

Towards the development of a safe, effective, and affordable vaccine against placental malaria

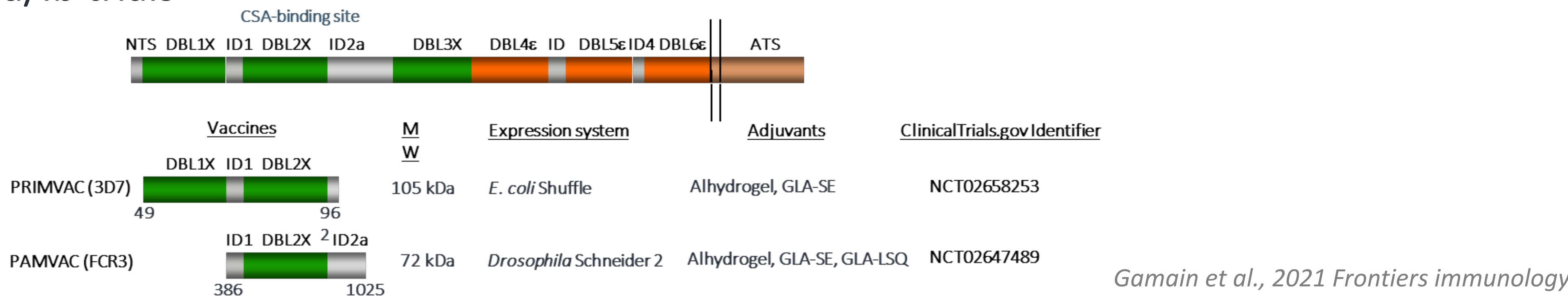
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Background

- 32% of pregnancies (13.3 million) exposed to malaria in 2021 in 38 African countries → Increased exposure compared to 2020.
- Adverse pregnancy outcomes for the mother and the baby, particularly in *P. falciparum* endemic regions and in primigravidae women
- Current interventions: long-lasting insecticide-treated nets and intermittent preventive treatment during pregnancy (IPTp).
- Acquired natural immunity over several pregnancies
- A vaccine would effectively complement existing control strategies as it also acts early in pregnancy
- PRIMVAC and PAMVAC are two VAR2CSA-derived PM vaccines that were safe, well tolerated and immunogenic in phase Ia/Ib trials



Methods

- Long-term observational follow-up study in Burkina Faso to evaluate the longevity of the PRIMVAC-induced immune response
- Sero-epidemiology study to assess pregnancy rate and PM burden in an endemic setting in Burkina Faso
- PRIMVAC phase Ib: ability to boost naturally acquired VAR2CSA immunity
- Preclinical and clinical evaluation of an optimised version of PAMVAC using the capsid-Virus-Like Particle (cVLP) technology (PAMVAC-cVLP)
- Evaluation of PRIMVAC and PAMVAC-cVLP co-administration
- Cost-effectiveness and cultural perception study in Malawi to assess the feasibility and accessibility of PM vaccine implementation

Results

- ❖ PRIMVAC follow-up study (NCT05426187):
 - ✓ 43/50 women from the previous PRIMVAC phase Ib trial enrolled
 - ✓ Additional control women (20 nulligravidae and 20 primigravidae) included
 - ✓ 8 women became pregnant and followed till delivery
 - ✓ 12-month follow-up visits completed
 - ✓ Immunological evaluation ongoing
- ❖ Sero-epidemiology study (NCT05426187)
 - ✓ Recruitment ongoing
- ❖ PAMVAC-cVLP
 - ✓ Compatibility of the tagged cVLP with PAMVAC fused to a catcher (moon-catcher conjugation system) confirmed
 - ✓ Rat immunogenicity study suggests superiority of the PAMVAC-cVLP antigen compared to the soluble protein
 - ✓ GMP manufacturing & non-clinical safety-tox evaluation
- ❖ Clinical trial activities expected to start in Q4 2024

Conclusions

A comprehensive strategy is in place to tackle the main challenges in developing an effective PM vaccine: **longevity and breadth of the vaccine-induced immune response.**

Capacity strengthening and advocacy activities in the affected regions will complement the clinical activities.

Acknowledgments



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