

The invertebrate *Phallusia mammillata* as a marine model for toxicity screening

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Ascidians (sea squirts) are members of the sister clade to vertebrates and make a vertebrate-like tadpole larva composed of less than 3000 cells in 18 hours. The neural complex of ascidian larvae is made of only 350 cells (of which 100 are neurons) and functional genomic studies have now uncovered numerous gene regulatory networks underpinning neural specification and differentiation. Several studies also show that brain formation in ascidians is sensitive to toxic insults especially from endocrine disruptors (EDCs), making them a suitable model to study neurodevelopmental toxicity. To better characterize the phenotypes induced by EDCs, we have developed protocols for high-throughput analysis of multiple endpoints in the ascidian larva. Our approach allows us to characterize more specific phenotypes induced by different classes of compounds. This study is a first attempt to establish the ascidian *Phallusia mammillata* as a model system for developmental toxicity screening.