

Regeneration of contractile vacuole in *Amoeba proteus*

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SUMMARY

The contractile vacuole (CV) is known as an organelle of protozoa in freshwater, which performs cytoplasmic osmoregulation. However, there remains many subject to be solved on its organization and function, for example, the origin of the membrane component of CV and the mechanisms of water accumulation and the mechanism of contraction. In *Amoeba proteus*, CV is known to regenerate after its elimination. When the CV excised from cell by a glass needle, it regenerated in 50 min. In addition, regeneration occurred even in the absence of the nucleus. These results suggest that regeneration do not require de novo transcription and components required for regeneration (CV precursors) might be always preparation in the cytoplasm. To elucidate how CV precursors assemble during regeneration, we investigated the process of regeneration by immunofluorescence microscopy with two CV markers; ApAPQ (*A. proteus* aquaporin) and V-ATPase (vacuolar ATPase). After removal of CV, small vesicles to which ApAQP localized were formed in the cytoplasm and they are seemed to be fused to regenerate CV. On the other hand, punctuate staining of V-ATPase localized uniformly until CV regeneration was achieved.