

Supplementary Table S3 *Pneumocystis* samples used for testing universal primers.

Host common names	Host scientific names	<i>Pneumocystis</i> species	Sampling countries & years	Sample type	References
Human	<i>Homo sapiens</i>	<i>P. jirovecii</i>	USA, 1986	Frozen lung	[32]
House mouse	<i>Mus musculus</i>	<i>P. murina</i>	USA, 2012	Frozen lung	[30]
Prairie dog	<i>Cynomys ludovicianus</i>	<i>P. ludoviciani</i>	USA, 2010	FFPE	[42]
Rhesus macaque	<i>Macaca mulatta</i>	<i>P. macacae</i>	USA, 2018	Frozen lung	[24]
Ferret	<i>Mustela putorius furo</i>	<i>Pneumocystis</i> spp.	USA, 1999	Frozen lung	[43]
Hare	<i>Lepus townsendii</i>	<i>P. sp. 'townsendii'</i>	Canada, 2020	Frozen lung	This study
Brown rat	<i>Rattus norvegicus</i>	<i>P. carinii</i>	Austria, 2004	FFPE lung	[35]
European rabbit	<i>Oryctolagus cuniculus</i>	<i>P. oryctolagi</i>	Austria, 2008	FFPE lung	[35]
Whippet dog	<i>Canis lupus familiaris</i>	<i>P. canis</i>	Austria, 2013	FFPE lung	[44]
Pig	<i>Sus scrofa domesticus</i>	<i>Pneumocystis</i> spp.	Austria, 2019	Frozen lung	[35]
Goat	<i>Capra aegagrus hircus</i>	<i>Pneumocystis</i> spp.	Austria, 2017	FFPE lung	[35]
Shrew	<i>Neomys anomalus</i>	<i>Pneumocystis</i> spp.	Austria, 2015	FFPE lung	[37]
River rat	<i>Myocastor coypus</i>	<i>Pneumocystis</i> spp.	Italy, 2013-14	Frozen lung	[41]
Squirrel	<i>Callosciurus finlaysonii</i>	<i>Pneumocystis</i> spp.	Italy, 2014	Frozen lung	[41]
Cat	<i>Felis catus</i>	<i>Pneumocystis</i> spp.	Italy, 2017-18	Frozen lung	[40]

FFPE, formalin-fixed, paraffin-embedded; mtLSU, mitochondrial large-subunit rRNA gene; mtSSU, mitochondrial small-subunit rRNA gene. *Indicating sequences identical to existing sequences in GenBank, with one accession no. shown if both genes are included in the mitochondrial genome sequence.