**Supplementary file 1: *P. vivax* antigens included in this study.** Conc = concentration; HEK293E = human embryonic kidney 293E cells; WGCF = wheat germ cell-free. \*Cd4-tagged proteins. Cd4 alone was conjugated to Luminex beads (2 μg/ml per 2.5x10^6 beads) and tested in all samples as a control for background reactivity.

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|  | **Antigen** |  | **Region** | **Expression system** | **Reference** | **Conjugation conc/2.5 x 10^6 beads** |
| Hypothetical\* | StAR-related lipid transfer protein | PVX\_081550 | Full ectodomain | HEK293E | (1, 2) | 1.2 μg/mL |
| ARP\* | Asparagine-rich protein | PVX\_090210 | Full ectodomain | HEK293E | (1, 2) | 0.09 μg/mL |
| GAMA\* | GPI-anchored micronemal antigen | PVX\_088910 | Full ectodomain | HEK293E | (1, 2) | 0.06 μg/mL |
| P41\* | 6-cysteine protein | PVX\_000995 | Full ectodomain | HEK293E | (1, 2) | 0.5 μg/mL |
| P12\* | 6-cysteine protein | PVX\_113775 | Full ectodomain | HEK293E | (1, 2) | 0.2 μg/mL |
| CyRPA | Cysteine-rich protective antigen | PVX\_090240 | Full ectodomain | *Baculovirus* |  | 7.5 μg/mL |
| CSP | Circumsporozoite protein | Vaccine construct VMP001 | Chimeric repeated region of VK210 and VK247 variants | *Escherichia coli* | (3, 4) | 1 μg/mL |
| MSP9 | Merozoite surface protein 9 | AF435853 | N-terminus; Amino acids 34–193 | *Escherichia coli* | (5) | 4 μg/mL |
| DBP | Duffy binding protein | P22290.2 | Region II-IV; Variant Sal1 | *Escherichia coli* | (6, 7) | 4 μg/mL |
| DBP |  | AAL79073.1 | Region II; Variant P | *Escherichia coli* | (6, 7) | 4 μg/mL |
| DBP |  | AAL79072.1 | Region II; Variant O | *Escherichia coli* | (6, 7) | 4 μg/mL |
| DBP |  | AAL79060.1 | Region II; Variant C | *Escherichia coli* | (6, 7) | 4 μg/mL |
| DBP |  | AAY34130.1 | Region II; Variant AH | *Escherichia coli* | (6, 7) | 4 μg/mL |
| MSP3α | Merozoite surface protein 3 alpha | AF093584 | Full ectodomain; Nucleotides 1739-4186 | *Escherichia coli* |  | 2 μg/mL |
| MSP3α |  | AF093584 | Block 1; Nucleotides 1982-2908 | *Escherichia coli* |  | 2 μg/mL |
| MSP3α |  | AF093584 | Block 2; Nucleotides 2912-3724 | *Escherichia coli* |  | 2 μg/mL |
| MSP3α |  | AF093584 | C-terminus; Nucleotides 3725-4189 | *Escherichia coli* |  | 2 μg/mL |
| MSP3α |  | AF093584 | N-terminus; Nucleotides 1739-1975 | *Escherichia coli* |  | 2 μg/mL |
| MSP1 | Merozoite surface protein 1 | EDL45115 | MSP1 19, Amino acids L1639-S1729 | *Escherichia coli* |  | 2 μg/mL |
| AMA1 | Apical membrane antigen 1 |  | Full ectodomain | *Escherichia coli* |  | 0.36 μg/mL |
| RBP1a | Reticulocyte binding protein 1a | PVX\_098585 | Amino acids 160-1170 | *Escherichia coli* | (8, 9) | 2 μg/mL |
| RBP2a | Reticulocyte binding protein 2a | PVX\_121920 | Amino acids 160-1135 | *Escherichia coli* | (8-10) | 17.22 μg/mL |
| RBP2b | Reticulocyte binding protein 2b | PVX\_094255 | Amino acids 161-1454 | *Escherichia coli* | (8, 9) | 0.16 μg/mL |
| RBP2cNB | Reticulocyte binding protein 2c without binding domain | PVX\_090325 | Amino acids 501-1300 | *Escherichia coli* | (8, 9) | 2 μg/mL |
| RBP2-P2 | Reticulocyte binding protein 2-P2 | PVX\_101590 | Amino acids 161-641 | *Escherichia coli* | (8, 9) | 5.4 μg/mL |
| Hypothetical |  | PVX\_094350 | Full ectodomain | WGCF | (11) | 3.32 μg/mL |
| AKLP2 | Adenylate  kinase-like protein 2 | PVX\_087110 | Full ectodomain | WGCF | (11) | 0.85 μg/mL |
| Hypothetical |  | PVX\_087670 | Full ectodomain | WGCF | (11-13) | 1.41 μg/mL |
| RhopH2 | High molecular weight rhoptry protein 2 | PVX\_099930 | Full ectodomain | WGCF | (11, 14) | 2.35 μg/mL |
| Hypothetical |  | PVX\_122805 | Full ectodomain | WGCF | (11) | 1.79 μg/mL |
| CCp5 | LCCL domain-containing protein | PVX\_081330 | Full ectodomain | WGCF | (11) | 1.88 μg/mL |
| Hypothetical | *Plasmodium falciparum* CPW-WPC domain containing protein | PVX\_114330 | Full ectodomain | WGCF | (11, 12) | 1.33 μg/mL |
| Pv-fam-a | Tryptophan-rich antigen | PVX\_088820 | Full ectodomain | WGCF | (11, 15) | 2.84 μg/mL |
| Pv-fam-a |  | PVX\_092995 | Full ectodomain | WGCF | (11, 12) | 1.11 μg/mL |
| Hypothetical |  | PVX\_080665 | Full ectodomain | WGCF | (11) | 1.42 μg/mL |
| RAMA | Rhoptry-associated membrane antigen | PVX\_087885 | Full ectodomain | WGCF | (11, 12, 16) | 0.2 μg/mL |
| SERA | Serine repeat antigen | PVX\_003795 | Full ectodomain | WGCF | (11, 12) | 1.64 μg/mL |
| EBP | Erythrocyte binding protein | KMZ83376.1 | Region II | *Escherichia coli* | (17) | 1.5 μg/mL |

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