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hENT1      1  -----**-----MTTSHOPODRYKAVWLI---FFMIGLGTLIPWNFFMTATOFFTNRIDMSONVSLVTAELSKDAQASAPAPAPLPERNSLSAI
hENT3      1  MAVVSEDDFQHSSNSTYRTTSSLRADOEALLEKLLDRPPPGLORPEDRFCGTYII--FFSLGIGSLLPWNFFITAKEYWMFKLRNSS-----SPATGEDPEGSDLINY
PfNT2      1  ---MSNSNSKEHYRMDGITENKIINEDESLLNMKKEEIILNGKFEEEPKLDTEN--KIDIEEKNNMSEFTNIFPNITLCMGMSS-----VLMYNCVLNTTPHIHAL
PfNT1      1  -----MSTGKESSKAVADIESRGDYRDDGKKGSTLSSKQHFMLSLTFILIGLSS-----INV

hENT1      80  FNNVMTLCAMLPLLLFTYLNSFLHORIPOSVRILGSLVAILL--VELITALVKVQLDALP--FFVITMIKIVLINSFGAILOGSLFGLAGLLPASYTAPIMSG--OGLAGFFASVAMI
hENT3     103  FESYTAVASTVPSMLCLVANFLLVNRVAVHIRVLASLTVILA--IFMVITALVKVDTFSWTRGFFAVHIVCMVILSGASTVFSSIYGMTGSFPMRNSQALISG--GAMGGTVSAVASL
PfNT2     101  LNKNIVVSSTFLLYFSILVIVSLLSLFIEVRTRTYDVCFIL--SFILQMIYPFIKYFVDK--TVFFYVLVALIGATCSMMRTMIFSISSIVNDSKVICLSYGLTGIYSLFITSTFFY
PfNT1     53  WNTALGLNINFKYNTQITGLVCSSIVALFVEPKIMLFFLLGLSILCAGFOISHSFFDTQFDTYCLVARIVIGVVAGLAOTIAFNIGSTMEDNMGGMSAGIGISGVPIFVINLLD

hENT1     193  CALASGSELSESAFGYFIT--ACAVILLTICYLGLP-----RLEFYRYYQOLKEGPGEQETKLDLISKGEEPRAGKESGVSVS-----N
hENT3     218  VDLAASSDVRNSALAFFLT--ATIFLVLCMGLVLLLS-----RLEYARYYMRPVLAAH-----VFSGEELPQDSLAPSVA-----S
PfNT2     217  FVRINKDIQKLMLSLFITSATNCIFILVSFLCYTVLKRTNNFKEKFIYTEERKNNKNSRDDSVRYYESITEKKSONISYPININSIYESKTENTESKYSLTKNDSNSVGIKSSNNT
PfNT1     173  QFVSPEKHYGVNKAKLLYLYIICELCLLLAVFCVCN-----LDLITNKNNKKDENKENNATLS-----

hENT1     273  SOPNESHSIKAILKNISVLASVCFIFTITIGMFPAVTVEVKSLAGSS--TWERYFIP-----VSCFLTFN-----IFDWLGRSLTAVFMWP--GKDSRWLPSIVLARLVFV
hENT3     289  RFIDSHTPPLRPILKTASLGRCVTYVFFITSLIYPAVCTNIESLNKGSGSLWTTKFFIP-----LTTFLYN-----FADLCGROLTAWIQVP--GPNSKALPGFVLLRTCLI
PfNT2     337  NNMTSNEIGDHKILOESHSKNKKFNDILLNENKTLSLTHSKKEDNIDDENKNHKNOFFLFNINKNLIKQAKIKAFLYKKSFIFLCSFYNIFLKLLFP--VVCPEMWTNNVDERYILI
PfNT1     232  -----YMELFKDSYKAILTMFLVNWLLQLEFPGVG--HKKWOESHNISDYNVTIHVG-----MFQVED-----LSRYPPNLTHKIFKNFTFSLNKLLVANSLRLLFI

hENT1     373  PLLLLCNIKIPRRYLT-----VVFEHDAWF--IFFMAAFAFS-----NGYLASLCMCFGPRKVKPAEAETAGAIMAFF--LCLGLALGAVF
hENT3     391  PLFVLCNYOPRVHLKT-----VVFQSDVYP--ALLSSLLGLS-----NGYLSTLALLYGPKIVPRELAEATGVVMSFY--VCLGLTLGSAC
PfNT2     455  GIVQFADCISRVFPSLAGTFPVFKIFLLTQKRVLIYSLRTILSVIGLIIPLTQDTFINNFLFKCALIFLNIYLNGWFVIMSFINVPELLKPINSMSNVATVSSFGSTLLRVGLLTGYGC
PfNT1     324  PWFILNACVDHPFFKN-----IVQQCVCMAMLAFT-----NGWFNTVPFLVFVKELKKAKKKEIEISTFLVIAMFVGLFCGIWT

hENT1     449  SFLFRAIV-----
hENT3     468  STLLVHLI-----
PfNT2     575  STLYKYLISKM-----
PfNT1     400  TYIVNLFNIVLPKPDLPPIDVTQ

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Supplementary Fig. 1: Sequence alignment of PfNT2 with *Plasmodium falciparum* PfNT1, human purine transporters hENT1 and hENT3. Identical amino acids are highlighted in black boxes, and similar residues are highlighted in grey boxes; hyphens indicate gaps. A dileucine motif in the PfNT2 amino terminal domain similar to that responsible for intracellular localization in hENT3 is indicated by (**).

Supplementary Table 1
 Primers used for the construction of codon optimised *PfN72_{coo}*.

Primer Name	Sequence
1	sens ATG AGC AAT TCT AAC AGC AAG GAG CAC TAC AGA ATG GAC GGA ATC ACA
2	antisens TTCATTGATGATCTGTTTTCTGTGATCCGTCATTCTGTAGTGCTC
3	sens GAA AAC AAG ATC ATC AAT GAA GAT GAT GAA AGT CTC TTG AAC ATG AAG
4	antisens ATTCAAGATGATTCTCTCTCTCATGTTCAAGAGACTTTCATCATC
5	sens AAG GAA GAA ATC ATC TTG AAT GGA AAA TTC GAA GAA GAG CCA AAG CTT
6	antisens AAG GAA GAA ATC ATC TTG AAT GGA AAA TTC GAA GAA GAG CCA AAG CTT
7	sens GAT CTG ACC GAA AAC AAG ATC GAT ATC GAA GAG AAG AAC AAC AAC ATG
8	antisens GAAGATGTTTGGAACCTCACTCATGTTGTTGTTCTCTCTCGATATC
9	sens AGT GAG TTC ACA AAC ATC TTC CCA AAC ATC ACA CTG TGT CTG ATG GGA
10	antisens GTACATTAGTACAGATGACATTCATCAGACACAGTGTGATGTTTGG
11	sens ATG TCA TCT GTA CTA ATG TAC AAC TGC GTA CTG AAC ACA ACA CCT CAT
12	antisens CTGTTCAGCAGTGCATGGATAGGGTGTGTGTTTCAGTACGCGATT
13	sens ATC CAT GCA CTG CTG AAC AAG AAC ATC GTA GTA TCT TCA ACC TTC TTC
14	antisens AACCCAGATAGAGAAGTATAGGAAGAAGGTTGAAGATACTACGATGTT
15	sens CTA TAC TTC TCT ATC CTG GTT ATC GTA TCA TTG TTA AGT TCC CTA TTC
16	antisens TGTCTTGTCTTACCTCGATGAATAGGGAACCTAACAAATGATACGAT
17	sens ATC GAG GTA AAG ACA AGA ACA TAC GAT GTG TGT TTC ATC CTA TCA TTC
18	antisens TGGGTATATCATTTGTAGGATGAATGATAGGATGAAACACACATCGTA
19	sens ATCCTACAAATGATATACCCATTCATCATCAAGTACTTCTACGATAAG
20	antisens TAGTACGTAGAAGAAAACGGTCTTATCGTAGAAGTACTTGATGATGAA
21	sens ACC GTT TTC TTC TAC GTA CTA GTA GCA CTA ATC GGT GCT ACG TGC TCT
22	antisens GAATATCATGGTCTTCATCATAGAGCAGTGCACCGGATTAGTGCTAC
23	sens ATG ATG AAG ACC ATG ATA TTC TCC ATC TCT TCC ATC GTT GTA AAC GAT
24	antisens TGATAGACAGATAACCTTTGAATCGTTTACAACGATGGAAAGAGATGGA
25	sens TCA AAG GTT ATC TGT CTA TCA TAC GGT TTG ACT GGG ATC TAC TCT CTA
26	antisens GAAGAATGTGGATGTGATGAATAGAGAGTAGATCCAGTCAAACCGT
27	sens TTC ATC ACA TCC ACA TTC TTC TAC TTC GTT ATT AAG ATC AAC AAG GAT
28	antisens TGACAGCATCACTTTGGATATCCTGTGTGATCTTAATAACGAAGTA
29	sens ATC CAA AAG TTG ATG CTG TCA CTG TTC ATC ACA TCA GCC ATC AAC TGT
30	antisens GAAAGACACTAGGATGAAGATACAGTGTGATGGCTGATGTGATGAACAG
31	sens ATC TTC ATC CTA GTG TCT TTC CTA TGT TAC ACT GTA CTA AAG AGA ACA
32	antisens GAACTTTTCTTGAAGTTGTTGTTCTTTAGTACAGTGAACATAG
33	sens AAC AAC TTC AAG GAA AAG TTC AAG ATC TAC ACA GAA GAG AGA AAG AAC
34	antisens ATCATCACGTGAGTCTTGTGTCTTCTCTCTCTGTGTGATCTT
35	sens AAC AAG AAC TCA CGT GAT GAT TCT TAC AAG TAC TAC GAA AGT ATC ACT
36	antisens GATGTTTTGTGACTTCTTTTCAGTGATATTTCTGTAGTACTTGTAAAGA
37	sens GAA AAG AAG TCA CAA AAC ATC TCA TAC CCA ATC AAC ATC AAC AGT ATC
38	antisens TTCTGTCTTACTTTCTGATGATGACTGTTGATGTTGATTGGGATGA
39	sens ATC TAC GAA AGT AAG ACA GAA AAC ACG GAA TCC AAG TAC TCA CTA ACA
40	antisens AACTGAGTTAGAATCGTTCTTTGTTAGTGTGACTTGGATTCCGTGTT
41	sens AAG AAC GAT TCT AAC TCA GTT GGT ATC AAG AGT AGT AGT AAC AAC ACT
42	antisens TTCGTTACTAGTCACTGTGTTAGTGTGTTACTACTACTCTTGATACC
43	sens AAC AAC ATG ACT AGT AAC GAA ATC GGA GAT CAT AAG ATC CTA CAA GAA
44	antisens CTCTTGTCTTTGAATGAGATCTTGTAGGATCTTATGATCTCCGAT
45	sens TCT CAT TCA AAG AAC AAG AAG TTC AAC GAC ATC CTT CTT AAC GAA AAC
46	antisens ATGAGTAAGTGATAGTGTCTTGTTTTCGTTAAGAAGGATGTCGTTGAA
47	sens AAG ACA CTA TCA CTT ACT CAT AGT AAG AAG GAA GAT AAC ATC GAT GAC
48	antisens GTTCTTATGGTCTTGTTTTCGTCATCGATGTTACTTCTCTTACT
49	sens GAA AAC AAG AAC CAT AAG AAC CAA TTC TTC CTA TTC AAC ATC AAC AAG
50	antisens GGCTTGCTTGATCAGGTTCTTCTTGTGATGTTGAATGGAAGAATTG
51	sens AAG AAC CTG ATC AAG CAA GCC AAG ATC AAG GCA TTC CTG TAC AAG AAG
52	antisens ACAGAATAGGAAGATGAACGACTTCTTGTACAGGAATGCCCTTGATCTT
53	sens TCG TTC ATC TTC CTA TTC TGT AGC TTC TAC AAC ATC TTC CTC AAG ATC
54	antisens ACAAAACCCGGGAACAGCAGGATCTTGAGGAAGATGTTGAGAAGCT
55	sens CTG CTG TTC CCG GTT GTT TGT CCA GAA ATG TGG ACT AAC AAC GTT GAT
56	antisens TCCGATTAGGATGATCTTTCATCAACGTTGTTAGTCCACATTTCTGG
57	sens GAA AGA TAC ATC CTA ATC GGA ATC GTG CAA TTC GCT GAT TGT ATC AGT
58	antisens TGCAAGGGATGGGAAAACACGACTGATACAATCAGCGAATTGCACGAT
59	sens CGT GTT TTC CCA TCC CTT GCA GGA ACA TTC CCA GTA TTC AAG ATC TTC
60	antisens TACCTTCTTTGTGTCAAGAGGAAGATCTGAATACTGGGAATGTTCC
61	sens CTC TTG ACA CAA AAG AAG GTA TTA ATT TAC TCT CTA CTG AGA ACT ATC
62	antisens GATCAATCCGATTACAGACAGGATAGTTCTCAGTAGAGAGTAAATTA
63	sens CTG TCT GTA ATC GGA TTG ATC ATC CCA CTG ACA CAA GAT ACA TTC ATC
64	antisens ACACTTGAAAAGGAAGTTGTTGATGATGATCTTGTGTGATGAGGGAT
65	sens AAC AAC TTC CTT TTC AAG TGT GCA CTC ATC TTC CTG AAC ATC TAC CTG
66	antisens CATGATAACGAACCAACCGTTTCAGGTAGATGTTGAGGAAGATGAGTGC
67	sens AAC GGT TGG TTC GTT ATC ATG TCT TTC ATT AAC GTT CCA GAA ATC CTC
68	antisens ACTCATGAGTTGATAGGCTTGAGGATTTCTGGAACGTTAATGAAAGA
69	sens AAG CCT ATC AAC TCA ATG AGT AAC GTT GCA ATC GTT AGT AGT TTC GGT
70	antisens GCCAACTCGAAGGAGTGTGAACCGAACTACTAACGATTGCAACGTT
71	sens TCA ACA CTC CTT CGA GTT GGC TTG CTG ACA GGC TAC GGA
72	antisens CATCTTTGAGATGATGACTTGTATAGTGTGGAACATCCGTAGCTGTCAGCAA
73	sens TGT TCC ACA CTA TAC AAG TAC ATC ATC TCA AAG ATG