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In vitro cell culture of aquatic invertebrates-penaeus shrimps

In vitro cultured shrimp cells can serve as useful and indispensable tool for the proliferation and characterization of shrimp viruses as well as production of effective diagnostic reagents and anti-virus vaccines. Despite numerous attempts, no continuous shrimp cell line has yet been established due to the absence of active mitosis and failure to be immortalized in the *in vitro* cultured shrimp cells. We have established an improved primary cell culture and subculture system as evidence of rapid initiation of cell migration (2-3 h after seeding) and formation of 70%~80% confluent cell monolayer (within 16~24 h), and efficient detachment (>90%) and reattachment (50%-60%) with digestion solutions of HyQTase and ECDS, respectively. Recently, an embryonic cell culture system has been developed from the limb bud embryos of penaeus shrimps (*Marsupenaeus japonicas*) which includes the effective disinfection and sterilization of shrimp embryos, rapid disaggregation of vialble embryonic cells and cell mass, and optimal shrimp medium. The dissociated embryonic cells attached within 3 hours after seeding and differentiated into fibroblast- and neuron-like cells. Some of the fibroblast-like cells behave like cardiac muscle cells with rythmic beating. The embryonic cell monolayer can survive over 23 days and be subcultured only once due to the absence of active mitosis. More works are needed to initiate the mitosis of the *in vitro* cultured shrimp cells.

Biography

Huarong Guo has completed his PhD from Institute of Oceanology, Chinese Academy of Sciences, China and Post-doctoral studies from University of South Carolina, USA. She set up her own lab at College of Marine Life Sciences, Ocean University of China in 2011 and focused on "The development of continuous cell lines from the adult tissues and early embryos of economically important penaeid shrimps". She has become an Executive Council Member of Shandong Society for Cell Biology (China) and published more than 26 papers in reputed journals.

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