D302

A Study on Inactivation of Actin Gene Expression during *Naegleria gruberi* Differentiation

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Naegleria gruberi differentiates from an ameba into a flagellate in less than 2 hours. During the differentiation, the expression of a group of ameba-specific genes (e. g., actin gene) is inactivated. Using the PCR fragment as a probe, we estimated the amount of actin mRNA during differentiation and it was dramatically decreased. To understand the inactivation mechanism of actin gene expression, we added retinoic acid (RA), which inhibits *N. gruberi* differentiation and tubulin gene expression, to examine the effect of RA. Although addition of RA at the beginning of the differentiation inhibited the differentiation in a dose-dependent manner, it did not affect the amount of actin mRNA. Because it has been well known that ameboid movement is largely actin-based, we treated with cytochalasin D, which inhibits the polymerization of microfilament, to see whether changes in size of free actin pool affect actin gene. Addition of cytochalasin D at the beginning of differentiation inhibited the differentiation in a dose-dependent manner. In 20 μg/ml of the drug, 60% of the cells formed flagella. In 50 μg/ml or 100 μg/ml of the chemical, the differentiation was completely inhibited. In this experiment, the amount of actin mRNA was considerably increased. Most of cells changed their shapes into spheres.

D701

Morphological Study on the Developmental Stages of *Acartia bifilosa* Giesbrecht (Copepoda: Acartiidae) in Kyeonggi Bay, Yellow Sea.

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To study on the developmental stages of *Acartia bifilosa* which is the most dominant species in the Kyeonggi Bay, Yellow Sea. The adults were cultured in the laboratory at 17℃ (±1℃). About 10 specimens were subsampled every 24 hours for 23days, and the appendages were described under the compound microscope using drawing tube after dessection.

The eggs of *Acartia bifilosa* (≒ 80 ㎛) were larger than the eggs of *A. clausi* (≒ 70 ㎛) and the eggs of *A. bifilosa* were covered with informal thick membrane.

The descriptions on the nauplius stages IV~V of *A. bifilosa* and *A. logiremis* by Oberg (1906) showed some differences with this study in the formula on the 1st antenna (antennule). However, *A. bifilosa, A. logiremis, and A. clausi* seemed to have similar formulas, spinulations and segmentations at each stages except for slight variations. The differences in formula can be the result of time series sampling and dissective observations at the laboratory in this study.

The 6 nauplius stages took about 7.5 days and the 5 copepodite stages were about 8.5 days. The body segmentation was recognizable at the 5th nauplius stage, and the sex distinction was possible at the 4th copepodite stage.