

Gall-forming protistan parasites infect southern bull kelp across the Southern Ocean, with prevalence increasing to the south

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Table S1: Primers developed and trialled during this study, targeting gene regions other than 18S. The reference sequences included, in each case, *Maullinia* or the closest available relative, and *Durvillaea* (or a relative) to assist with developing primers that might amplify pathogen but not host DNA. None of these primers, in any combination, performed well.

Gene region	Reference host species and GenBank accession	Reference protistan species and GenBank accession	Forward or Reverse	Primer sequence (5' - 3')
28S short	<i>Durvillaea antarctica</i> #FN667659	<i>Maullinia ectocarpii</i> #AF405547	F	ATATGCTTAAGTTCAGCGG
28S short	<i>Durvillaea antarctica</i> #FN667659	<i>Maullinia ectocarpii</i> #AF405547	F	GGGTGATCTTGCCTGATCTG
28S short	<i>Durvillaea antarctica</i> #FN667659	<i>Maullinia ectocarpii</i> #AF405547	F	GGTCTTTATGCATTGGRTATTC
28S short	<i>Durvillaea antarctica</i> #FN667659	<i>Maullinia ectocarpii</i> #AF405547	R	AAACGAATAYCCAATGCATAAAG
28S short	<i>Durvillaea antarctica</i> #FN667659	<i>Maullinia ectocarpii</i> #AF405547	R	CCAATGCATAAAGACCTCAG
28S short	<i>Durvillaea antarctica</i> #FN667659	<i>Maullinia ectocarpii</i> #AF405547	R	CATAAAGACCTCAGATCAGGC
28S long	<i>Durvillaea antarctica</i> #FN667659	<i>Spongospora subterranea</i> #AF245217	F	GGATTAAGGTTTTTAATTC
28S long	<i>Durvillaea antarctica</i> #FN667659	<i>Spongospora subterranea</i> #AF245217	F	ACTTTATATTTACTATTTGG
28S long	<i>Durvillaea antarctica</i> #FN667659	<i>Spongospora subterranea</i> #AF245217	F	GGGACGACATTATCTGTTT
28S long	<i>Durvillaea antarctica</i> #FN667659	<i>Spongospora subterranea</i> #AF245217	R	CGTAAACCATACCTAAGAA
28S long	<i>Durvillaea antarctica</i> #FN667659	<i>Spongospora subterranea</i> #AF245217	R	CAATAAACCTAAAAACCAA
28S long	<i>Durvillaea antarctica</i> #FN667659	<i>Spongospora subterranea</i> #AF245217	R	CTGTATACATATGATGAGCTC

Cox3	<i>Durvillaea potatorum</i> #EU681446	<i>Spongospora subterranea</i> # KF738139	F	AGTAGATGCTAGCCCTTGACC
Cox3	<i>Durvillaea potatorum</i> #EU681446	<i>Spongospora subterranea</i> # KF738139	F	CAATTTTTCTTCGTTTTCCG
Cox3	<i>Durvillaea potatorum</i> #EU681446	<i>Spongospora subterranea</i> # KF738139	F	CGCTTTAGTTTTAACTAGCGGG
Cox3	<i>Durvillaea potatorum</i> #EU681446	<i>Spongospora subterranea</i> # KF738139	R	TTTCGTTTCCGATTAATAAAG
Cox3	<i>Durvillaea potatorum</i> #EU681446	<i>Spongospora subterranea</i> # KF738139	R	GTAGTTACAAAGTAGGTGAAAC
Cox3	<i>Durvillaea potatorum</i> #EU681446	<i>Spongospora subterranea</i> # KF738139	R	GATTAAATTAAGTAGTTAC
5.8S short	<i>Fucus vesiculosus</i> #EU525661	<i>Maullinia ectocarpii</i> #AF405547	F	GTCGTAGCAATGGATATCTTG
5.8S short	<i>Fucus vesiculosus</i> #EU525661	<i>Maullinia ectocarpii</i> #AF405547	F	AATGGATATCTTGTTCTTG
5.8S short	<i>Fucus vesiculosus</i> #EU525661	<i>Maullinia ectocarpii</i> #AF405547	F	TATCTTGTTCTTGTCACG
5.8S short	<i>Fucus vesiculosus</i> #EU525661	<i>Maullinia ectocarpii</i> #AF405547	R	AAACGACACTCAAACAGGC
5.8S short	<i>Fucus vesiculosus</i> #EU525661	<i>Maullinia ectocarpii</i> #AF405547	R	CAAACAGGCATGCCCGG
5.8S short	<i>Fucus vesiculosus</i> #EU525661	<i>Maullinia ectocarpii</i> #AF405547	R	CGACACTCAAACAGGCATGC
5.8S long	<i>Fucus vesiculosus</i> #EU525661	<i>Maullinia ectocarpii</i> #AF405547	F	CATACCRATATGAAACAAGCG
5.8S long	<i>Fucus vesiculosus</i> #EU525661	<i>Maullinia ectocarpii</i> #AF405547	F	CTTGGGTGATTACCCTTTC
5.8S long	<i>Fucus vesiculosus</i> #EU525661	<i>Maullinia ectocarpii</i> #AF405547	F	GGTGGGTGTTGCTTGTGAGAAG
5.8S long	<i>Fucus vesiculosus</i> #EU525661	<i>Maullinia ectocarpii</i> #AF405547	R	CATCGACAAAACCAATAAAGAG
5.8S long	<i>Fucus vesiculosus</i> #EU525661	<i>Maullinia ectocarpii</i> #AF405547	R	CTTTATGCATTGGRTATTCGTTTC
5.8S long	<i>Fucus vesiculosus</i> #EU525661	<i>Maullinia ectocarpii</i> #AF405547	R	GCCTGATCTGAGGTCTTTATG