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Supplementary Material

In Silico Analyses of the Pseudogenes of *Helicobacter pylori*

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Supplementary Table S1.- Promoter analysis and mRNA stability of pseudogenes and their functional parents.

Sr. No	Sequence ID	Protein sequence identity with functional parents	LDF	MFE
1	HP0039 (899692)	Conjugal transfer protein [*H. pylori*] I:85;Q:98	4.01(4.10)	-81(-249.90)
2	HP0041 (899153)	Membrane protein [*H. pylori*] I:95;Q:94	0.52(5.19)	-86.80(-323.40)
3	HP0052 (899240)	Restriction endonuclease [*H. pylori*] I:93;Q:95	5.28(2.30)	-291.20(-368.90)
4	HP0094 (899021)	Alpha-1,2-fucosyltransferase [*H. pylori*] I:97;Q:100	6.5(U*)	-141.10(-129.70)
5	HP0143 (899134)	Citrate: succinate antiporter [*H. pylori* 26695] I:100;Q:100	4.96(4.96)	-311(-311)
6	HP0205 (899036)	ABC transporter ATPase [*H. pylori*] I:91;Q:99	6.51(4.81)	-79.7(-709.50)
7	HP0254 (899058)	hopX gene, [*H. pylori*] I:96;Q:100	1.44(U)	-18.50(-383.31)
8	HP0343 (900317)	Putative membrane protein [*H. pylori*] I:90;Q:89	2.52(7.41)	-130.1(-258.60)
9	HP0369 (900281)	Putative type II DNA modification enzyme/ Methyltransferase [*H. pylori*] I:100;Q:100	2.23(2.23)	-33.50(-33.50)
10	HP0432 (899240)	Protein kinase [*H. pylori*] I:100;Q:100	3.71(3.71)	-249.50(-249.50)
11	HP0481 (900363)	Adenine specific DNA methyltransferase (MFOKI) [*H. pylori*] I:100;Q:100	2.11(2.11)	-202.10(-202.10)
12	HP0482 (899253)	Restriction endonuclease [*H. pylori*] I:99;Q:100	0.77(2.30)	-139.40(-169.30)
13	HP0502 (899260)	Adenine methyltransferase [*H. pylori*] I:96;Q:90	2.79(1.39)	-35.30(-277.90)
14	HP0505 (899261)	Restriction endonuclease R. HpyAXII [*H. pylori*] I:95;Q:87	5.7(6.54)	-38.10(-85.90)
15	HP0548 (899274)	ATPase AAA [*H. pylori*] I:100;Q:100	2.32(2.99)	-75.40(-81)
16	HP0619 (900021)	Lipopolysaccharide biosynthesis protein [*H. pylori*] I:99;Q:100	1.37(1.37)	-161.4(160.40)
17	HP0679 (898956)	Lipopolysaccharide biosynthesis protein (wbpB) [*H. pylori* 26695] I:100;Q:100	8.29(8.29)	-248.4(-248.40)
18	HP0744 (899330)	GTPase [*H. pylori*] I:96;Q:100	8.95(12.29)	-100.7(-94.20)
19	HP0915 (899444)	Membrane protein [*H. pylori*] I:99;Q:100	1.22(5.19)	-553.6(-794.30)
20	HP1215 (898791)	Outer-membrane Permeability proteins [*H. pylori*] I:100;Q:99	2.86(2.86)	-563.5(-661.10)s
21	HP1522 (899769)	Restriction endonuclease [*H. pylori*] I:97;Q:100	2.97(0.33)	-326.20(-336.40)

Parent genes values are in parenthesis. U, unknown.

Supplementary Table S2.- Tertiary structure prediction of the pseudogenes and functional parents.

Sr. No	Sequence ID	Sequence identity of parent with pseudogenes	Predicted 3D Structures and their sequence identity (SI)		Instability Index	Total Energy Kcal/mol
	Pseudogene	(%)	Pseudogene	Functional parents	Pseudogene	Pseudogene
1	HP0039m (899692)	Conjugal transfer protein [*H. pylori*] I:85;Q:98	Cysteine proteinase SI: 30.56%	TraO protein SI: 23.86%	30.19	-398.3550
2	HP0041 (899153)	Membrane protein [*H. pylori*] I:95;Q:94	Protein P16 SI: 36.54%	COMB10 SI: 99.58%	37.96	-75.8959
3	HP0052 (899240)	Restriction endonuclease [*H. pylori*] I:93;Q:95	Phosphoglucose isomerase SI: 24.49%	Restriction endonuclease PacI SI: 24.71%	38.07	-249.5048
4	HP0094 (899021)	Alpha-1,2-fucosyltransferase [*H. pylori*] I:97;Q:100	Septum site-determining protein mind SI: 28.95%	Septum site-determining protein mind SI: 29.73%	44.20	-168.2298
5	HP0143 (899134)	Citrate: succinate antiporter [*H. pylori* 26695] I:100;Q:100	Transporter, NadC family SI: 20.63%	Transporter, NadC family SI: 20.63%	33.72	11082.2341
6	HP0205 (899036)	ABC transporter ATPase [*H. pylori*] I:91;Q:99	Multidrug resistance protein pgp-1 SI: 24.44%	ATP-binding cassette, sub-family B, member 1 SI:13.99%	41.24	-41.98846
7	HP0254 (899058)	hopX gene, [*H. pylori*] I:96;Q:100	Telomerase-associated protein 82 SI: 32%	E2 glycoprotein SI: 21.92	-2.93	-161.6401
8	HP0343 (900317)	Putative membrane protein [*H. pylori*] I:90;Q:89	Cell death protein 4 SI: 26.67%	Dynein light chain 1, cytoplasmic SI: 14.63%	43.05	-118.1194
9	HP0369 (900281)	Putative type II DNA modification enzyme/ Methyltransferase [*H. Pylori*] I:100;Q:100	Uroporphyrinogen decarboxylase SI: 26.67%	Uroporphyrinogen decarboxylase SI: 26.67%	13.82	-151.9675
10	HP0432 (899240)	Protein kinase [*H. pylori*] I:100;Q:100	Dual specificity protein kinase TTK SI: 21.54%	Dual specificity protein kinase TTK SI: 21.54%	40.22	1197.6584
11	HP0481 (900363)	Adenine specific DNA methyltransferase (MFOKI) [*H. pylori*] I:100;Q:100	DNA adenine methylase SI: 20.12%	DNA adenine methylase SI: 20.12%	51.06	12003.7269
12	HP0482 (899253)	Restriction endonuclease [*H. pylori*] I:99;Q:100	Restriction endonuclease HPY188I SI: 30.77%	Restriction endonuclease HPY188I SI: 29.81%	39.59	-215.8401
13	HP0502 (899260)	Adenine methyltransferase [*H. pylori*] I:96;Q:90	Type I restriction enzyme ECOKI M protein SI: 34.21%	Modification methylase TaqI SI: 24.43%	27.28	128.4540

Sr. No	Sequence ID	Sequence identity of parent with pseudogenes	Predicted 3D Structures and their sequence identity (SI)		Instability Index	Total Energy Kcal/mol
	Pseudogene	(%)	Pseudogene	Functional parents	Pseudogene	Pseudogene
14	HP0505 (899261)	Restriction endonuclease R.HpyAXII [*H. pylori*] I:95;Q:87	Restriction endonuclease PabI SI: 29.27%	Restriction endonuclease PabI SI: 30.21%	11.59	-38.3692
15	HP0548 (899274)	ATPase AAA [*H. pylori*] I:100;Q:100	DNA-binding protein SMUBP-2 SI: 34.72%	DNA-binding protein SMUBP-2 SI: 34.72%	47.99	-224.7370
16	HP0619 (900021)	Lipopolysaccharide biosynthesis protein [*H. pylori*] I:99;Q:100	Alpha-1,3-mannosyl-glycoprotein beta-1,2-N-acetylglucosaminyl transferase SI: 20.24%	Alpha-1,3-mannosyl-glycoprotein beta-1,2-N-acetylglucosaminyl transferase SI: 20.24%	54.01	-41.8790
17	HP0679 (898956)	Lipopolysaccharide biosynthesis protein (wbpB) [*H.pylori* 26695] I:100;Q:100	Lipopolysaccharide biosynthesis protein wbpB SI: 42.91%	Lipopolysaccharide biosynthesis protein wbpB SI: 42.91%	44.09	1366.8045
18	HP0744 (899330)	GTPase [*H. pylori*] I:96;Q:100	GTP-binding protein ENGA SI: 21.48%	GTPase Der SI: 21.09%	18	742.3841
19	HP0915 (899444)	Membrane protein[*H. pylori*] I:99;Q:100	Fe-Regulated protein B SI: 23.50%	Fe-Regulated protein B SI: 22.90%	28.38	1954.2197
20	HP1215 (898791)	Outer-membrane Permeability proteins [*H. pylori*] I:100;Q:99	LPS-assembly protein LptD SI: 23.61%	LPS-assembly protein LptD SI: 23.61%	38.89	1183.2490
21	HP1522 (899769)	Restriction endonuclease [*H. pylori*] I:97;Q:100	Modification methylase RSRI SI: 21.90%	Modification methylase RSRI SI: 20.88%	34.37	2191.5485