

Antarctic and sub-Antarctic *Nacella* limpets reveal novel evolutionary characteristics of mitochondrial genomes in Patellogastropoda

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© 2018 Elsevier Inc. Mitochondrial genomes (mitogenomes) provide valuable phylogenetic information and genome-level characters that are useful in resolving evolutionary relationships within major lineages of gastropods. However, for more than one decade, these relationships and the phylogenetic position of Patellogastropoda have been inferred based on the genomic architecture as well as the nucleotide and protein sequences of a single representative, the limpet *Lottia digitalis*. This mitogenome exhibits extensive rearrangements and several repetitive units that may not represent universal features for Patellogastropoda. Here, we sequenced the complete mitogenomes of three *Nacella* limpets, providing new insights into the dynamics of gene order and phylogenetic relationships of Patellogastropoda. Comparative analyses revealed novel gene rearrangements in Gastropoda, characterised by two main translocations that affect the KARNI and the MYCWQ clusters in *Nacella* limpets. Our phylogenetic