

viruses, including at least one new VEE variety (S.C. Weaver personal communication and G.V. Ludwig, unpublished data) and several isolates of previously known ED VEE virus. It is likely that different sites along the Amazon River basin will produce a similar diversity of virus strains. However, it is also likely that different sampling sites will yield different viruses. As humans and their domestic animals move deeper into the tropical forests of the Amazon River basin, it is likely that they will be exposed to an increasing number of viruses capable of causing disease in equines and humans. The importance of these new and reemerging viruses in human and animal health have yet to be determined. It is essential that the expertise needed to isolate and identify these viruses is maintained in areas where the viruses occur and that adequate measures are taken to ensure adequate surveillance and preventive practices are sustained.

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DESARROLLO DE UNA VACUNA CONTRA LA MALARIA: LA PERSPECTIVA DE UNA VACUNA MULTI-ESTADIO BASADA EN ACIDOS NUCLEICOS.

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Cada año alrededor de 100 - 300 millones de nuevas infecciones y 1-2 millones de muertes atribuidas a la malaria, ocurren principalmente en los trópicos, particularmente en el África ecuatorial. El problema de la malaria se ha intensificado durante los pasados 10-20 años debido a que el parásito ha desarrollado resistencia a las drogas antimaláricas, el mosquito ha desarrollado resistencia a los insecticidas y los esfuerzos para su control han disminuido por la limitación de recursos económicos. La inmunización con vacunas ofrece una intervención adicional para el control de la malaria. La tecnología de vacunas de ácidos nucleicos (ADN) ofrece la oportunidad de desarrollar rápidamente vacunas multiestadios-multivalentes. Hasta el momento hemos demostrado la eficacia de varias vacunas antimaláricas en el modelo de ratón *Plasmodium yoelii* y estamos probando vacunas multiestadios-multivalentes en primates no-humanos contra el reto de *P. falciparum*. La ingeniería, desarrollo y eficacia de estas vacunas en primates no-humanos será discutida durante esta conferencia.

Each year there are 100-300 million new infections and 1-2 million deaths attributable to malaria which occur primarily in the tropics, particularly in sub-saharan Africa. The malaria problem has intensified during the past 10-20 years because parasites have developed resistance to anti-malarial drugs, the mosquitoes have developed resistance to insecticides, and control efforts have diminished due to limited resources. Immunization with protective vaccines will offer an additional intervention to control malaria. Nucleic Acid (DNA) vaccine technology offers the unique opportunity to rapidly develop multi-stage, multi-valent vaccines. To this end, we have demonstrated the efficacy of several anti-malarial DNA vaccines in the rodent *Plasmodium yoelii* model and are testing multi-valent, multi-stage anti-malaria vaccines in non-human primates against a *P. falciparum* challenge. The engineering, development, and efficacy of these vaccines in non-human primates will be discussed.

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