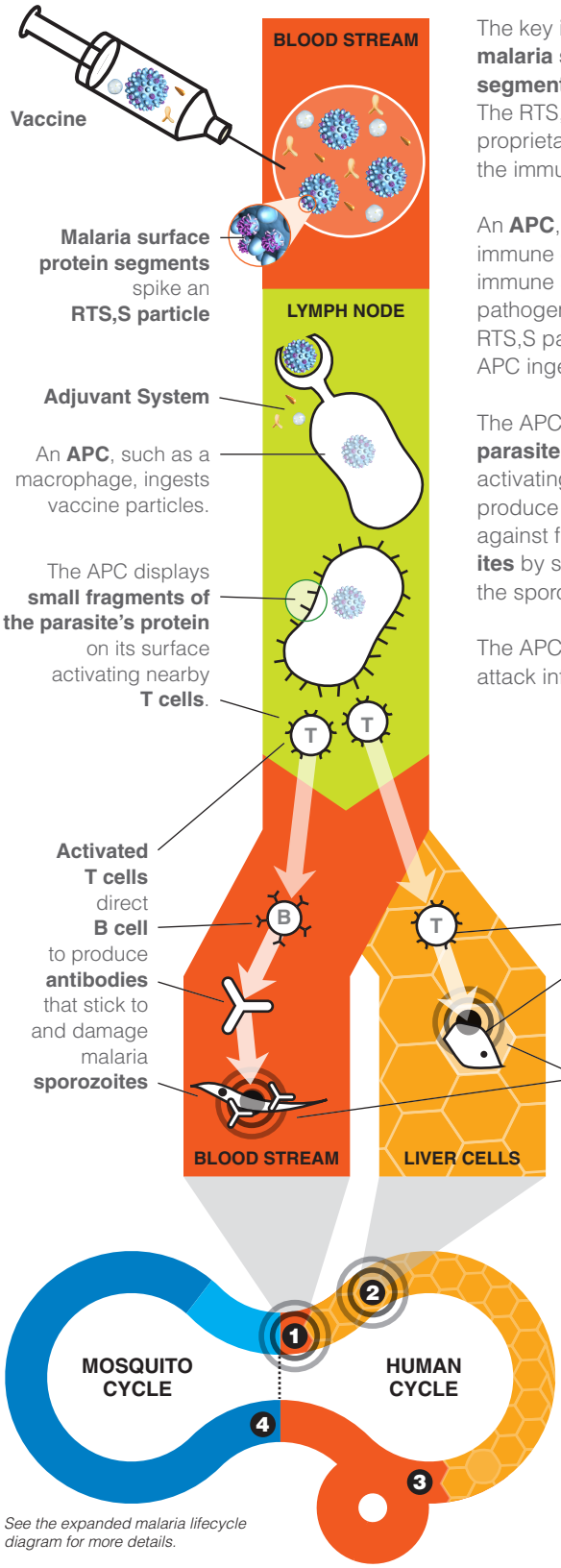
How the malaria vaccine candidate acts



See the expanded malaria lifecycle diagram for more details.

The key ingredient of the **vaccine** is the **malaria sporozoite surface protein segments** which spike an **RTS,S particle**. The RTS,S antigen is combined with a GSK proprietary **Adjuvant System** to stimulate the immunity against the parasites.

An **APC**, such as a macrophage, is an immune cell that acts as a sentinel of the immune system recognizing and eliminating pathogens from the body. Attracted to the RTS,S particle and surrounding adjuvant, an APC ingests a vaccine particle.

The APC displays **small fragments of the parasite's protein** on its surface thereby activating **T cells** to direct **B cells** to produce **antibodies.** The antibodies prevent against future invasions of malaria **sporozoites** by sticking to them and thus rendering the sporozoite ineffective.

The APC also activates T cells that can attack infected cells in the liver (**schizonts**).

RTS.S Vaccine targets

RTS,S is designed to trigger the immune system to defend against the *Plasmodium falciparum* malaria parasite as soon as it enters the human host's ❶ **bloodstream** and/or when the parasite infects ❷ **liver cells**. This should prevent the parasite from maturing and multiplying in the liver and from reentering the ❸ **bloodstream** where the host would begin to show symptoms of infection. It is also expected to prevent the further spread to and infection of ❹ **mosquitoes**.

RTS,S is an investigational vaccine and it is not approved for use in any indication in any country at this time.

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