

**Table S2** Marginal likelihoods of different combinations of clock model and tree prior

<b>Molecular model</b>	<b>Coalescent tree prior</b>	<b>Log marginal likelihood</b>
Strict clock	Bayesian skyline	-9989.138
Strict clock	Constant size	-9990.471
<b>Strict clock</b>	<b>MASCOT</b>	<b>-9434.610</b>
Uncorrelated lognormal relaxed clock	Bayesian skyline	-10443.327
Uncorrelated lognormal relaxed clock	Constant size	-10560.719
Uncorrelated lognormal relaxed clock	MASCOT	-9711.672

The best-fitting tree prior and molecular clock model are indicated in bold font.

MASCOT, the marginal approximation of the structured coalescent