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The Crown Pearl: a draft genome assembly of the European freshwater pearl mussel Margaritifera margaritifera (Linnaeus, 1758)

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Abstract

Since historical times, the inherent human fascination with pearls turned the freshwater pearl mussel Margaritifera margaritifera (Linnaeus, 1758) into a highly valuable cultural and economic resource. Although pearl harvesting in M. margaritifera is nowadays residual, other human threats have aggravated the species conservation status, especially in Europe. This mussel presents a myriad of rare biological features, e.g. high longevity including low senescence and Doubly Uniparental Inheritance of mitochondrial DNA, that the underlying molecular mechanisms are poorly known. Here, the primary draft genome assembly of M. margaritifera was produced employing a combination of Illumina Paired-end and Mate-pair approaches. The genome assembly was 2.4 Gb long, possessing 105,185 scaffolds and a scaffold N50 length of 288,726 bp. The initially gene prediction allowed the identification of 35,119 protein-coding genes. This genome represents an important resource for studying this species' unique biological and evolutionary features and ultimately will help to develop new tools to market its conservation.

Biography

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