

eo1f-othd-000001.txt  
SEQUENCE LISTING

<110> GlaxoSmithKline Biologicals S.A.

<120> Vaccines for Malaria

<130> VB62679WO

<150> US61/015762

<151> 2007-12-21

<160> 25

<170> PatentIn version 3.5

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<213> Plasmodium vivax

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eo1f-othd-000001.txt

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Gly Val Asn Phe Asn Asn Val Asp Ala Ser Ser Leu Gly Ala Ala His  
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Val Gly Gln Ser Ala Ser Arg Gly Arg Gly Leu Gly Glu Asn Pro Asp  
 35 40 45

Asp Glu Glu Gly Asp Ala Lys Lys Lys Lys Asp Gly Lys Lys Ala Glu  
 50 55 60

Pro Lys Asn Pro Arg Glu Asn Lys Leu Lys Gln Pro Gly Asp Arg Ala  
 65 70 75 80

Asp Gly Gln Ala Ala Gly Asn Gly Ala Gly Gly Gln Pro Ala Gly Asp  
 85 90 95

Arg Ala Ala Gly Gln Pro Ala Gly Asp Arg Ala Ala Gly Gln Pro Ala  
100 105 110

Gly Asp Gly Ala Ala Gly Gln Pro Ala Gly Asp Arg Ala Asp Gly Gln  
115 120 125

Pro Ala Gly Asp Arg Ala Asp Gly Gln Pro Ala Gly Asp Arg Ala Ala  
130 135 140

Gly Gln Ala Ala Gly Asn Gly Ala Gly Gly Gln Ala Ala Ala Asn Gly  
145 150 155 160

Ala Gly Asn Gln Pro Gly Gly Gly Asn Ala Ala Asn Lys Lys Ala Glu  
165 170 175

Asp Ala Gly Gly Asn Ala Gly Gly Asn Ala Gly Gly Gln Gly Gln Asn  
180 185 190

Asn Glu Gly Ala Asn Ala Pro Asn Glu Lys Ser Val Lys Glu Tyr Leu  
195 200 205

Asp Lys Val Arg Ala Thr Val Gly Thr Glu Trp Thr Pro Cys Ser Val  
210 215 220

Thr Cys Gly Val Gly Val Arg Val Arg Arg Arg Val Asn Ala Ala Asn  
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Lys Lys Pro Glu Asp Leu Thr Leu Asn Asp Leu Glu Thr Asp Val Cys  
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Thr

<210> 14  
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<400> 14

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<210> 15  
<211> 771  
<212> DNA  
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<220>  
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vivax (optimised for expression in yeast)

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aacaacgtcg atgcttcttc tttaggtgcc gctcatgttg gtcaatctgc ttcaagaggt 120

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 <223> Nucleotide sequence for the hybrid fusion protein CSV-S

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tctgcttcaa	gaggttagagg ttttaggtgaa aaccagacg acgaagaagg tgacgctaag 180
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ccaggtgaca	gagccgacgg acaagcagct ggtaatggtg ctggagggtca accagctggt 300
gacagagctg	ccggtcagcc tgctggtgat agagctgctg gacaacctgc tggagacggt 360
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ccatcgtcct gggctttcgc aaaataccta tgggagtggg cctcagtccg tttctcttgg	1320
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Leu Gly Ala Ala His Val Gly Gln Ser Ala Ser Arg Gly Arg Gly Leu	35 40 45
Gly Glu Asn Pro Asp Asp Glu Glu Gly Asp Ala Lys Lys Lys Lys Asp	50 55 60
Gly Lys Lys Ala Glu Pro Lys Asn Pro Arg Glu Asn Lys Leu Lys Gln	65 70 75 80
Pro Gly Asp Arg Ala Asp Gly Gln Ala Ala Gly Asn Gly Ala Gly Gly	85 90 95
Gln Pro Ala Gly Asp Arg Ala Ala Gly Gln Pro Ala Gly Asp Arg Ala	100 105 110
Ala Gly Gln Pro Ala Gly Asp Gly Ala Ala Gly Gln Pro Ala Gly Asp	115 120 125
Arg Ala Asp Gly Gln Pro Ala Gly Asp Arg Ala Asp Gly Gln Pro Ala	130 135 140
Gly Asp Arg Ala Ala Gly Gln Ala Ala Gly Asn Gly Ala Gly Gly Gln	145 150 155 160
Ala Ala Ala Asn Gly Ala Gly Asn Gln Pro Gly Gly Gly Asn Ala Ala	165 170 175
Asn Lys Lys Ala Glu Asp Ala Gly Gly Asn Ala Gly Gly Asn Ala Gly	

180

185

190

Gly Gln Gly Gln Asn Asn Glu Gly Ala Asn Ala Pro Asn Glu Lys Ser  
 195 200 205

Val Lys Glu Tyr Leu Asp Lys Val Arg Ala Thr Val Gly Thr Glu Trp  
 210 215 220

Thr Pro Cys Ser Val Thr Cys Gly Val Gly Val Arg Val Arg Arg Arg  
 225 230 235 240

Val Asn Ala Ala Asn Lys Lys Pro Glu Asp Leu Thr Leu Asn Asp Leu  
 245 250 255

Glu Thr Asp Val Cys Thr Pro Gly Pro Val Thr Asn Met Glu Asn Ile  
 260 265 270

Thr Ser Gly Phe Leu Gly Pro Leu Leu Val Leu Gln Ala Gly Phe Phe  
 275 280 285

Leu Leu Thr Arg Ile Leu Thr Ile Pro Gln Ser Leu Asp Ser Trp Trp  
 290 295 300

Thr Ser Leu Asn Phe Leu Gly Gly Ser Pro Val Cys Leu Gly Gln Asn  
 305 310 315 320

Ser Gln Ser Pro Thr Ser Asn His Ser Pro Thr Ser Cys Pro Pro Ile  
 325 330 335

Cys Pro Gly Tyr Arg Trp Met Cys Leu Arg Arg Phe Ile Ile Phe Leu  
 340 345 350

Phe Ile Leu Leu Leu Cys Leu Ile Phe Leu Leu Val Leu Leu Asp Tyr  
 355 360 365

Gln Gly Met Leu Pro Val Cys Pro Leu Ile Pro Gly Ser Thr Thr Thr  
 370 375 380

Asn Thr Gly Pro Cys Lys Thr Cys Thr Thr Pro Ala Gln Gly Asn Ser  
 385 390 395 400

Met Phe Pro Ser Cys Cys Cys Thr Lys Pro Thr Asp Gly Asn Cys Thr  
 405 410 415

Cys Ile Pro Ile Pro Ser Ser Trp Ala Phe Ala Lys Tyr Leu Trp Glu  
 420 425 430

Trp Ala Ser Val Arg Phe Ser Trp Leu Ser Leu Leu Val Pro Phe Val  
 435 440 445

Gln Trp Phe Val Gly Leu Ser Pro Thr Val Trp Leu Ser Ala Ile Trp  
 450 455 460

eo1f-othd-000001.txt

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 35 40 45  
  
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 50 55 60  
  
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 65 70 75 80  
  
 Asn Pro Asn Lys Asn Asn Gln Gly Asn Gly Gln Gly His Asn Met Pro  
 85 90 95  
  
 Asn Asp Pro Asn Asp Pro Asn Arg Asn Val Asp Glu Asn Ala Asn Ala  
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 Asn Asn Ala Val Lys Asn Asn Asn Asn Glu Glu Pro Ser Asp Lys His  
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 Ile Glu Gln Tyr Leu Lys Lys Ile Lys Asn Ser Ile Ser Thr Glu Trp  
 130 135 140  
  
 Ser Pro Cys Ser Val Thr Cys Gly Asn Gly Ile Gln Val Arg Ile Lys  
 145 150 155 160  
  
 Pro Gly Ser Ala Asn Lys Pro Lys Asp Glu Leu Asp Tyr Glu Asn Asp  
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 Ile Glu Lys Lys Ile Cys Lys Met Glu Lys Cys Ser Ser Val Phe Asn  
 180 185 190  
  
 Val Val Asn Ser Arg Pro Val Thr Asn Met Glu Asn Ile Thr Ser Gly  
 195 200 205  
  
 Phe Leu Gly Pro Leu Leu Val Leu Gln Ala Gly Phe Phe Leu Leu Thr  
 210 215 220  
  
 Arg Ile Leu Thr Ile Pro Gln Ser Leu Asp Ser Trp Trp Thr Ser Leu  
 225 230 235 240

eo1f-othd-000001.txt

Asn Phe Leu Gly Gly Ser Pro Val Cys Leu Gly Gln Asn Ser Gln Ser  
245 250 255

Pro Thr Ser Asn His Ser Pro Thr Ser Cys Pro Pro Ile Cys Pro Gly  
260 265 270

Tyr Arg Trp Met Cys Leu Arg Arg Phe Ile Ile Phe Leu Phe Ile Leu  
275 280 285

Leu Leu Cys Leu Ile Phe Leu Leu Val Leu Leu Asp Tyr Gln Gly Met  
290 295 300

Leu Pro Val Cys Pro Leu Ile Pro Gly Ser Thr Thr Thr Asn Thr Gly  
305 310 315 320

Pro Cys Lys Thr Cys Thr Thr Pro Ala Gln Gly Asn Ser Met Phe Pro  
325 330 335

Ser Cys Cys Cys Thr Lys Pro Thr Asp Gly Asn Cys Thr Cys Ile Pro  
340 345 350

Ile Pro Ser Ser Trp Ala Phe Ala Lys Tyr Leu Trp Glu Trp Ala Ser  
355 360 365

Val Arg Phe Ser Trp Leu Ser Leu Leu Val Pro Phe Val Gln Trp Phe  
370 375 380

Val Gly Leu Ser Pro Thr Val Trp Leu Ser Ala Ile Trp Met Met Trp  
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Tyr Trp Gly Pro Ser Leu Tyr Ser Ile Val Ser Pro Phe Ile Pro Leu  
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