

**Table 1. Candidate malaria vaccines in clinical development
December 2006**

Activities completed or ongoing are marked with a bold X
Support for activities indicated with colour and without an X have been secured
The various stages are considered as initiated at the steps indicated below:
Phase 1a: first volunteer recruited for phase 1 in industrialized country
Phase 2a: first volunteer recruited for challenge study in industrialized country
Phase 1b: first volunteer recruited for phase 1 in disease endemic country
Phase 2b: first volunteer recruited for phase 2 in disease endemic country
Pivotal: first volunteer recruited for clinical study leading to licensure

Pre-erythrocytic Vaccines					
CSP only	Phase 1a	Phase 2a	Phase 1b	Phase 2b	Pivotal
RTS,S/AS02A : MVI/GSK	X	X	X	X	
RTS,S/AS01B : WRAIR/GSK	X	X			
RTS,S/AS01E : MVI/GSK/WRAIR	X	X	X		
HBSAg-CSP VLP: (Malarivax Apovia)	X	X			
RTS,S/AS02 and Modified Vaccinia Ankara (MVA) CSP (Oxford-GSK)	X	X			
CSP Long synthetic peptide: (Dictagene/University of Lausanne)	X	X			
CSP DNA immunization: (NMRC)	X				
CSP+ Other antigens	Phase 1a	Phase 2a	Phase 1b	Phase 2b	Pivotal
Modified Vaccinia Ankara (MVA) CSP + LSA-1 epitope (Oxford/WRAIR)	X				
Fowl Pox 9 CSP + LSA-1 epitope : (Oxford)	X		X		
Fowl Pox 9 CSP + LSA-1 epitope/ Modified Vaccinia Ankara (MVA) CSP + LSA-1 epitope (Oxford)	X	X	X		
DNA MVA prime-boost Multi-epitope(ME) string + TRAP	X	X	X	X	

Wellcome Trust	European Commission	Funding completed or project closed	US Dept of Defense	Support from Industry or Institution
USAID	WHO / IVR / TDR	EMVI	MVI	NIAID

Pre-erythrocytic Vaccines					
CSP only	Phase 1a	Phase 2a	Phase 1b	Phase 2b	Pivotal
Fowl Pox 9 MVA prime-boost ME string + TRAP (Oxford)	X	X	X	X	
Fowl Pox 9 MVA polyprotein (Oxford/EMVI)	X	X			
LSA-1 <i>E. coli</i> expressed /AS02A(LSA-NRC) (GSK/ WRAIR)	X	X			
LSA-1 <i>E. coli</i> expressed /AS01B E (LSA-NRC) (GSK/ WRAIR)					

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Blood-stage Vaccines					
MSP1	Phase 1a	Phase 2a	Phase 1b	Phase 2b	Pivotal
MSP-1 42 3D7 (FMP-1) <i>E. coli</i> expressed (WRAIR)	X	X	X	X	
MSP-1 42 3D7/ ALOH <i>P. pastoris</i> expressed (MVDU)	X				
MSP-1 42 FVO/AIOH <i>P. pastoris</i> expressed (MVDU)	X				
MSP-1-C1 42 (FVO+3D7)/AIOH <i>P. pastoris</i> expressed (MVDU)	X				
MSP-1-C1 42 (FVO+3D7)/AIOH+CPG <i>P. pastoris</i> expressed (MVDU)	X				
AMA1	Phase 1a	Phase 2a	Phase 1b	Phase 2b	Pivotal
AMA-1 <i>E. coli</i> expressed (Australia)	X				
AMA-1 3D7 (FMP2.1)/AS02A <i>E. coli</i> expressed (WRAIR/	X		X		
AMA-1 C1 (FVO+3D7)/AIOH <i>E. coli</i> expressed (MVDU)	X		X		
AMA-1 C1 (FVO+3D7)/AIOH+CPG <i>E. coli</i> expressed (MVDU)	X				
AMA-1 /AIOH; MontanideISA720; AS02 <i>P. pastoris</i> expressed (BPRC)	X				
	Phase 1a	Phase 2a	Phase 1b	Phase 2b	Pivotal
MSP-3 Long synthetic peptide (Pasteur Institute/AMANET)	X		X		
GLURP Long synthetic peptide (SSI)	X				
SE 36/ Alum <i>E. Coli</i> expressed (Osaka University, BIKEN Foundation)	X				
Combination Blood-stage antigens	Phase 1a	Phase 2a	Phase 1b	Phase 2b	Pivotal
Combination B: RESA, MSP1, MSP2 (STI)	X		X	X	

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Blood-stage Vaccines					
MSP1	Phase 1a	Phase 2a	Phase 1b	Phase 2b	Pivotal
MSP-3-GLURP hybrid Long synthetic peptide (SSI)	X				
MSP3/GLURP (GMZ 2)/AIOH <i>L. lactis</i> expressed recombinant	X				
MSP-1 19/AMA-1 chimera (PfCP2.9) <i>P. pastoris</i> expressed (SMMHS/Wanxing/ MVI/WHO)	X				
	X				

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Transmission-blocking Vaccines					
	Phase 1a	Phase 2a	Phase 1b	Phase 2b	Pivotal
PvS25 <i>Saccharomyces</i> expressed (MVDU)	X				

Combination Multi-stage Vaccines					
	Phase 1a	Phase 2a	Phase 1b	Phase 2b	Pivotal
Recombinant FMP-1 plus RTS,S , MSP-1 3D7 + CSP (WRAIR)	X	X			
Mimetopes delivered on Virosome CSP , AMA-1 (Pevion)	X	X			

