

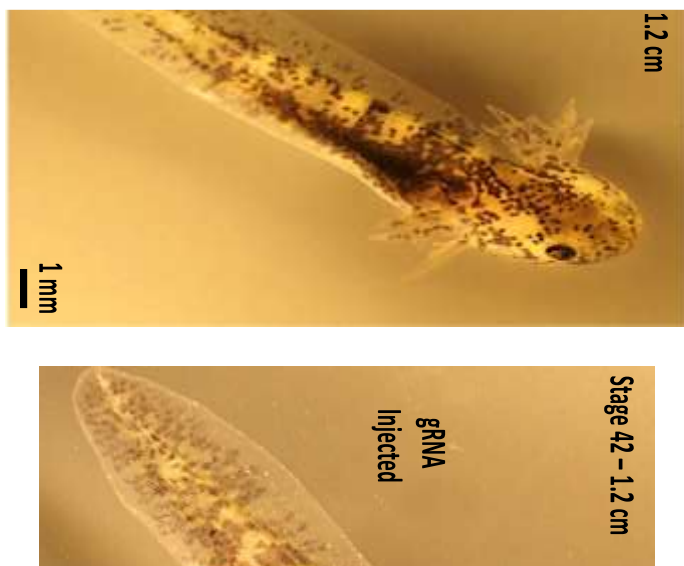
Supplemental File S1. PCR primers that were used in the study to amplify *Gphn* and *Ltk* sequences for genetic linkage analysis, to amplify *Gphn* and *Ltk* sequences surrounding gRNA target sites, and to perform QPCR.

ID	Forward Primer	Reverse Primer
GPHN.1	AGTAGCTTTTAGTAGACCGCAGTAGG	CTGTTCAAATAAAAAGGTATCCAGTCA
GPHN.2	AAGACTGAGCAGTATGTGGAGCTT	CGTATTTCAAAGATGAGAAAACACAA
GPHN.3	CAGCATTTCATGTGGAAATTATTAAAG	ACTAAATCACCTCCTCTGACTGACAT
GPHN.4	TTCAGTTTATACTGCCAGCCCTAC	CTGTCCTTTTTTCTCTTCTTCCTCTT
GPHN.5	CATTACAGTTAATGCATGCCTCTT	AACTCTCATCAGTCTGGTTTCTGAC
GPHN.6	TAGGCTGGCTGCCCCAAAG	ATTCAGAAGTCATCCTGACAGCTC
GPHN.7	CTGCTGTGTGCGTGCATT	TAACACGTTTCTTTGTCTTATTACGG
GPHN gRNA 1	CTGCCAGGTAGTAAGTTGAATGTG	CGTACCATATTTTACACCCTGTC
GPHN gRNA 2	CTCCCAACTAACCAGAGACTAACC	AACGAATAGAGACCAAAAATGCTT
LTK gRNA 1	TGAGCTTGTCTTGTACATCTTTCC	CATCAAAAGCAACAGATTCCATTA
LTK gRNA 2	ACAAAGACTGACCAACAAAAACAA	CTTAAGTCTTCAGAAAGGGACAGG
LTK Exon 1	TGTGCTAATGGACGTATGCTTTAT	TTGTGTCCTGTCTTTCTACGCTAC
LTK Exon 2	GAGAGAGAAGGAGCTATGAGCTGT	AATCGAAATGGGAGCTATTAACAC
LTK Exon 3	AGTCCATTTTGCTTTTAACCAGAG	ACTTCATGCGAGAAAATAGAAAGG
LTK Exon 4	AATCCCAATGAAGGCACGTAAC	ACTGGCAAACAAATACTGAGCTTT
LTK Exon 5	TGTAAATAGAACAGTCTGCCCTCA	CGAAGCTTTGTGCGATTCTAATATG
LTK Exon 6	GCACACCTGTAGCCTAAAGAGTAA	GCAGTTGAGCAGTGTTATTCCTA
LTK Exon 7	AGATATTTGGTCACATGGTTTCC	GAGGCATCGGGTTATTAAGAAAT
LTK Exon 7-8	GCAGATGGTACTGCAAGAGCTTA	CTGCAGATTTACTGGAAACCAAC
LTK Exon 8.1	CTTTCCTACAGAACAGACCATTTAAG	ATTCAGCAAGGGAGAAGTGGTC
LTK Exon 8.2	TCAAGTTTTTCAGTTCACATTTTCG	CTGCAGATTTACTGGAAACCAAC
LTK Exon 8.3	GCATTTCTTAATAACCCGATGC	AACGTCAGAGGAGCACTGTGTA
LTK Exon 9	ACTATCACCTCCCACTTCTGTAGC	CGGCTGAAAATTGAGACTTTTATT
LTK Exon 10	CTGCTTGATGGTTCTCTAGCC	TATTCGCCATACACCCCTTATATT
LTK Exon 11	TATAGGAATCAATTGCGCCTTG	TTCACAAGGTTAGAGGACAGACG

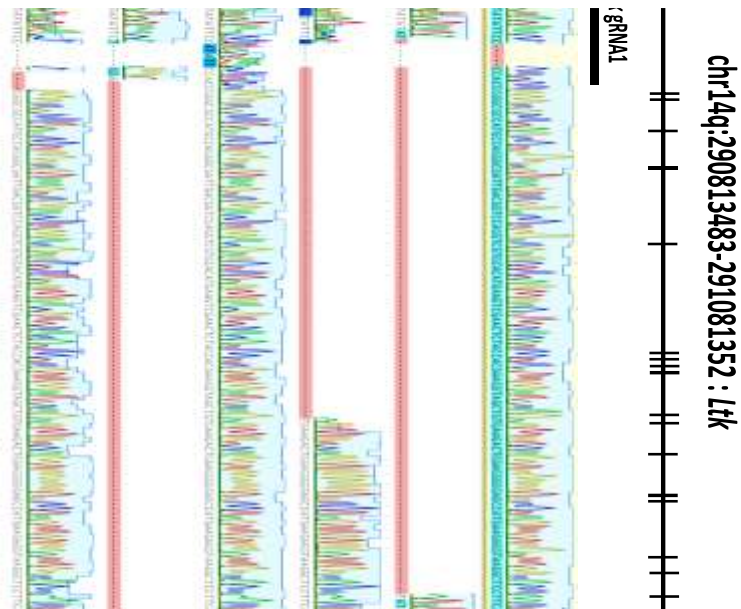
LTK Exon 12	TACAGAGTGAGAGAGGAGGTGATG	TTTACCCCCAAATAATACGACTGT
LTK Exon 13	TTGTGATTCACCCCTTTTATTTCT	CAAGAGAGCAGATGCAATGAGTAT
LTK Exon 14	GATTTGTTTTAGGACTTCCCCTTT	CTCTTAAGGCTAGCAAACAGTCGT
LTK Exon 15	GATCGCTTGGCTAACAAATATAAGG	CGGTATCTGATCAAATTCAAAGAA
LTK Exon 16.1	CATTATCACCCACTCACACTCTGT	CTTTTAGAAGGTTGGGTCTTGGAG
LTK Exon 16.2	CAAGACCTAATGACTGTGTTTTGC	GGAAATGAACGAAGAAAGGTCTTA
LTK Exon 17.1	TGTTCATGTTCCCTAAGCATTAAA	TTTTCTTCCAAACAATACCAATGA
LTK Exon 17.2	GGGAAGGAGAGGAGACCCTTAC	CTGTACCTGTGCAGTTGATGTTGT
LTK Exon 18	GTAAGCGGTCGGAGTCTCTCTC	TATCCAGATTGCAGTGATAAAGGA
LTK Exon 19	CGAATTTGATATGTCAGTCTTTGC	CCTTAAGGGAAAAGTGAGATGTTT
LTK Exon 20	TTCCAAAAAGGTACTGCTAATTCC	ACCAAGTGAGTTGACAGCACTAAA
LTK Exon 21	GCGATATTATAATGGATGGGTCTT	GGGTTGATGGGAGATAGAGTAGAA
LTK Exon 22	TTCTCAGCAGTTCAGAATTGAATC	AGTTGGGGTTCTAAGATAGACACG
LTK Exon 23	GCTCTGCCATAGATGTAAAGAGGT	TGGGAGAACACAGAACTTTAATCA
LTK Exon 24	CAGTATTTTTAGAATGGGGCCTAA	AAACCCACAGTCTTACCTTTCTGA
LTK Exon 25	AAATATCTTGAGGGTGACAAGCTG	GGTGAGATCACTTTACGCATGTTA
LTK Exon 26	ATGCACGTGTTTCTTTTGTACATT	GCCAGTACCTTTGATTTACGAGTT
LTK Exon 27	TCTTGATCGTTCTTTGATGTATAAGG	GTGACTATTGATTGGCACATGAAG
LTK Exon 28.1	AAAGAATAGTGAGATTTCCGATGG	CGTCGGTTTAGGGTTAGTATTTTG
LTK Exon 28.2	CAAAGACTGACCAACAAAAACAAG	GGGATTACATTATCGACTCAATCC
LTK Exon 28.3	TACTTCACTAATTCCCAACGTAGC	CAATGTTGGATCTAAGAACCTTGA

LTK qPCR	GTATCGAATCATGACACAGTGTTG	ACAGGAAGCTCAGTATTGACGAC
ATP5PB	CTCAAGAGGTGAAAGATACTGCAA	CCAGTAGCATGACAACATTACTCC

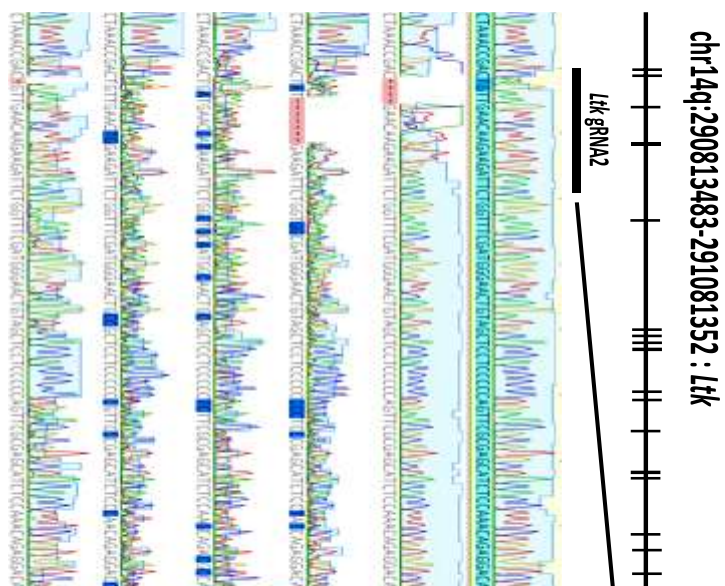
Supplemental File S2. Representative control and *Ltk* gRNA injected embryos at developmental stage 42.



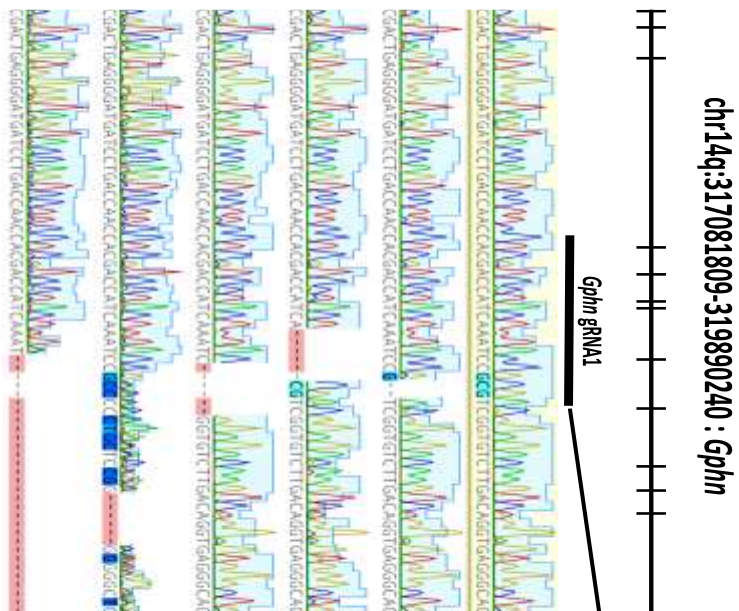
Supplemental File S3. Electropherograms showing *Ltk* gRNA1 editing. The sequences were generated using the *Ltk* gRNA1 reverse PCR primer.



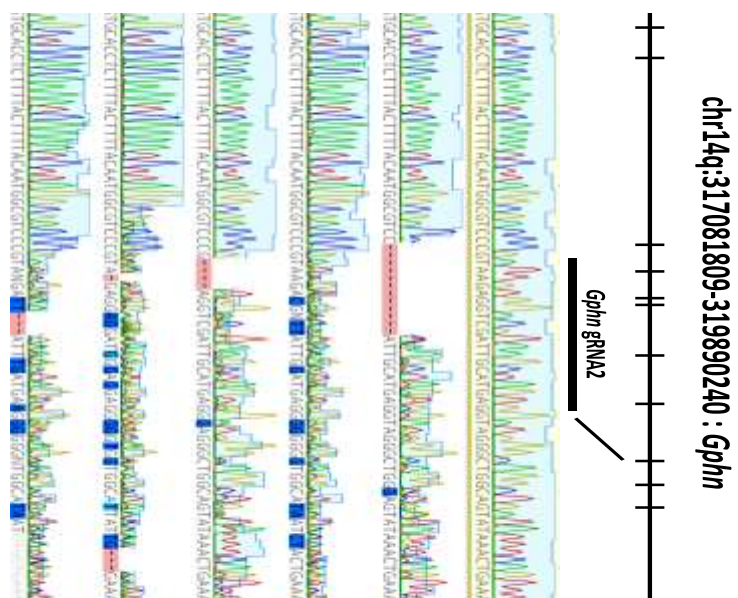
Supplemental File S4. Electropherograms showing *Ltk1* gRNA2 editing. The sequences were generated using the *Ltk* gRNA2 forward PCR primer.



Supplemental File S5. Electropherograms showing *Gphn* gRNA1 editing for 5 of 9 Crispants that were assessed for genome editing. The sequences were generated using the *Gphn* gRNA1 forward PCR primer.



Supplemental File S6. Electropherograms showing *Gphn* gRNA2 editing for 5 of 9 Crispants that were assessed for genome editing. The sequences were generated using the *Gphn* gRNA2 forward PCR primer.



Supplemental File S7. *Ltk* nucleotide sequences generated for *A. mexicanum* wild type and melanoid alleles. Dots show conserved nucleotides.

Consensus	ATGTGCTTAGTTGCAGTTTCTGGCTTTGGATCCAAACGCCATAGAAGACATCACATCGCCGAGGCCACCGTCGCCAGGCGCATCACAGCAGGCTGATGTAACACTAGAGGACCACCTGTCCAGTGC	125
Ltk_melanoid allele	.....	125
Ltk_wildtype allele	.....	125
Consensus	TGAGTACTCGTGCAACTTGGAGTCTGACTGCCCATGGACTTCTTCCAGGACGGATAACGCCGAGCCCACTGGGAGCGGATACCACCGGGTGCCTGACAGGACAGCATGAAGACCTCCTTCTGG	250
Ltk_melanoid allele	.....	250
Ltk_wildtype allele	.....	250
Consensus	GGGACAGCGCATCACCTGGCGATATGAAAGGTGGACTCCTTCTCTAAACACTAGTCTACACGCAGGSCAATGTGAGTTCGGCTGAGCAGCCCGCTCCTGCCCTGGAGCTCGGCTCAATGCCTG	375
Ltk_melanoid allele	.....C.....	375
Ltk_wildtype allele	.....G.....	375
Consensus	CTGGAAATGGATGTATATTTCCACCGGGCGCCATGCCAGGGCGATTGACGGTCCAGGTCGTGCACATGAAGTCGAAGTCTACCCAGAAAGGTAGCTGTGAAGACTGGAGGGGGACCATGAAGAG	500
Ltk_melanoid allele	.....	500
Ltk_wildtype allele	.....	500
Consensus	GGAGACCAGGAAGCTGTTGACGGCGGACATTGGCCAGGTGGACGCGCGTTCCAGATCTCCGTGGCGTATTTCATCGTGGCGGTGGAAAAAGAGGAAGGCTGCTGGCGTTCAACTCCCTGCGAC	625
Ltk_melanoid allele	.....	625
Ltk_wildtype allele	.....	625
Consensus	TCAGCAGCTGCTCCGGGATGAAGAGGCTCCTGACCTGTCCAGGTGCACCCAGGACTCCTCGTTCTATTGCACATCAGGGGCTGCATCAGTCGCCTGCAGGTGTGCGACTTTCATCTGGACTGT	750
Ltk_melanoid allele	.....	750
Ltk_wildtype allele	.....	750
Consensus	CCCGGGGAGAGGATGAGGGCGATATTTTGTCATCCCTCCTCCAGAGGGAGCATTTTGTTCCTYCAGTGGGAGCCTGCGACTGGGCTATGGACGATGCCGCSGCAACCGCGAGTTGGTCCAT	875
Ltk_melanoid allele	.....C.....	875
Ltk_wildtype allele	.....T.....G.....	875
Consensus	CGTGGACTCGAAGCAGACGGATCCCGAAGCACCGGTTCTCGGCTCTGCTTTAAAGCTACTGCTGGGCACCTTCCTTTACCTGCGGGTACAGGATCAGTGGGCAGATGGTACTGCAAGAGCTTACA	1000
Ltk_melanoid allele	.....	1000
Ltk_wildtype allele	.....	1000
Consensus	GCGCCAACTGCCAGGCGTGTTCCTCAGCAAGATTGTCAGGTCAAGTTTTCAGTTCACATTTTCGGGGCTTACAATGGAACAGTCTCCCTCGCTGTCTTGAGAAGGTGGCGGGCCCTACAGGC	1125
Ltk_melanoid allele	.....	1125
Ltk_wildtype allele	.....	1125
Consensus	AGTGCCAGCTGGTTTGGGAAGAACGCCAGCTGGGGCGACCGTTGGTTTCCAGTAAATCTGCAGCTGCCAGAGCTCCGGGACGGGTTCAGCTGGTGCTCCAGGCTTCCTGGGGTTGGGGCTC	1250
Ltk_melanoid allele	.....	1250
Ltk_wildtype allele	.....	1250
Consensus	GCTGGCGGACATCGCTGTGATAACATCACCGTCACAGCAGATTGCTTCCAGGAAGGAAGAAGACATGGTCAAGCTGGCAAAACACAGTTTGCTCGGGAGGTAAACCGAAGGGAAGAGCCAGC	1375
Ltk_melanoid allele	.....	1375
Ltk_wildtype allele	.....	1375
Consensus	TGACCCCTTTCGGGATCCCTCCGCTTCAGGGCGACSTCAGACGTGGAGTGGTGGTTTACAGCGTGTGGCGCAGTGGCCCCCGGGGGCCAACGCAAGCTCAGTGTGACAATGCTTATCGGAAC	1500
Ltk_melanoid allele	.....C.....	1500
Ltk_wildtype allele	.....G.....	1500
Consensus	ACCAACGCTCTGGTCACCATGGAACGGACGGCGCACTCCAGGGGGTGCAAAATATGGAGAGTGCCCGCAACTAACATCTACAGAATTTCTGCCTATGGCGCAGCTGGCGGAAAAGGACTGAAGAA	1625
Ltk_melanoid allele	.....	1625
Ltk_wildtype allele	.....	1625
Consensus	CCACAACAAGCGATCCCACGGTGTCTTCATATCCGCCACTTCCGACTCCAGAAAGACGAATCCTCTACATCTTGGTGGGACAGCAGGGGAAGATGCTTGCCACGGGGAAATGTGCTGACTA	1750
Ltk_melanoid allele	.....	1750
Ltk_wildtype allele	.....	1750
Consensus	GGGAGCTCGCTCGGAGAGTCATCCATCACTGAATTGGAGTACTATGAKAATAAAACCTTCTGCAGTGGGCTGAGGAGGAGGTGGYGGTGGGGGAGCCTCCTACATATTTAAGCTCGACAAC	1875
Ltk_melanoid allele	.....T.....C.....	1875
Ltk_wildtype allele	.....G.....T.....	1875
Consensus	GGGGTCTTCAGGCCCTACTCATCGCAGCTGGAGGAGCGGGAAGGSCCTACTTGAAGACCAAGGGTTCTCGGAACAAGRCACCTGGAGGAGTYTTGAGAAGACATTGCAGYCCCGGGTGT	2000
Ltk_melanoid allele	.....G.....C.....	2000
Ltk_wildtype allele	.....A.....C.....T.....	2000
Consensus	CAATGGAAGAGCTGGGGCAGCAGGTGGYGGCGGTGGATGGAATGACAGCACCTCTACCCCGGTCTGGGAAGTCGCTCATGGAAGGGGCAGAGGGYGGTAAGGTTTGCCCCCAAGCATCAGTA	2125
Ltk_melanoid allele	.....T.....C.....	2125
Ltk_wildtype allele	.....C.....	2125
Consensus	ATCTGCATTGGACCACGTCGGGGGATTTTGGAGGCGGAGGGGCGCCTGTACCTCTGGAGGTGGAGGTGGAGGGTATAAAGGTGGAMATGCATCAGAATTTGATGACCTCACAACCGATGGAGAA	2250
Ltk_melanoid allele	.....A.....	2250
Ltk_wildtype allele	.....C.....	2250
Consensus	GATGGCATCTCCTTCATGAGCCAGCCGGGAGATTTTCTCAGCCTCTGGCAGCCATGGAGGCCATGGGGAGGTGCAGATCGAAGTGTTCTTGAAGTGAACCAACTGCTGTGTCTGGAACTG	2375
Ltk_melanoid allele	.....	2375
Ltk_wildtype allele	.....	2375
Consensus	CAAGCGGGACCCCCGAACCAAGCTCGTCACCTGCATCTGCAAAAGTGGAGAGCTGCTGGCCAGTGACAACATCAACTGCACAGAGCCAGACTTGGAGGAGCACTTCCCCATCCCCCTTATCCTGT	2500
Ltk_melanoid allele	.....	2500
Ltk_wildtype allele	.....	2500
Consensus	CAGTGGTCACTGCGACGGTAATACTTGGTGTGATCTTCACTTGTGGCGGCCTGTCACTTGTATTATCACCGCAAGAAGCAGCAGCTTGAGGGAGCACTATTTCGACTGCAAAAGCTCAGAGTACAAA	2625
Ltk_melanoid allele	.....	2625
Ltk_wildtype allele	.....	2625
Consensus	CTGAGTAAATCCGAACGTCCACTATCATGACAGACTACAACCTTAACCTACTGCTTTCGGGAAAGGCAGCTACATTAAGTGAGCTAAAGGAGATACCTCGCAAGAATCATCTCCCTTCTGCGGGC	2750
Ltk_melanoid allele	.....	2750
Ltk_wildtype allele	.....	2750
Consensus	CCTGGGCGATGGTGTCTTTGGAGAGGTTTATGAGGGGACAGTGGTAGGGATGGCAGGTGACCCCAACCTCTCCAGGTGGAATCAAGACGCTGCCTGAAATCAGCTCAGAACAGGACGAGATGG	2875
Ltk_melanoid allele	.....	2875
Ltk_wildtype allele	.....	2875
Consensus	ACTTCTCATGGAGGCCTTGATTATCAGTAAGTTCAGTACCAGAACATTGTCGCTCGCTCGGAGTGAGCCTGCAGACGCTGCCGCGCTTCATTCTGCTGGAGCTCATGGCTGGTGGAGACATG	3000
Ltk_melanoid allele	.....	3000
Ltk_wildtype allele	.....	3000
Consensus	AAGAGCTTCCTCCGACAGAATCGGCCTCGCGTCTCAAGCCATCCAGCCTGACGATGCTGACCTGCTAAACATGGCGCGAGATATTGCCGTGGCAGTAAATACCTCGAGGAYAACTCACTTCAT	3125
Ltk_melanoid allele	.....C.....	3125
Ltk_wildtype allele	.....T.....	3125
Consensus	CCACAGGGATATAGCAGCCAGAACTGCCTTCTTACCTGCGGGCGCCAGGGTCTGTGGCCAAAATAGGAGACTTTGGAATGGCTCGGGACATTACAGGSCCAGCTACTACCGGAAAGGGGGCA	3250
Ltk_melanoid allele	.....	3250
Ltk_wildtype allele	.....	3250
Consensus	GGGCCATGCTTCCTGTCAAGTGGATGCCACCGGAAGCCTTCTGGAAGGAATATTCACTTCAAAAAACAGACATGGTCCCTTGGCGTACTGCTTTGGGAGATCTTCTCCTTGGGTTATATGCCT	3375
Ltk_melanoid allele	.....	3375
Ltk_wildtype allele	.....	3375

Consensus	TATCCATGTAAACCAACCAGGAAGTGTGGAGTTTGTACCACTGGAGGGCGCATGGATCCCCAAAGAATTGTCCCGGGCCTGTGTATCGAATCATGACACAGTGTGGCAACACAGTCCGGA	3500
Ltk_melanoid allele	.....	3500
Ltk_wildtype allele	.....	3500
Consensus	ATATCGACCGGATTTCACCACCATCTTGAAAAGGATCAAGTATTGCACCCAGGATCCTGACGTCGTCAATACTGAGCTTCCTGTGGAATGCAGCCAGCACCGGAAGAAGAGGGGAGTGC CGRA	3625
Ltk_melanoid allele	.....A.	3625
Ltk_wildtype allele	.....G.	3625
Consensus	TGCGGCCCCAGGCTCCAGTGGCATGACTCCTCTGGTGATGAGCCCCAGCCTCRCACAGCAGCTAGTACAGCGATCACCAGAGGCACAACGACTAGGGCCTAAAAATTGTCGAGTGCCCGCAAGAG	3750
Ltk_melanoid allele	.....A.	3750
Ltk_wildtype allele	.....G.	3750
Consensus	CTCATTGTGGACAGCCTGGGAGGATGGGCTGTGCAGGAGCCATCGCTGCCGTGCCCTCAGTGACTCCACCAGTGCGCCCTGGTTCCAGCAAAACTCYAGCTCAATTGCTGAGKGACACAMTGCAGAC	3875
Ltk_melanoid allele	.....C.....T.....C.....	3875
Ltk_wildtype allele	.....T.....G.....A.....	3875
Consensus	AGCACAAAGACTGACCAACAAAAACAAGAACCTCTGGAACCCACCTATGGTCCCTTAGTCATGGATAGTGCCTGCCGATCTAGTCAAAATACTAACCCCTAAACCGACKGTTGAACAAGAAGATT	4000
Ltk_melanoid allele	.....G.....	4000
Ltk_wildtype allele	.....T.....	4000
Consensus	CTGGTTTCGATGGGAACTGTAGTCCCTCCCCAGTTCGCGAGCATCTCCAAACAGAGGACAGTGCCTCACCCTAGACATTGGCGGGATTGAGCTGGTCAAGCTCCAGAACTTTCCATGCGGCAAT	4125
Ltk_melanoid allele	.....	4125
Ltk_wildtype allele	.....	4125
Consensus	GTGAATTATGCATACGATGACCTCTGTTTTGAAATGGATGGGGCCTCTGCAGTGGACACAAGAGACAGAACAGCTGTCTTAAGAAGTGCCAGCCTCTCGGCGAGGGCCTTGTCTCCGAAAAGCA	4250
Ltk_melanoid allele	.....	4250
Ltk_wildtype allele	.....	4250
Consensus	AGACAAACACCTGGGGAGAGGGACTCCGGCCTGTCCCTTTCTGAAGACTTAAGTCTCACACCAAGTATAG	4320
Ltk_melanoid allele	.....	4320
Ltk_wildtype allele	.....	4320

Supplemental File S8. *Ltk* amino acid sequences for *A. mexicanum* wildtype and *melanoid* alleles, and orthologous sequences from *Danio rerio*, *Gallus gallus*, *Geotrypetes seraphini*, and *Xenopus tropicalis*. Dots show conserved amino acids relative to the consensus. Pink amino acids mark nonsynonymous polymorphisms between the *A. mexicanum melanoid* allele and *A. mexicanum* wildtype allele that are polymorphic in other vertebrate orthologs. Red amino acids mark nonsynonymous polymorphisms that are unique to the *A. mexicanum melanoid* allele.

Consensus	MGFPXXJXXXXXXXXXCLVAVSXGSGAIEDIXSPRPSPGAXQXXDXLEDHLSSEKXSCBLESDCPWTSSRTXNGXPXWKRISXGALTSQ-REXILLXDSSSPGDMXGGILL--NT	117
A. mexicanum melanoid	-----GF.N.....T.....S.QA.T.....A.Y.N.....D.AE.H.E..PP...G.-H.D...G.A...K.L...--	101
A. mexicanum wildtype	-----GF.N.....T.....S.QA.T.....A.Y.N.....D.AE.H.E..PP...G.-H.D...G.A...K.L...--	101
D. rerio	---MDYITRQTFVKLALFIFTVLR.S.C.LLEKAAED.VH.NPL.SSPAEDS.V-----SF.DF..P.S..L.SHSF.G-D.FIT.AQQHR.SR.DTQPIR.Y.T--KSE.HF..KPSS	109
G. gallus	-----MG.V..CS..HEVNSSAPIP.EKFSLIRNM.SFLQP-EP.I...IIG.S.S.MT.TDSF.K.D.VLS.VSV.V..E.QQ...EN...Q.GVE.D.F.--	100
G. seraphini	-----MSLTK.M.C.PHLSSALQ.ILWTITMLTVIICSGLDEKK..TVK.S.MS.NETVSY.KP.---NA.....F	70
X. tropicalis	...FSQLVSHLLVWTH.L.DLCS.LH.ESIMSLNL-----ITSES.SDDEKVEQGGQ..DFKIH...V..TKRD.K.H.VHTVV.E.A.EKQRE-..ESQ.T.RHKQDE..F.--	112
Consensus	SKLXAGRCFEXLSSPXLFWSSAXCLLELXVSPXG-PMPGRXTVQVVMHMSNXTXIXLKTGGXMKRXTWKLLTAXIGQVNEPFFQISXXYSSCGVEXXXGLLAFBSLRLXCNCFDEEGP	236
A. mexicanum melanoid	..-H..Q...R...L.....Q...MD...P-A...L.....T.KVAV...GA...E.R...D...DA...VA...KEE...N...SS.R...--	219
A. mexicanum wildtype	..-H..Q...R...L.....Q...MD...P-A...L.....T.KVAV...GA...E.R...D...DA...VA...KEE...N...SS.R...--	219
D. rerio	..H.S...S.BMT.VVLS.GPF.H.Q.ARFQ.E--HA.NISAF.K.TD.TDIKP.D.TIKEQ.SDSSQ.EV.E.V..L...VTVQ..A.SSHEV-F..D..E.K..VMGGDDYV	226
G. gallus	..R-PD..K.S.H..I..G.VDS...A...QDAV.LLQ.F..EIRYVDT.RNII.S.V.HE.DAGVK..SMM.Q..RIER..K.TLL..N..AQEA-...VG..Q..R...H.K.N.	218
G. seraphini	..HF-SE...HFQ.HV..R..S...FF..WHE-..I.E.F...IQ.L.T.LS.Y.P.RQE.E.WIKG--PV.VQ...R.LL...L.NST..M.LD...K..H.V.L	186
X. tropicalis	..QSTENCATVW.L..I.TAG.EM.Q...VL..QED---AIM.AM.HNI.A..SLPLS..EK-TVN..SN..M.S.E.AG...LD.TH-..QTADHPVLE..T.RH.SAGYQDS	226
Consensus	DL-SRCTXXSFXCTSGGCGISLQVCDFXHDCPXGDEGDCASXLPEGYCS.FESGACGWTXBDTAAT-SWSIVDSKQXXEAPXGLGSALKATXGHFLYLRVQSQWADGXARAYSANLP	354
A. mexicanum melanoid	..-...QD...Y...A...R...L...G.....L...AF..S...D.AMD.A.A...TDP...V...T.....D...T.....	338
A. mexicanum wildtype	..-...QD...Y...A...R...L...G.....L...AF..S...D.AMD.A.A...TDP...V...T.....D...T.....	338
D. rerio	..G.D.EKY..LP.H...E.KR...T..E...L..ST-..L.S...L.S...LAA..QS--..RL.SGQ.LIEDTHL..TT..N.Q...F.K.RGHGDTER.LVQ.PA...	343
G. gallus	..-IYNKG...P.LH...V.H..I.E.IS..TK.V..VR.D-..SH..K.S...LNE...S-P..KGFNDMIHSGSFV..QS.G...AD.NHTN.M.K.F.TS...	335
G. seraphini	HI-P.KNGFD.P.MY...TH...N.YT..SE...T.MQR..A...A...LN...V-T..FK.ENIAHKI.F..S.Q.KN...QE..E.S...R...	304
X. tropicalis	FM-PT.VGEN..F.DN.D..NTVNL...TN...T...AL.EII..S.S...DD.T...PY.GND..T.LYT.AT.IEDTS---D..LVK...S...KRS..S.TI...VF.	341
Consensus	XVXSNQDCQCVQSFVHIFGAYNGTVSLXVLEXXAG-TGSAQLWERTSGWGXWFFVTLXLPQLXQXQXQXSLADIAVDNITFXADCFHXGRXXQ-XGKHGFAREVNRXKEP	472
A. mexicanum melanoid	G.F.S...K...A...A...K.V..P.....A...R...N.Q...RDG...V...G.....VT...E..HG..A...R...R.E.	457
A. mexicanum wildtype	G.F.S...K...A...A...K.V..P.....A...R...N.Q...RDG...V...G.....VT...E..HG..A...R...R.E.	457
D. rerio	STI...L...LYRY.DF...L.S.V.SG.S--APA.I...S.H.K.A.QEI..PIT.IL.G.H.KV..F.TSG.K...L.D.SLS.A..DTELNELL---E---GLPHDL	451
G. gallus	ASIAATE.Y.I...V.S...I.FS.R.ERN--VPVTLPM..A..S.H..LI..PM.V...R..Q.L.T..N.Q...I...GM..AD..QPTHFK...P..ISSPDEH	454
G. seraphini	AMVA.NT.K..A..N.TL.S...FLV.ES.V--KFW...KV..S.H..I..RP...R.H.K.L..S.N...V...GL..NDE..QID-SERQ.VSQKI.AL.D-	421
X. tropicalis	K.VT.NV..LS.KFL.S.I...SLGIYG..DGK..M..SVKL.VKQ.AS.NF.NSG..QI.QP..R.R.LVV.T...N...H..L..V..SV...A..IEIG---YENHGL.DDF.DD	456
Consensus	QLTPLEPSPASGETSXVWFVFXCGASGPHGPTQAQCDNAYRNTNVSVTVXKEGPLXGVQXWXPATNXRYISAYGAAGKGAKNHNKRSHGVFISAXFXLQKDEJLYLVYLVQGGEDACP	592
A. mexicanum melanoid	...D...A...D...A...D...A...R...MATD.A.Q...I.R...I.....L.....D.R...L.....	577
A. mexicanum wildtype	...D...A...D...A...D...A...R...MATD.A.Q...I.R...I.....L.....D.R...L.....	577
D. rerio	DFS...-A.PIT...S...F...S...V.G...R..M.K...T.K...T.P.E.GDI..I.H...	570
G. gallus	L.N..E..LP.D..V.L..L..ST...GS...I.E..R.R..V..R...R...E...T.Q.E..L.....	574
G. seraphini	M.F.P.QS.TL..P.EM..L.SP...R...V...M.G...-...Q..M.K...DT.K...P...A.I.Q...I.S...G...	538
X. tropicalis	TVM..S...YTD.N.EL.LQ..S...T...SS.I..V.G...R...L.K.F.SV.Q...NPA...I.P...I.....	576
Consensus	GGNVLTXEICLGESSXIEYEXKXKTLTLLZWAGGGGGGGGAXIFXXKXNVFRPLLIAAGGGGKAYLEDPPXSLDQAHLEQFENSTAVPGVNGRSGAAGGGGGWDXTLPRAGKSLEGA	712
A. mexicanum melanoid	...R.L...D...IT.L.Y.N...Q...L...S...I..LD...K.G.S...E..K.I.A...S...M...	697
A. mexicanum wildtype	...R.L...D...IT.L.Y.N...Q...L...S...I..LD...K.G.S...E..K.I.A...S...M...	697
D. rerio	..R.PQ.HK...V..DGFQDGS.A.K...T..IYME..QPL...F...ESQ..SFR..Y..D.T.S.S...S.VSS.SW..V.G	690
G. gallus	..A.PQ.HK...V..ED.KK.D.KD...T.V.RQKD.I.E...KADQN..DVP..Y...S..T...Q.V...Q...G	694
G. seraphini	..MKQ...V..E..K.KRA..E...T.V.V...K..I...S.M.H.DS..HMY...N...I.Q...K.I.HF.S...	658
X. tropicalis	..K.E..K...M.K..I..DN.D.QNRFSE...S.V..EV..E.I..V...QEDP..FI.P.R..N...P..M...I.E..V...F...	696
Consensus	EGGQXCPQAXAKLQWXTSGFGGGGGGACTSGGGGGGYRGVASEXDDITXDGGQDISFVXPXGXIFLQPLAAMESHGEVQIZVFLNCSHCXVXNCKRDPDTKLVCJCKXSGEVLASDNVT	832
A. mexicanum melanoid	...KV...S.N.H.T...K...F..L.T.E...MS.A.E...E...N...G...R...T.I.K.L...IN	817
A. mexicanum wildtype	...KV...S.N.H.T...K...F..L.T.E...MS.A.E...E...N...G...R...T.I.K.L...IN	817
D. rerio	Q..SS..E.LSV.G.A.F...SA...D..PLL..SA...L...H.M.K...AE.V.Y...KTQS...E...IL.L.D.D...P...	810
G. gallus	...A.H..L...A...D...H..KN...AG..Y...N.I.E..H..V..ND...EVQIY...H.D...N.N.P..Q.EM.A..N...	814
G. seraphini	...S.N.SFS...V.F...P..A...R...TAN...V..N.I.K..V...D...QL...S.RK...Q.L.A.V.LQ.T...G...	778
X. tropicalis	...T.YK.IT...H...P...Q...L...FT..Y.V..FH.SVK..H...KL.V...YTD...INRS..L.EV.T...T...	816
Consensus	CTX-----PXEXHXPLPLILAVVXATVILGVIXTCGSLXKVYHRKKQQLGARIRLOSSEYKLSKIRTSTIMTDYNPNYCFAGKAATLSELKEI	922
A. mexicanum melanoid	..E-----DL.E.F.I..S..T.....F..G..V.....	907
A. mexicanum wildtype	..E-----DL.E.F.I..S..T.....F..G..V.....	907
D. rerio	..AGTKHSLQCFINKHLQHNSSPLVCPPLVPMGSLADGPPS.VF.M..IVS..VT..VL.A..TLI.Y..NH.HAV...P...S...GYF...S...V	930
G. gallus	..-----V-----P-----QGHIP.G.L..L...AVI.M.L.M.L.G..II..L...A...P...A...R...L...	907
G. seraphini	..RG-----T-----RPRH...I.A.V..IVL.S..AI..R..P..V..QA...F...V...S...L	866
X. tropicalis	..VV-----P-----K-----W.LA.KQL..S...LI...I.FA...F...K...V...T...S.I...G...S...V	909
Consensus	PRKNISLLRALGHGAFGEVYEGTVVVGXAGDPNPLQVAIKTLPEIXSEQDEMFLEALIIISKFSQNIIVRCIGVSLQTLPRFILLELMAGGDMKSLRQNRPRVNPQSSITMLDLINMAR	1042
A. mexicanum melanoid	...M...S...M...S...V...LK...	1027
A. mexicanum wildtype	...M...S...M...S...V...LK...	1027
D. rerio	...T...Q.L.MN.ENTAM...S...M...I...T...L...T.HS..S.E.H...	1050
G. gallus	...I...IT.L...I...VC...N...Q...V...Q...I...	1027
G. seraphini	..R...I...T.I.E.LT.R...SC...Q...M...EK..T.I.Q...	986
X. tropicalis	...T...M...IS...C...S...WI...T.S...	1029
Consensus	DIACGCKYLEENHFIRHDAARNCLLTCXGQGRVAKIGDFGMARDIYRASYYRKGGRAMLPVKWMPPEAFLEGIFTSKTDITWSFGVLLWEIFSLGYMPYCKTNQEVLEFVTSGGRMDFP	1162
A. mexicanum melanoid	...S...D...G...P...D...C...G...	1147
A. mexicanum wildtype	...S...D...G...P...D...C...G...	1147
D. rerio	...L..R...P.PD...C...G...	1170
G. gallus	...T.A.I...V...G...	1147
G. seraphini	...S.KD...V...	1106
X. tropicalis	...YS.T...V...	1149
Consensus	KNCPPGVYRIMTQCWQHSPEYRPBFXITLIERIKYCTQDPDVINTELPVECKPAPEXEGSTXMRPAGSSGMTPLLXSPSLXXQLXRX---SXEAQRXGPKL-VXCPQELLVESLGGWVXV	1277
A. mexicanum melanoid	...S...D...T...V...S...E..AG...VM...Q..VQ...P...L..I..E...I.D...A..Q	1262
A. mexicanum wildtype	...S...D...T...V...S...E..AG...VM...Q..VQ...P...L..I..E...I.D...A..Q	1262
D. rerio	..S...C..H..N.T...N...P...G.PV.E..G.VI..D..GS...VAR..SQDASP.ASIT.VTP.ALK.R.QLQR.VH.TQ.VGTYRETL	1290
G. gallus	...N.S...N.S...Q..M.S.T..D.N.VV..SVP..IV..V..TP.MTPK---LDTHCT.H...Q...N.SNRATR	1262
G. seraphini	..K...S.N.SFS...C.D.S...I..G.S.D..ESI.Q.TA.E-IV..AT.I..PK.TSG---KL.EHTVH--GDH...D.NMK	1220
X. tropicalis	...T.H.N.S...S...P...SG...D...SI..NSCN.LN.IMS.QPIAFL-----DT.STEQ...-GDV...N.A.NIK	1259
Consensus	EPSLP---CLSDSTSAXWFQ-QNSSIAEIXLQT-XXRLKNXKKNLWNPTGYSVWME-----S-X-CRSSXNKNPKXTVEQEDS--GFDGNCSSSPSSR-----A	1363
A. mexicanum melanoid	...CT...AQ..T.N...L.D-----A...Q.T.P...	1348
A. mexicanum wildtype	...CT...AQ..T.N...L.D-----A...Q.T.P...	1348
D. rerio	..CWAEPVPA.GVCPGP.L.VPEHRPCSR.SSSSGSQK..T...L.SFGRGKSALCHTQ.MPLS.NPTSVSA.SS.S.HT.PVVEVNA.V.A..PPSAAPSQTTLTPT.	1410
G. gallus	G...FN..S.I...NQRL.FSNPP-TH...T...L-----N-----HL.PISKL.V.P.R...ASP-----	1350

G. seraphini	S...S--..T..N.KS.IH-.....EQ.K..I-MH....PQ.....-G-----IGS.CSF.VVLD.....C.....	1303
X. tropicalis	T.G.Q--TVAE..EGS...-S.L.TTT.K...-THK....S.....STC-----	1374
Consensus	SPXRGG--CAHLDIGGI-ELVKLQNFPCGNVNYAYDDLCFEXDG-----XSKVDTDRDXAVLRSXSLCGXGLVLR-----KXEKFXGERDSGLSLSEDLSXTPV	1454
A. mexicanum melanoid	..N...--.....M.....-A.A.....T....A...E.....-QD..P.....L...	1439
A. mexicanum wildtype	..N...--.....M.....-A.A.....T....A...E.....-QD..P.....L...	1439
D. rerio	A.S.KSPTGA.GVSLATVMD.A...S.....EQSY.TESLPVVVSKSLEPST.SAA.SSLV.LSQPG.FTHKP..K.HASYGHEDVRRYTQP...TRD...F.....V...	1530
G. gallus	..S.NN--..P.....GT.H-S-----PS.L.GV.A...S..HTDEKPFY-----T...AAR.....D...V...	1441
G. seraphini	..DQDH--GP...N.L..VD...T..S.....NY.I.N-T-----K..A...NGRFQVDAQI...P...IA.....D.FNI...	1389
X. tropicalis	-----	1314