

BPT002-P02

Room:Convention Hall

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## Variation of expression of $\text{Ca}^{2+}$ -ATPase and skeletal growth of cultured corals (*Porites australiensis*)

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Trace elements, such as Sr/Ca and Mg/Ca ratios, of coral skeleton is a commonly used for reconstructing paleoenvironment, especially it has been used to estimate past sea surface temperatures. However the processes controlling trace elements incorporation in coral aragonite are poorly understood and recently it has been reported that skeletal growth might be altered variation of trace element rather than temperature. In zooxanthellate corals,  $\text{Ca}^{2+}$  is transported transcellularly to the calcification site by both calcium channels and by the carrier protein  $\text{Ca}^{2+}$ -ATPase. The pump enzyme  $\text{Ca}^{2+}$ -ATPase has a higher affinity for  $\text{Ca}^{2+}$  than for  $\text{Sr}^{2+}$ , and the  $\text{Ca}^{2+}$ -ATPase pump is activated by exposure of the polyp to light, suggesting that the skeletal Sr/Ca of rapid calcifiers might be lower than that of slow calcifiers because of differences in the Sr/Ca ratio in the bulk calcifying solution. However, there has been no study investigating the relationship between  $\text{Ca}^{2+}$ -ATPase and Sr/Ca and Mg/Ca in the skeleton of *Porites* coral which is dominantly used for the study on paleoclimate. In this study, *Porites australiensis* were cultured under controlled temperature and pH settings and expression level of  $\text{Ca}^{2+}$ -ATPase in each cultured corals was estimated. Also Sr/Ca and Mg/Ca ratios in the same coral colony were analyzed. We will discuss the relationship between skeletal growth rate and expression of  $\text{Ca}^{2+}$ -ATPase.

Keywords: coral skeleton,  $\text{Ca}^{2+}$ -ATPase, growth rate, culture