

GENOME SEQUENCING

The Complete Genome Sequences of seven species of sea slugs (Nudibranchia, Gastropoda, Mollusca)

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Biodiversity Genomes

We present the complete genome sequences of seven species of sea slugs. Illumina sequencing was performed on tissue from wild-collected museum specimens. The reads were assembled using a de novo method followed by a finishing step. The raw and assembled data are publicly available via Genbank.

Methods

A subset of specimens was collected from the La Jolla Tide Pools in La Jolla, CA, USA in December 2022 (*Aegires albopunctatus* McFarland, 1905, *Ancula gibbosa* (Risso, 1818), and *Dendronotus venustus* McFarland, 1966). These specimens were collected by hand while tide pooling. Foot, tail, or whole animal tissues were taken from these and historical specimens in the Malacology collection at the American Museum of Natural History. Most of the included historical specimens were collected in the 1990s (*Corambe burchi* (Er. Marcus & Ev. Marcus, 1967), *Doris verrucosa* Linnaeus, 1758, and *Scyllaea pelagica* Linnaeus, 1758), with the exception of *Aeolidia papillosa* (Linnaeus, 1761), which was collected in 1910.

DNA extraction was performed with the Qiagen DNAeasy Genomic Extraction Kit using a standard process. A paired-end sequencing library was constructed using the Illumina TruSeq kit, according to the manufacturer's instructions. The library was sequenced on an Illumina Hi-Seq platform in a paired-end, 2 × 150bp format. The resulting fastq files were trimmed of adapter/primer sequences and low-quality regions using Trimmomatic v0.33 (Bolger, Lohse, and Usadel 2014). The trimmed sequence was assembled using SPAdes v2.5 (Bankevich et al. 2012) followed by a final assembly finishing step using Zanfona (Kieras, O'Neill, and Pirro 2021).

Results and Data Availability

All raw read data and assembled genomes are available in the GenBank database.

^a Deceased

taxname	accession	specimen_voucher
<i>Aegires albopunctatus</i>	JASKDV0000000000	AMNH:IZC-00361565
<i>Aeolidia papillosa</i>	JASVWI0000000000	AMNH:Mollusca-179114
<i>Ancula gibbosa</i>	JAUEKV0000000000	N/A
<i>Corambe burchi</i>	JAUEKR0000000000	AMNH:Mollusca-291717
<i>Dendronotus venustus</i>	JAUEKX0000000000	AMNH:IZC-00361564
<i>Doris verrucosa</i>	JAUEKT0000000000	AMNH:Mollusca-278086
<i>Scyllaea pelagica</i>	JAUEKY0000000000	AMNH:Mollusca-297530

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- Kieras, M., K. O'Neill, and S. Pirro. 2021. *Zanfona, a genome assembly finishing tool for paired-end Illumina reads*. <https://github.com/zanfona734/zanfona>.