

This document lists the *P. falciparum* genes in the analysis, gives the rationale for their inclusion and links to the literature.

Gene	Reason included	Paper/doi	Stage
HRP2 (PF3D7_0831800)	3	1	
HRP3 (PF3D7_1372200)	3	1	
DBLMSP (PF3D7_1035700)	1;4	2	Merozoite
DBLMSP2 (PF3D7_1036300)	1;4	2,3	Merozoite
SURF4.2 (PF3D7_0424400)	1	2	
LSA1 (PF3D7_1036400)	2;4	4	Liver
LSA3 (PF3D7_0220000)	4		
CSP (PF3D7_0304600)	2;4	4,5	Sporozoite
MSP1 (PF3D7_0930300)	2;4	4,5	Merozoite
MSP2 (PF3D7_0206800)	4		Merozoite
MSP3 (PF3D7_1035400)	2	4,5	Merozoite
MSP4 (PF3D7_0207000)	2	4	Merozoite
MSP5 (PF3D7_0206900)	2	4	Merozoite
MSP6 (PF3D7_1035500)	2	5	Merozoite
MSP7 (PF3D7_1335100)	2	5	Merozoite
TRAP (PF3D7_1335900)	2	4,5	Sporozoite
AMA1 (PF3D7_1133400)	2	4,5	Merozoite
RAMA (PF3D7_0707300)	2	5	
EBA175 (PF3D7_0731500)	2	4,5	
RH5 (PF3D7_0424100)	2	5,6	Merozoite
GLURP (PF3D7_100039600)	2	4,5	Merozoite
SERA5 (PF3D7_0207600)	2	5	Merozoite
CeTOS (PF3D7_1216600)	2	5	Liver
P48/45 (PF3D7_1346700)	2	4,5	Gametocyte
Pfs25 (PF3D7_1030900)	2	5	

Genes that could further be added:

Gene	Reason included	Paper/doi	Stage
Pf38	2	6	Merozoite

### List of *reason included* codes referred to in the gene table

Code	Explanation
1	Gene is under balancing selection/dimorphic
2	Gene is candidate vaccine target
3	Gene is used in rapid diagnostic testing

Code	Explanation
4	Gene was not successfully variant called by collaborators in the Barry lab using GATK pipeline

### List of *Paper/doi* codes linked to in the gene table

- [1]: Ahouidi et al 2021, An open dataset of Plasmodium falciparum genome variation in 7,000 worldwide samples
- [2]: Ochola et al 2010: Allele Frequency-Based and Polymorphism-Versus-Divergence Indices of Balancing Selection in a New Filtered Set of Polymorphic Genes in Plasmodium falciparum
- [3]: Amambua-Ngwa et al 2012, Population Genomic Scan for Candidate Signatures of Balancing Selection to Guide Antigen Characterization in Malaria Parasites
- [4]: Barry et al 2009, Contrasting Population Structures of the Genes Encoding Ten Leading Vaccine-Candidate Antigens of the Human Malaria Parasite, Plasmodium falciparum.
- [5]: Beeson et al 2019, Challenges and strategies for developing efficacious and long-lasting malaria vaccines
- [6]: Douglas et al 2011, The blood-stage malaria antigen PfRH5 is susceptible to vaccine-inducible cross-strain neutralizing antibody

### Other important papers/links

- WHO Tables of malaria vaccine projects globally ('Rainbow Table'): [http://www.who.int/immunization/research/development/Rainbow\\_tables/en/](http://www.who.int/immunization/research/development/Rainbow_tables/en/)