

Lipidomic Profiling during Early Sea Urchin Development

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Lipidomics, a branch of metabolomics, is a systems-based study of all lipids, the molecules with which they interact, and their function within the cell. Lipids play an essential role during sea urchin development not only as an energy source but also as a fundamental nutrient. The sea urchin has been used for many years as a research model to study embryonic development. Here, we investigated the total phospholipid composition in sea urchin *Strongylocentrotus nudus* embryos at different stages of development. Phosphatidylcholine presented greater content than other lipids in the time course of development. The level of phosphatidylcholine and phosphatidylinositol decreased during embryonic development, whereas the phosphatidylglycerol, phosphatidylserine and phosphatidylethanolamine showed no significant changes. Comparison of data from blastula with pluteus showed that total signal decreased by 59.3% in phosphatidylcholine, by 62.7% in phosphatidylinositol. The results suggest lipid profile from a crude lipid extract can be used to monitor developmental changes of sea urchin.