Nucleotide sequence of cDNA clone for hypoxanthine-guanine phosphoribosyltransferase from *Plasmodium falciparum*

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In this report, we present the complete nucleotide sequence of the *P. falciparum* HGPRT cDNA isolated from a cDNA library of *P. falciparum* generously provided by Dr. J.V. Ravetch. The sequence published by King & Melton (1987) (1) differs from our sequence at positions 427 (T → C; Met → Thr) but the expression of the protein product of this cDNA was not successful. The complete nucleotide sequence of the *DraI*/*pstI* of the *P. falciparum* cDNA clone isolated from our lab is shown in Fig. 1. The sequence contains a long open reading frame that can encode a polypeptide of 231 amino acid residues with a calculated molecular weight of 26,360. This complete cDNA clone was subcloned into ptae-85 (2) and transformed into GP120 (3) which lacks the ability to synthesize purines *de novo* and also lacks the ability to utilize guanine as a sole source of purines in minimal growth medium due to the absence of the bacterial guanine phosphoribosyltransferase (-*purE* Δ (*lac pro gpt*)). We have successfully expressed this gene product in an *E. coli* strain deficient in purine salvage.

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      Start
      ↓ *TAA          *A*T
AAATTTATACAAATTTTAACTTTCACACACCAAAACCAAAATATATATTTAATTCATAATATTAAGAAA
                                     +1
ATATATTTTCTTGTATATATTACTATATATTTATATAATATTAGAAAATGCCAATACCAAAATATCCAGGAGCTG   28
GTGAAAATGCCTTTGATCCCGTTTTTCGTAAAGGATGACGATGGTTATGACCTTGATTCTTTTATGATCCCTGCACATTAT   108
AAAAAATATCTTACCAAGGCTCTAGTTCCAAATGGTGTCTATAAAAAACCGTATTGAGAAATTGGCTTATGATATTAAGAAA   188
GGTGTAACAACATGAAGAGTTTCATATCTTTGTTTGGTGAAGGTTCTCGTGGTTTTTCACTGCTCTCTTAAAGCATT   268
                                     *T
TAAGTAGAATACATAATTATAGTGCCGTTGAGACGTCCAAACCATTATTTGGAGAACACTACGTACGTGTGAAATCCTAT   348
TGTAATGACCAATCAACAGGTACATTAGAAATTTGTAAGTGAAGATTTATCTTGTTTAAAGGAAACATGTATTAATTGT   428
TGAAGATATATTGATACTGGTAAAAACATTAGTAAAGTTTTGTGAATACTTAAAGAAATTTGAAATAAAAACCGTTGCCA   508
TCGCTTGTCTTTTATTAAGAAACACCTTTGTGGAATGGTTTTAAAGCTGATTTTCGTTGGATTCTCAATTCCTGATCAC   588
TTTGTGTTGGTTATAGTTTAGACTATAATGAAATTTTCAGAGATCTTGACCATTGTTGTTTGGTTAATGATGAGGGAAA   668
AAAGAAATATAAGCAACTTCATTATAAATACATTTTGAAGTGATCAAAATGTCACAACCTTTCTATTTATATCAAT   690
                                     ↑ End
TTACCCCCCCCCCCCCCCCCCTGCAGG

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Fig. 1. Nucleotide sequence of *P. falciparum* *DraI*/*PstI* cDNA fragment and the deduced amino acid sequence. Asterisks indicate differences from a previously published HGPRT sequence (1) (Met → Thr; T → C).

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