

title	Development and regeneration in colonial ascidians
name	Elena Keeling
phone	756-2175
email	ekeeling@calpoly.edu
additional	
department	Biological Sciences
proj_desc	Colonial ascidians are marine invertebrates that are closely related to vertebrates; understanding the molecular and cellular mechanisms underlying their development and other aspects of their biology can therefore shed light on how fundamental biological processes evolve. One interesting aspect of ascidian biology is their ability to undergo complete regeneration, forming an entire body from stem cells in the circulatory system. Greater understanding of the process of regeneration, the nature of the stem cells, and the molecules that regulate them in ascidians has the potential to provide insights into how to achieve more successful regeneration of organs in humans. Another basic question in development and evolution is how differences in the timing of expression of key genes can result in new body structures and life cycles. One project will involve analysis of the pattern of expression of a particular gene in colonial ascidians, where preliminary results suggest that the expression differs from that seen in solitary ascidian species.
inter_desc	This research incorporates molecular biology and biotechnology, developmental biology, cell biology, histology, and marine invertebrate zoology.
links	
students	2
majors	BIO, MCRO, BMED, ASCI, CHEM
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