Researchers at the University of South Florida have designed a novel synthetic vaccine based on the ligand domain of *Plasmodium vivax* Duffy binding protein.

Malaria is a major global health problem responsible for the lack of social and economic development of vast areas of tropical and subtropical countries of the world. *Plasmodium vivax* malaria is the most abundant of all human malarias. Over 40% of the world’s population is at risk of *P. vivax* malaria with about 75-90 million cases of clinical disease each year. Widespread drug resistance and emerging virulent forms of the parasite emphasize an urgent need for developing a vaccine against this disease.

Parasite invasion of human erythrocytes is necessary for asexual blood stage development. The *Plasmodium vivax* Duffy binding protein (PvDBP) is an essential ligand for parasite invasion of erythrocytes, making the molecule an attractive vaccine candidate against vivax malaria. However, allelic variation in the ligand domain represents a potential challenge, which may compromise vaccine efficacy by eliciting an immune response that is biased towards strain-specificity. To overcome this inherent bias, USF researchers have designed a novel DBP based vaccine that would elicit antibodies with functional activity against broader allelic variants and favor boosting responses against conserved protective epitopes.

This invention is important for the development of an effective vivax malaria vaccine that target diverse *P. vivax* strains.

**ADVANTAGES:**
- Immunogenicity

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**Evaluation of PvDBP-RII Immunogens for Immunogenicity**

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