

Toward a new generation of vaccines for malaria and other diseases

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Researchers in Colombia, South America, describe a new strategy for designing the next generation of synthetic vaccines that could lead to more effective treatments for fighting malaria, tuberculosis, AIDS and other infectious diseases. These conditions kill more than 17 million people around the world each year. Their study appears in the current issue of *ACS' Accounts of Chemical Research*.

Traditional vaccine development involves the use of microorganisms to trigger an immune response by the body. However, this approach can produce unwanted side effects and may be ineffective against microbes with extremely complex infection cycles. Therefore, researchers agree on the need for better vaccine.

In the study, Manuel E. Patarroyo and his son Manuel A. Patarroyo describe a completely new strategy for designing more effective vaccines, which are chemically synthesized in the laboratory without the use of microorganisms. They identified dozens of key protein fragments involved in the complex infection process of the malaria parasite, from which they designed, specifically modified and synthesized chemically some of the most promising malaria vaccine candidates that have been tested to date.

Likewise, identifying the disease-related protein fragments involved in the complex infection process of other transmittable diseases could result in new, more effective vaccines to help fight these diseases, the scientists say. They also note that this innovative approach establishes

for the first time the emerging rules for the development of vaccines against diseases scourging humankind.

Source: ACS

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