

Primer combinations used for MLST of *A. phagocytophilum*

European samples (Huhn et al., 2014, PLoS One, 9: e93725)

Gene	First amplification	Nested amplification	Sequencing
<i>pheS</i>	pheS 1f + pheS 2r	pheS 3f + pheS 4r	pheS 3f, pheS 4r
	pheS 1f a + pheS 2r a	pheS 3f a + pheS 4r a	pheS 3f a, pheS 4r a
	pheS 1f b + pheS 4r	pheS 3f b + pheS 4r	pheS 3f b, pheS 4r
<i>glyA</i>	glyA 1f + glyA 2r	glyA 3f + glyA 4r	glyA 3f, glyA 4r
	glyA 1f a + glyA 2r a	glyA 3f a + glyA 4r a	glyA 3f, glyA 4r a
	glyA 1f a + glyA 2r a	glyA 3f b + glyA 4r a	glyA 3f b, glyA 4r a
<i>fumC</i>	fumC 1f + fumC 2r	fumC 3f + fumC 4r	fumC 3f, fumC 4r
	fumC 1f a + fumC 2r a	fumC 3f a + fumC 4r a	fumC 3f, fumC 4r a
	fumC 1f b + fumC 2r b	fumC 3f b + fumC 4r b	fumC 3f, fumC 4r b
<i>mdh</i>	mdh 1f + mdh 2r	mdh 3f + mdh 4r	mdh 3f, mdh 4r
	mdh 1f a + mdh 2r a	mdh 3f + mdh 4r a	mdh 3f, mdh 4r a
<i>sucA</i>	sucA 1f + sucA 2r	sucA 3f + sucA 4r	sucA 3f, sucA 4r
	sucA 1f a + sucA 2r a	sucA 3f a + sucA 4r a	sucA 3f a, sucA 4r a
<i>dnaN</i>	dnaN 1f + dnaN 2r	dnaN 3f + dnaN 4r	dnaN 3f, dnaN 4r
	dnaN 1f + dnaN 2r	dnaN 3f a + dnaN 4r	dnaN 3f a, dnaN 4r
	dnaN 1f a + dnaN 2r a	dnaN 3f b + dnaN 4r a	dnaN 3f b, dnaN 4r a
<i>atpA</i>	atpA 1f + atpA 2r	atpA 3f + atpA 4r	atpA 3f, atpA 4r
	atpA 1f a + atpA 2r a	atpA 3f a + atpA 4r a	atpA 3f a, atpA 4r a

Asian samples (Mukhacheva et al., 2019, Ticks Tick Borne Dis., 10: 775)

Gene	First amplification	Nested amplification	Sequencing
<i>pheS</i>	pheS_f + pheS_r	none	pheS_f, pheS_r
<i>glyA</i>	glyA_f + glyA_r	none	glyA_f, glyA_r
<i>fumC</i>	fumC_f + fumC_r	none	fumC_f, fumC_r
<i>mdh</i>	mdh_f + mdh_r	none	mdh_f, mdh_r
<i>sucA</i>	sucA 3f a + sucA 4r a	none	sucA 3f a, sucA 4r a
<i>dnaN</i>	dnaN_f + dnaN_r	none	dnaN_f, dnaN_r
<i>atpA</i>	atpA_f + atpA_r	none	atpA_f, atpA_r