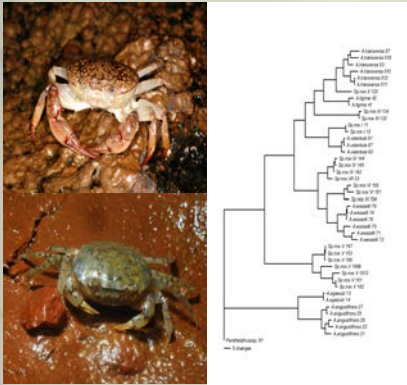


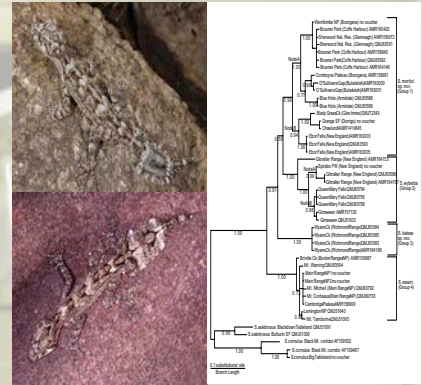
Queensland Museum Molecular Identities Lab and its role in DNA Barcoding

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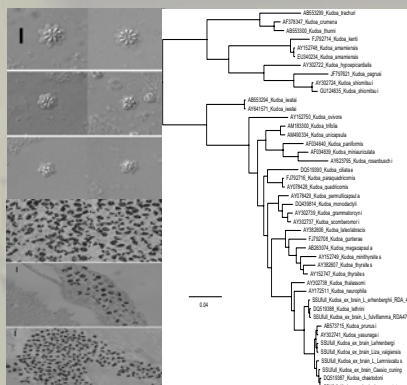
In 2012, the Molecular Identities Laboratory (MIL) at the Queensland Museum (QM) will celebrate its 10th birthday. Since it was established in 2002, the lab has hosted research across a wide range of animal taxa, always with the overarching aim of using DNA data to assist the identification of new and existing species. The primary work of the MIL is species-level discrimination, however, sequence data are used further to explore the evolutionary inter-relationships among diverse taxonomic groups.



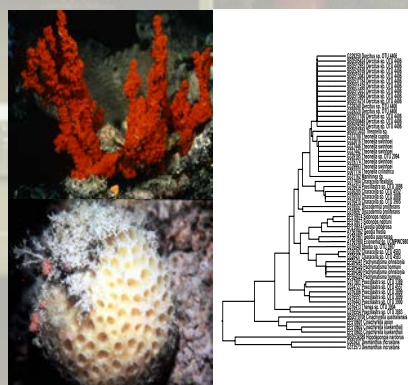
Crabs of the genus *Austrothelphusa*, an Australian fresh water endemic group and the combined 16S and CO1 phylogeny showing 6 possible new species.



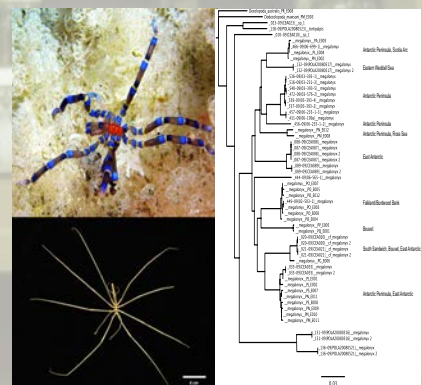
Species of the genus *Saltuarius*, members of a larger group of endemic Australian leaf-tailed geckos and the cytochrome *b* phylogeny identifying 4 new species.



Spores of the genus *Kudoa*, myxosporean parasites of marine fish, isolated from brain tissue and phylogeny based on complete small subunit rDNA showing site of infection as the best correlation with genotype.

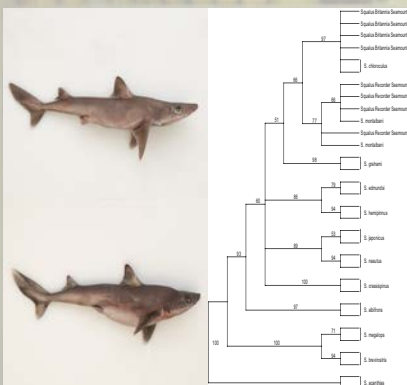


Marine sponges (Phylum Porifera) from the Indo-West Pacific and phylogeny based on CO1 showing inter-relationships of species of Class Astrophorida.

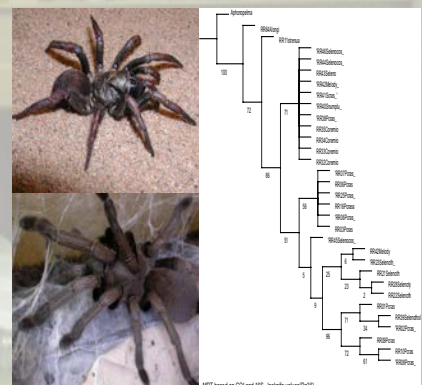


Australian and Antarctic species of the Class Pycnogonida (sea spiders) and CO1 phylogeny of the genus *Colossendeis* defining species boundaries within Antarctic waters.

Accordingly, we use standard fragments for identification, such as the standard barcoding fragment of CO1 mtDNA. Importantly, the QM is a repository for voucher specimens which are associated with the genetic data and we sequence additional loci, such as cytochrome *b* and 16S mtDNA, nuclear introns and 18S and 28S rDNA, which are informative on a taxon-specific basis. By ensuring we have vouchers as well as an array of genetic fragments, our work is taxonomically relevant, verifiable as well as maximally informative.



Species of the genus *Squalus*, a large group of dogfish sharks and the CO1 phylogeny identifying to species individuals caught on semounts off the Queensland coast.



Spiders of the Infraorder Mygalomorphae, tarantulas, trap-door and funnel-web spiders and the combined CO1 and 16S phylogeny showing genetic affinities among Queensland species.