**Supplemental Figure S1.** PfSPZ before and after purification. Photomicrograph (200×) of the PfSPZ in the lot of PfSPZ Challenge used in the clinical trial before and after purification. The purification process reduced the amount of salivary gland material in the PfSPZ samples by greater than 99.9%.

**Supplemental Figure S2.** Liver-stage Pf parasite expressing PfMSP-1 after 6 days in culture. PfSPZ from the lot of PfSPZ Challenge used in this clinical trial were used to infect a human hepatocyte line *in vitro*. Six days later the parasites were stained with an antibody to PfMSP-1. PfMSP-1 is the major protein on the surface of merozoites and is required for merozoite invasion of erythrocytes. It is only expressed in mature liver stage parasites and blood stage parasites, and is required for the survival of blood stage parasites. Potency of lots of PfSPZ Challenge is assessed by expression of PfMSP-1 *in vitro* (see Table 1). Image captured with a Zeiss LSM510 META laser scanning confocal microscope.
Supplemental Figure S3. Clinical trial profile.

36 volunteers screened for eligibility (11 male)

18 ineligible:
1. family history: MI < 50 y/o
2. previous history of drug or alcohol abuse
3. history of malaria
4. withdrew consent
5. clinically significant deviation laboratory value
6. signs or symptoms of systemic disorder
7. abnormal EKG
8. unable to be closely followed for psychological reasons

18 volunteers included (4 male)

6 volunteers (1 male)
Mean age 23, SD 2.5

6 volunteers (3 males)
Mean age 23, SD 4.0

6 volunteers (0 male)
Mean age 23, SD 1.3

2,500 PISPZ

10,000 PISPZ

25,000 PISPZ

18 volunteers completed follow-up (100%)