

ANEXOS

Anexo 1. Alineamiento de las secuencias obtenidas

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      10      20      30      40      50      60      70      80      90
581/B/10P TCGCCTCCTATAAGATCCCCGAGTCCGTGGACGTTGTTGTTGCTCCCTCCTTTGTGCACCTTTCTACAGCTATTGCGGGGAATACTTCGAA
582/B/10P .....
583/B/10P .....C.....C.C
566/A/12P .T.TG.C.....T.T.....C.CA..C.....GCC.A...G.A...C.....A.C.G.A..
148/B/13P .....C.....A.C.C
167/B .....C.C
178/A/15P .T.TG.C.....T.T.....C.CA..C.....GCC.A...G.A...C.....A.C.G.A..
179/A/15P .T.TG.C.....T.T.....C.CA..C.....GCC.A...G.A...C.....A.C.G.A..
171/B/16P .....
176/B/17P .....
184/B/18P .....
233/A/19P .T.TG.C.....T.T.T.....C.CA..C.....GCC.A...G.A...C.....A.C.G.A..
237/B/19P .....
4A/B/20P .....
5/B/21P .....
5A/B/21P .....
12/B/22P .....
16/B/23P .....T
25/B/24P .....T
26/B/25P .....C.C
26A/B/26P .....C.C
620/B/9P .....
621/B/9P .....
519/B/2P .....C.C
526/B/2P .....C.C
521/B/1P .....C.C
525/B/1P .....
551/B/3P .....C.....T.....A.C.C
563/B/5P .....C.....A.C.C
553/A .T.TG.C.....T.T.....C.CA..C.....GCC.A...G.A...C.....A.C.G.A..
592/B/6P .....
593/B/6P .....
587/B/7P .....C.C
589/B/7P .....C.C
101/B .....C.....T.....C
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      110     120     130     140     150     160     170     180     190
581/B/10P AATAGCAGCACAGAACGTGTATCTGGAGGGGAACGGTGCATGGACCCGGCAGACAAGCGTCGAGATGCTGCTGGACATGGGGCTGAGCCAT
582/B/10P .....
583/B/10P .....T.....G
566/A/12P G.....G.....T.....C.A.....G.G.....T.....T.T.....T.A.....TT..AG..
148/B/13P .....G.....T.....
167/B .....
178/A/15P G.....G.....T.....C.A.....G.G.....T.....T.T.....T.A.....TT..AG..
179/A/15P G.....G.....T.....C.A.....G.G.....T.....T.T.....T.A.....TT..AG..
171/B/16P .....A
176/B/17P .....A
184/B/18P .....A
233/A/19P G.....G.....T.....C.A.....G.G.....T.....T.T.....T.A.....TT..AG..
237/B/19P .....A
4A/B/20P .....A
5/B/21P .....A
5A/B/21P .....A
12/B/22P .....A
16/B/23P .....A.....A
25/B/24P .....A.....T
26/B/25P .....
26A/B/26P .....G
620/B/9P .....A
621/B/9P .....A
519/B/2P .....
526/B/2P .....T
521/B/1P .....
525/B/1P .....A.....A
551/B/3P .....G
563/B/5P .....A
553/A G.....G.....T.....C.A.....G.G.....T.....T.T.....T.A.....TT..AG..
592/B/6P .....
593/B/6P .....A
587/B/7P .....C
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	410	420	430	440
581/B/10P	ATGGGAGAACGTTGTAATTGCCTATGAGCCGGTGGTCTATC			
582/B/10P			
583/B/10P	.....		
566/A/12P	C...A..G.G....C.....T..C....C.....C..T			
148/B/13P	.....		
167/B	.....		
178/A/15P	C...A..G.G....C.....T..C....C.....C..T			
179/A/15P	C...A..G.G....C.....T..C....C.....C..T			
171/B/16P	.....		
176/B/17P	.....		
184/B/18P	.....		
233/A/19P	C...A..G.G....C.....T..C....C.....C..T			
237/B/19P	.....		
4A/B/20P	.A.....GACG.....			
5/B/21P	.....		
5A/B/21P	.....		
12/B/22P	.....		
16/B/23P	GA.....			
25/B/24P	.....T.....			
26/B/25P	.....		
26A/B/26P	.....		
620/B/9P	.....		
621/B/9P	.....		
519/B/2P	.....		
526/B/2P	.....		
521/B/1P	.....G.....			
525/B/1P	.....		
551/B/3P	.....		
563/B/5P	.....		
553/A	C...A..G.G....C.....T..C....C.....C..T			
592/B/6P	.....		
593/B/6P	.....		
587/B/7P	.....T.....A.....			
589/B/7P	.....G.....A.....			
101/B	.....		

Figura 7: Distribución de las variaciones nucleotídicas en el locus de *tpi* en *Giardia duodenalis*

	10	20	30	40	50	60	70	80	90
521/B/1P	CGCGTCGACGACGACACCGCGTGTGAAGATGATCAAGGACGCCATCGCGCACCTTGACAGACTCATCCAGACAGAGTCGAGGAAGCGCCAGG								
551/B/3P	.....C.....								
563/A/5P	.....C.....A.....C.....G.....G.....								
565/B/5P	.....							
620/B/9P	.....C.....G.....								
621/B/9P	.....C.....G.....								
581/B/10P	.....C.....								
582/B/10P	.....C.....								
583/B/10P	.....C.....								
167/B	A.....C.....G.....								
178/A/15P	.....C.....A.....C.....G.....G.....								
179/A/10P	.....C.....A.....C.....G.....G.....								
233/A/19P	.....C.....A.....C.....G.....G.....								
4A/B/20P	.....							
5/B/21P	.....							
5B/B/21P	.....							
25/A/24P	.....C.....A.....C.....G.....G.....								
26A/A/25P	.....C.....A.....C.....G.....G.....								
5B/A	.....C.....A.....C.....G.....G.....								
27A/A	.....C.....A.....C.....G.....G.....								

	110	120	130	140	150	160	170	180	190
521/B/1P	AGGACATCCGCGAGGAAGTCAAGAAGTCTGCCGACAACATGTACCTGACGATCAAGGAGGAGATCGACACCATGGCCGCAAACCTCCGCAA								
551/B/3P	.....							
563/A/5P	.....G.....C.....A.....A.....T.....								
565/B/5P	.....A.....								
620/B/9P	.....							
621/B/9P	.....							
581/B/10P	.....							
582/B/10P	.....							
583/B/10P	.....							
167/B	.....							
178/A/15P	.....G.....C.....A.....T.....								
179/A/10P	.....G.....C.....A.....T.....								
233/A/19P	.....G.....C.....A.....T.....								
4A/B/20P	.....							
5/B/21P	.....							
5B/B/21P	.....							
25/A/24P	.....G.....C.....A.....T.....								
26A/A/25P	.....G.....C.....A.....T.....								
5B/A	.....G.....C.....A.....T.....								
27A/A	.....G.....C.....A.....T.....								

	210	220	230	240	250	260	270	280	290
521/B/1P	TGAGATGGGCGACACGCTCAACAACGTCGAGACGAACCTCCAGAACCAGATCGCCATCCACAACGACGCCATCGCAGCCCTCAGGAAGGAG								
551/B/3P	.....							
563/A/5P	G.....A.....T.....A.....T.....T.....G.....T.....								
565/B/5P	.....							
620/B/9P	.....							
621/B/9P	.....							
581/B/10P	.....							
582/B/10P	.....							
583/B/10P	.....							
167/B	.....							
178/A/15P	G.....A.....T.....A.....T.....T.....G.....T.....								
179/A/10P	G.....A.....T.....A.....T.....T.....G.....T.....								
233/A/19P	G.....A.....T.....A.....T.....T.....G.....T.....								
4A/B/20P	.....T.....								
5/B/21P	.....T.....								
5B/B/21P	.....T.....								
25/A/24P	G.....A.....T.....A.....T.....T.....G.....T.....								
26A/A/25P	G.....A.....T.....A.....T.....T.....G.....T.....								
5B/A	G.....A.....T.....A.....T.....T.....G.....T.....								
27A/A	G.....A.....T.....A.....T.....T.....G.....T.....								

	410	420
521/B/1P	TCTCCGCTGCCATCGAGAAGGAGACGATC	
551/B/3P	.....C.....	
563/A/5P	.....C.G.....	
565/B/5P	.....T	
620/B/9P	.....
621/B/9P	.....
581/B/10P	.....
582/B/10P	.....
583/B/10P	.....
167/B	.....C.....	
178/A/15P	.....C.G.....	
179/A/10P	.....C.G.....	
233/A/19P	.....C.G.....	
4A/B/20P	.....
5/B/21P	.....
5B/B/21P	.....
25/A/24P	.....C.G.....	
26A/A/25P	.....C.G.....	
5B/A	.....C.G.....	
27A/A	.....C.G.....	

Figura 8: Distribución de las variaciones nucleotídicas en el locus de β -giardina en *Giardia duodenalis*

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      10      20      30      40      50      60      70      80      90
521-1  TCAAGTGC AATGGATCGCTCGACTTCATTAAGAGCCACGTAGCGTCCATCGCCTCCCAT AAGATCCCCGAATCCGTTGGACGTTGTTGTTGCTCC
521-4  ...A.....G.
521-6  ...A.....G.
521-9  ...A.....G.
521-18 ...A.A.....G.
521-37 ...A.....T.....G.
521-39 ...A.....G.
521-40 .....G.
521-44 ...A.....T.....G.
521-46 ...A.....G.
525-7  ...A.....G.
525-9  ...A.A.....G.
525-11 ...A.A.....G.
525-13 ...A.....G.
525-14 ...A.....G.
525-15 .....G.
525-18 ...A.....G.
525-21 ...A.....G.
525-22 ...A.....G.
525-24 ...A.....G.
525-43 ...A.....G.

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      110     120     130     140     150     160     170     180     190
521-1  TGTACACCTTTCTACAGCTATTGCGGCAAACACCTCGAAGTGTCTGAAAATAGCAGCACAGAACGTGTATCTGGAGGGGAACGGTGCATGGACC
521-4  ...G.....G.
521-6  ...G.....G.
521-9  ...G.....G.
521-18 ...G.....G.G.
521-37 ...G.....G.T.T.....A.
521-39 ...G.....G.
521-40 ...G.....G.
521-44 ...G.....G.T.T.....A.
521-46 ...G.....G.
525-7  ...G.....G.
525-9  ...G.....G.G.....G.....T...C.
525-11 ...G.....G.G.....G.
525-13 ...G.....G.
525-14 ...G.....G.
525-15 ...G.....G.
525-18 ...G.....G.
525-21 ...G.....G.
525-22 ...G.....G.
525-24 ...G.....G.
525-43 ...G.....G.

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      210     220     230     240     250     260     270     280     290
521-1  ACAAGCGTCGAGATGCTGCTGGACATGGGGCTGAGCCATGTAATAATAGGACACTCTGAAAGACGTAGAATCATGGGCGAGACCAATGAGCAGA
521-4  .....G.
521-6  .....G.
521-9  .....G.
521-18 .....G.
521-37 .....A.....T.
521-39 .....C.....T.
521-40 .....C.....A.....C.
521-44 .....T.....G.
525-7  .....G.
525-9  .....G.
525-11 .....G.
525-13 G.....G.
525-14 .....G.
525-15 .....G.
525-18 .....G.
525-21 .....G.
525-22 .....G.
525-24 .....G.
525-43 .....G.

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521-1 AGAAGGCGAAGCGTGCCTGGACAAAGGTATGACTGTTATCTTCTGCACCGGAGAGACCCTGGATGAGCGCAAGGCCAATAACACTATGGAGAT
521-4 .....A.....G.
521-6 .....A.....G.
521-9 .....A.....G.
521-18 .....A.....G.
521-37 .....A.....G.
521-39 .....A.....G.
521-40 .....A.....G.
521-44 .....A.....G.
521-46 .....A.....G.
525-7 .....A.....G.
525-9 .....A.....G.
525-11 .....A.....G.
525-13 .A.....A.....G.
525-14 .....A.....G.
525-15 .....A.....G.
525-18 .....T.....A.....G.
525-21 .....A.....G.
525-22 .....A.....G.
525-24 .....A.....G.
525-43 .....A.....G.

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          410      420      430      440      450      460      470      480      490
521-1 TGCCAGCTCGAGGCTCTTAAGAAGGAGATTGGAGAATCAAAGAAGTTGTGGGAGAACGTTGTAATTGCCTATGAGCCGG-TGTGGTCTATC
521-4 ..T.....A.....G.
521-6 ..T.....A.....G.
521-9 ..T.....A.....G.
521-18 ..T.....A.....G.
521-37 ..T.....A.....T.
521-40 ..T.....A.....G.
521-44 ..T.....A.....G.
521-46 ..T.....A.....G.
525-7 ..T.....G.....A.....G...C.G.....T.T...G...AC...A.
525-9 .....
525-11 ..T.....A.....G.
525-13 ..T.....G.....A.....G.
525-14 ..T.....A.....G.
525-15 ..T.....A.....G.
525-18 ..T.....C.....A.....G.
525-21 ..T.....A.....C.....G.
525-22 ..T.....A.....G.
525-24 ..T.....A.....G.
525-43 ..T.....A.....G.

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Figura 9: Distribución de las variaciones nucleotídicas de los clones de las muestras 521 y 525 del paciente 1 en el locus de *tpi* de *Giardia duodenalis*