



TECHNOLOGY OFFER

UP-092: Malaria vaccination based on newly isolated antigenic proteins

Key Facts

- New antigenic malaria determinants
- Promising candidates for an effective malaria vaccination/immunization

The Technology

This invention is including at least one peptide comprising at least one newly identified antigenic determinant or epitope of malaria proteins as an effective malaria vaccine. T-cell restimulation with one of these newly derived peptides resulted in increasing IFN- γ responses and thus it has been shown for the first time that a malarial liver-stage-derived peptide fulfils its function as an immunodominant, protective antigen (in the system of rodent malaria in the background of C57BL/6 mice).

Background

With a disease causing more than 1 million deaths annually, finding a protective malaria vaccine would have a tremendous impact on global health. Despite more than a century of efforts, there is no such vaccine on the horizon. RAS, i.e. the administration of radiation-attenuated Plasmodium sporozoites, is the current "gold standard" of strategies proposed for vaccination. As an alternative, recent advances in gene targeting technology have enabled the generation of genetically attenuated parasites (GAP) unable to express essential liver stage expressed genes. This leads to a similar degree of protection due to attenuated liver-stage development. While several problems preclude licensing for human use, GAP and RAS nevertheless serve as tools to study protective immune responses: What are the target antigens? Which immune effector mechanisms are required? How, when and where are these effector mechanisms induced? Answering these questions is the first step toward an effective subunit vaccine that induces similar levels of protection.

Advantages

- Newly identified antigenic malaria proteins
- Effective immunization

Commercial Opportunity

Sub-unit vaccine development

Inventors

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Intellectual Property

US Patent application number: 61/267,026

References:

Mueller AK, Labaied M, Kappe SH, Matuschewski K. Genetically modified Plasmodium parasites as a protective experimental malaria vaccine. Nature. 2005, Jan 13;433(7022):164-7.

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