



*Research article*

## **Investigation of single nucleotide polymorphisms in *MRPA* and *AQP-1* genes of *Leishmania donovani* as resistance markers in visceral leishmaniasis in Kenya**

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## Supplementary

**Table S1.** Non-synonymous SNPs in *AQP-1* gene.

### Missense SNPs

No	Changes in DNA sequence ( Reference gene <i>L.donovani</i> AQP LDBPK_310030, partial mRNA )	S57	S79	S17576	S17608	S18488	S18491	Changes in protein sequence
1	A410T		+	+		+	+	Asparagine137Isoleucine N137I
2	G543C	+	+	+		+		Leucine181Phenylalanine L181F
3	G406T	+		+	+			Alanine136Serine A136S
4	T499C	+	+		+			Tyrosine167Histidine Y167H
5	C505T		+	+		+		Leucine169Phenylalanine L169F
6	G523A	+	+	+				Aspartic acid175Asparagine D175N
7	A524C	+	+	+				Aspartic acid175Alanine D175A
8	C531T	+	+	+				Alanine177Valine A177V
9	A533C	+	+	+				Glutamine178Proline Q178P
10	C407G	+	+		+			Alanine136Glycine A136G
11	A500G	+	+		+			Tyrosine167Cysteine Y167C
12	T470C		+		+			Leucine150Proline L150P
13	G481T	+	+					Valine161Phenylalanine V161F
14	G502T	+			+			Glycine168Tryptophan G186W
15	C539G	+	+					Alanine180Glycine A180G
16	A409T	+			+			Asparagine137Tyrosine N137Y

17	A409C			+			+	Asparagine137Histidine N137H
18	T541A	+			+			Leucine181Methionine L181M
19	T541G					+	+	Leucine181Valine L181V
20	T545C	+					+	Leucine181Proline L181P
21	T545G		+		+			Leucine181Arginine L181R
22	A409G		+					Asparagine137Aspartic acid N137D
23	C548G				+			Proline183Arginine P183R
24	A550C				+			Proline183Histidine P183H
25	A551G				+			Asparagine184Serine N184S
26	A554C				+			Glutamic acid185Alanine E185A
27	G553C				+			Glutamic acid185Glutamine E185Q
28	C557A				+			Threonine186Lysine T186K
29	A559G				+			Methionine187Valine M187V
30	T560G				+			Methionine187Arginine M187R
31	G561C				+			Methionine187Isoleucine M187I
32	G562A				+			Alanine188Threonine A188T
33	A389C			+				Asparagine130Threonine N130T
34	C391G			+				Proline131Alanine P131A
35	C392T			+				Proline131Leucine P131L
36	G394T			+				Alanine132Serine A132S
37	C395A			+				Alanine132Aspartic acid A132D
38	G397T			+				Valine133Leucine V133L

39	T398C			+				Valine133Alanine V133A
40	A400G			+				Threonine134Alanine T134A
41	C446A			+				Proline149Histidine P149H
42	C469A		+					Leucine150Isoleucine L150I
43	C469T				+			Leucine150Phenylalanine L150F
44	T482C	+						Valine 161Alanine V161A
45	G502C					+		Glycine168Arginine G168R
46	A518T			+				Histidine173Leucine H173L
47	T521C			+				Phenylalanine174Serine F174S
48	G523C				+			Aspartic acid175Histidine D175H
49	C525G			+				Aspartic175Glutamic acid D175E
50	G526T			+				Aspartic acid175Tyrosine D175Y
51	G529A	+						Alanine177Threonine A177T
52	G537T		+					Alanine180Serine A180S
53	C539A			+				Alanine180Aspartic Acid A180D
54	T542G				+			Leucine181Tryptophan L181W
55	T542C						+	Leucine181Serine L181S
56	A500T					+		Tyrosine167Phenylalanine Y167F

**Table S2.** Synonymous SNPs in *AQP-1* gene.

No	Changes in DNA sequence ( Reference gene <i>L.donovani</i> AQP LDBPK_310030, partial mRNA )	S57	S79	S17576	S17608	S18488	S18491	No change in amino acid Sequence
1	T456C	+		+	+			Phenylalanine
2	G408c	+		+	+			Alanine
3	G402T	+			+			Threonine
4	C532T	+	+					Alanine
5	G537A	+		+				Lysine
6	T541C	+		+				Leucine
7	G387C			+				Leucine
8	A388T			+				Asparagine
9	C390T			+				Asparagine
10	A393G			+				Leucine
11	T396C			+				Alanine
12	G399T			+				Valine
13	C403T			+				Leucine
14	G405C			+				Leucine
15	T468			+				Phenylalanine
16	T483G			+				Valine
17	C492T			+				Alanine
18	T522C			+				Phenylalanine
19	C540G			+				Alanine
20	C540T				+			Alanine
21	G534A						+	Leucine
22	T546G		+					Leucine

23	G549A				+			Proline
24	G558A					+		Threonine
25	G564C							Alanine

Note: + indicates where the SNPs were present.

**Table S3.** Non-synonymous (missense) in *MRPA* gene.

No	Changes in DNA sequence ( Reference gene <i>L.donovani</i> AQP LDBPK_310030, partial mRNA )	S57	S79	S17576	S17608	S18488	S18491	Change in amino acid Sequence
1	C2758T						+	Proline921Serine P921S
2	C2925A						+	Phenylalanine975Leucine F975L
3	C2926A						+	Leucine972Methionine L972M



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