

Text S3. Alignment of variable nucleotide sites of the *Protosalanx chinensis* (HM106494, MW291629) and *Neosalanx anderssoni* (HM106492) full mitochondrial genomes, showing evidence of recombination at the *ND5* genes.

[		111111	1111111111	1111122222	2222222222	2222333333	3333333333	3333333333	33333
[	124445666	7888023334	4555566688	8888902223	4466677899	9999000000	1111111112	2223333333	33334]
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[	4754548384	6383852350	5628937847	7348216883	2560284710	2403987084	0281747801	3144203914	09512]
#HM106494_Protosalanx_chinensis	GTTATATTGT	CAGGAGGTTG	AATGACACCC	AATGATGTAG	ACAAAAACAT	TATACCGCTC	CGATATCCTC	GAGAGAGCAT	TACCT
#HM106492_Neosalanx_anderssoni	ACCGCGCTC	GGAAG..ACA	GGCAGTGG..	CGAAGCACGA	GT.GGGGTCC	CCCGAT..TCA	AC.CGATTGT	TCAGAGATGA	CGTTA
#MW291629_Protosalanx_chinensis	...G.....	.G...AA...	.....AT	.....	..G.....	.....A...	..G.....	.....	.....
[		3333333333	3333333333	3333333333	3333333444	4444444444	4444444444	4444444444	44444]
[	4444444555	5555566666	7777778888	8888999011	1222222223	3333344444	4455555555	5566666667	77788]
[	2245689012	3788911348	0357990123	4447244923	9012467880	3678900244	6701134566	7712345563	66811]
[	4754313270	5769579765	0078365198	1784859305	8138973286	3351328317	5170641017	0357654742	08946]
#HM106494_Protosalanx_chinensis	AAGTCCAGGA	TAAATTAATG	TCGTAGAAGC	AGAAGATCGC	TACGTACTTA	TGGTACCGTT	AGAACAAAAG	TGCTTTAAAA	GAACG
#HM106492_Neosalanx_anderssoni	GGACTAGA.C	CCGCCCGCCC	CTACGAGCAT	GAGGATCTAT	CGAACGTCCG	CAACGT..ACC	GCGCTG..CGC	CATAGCGGGG	AGGTA
#MW291629_Protosalanx_chinensis	.....A.	.....	..A....C..	...G.....	.....	.....A...	.....GC..	.....	.....
[		4444444445	5555555555	5555555555	5555555555	5555555556	6666666666	6666666666	66666]
[	8888889990	0000000000	0000133566	6666777777	7888888888	8899999900	0000011222	2233333444	55555]
[	3458990340	1115566777	7889157424	5599012245	7022336677	9011248935	6889912222	3500138779	34455]
[	1888479993	1797989147	8062074597	3958132505	0617093625	0217019518	4581791369	5617915289	21403]
#HM106494_Protosalanx_chinensis	TCGAAAGCAG	ACGATATACA	GCTCGTTTTA	CACACAATCA	CGACGTAATG	TTAAGAAATGT	CGAGGTACTC	ATTTACCTAA	CTGGT
#HM106492_Neosalanx_anderssoni	AGTGTTCATG.	GA.GCGCGTG	ATCAAAAACG	TCT..TGCTG	AAGAACTGCA	CCGCACGCAC	TTGCACGTCT	CCCCGTTAGG	GAAAC
#MW291629_Protosalanx_chinensis	.....A	..A.....	.....	...G.....	.....	CC.....	.....	.....	.....
[		6666666666	6666666667	7777777777	7777777777	7777777777	8888888888	8888888888	88888]
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[	7889934783	5946679902	3979823360	1780456789	9669125346	5781466001	2468012233	3456835678	92333]
[	4090843383	1945872871	0366873965	7104354094	7363196155	6793869687	3783742814	7687501684	30578]
#HM106494_Protosalanx_chinensis	AAACTGATGT	GGCTCAAAGT	CTATGTAGCA	GGTGTGCGAG	GCAATCCGCG	TTAACTTAAT	TCATTTTTTA	AATTGTCTTA	ATTTT
#HM106492_Neosalanx_anderssoni	GGGTCT..CCC	AA.CGGGGAC	TCCCACGATC	AACACCAGAG	ATGGCTTT-T	CCTCTCACGC	CTCCCCACCG	GGCCACTCCG	GCCGA
#MW291629_Protosalanx_chinensis	.....G...	..T.....	T.....	.....G...	...G....T.	.....C	.....	.....	....G
[									1111]
[	8888888888	8888888888	8888899999	9999999999	9999999999	9999999999	9999999999	9999999999	90000]
[	5555666666	6677777778	8999900011	1122222223	3333333333	3333444444	4567777888	8899999999	90000]
[	4689000115	8815566891	3335737812	6701235660	0224777788	8899123366	7410248015	6800223478	90002]
[	4533147038	2831439701	4671854092	7302404363	8037578923	4929054748	9565640465	7836489821	32382]
#HM106494_Protosalanx_chinensis	ACCTAACATA	TAAAAGCCTC	ACCACCTACT	CCTTTGTTTG	GGGTACGCAC	GATAACTGTT</			

[	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	111111
[	0000000000	0000000000	0000000000	0000000000	0000001111	1111111111	1111111111	1111111111	1111111111	111111
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[	2375890234	5577882344	4559069158	8900112301	2391892445	5567888901	4556888901	1334688227	891555	
[	3347192354	0312032734	7068127801	5258170576	8732136170	3681369246	9351258730	5032917091	383581	
#HM106494_Protosalanx_chinensis	AACTAGGACG	TAACACGACA	AGGAGCAGGC	TGAGTAATAG	CCCTCGACGC	TTGCATAGTC	AATCGGTGAC	AATTGTTTAT	CTTGA	
#HM106492_Neosalanx_anderssoni	GGTCCAATA	GGGTGTAGTG	GAACATGACT	CCGACCGCGA	GTTCTAGTAT	ACAGCCTACA	GGCTA.CAGT	GGCCACCCGC	TCCAG	
#MW291629_Protosalanx_chinensis	.....	.....	.....	.....	.....	.....	.....A....	.....	.....	
[	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	111111	
[	1111111111	1111111111	1111111111	1112222222	2222222222	2222222222	2222222222	2222222222	222222	
[	4444555555	5566666666	6677777788	9990000000	0011222222	2333333334	4444455555	5666777778	889999	
[	6788000166	7800234456	6912234636	2270133447	8926124557	8356667880	4445701124	5158347890	450231	
[	4358069909	2158964792	5860540446	3463007342	7232323281	4943692175	1479483680	8277541055	386191	
#HM106494_Protosalanx_chinensis	CACCTAAATG	AGGCACATTG	CCGCTAAGAA	GTTATTCGTA	CGGTACTTGT	GTAGTGTAAG	AGTTCAATAC	AAAGTTGCCT	GGGCA	
#HM106492_Neosalanx_anderssoni	GGTGCCGGCA	CAATGACCCA	TACTCGGAGG	ACCGCTACG	T.CCGTCGAC	.CGACACGGA	GACCTGGCGT	GGTAC.CTTC	AACTC	
#MW291629_Protosalanx_chinensis	.....	.....	.....	.....C....	.A.....	A.....	G.....	.....C....	.....	
[	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	111111	
[	2222233333	3333333333	3333333333	3333333333	3333333333	3333333333	3333333333	3334444444	444444	
[	9999900000	0001112222	2222333333	3344444444	4555555555	5666666667	7777778888	8990000000	000011	
[	5599923455	5561156000	3478224468	8911145557	7002223566	9013778890	0012272245	9060133345	566721	
[	4716730703	6983621016	6847361403	6836962683	9064789237	2818476922	3492561481	6884701762	514311	
#HM106494_Protosalanx_chinensis	TTCGATAGGG	TATCTTCGAA	CCAGCTCAAT	TTAGGGAATA	AGACCTTTTG	AGATGATATG	CCCGGTAACA	GGTCAAGTGC	AGATC	
#HM106492_Neosalanx_anderssoni	C.T.T.G...	.....	.....C	CCGTACGGG	GAGTTGCCCA	TAGCACCGCA	TATACCGCTG	AAATCGACCT	GACCT	
#MW291629_Protosalanx_chinensis	CCTATCGAAA	CGCGGCTAGC	ATGATCAGG.	.....	.....C	.....C....	.....	.....	.....	
[	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	111111	
[	4444444444	4444444444	4444444444	4444444444	4444455555	5555555555	5555555555	5555555555	555555	
[	1111111122	2334444555	5566677777	7788888888	9999900000	0111111222	2233333344	4444444444	666666	
[	2234678812	6041359336	8924812233	7701227778	3668945555	6144578258	8912446800	0223446677	466671	
[	3455656743	8124862474	2118476925	1410253462	9364010369	5669292781	4073142914	7891364739	978901	
#HM106494_Protosalanx_chinensis	GCAACAAGCT	AAGGATTTCG	CAATAATTAA	ACGGCCACAG	CTCCATACTT	GGTTTACCTG	GTAAACGTAG	ACGATTCCGT	CCCGC	
#HM106492_Neosalanx_anderssoni	ATGGGGGATA	GTAAGCCTAA	TGGCCCCGGG	GTAATTGTGC	GCGAGCCTCC	ACCCCGTGCT	TCGGGGACGC	GTATCCTTCA	GTTTCG	
#MW291629_Protosalanx_chinensis	A....G...	..A.....A	.....	.....	.....	.....	.....GA	.....	.....	
[	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	]			
[	5555555555	5555555555	5555566666	6666666666	6666666666	6666666666	]			
[	6677777778	8888999999	9999900000	0011111222	3444555555	5566677777	]			
[	7822448990	0116122233	3356911333	6812469034	0227113556	8845800156	]			
[	2759591781	8462023901	2943958679	6550593449	3455783231	0421846808	]			
#HM106494_Protosalanx_chinensis	TTTCTTGCGT	TTCAATATTT	TTGAACAACT	GGCTCATTAG	CCTTCGGAGA	CCTTTTAGAT				

#HM106492\_Neosalanx\_anderssoni AG-----TAC GTT-CCCCC CAAGCTCGGC AAAAG.AGCC .TCCAACGAG ATGCCATATC  
#MW291629\_Protosalanx\_chinensis ..CTCCC.CC ...G..... .....T...C T..C..... .....

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The ND5 recombinant region(12957-13360) is highlighted in red bold. Other comments, see the Text S1.