

sub-family or family	<i>Genus. Species</i>	Sampling type	Field reference	Locality
Trematominae	<i>T. pennellii</i>	chromosomes	CE4320 ⁵	Adelie Bank, Adelie Land margin
	<i>T. newnesi</i>	chromosomes	R6TA495 ³ (M)	Adelie Bank, Adelie Land margin
	<i>T. hansonii</i>	chromosomes	CE4004 ⁵ (F)	Adelie Bank, Adelie Land margin
		tissue	TA646TRHA2 ³	
	<i>T. eulepidotus</i>	chromosomes	M2S1	Ross Sea, Mario-Zucchelli station
	<i>T. bernacchii</i>	chromosomes	REVO2009-10 214-2738 ⁵	Adelie Bank, Adelie Land margin
	<i>T. borchgrevinki</i>	chromosomes	CE3588 ⁵ (F)	Adelie Bank, Adelie Land margin
	<i>T. nicolai</i>	chromosomes	CE5684REVO856 ⁵ (F)	Adelie Bank, Adelie Land margin
	<i>I. cyanobrancha</i>	chromosomes	PK9343 ⁴	Kerguelen-Heard Plateau
	<i>L. larseni</i>	chromosomes	LL12 ²	Shag rocks, South Atlantic
<i>P. ramsayi</i>	chromosomes	PR1 ²	South Georgia	
Nototheniinae	<i>N. coriiceps</i>	chromosomes	REVO2009-10lot316 ⁵ , TA15 ³ , TA25 ³ , TA335 ³ , TA731 ³ , NC5R2 ²	Adelie Bank, Adelie Land margin, Bouvet island
		tissue	REVO-080-270 ⁵ , REVO-080-272 ⁵	
	<i>N. angustata</i>	chromosomes	Nang1	Southern New-Zeland
	<i>N. rossii</i>	chromosomes	NR1	South Georgia
Dissostichinae	<i>D. mawsoni</i>	chromosomes	DM1	Ross Sea, Mario-Zucchelli station
Channichthyinae	<i>C. hamatus</i>	chromosomes	R60-II ¹	Ross Sea, Mario-Zucchelli station

Cygnodraconinae	<i>C. mawsoni</i>	chromosomes	TA373 ³	Adelie Bank, Adelie Land margin
Gymnodraconinae	<i>G. acuticeps</i>	chromosomes	TA736 ³	Adelie Bank, Adelie Land margin
Eleginopsidae	<i>E. maclovidus</i>	chromosomes	EM2 ²	Falkland Islands, Southern Ocean
Bovichtidae	<i>B. diacanthus</i>	chromosomes	BD4 ²	Tristan da Cunha Island, Southern Atlantic ocean

Additional file 2: Species sampling for chromosomal preparations and for tissue (muscle) for DNA extraction. Chromosomal preparations and tissue samples were collected during the French, Italian, American, and International Antarctic campaigns: **TNB**¹ (1990/1991, Zuchelli Station, Ross Sea), **ICEFISH**² (2004, Atlantic sector of the Southern Ocean), **ICOTA**³ (1996-2008, Adelie Land), **POKER**⁴ (2010 and 2013 Kerguelen-Heard shelf), **REVOLTA**⁵ (2010-2014, Adélie Land). F stands for female and M for male when known.