

## **Total genome analysis of *Didemnum vexillum* Kott, 2002, a model organism for the study of marine bio-invasions**

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Over the course of approximately ten years in the late 20<sup>th</sup> century, the colonial sea-squirt *Didemnum vexillum* has spread worldwide from its native range. At virtually every place where its introduction was confirmed, from New Zealand to North America to Europe, it has become a successful invader covering, in some locations, many km<sup>2</sup> of the sea floor. As such, it has become an extremely dominant competitor for space, forming a serious ecological threat for ecosystems and an economical threat for the shellfish industry. As a result, and because of its general nature, *Didemnum vexillum* is becoming one of the best studied marine invaders worldwide. Currently, large scale research projects focusing on its genetics, ecology, populations dynamics, taxonomy, and management are being conducted throughout its range, contributing to the establishment of *Didemnum vexillum* as a model organism for the study of marine bioinvasions in general. To get an even better idea of the origin of its highly successful invasive behavior, its evolutionary history, and its development as a colonial chordate, we sequenced the total nuclear genome, the total mitochondrial genome and the total transcriptome of this invasive species in February 2010. We here present the first preliminary results of these analyses and their potential applications for the more general study of marine invasive species and the development and gene-expression patterns of a colonial chordate in comparison to other solitary chordates, including humans.