

Direct Tests of Enzymatic Heme Degradation by the Malaria Parasite *Plasmodium falciparum*

A

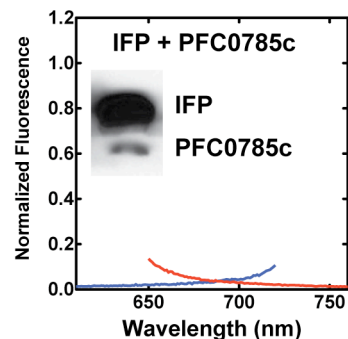
PFC0785c MNLEEFNELVKKREDIENELKEHMDFLERPENKNVG--MKGNLIDSEGFPRNDIDIYSIR 58
AtHO4 MATSRLNASCRFPASRRLDCEYSVSLRAKTVTIRYVRTIAAPRRHLVRRANEDQTLVVNV 60
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PFC0785c VARNKIICLNKYIDINKKLEEYIHKVHSTHPVIRVERKKNINNDLLNTP-QQITKEEDI 117
AtHO4 VAAAGEKPERRYPREPNGFVEEMRFVVMKIHQEIQVKEGKSVSNDLVSTWNFTIEGYLKF 120
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PFC0785c KNAKKNVFAIIDEVIENSPSHKSGLKINDQIFQFGNIKTNENKKEHEHHPNLNVELIKD 177
AtHO4 LVDSKLVFETLERIINESAIQAYAGLKNTGLERAENLSRDLEWFKEQGYEIPESMVPKA 180
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PFC0785c IAKYMKTQPKQ-----IVVKILREENIFFPHIPEQTHN 211
AtHO4 YSQYLKNIAEKDPAPFICHFYININFAHSAGGRMIGTKVAEKILDNKELEFYKWDGQLSL 240
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PFC0785c GLYLGCHLSPFDSS----- 225
AtHO4 LQNVSEELNKVAELWTREKKNHCLTEETKSFKIFYWEIFRYLLS 283
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B

PF10_0029 -MGNIIPFKTFEEKDTKTKDLINDEKYLINIDNPKDVVS--TMQHNSIKNNSSMEQEN- 56
HuHO2 MSAEVTSEGVDESEKKNNGALEKENQMRMADLSELLKEGTKEAHDRAENTQFVKDFLKG 60
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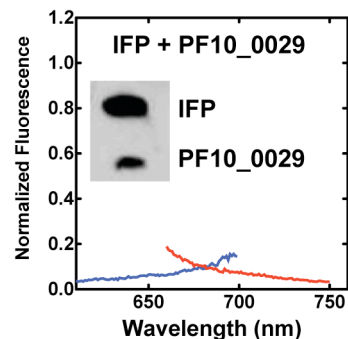
PF10_0029 NIKHELEKIKENFYLFDDSLDSN---NMKHPCHAQWFLVWFVFA-----YLNEK 103
HuHO2 NIKKELFKLATATLYFTYSALEEEMERNKDHAFAPLYFPMELHRKALTKDMEYFFGEN 120
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PF10_0029 FSDTEK-----ENVHAFYSNPFPEQCIR----- 125
HuHO2 WEEQVQCPKAAQKVVERIHVIGQNEPELLVAHAYTRYMGDLGGQVLKVAQRALKLPST 180
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PF10_0029 GKGKNCFS-----DFLKIYPIRAGTREELMMWLQMCENYCRKKADLPVKVFN---Y 173
HuHO2 GEGTQFYLFENVDNAQQFKQLYRARNALDLNMKTKERIVEEANKAFEYNNMQIFNELDQA 240
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PF10_0029 GKLLKRWRYYDDDI----- 187
HuHO2 GSTLARETLEDGFPVHDGKGMKCPFYAAEQDKGALEGGSCFPRTAMAVLRKPSLQFIL 300
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PF10_0029 ----- 316
HuHO2 AAGVALAAGLLAWYIM 316



C

PFE0565w MNMINIGYLLVLSFLLEKTFYGSDFRVFEDFVRRKNIWCCNLNHEKSYFHNKTIN 60
AtHO4 -----MATSRLNASCRFPASRRLDCE-----YVSLRAKTVTIRYVRTIA 40
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PFE0565w TSYKNRVLKESILLNLDLDMKKYKDNIIIRKKTPENIYKEIYENNYEMKYDEDIPNMSE 120
AtHO4 APRRHVRRANEDQTLVVNVVAAAGEKPERRYPRE-----PNGFVE 81
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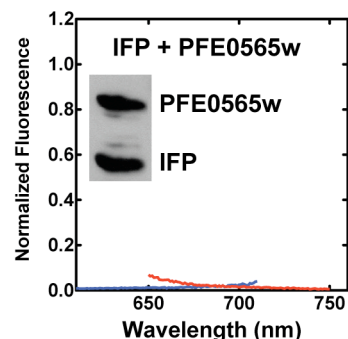
PFE0565w EKRDEKEVIEHLEIDEKNGKQYKSDINKPVLSHLKQYKNIYVNNNNKINKKSIDKHL 180
AtHO4 EMR-FVVMKIHQEIQVKEGKSVSNDLVSTWNFT-IEGYLKFVDSKLVFETLERIINESA 139
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PFE0565w SYNLERKNNKYNLFLVDNRNESYTFMVPKIFYINHEMYNISDEEYKLMEDNSVDVYLN 240
AtHO4 IQAYAGLKN--TGLERAENLSRDLEWFKEQGYEIPESMVP--KAYSQYLKN-IAEKDPP 194
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PFE0565w NILVEYKYENFEIKEGEVDGEVEGEVEGEVEGEVKGKRVVEGIENNMEEEKYNKDNKD 300
AtHO4 AFICHFYININFAHSAG---GRMIGTKVAEKILD--NKELEFYKWDGQLSLQNVSEELN 249
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PFE0565w KENQINSNGQDENTEPQENDNNDVIMKYTIIISGLVLLFCISFIIYYFDIIQVKMKLN 360
AtHO4 KVAELWTR-EKKNHCLTEETKS-----FKFYWEIFRYLLS--- 283
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PFE0565w KKRKSATMAINRDKIQEEFM 381
AtHO4 -----



Supplemental Figure S1. Sequence alignment and HO activity tests of additional HO-like proteins from *P. falciparum*. Parasite HO-like proteins PFC0785c (now PF3D7_0317800) (A), PF10_0029 (now PF3D7_1002500) (B), and PFE0565w (now PF3D7_0511400) (C) were identified by BLAST search and aligned by ClustalW to the indicated query HO sequence. The conserved heme-coordinating His residue in each known HO and the aligned His residue in the parasite proteins are shown in red. Each parasite protein was co-expressed in *E. coli* with IFP, and fluorescence excitation/emission spectra were acquired for each clarified bacterial lysate. Soluble protein expression was confirmed by anti-His₆ western blot of the clarified lysate.