaccine candidate against the pathogen. However, more study needs in this direction to better understand the mode of action of this vaccine.

The team plans to further evaluate its vaccine potential in other clinical trials.