

TABLE I
Leptospira interrogans serovars used in phylogenetic tree

Specie	Serovar	Strain	GenBank	Status
<i>L. interrogans</i>	Bratislava	PigK151	CP011410.1, CP011411.1	Finished
<i>L. interrogans</i>	Copenhageni/Icterohaemorrhagiae	Piscina	CP018147.1, CP018146.1	Finished
<i>L. interrogans</i>	Copenhageni	Fiocruz L1-130	AE016823.1, AE016824.1	Finished
<i>L. interrogans</i>	Hardjo-prajitno	Hardjoprajitno	CP013148.1, CP013147.1	Finished
<i>L. interrogans</i>	Hardjo	Norma	CP012604.1, CP012603.1	Finished
<i>L. interrogans</i>	Lai	56601	AE010300.2, AE010301.2	Finished
<i>L. interrogans</i>	Lai	IPAV	CP001221.1, CP001222.1	Finished
<i>L. interrogans</i>	Linhai	56609	CP006723.1, CP006724.1	Finished
<i>L. interrogans</i>	Manilae	UP-MMC-NIID HP	CP011934.1, CP011935.1	Finished
<i>L. interrogans</i>	Manilae	UP-MMC-NIID LP	CP011931.1, CP011932.1	Finished
<i>L. interrogans</i>	Copenhageni/Icterohaemorrhagiae	Capivara	LJBQ01000000	Draft
<i>L. interrogans</i>	Copenhageni/Icterohaemorrhagiae	Prea	LJBO01000000	Draft
<i>L. interrogans</i>	Copenhageni/Icterohaemorrhagiae	RCA	LJBP01000000	Draft
<i>L. interrogans</i>	Muenchen	acegua	LCZF01000000	Draft

TABLE II
List of pathogenesis-related genes and vaccine targets identified in the genome of *Leptospira interrogans* strain Piscina

Gene	Locus tag		Function	Reference
	Piscina	Fiocruz L1-130		
<i>lenA</i>	A9P81_3133	LIC_12906	Binding to laminin	(Stevenson et al. 2007)
<i>lenB</i>	A9P81_1050	LIC_10997	Binding to fibronectin and laminin	(Stevenson et al. 2007)
<i>lenC</i>	A9P81_3236	LIC_13006	Binding to fibronectin and laminin	(Stevenson et al. 2007)
<i>lenD</i>	A9P81_2481	LIC_12315	Binding to fibronectin and laminin	(Stevenson et al. 2007)
<i>lenE</i>	A9P81_3741	LIC_13467	Binding to fibronectin and laminin	(Stevenson et al. 2007)
<i>lenF</i>	A9P81_3490	LIC_13248	Binding to fibronectin and laminin	(Stevenson et al. 2007)
<i>lipL32</i>	A9P81_1441	LIC_11352	Binding to fibronectin, laminin and collagen type I, V, IV and XX	(Haake et al. 2000, Chaemchuen et al. 2011)
<i>ligA</i>	A9P81_0501	LIC_10465	Binding to fibronectin, laminin, tropoelastin and collagen type I and IV	(Lin et al. 2009)
<i>ligB</i>	A9P81_0500	LIC_10464	Binding to fibronectin, laminin, tropoelastin and collagen type I, III and IV	(Lin et al. 2009)
<i>lsa66</i>	A9P81_0300	LIC_10258	Binding to fibronectin and laminin	(Oliveira et al. 2011)
<i>lsa27</i>	A9P81_3121	LIC_12895	Binding to laminin	(Longhi et al. 2009)
<i>lsa20</i>	A9P81_1569	LIC_11469	Binding to laminin	(Mendes et al. 2011)

Gene	Locus tag		Function	Reference
	Piscina	Fiocruz LI-130		
<i>lsa25</i>	A9P81_2416	LIC_12253	Binding to laminin	(Domingos et al. 2012)
<i>lsa33</i>	A9P81_1981	LIC_11834	Binding to laminin	(Domingos et al. 2012)
<i>lic12976</i>	A9P81_3205	LIC_12976	Binding to laminin	(Lima et al. 2013)
<i>lp95</i>	A9P81_2909	LIC_12690	Binding to fibronectin and laminin	(Atzingen et al. 2009)
<i>lip153</i>	A9P81_2247	LIC_12099	Binding to fibronectin, laminin and collagen type IV	(Oliveira et al. 2010)
<i>lsa21</i>	A9P81_0406	LIC_10368	Binding to fibronectin, laminin and collagen type IV	(Atzingen et al. 2008)
<i>lsa63</i>	A9P81_0352	LIC_10314	Binding to fibronectin, laminin and collagen type IV	(Vieira et al. 2010)
<i>lsa30</i>	A9P81_1152	LIC_11087	Binding to fibronectin and laminin	(Souza et al. 2012)
<i>ompl1</i>	A9P81_1027	LIC_10973	Binding to fibronectin and laminin	(Fernandes et al. 2012)
<i>ompl37</i>	A9P81_2425	LIC_12263	Binding to fibronectin and elastin	(Pinne et al. 2010)
<i>ompl47</i>	A9P81_3280	LIC_13050	Binding to fibronectin, laminin elastin and collagen type III	(Pinne et al. 2010)
<i>mfn1</i>	A9P81_1734	LIC_11612	Binding to fibronectin	(Pinne et al. 2012)
<i>mfn2</i>	A9P81_0773	LIC_10714	Binding to fibronectin	(Pinne et al. 2012)
<i>mfn6</i>	A9P81_1109	LIC_11051	Binding to fibronectin	(Pinne et al. 2012)
<i>mfn7</i>	A9P81_1538	LIC_11436	Binding to fibronectin	(Pinne et al. 2012)
<i>mfn9</i>	A9P81_0584	LIC_10537	Binding to fibronectin	(Pinne et al. 2012)
<i>tlyC</i>	A9P81_3374	LIC_13143	Binding to fibronectin, laminin and collagen IV	(Carvalho et al. 2009)
<i>Lip121</i>	A9P81_0037	LIC_10011	Lipoprotein	(Cullen et al. 2003)
<i>lemA</i>	A9P81_1117	LIC_11058	Not expressed in strains used for vaccine production, but up-regulated in highly virulent strains	(Zeng et al. 2015)
<i>lip145</i>	A9P81_1765	LIC_11643	Mutated in strain with medium virulence	(Zeng et al. 2015)
<i>lip141</i>	A9P81_3196	LIC_12966	Lipoprotein	(Shang et al. 1996)
<i>FcpA</i>	A9P81_3397	LIC_13166	Flagelin	(Wunder et al. 2016)
<i>fliM</i>	A9P81_1983	LIC_11836	Required for the assembly of the flagellum. Mutation in this gene leads to attenuation of the strain	(Fontana et al. 2016)
<i>loa22</i>	A9P81_0234	LIC_10191	Virulence factor	(Ristow et al. 2007)
<i>lsa24</i>	A9P81_0406	LIC_10368	Binding to extracellular matrix. Only found in pathogenic strains	(Barbosa et al. 2006)
<i>lsa32</i>	A9P81_1154	LIC_11089	Binding to extracellular matrix	(Domingos et al. 2015)
<i>lp30 L</i>	A9P81_3106	LIC_12880	Binding to extracellular matrix	(Oliveira et al. 2011)
LIC_12238	A9P81_2401*	LIC_12238	binding to extracellular matrix	(Oliveira et al. 2011)
<i>clpA</i>	A9P81_2176	LIC_12017	Chaperone	(Zeng et al. 2015)
<i>sph2</i>	A9P81_2843	LIC_12631	Hemolytic activity	(Narayanavari et al. 2015)

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