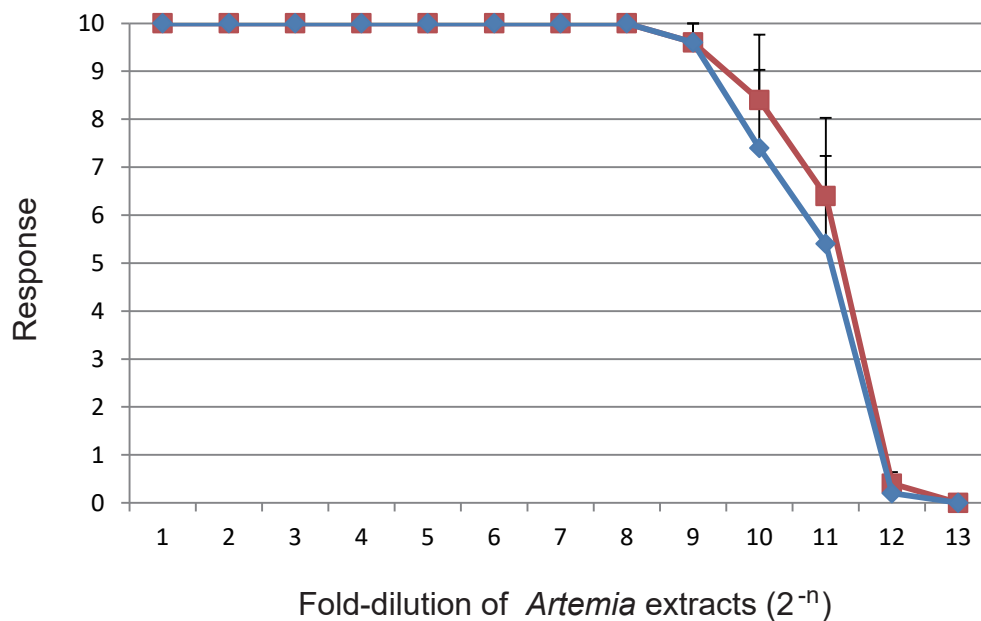


Supplementary Figure S1. Analysis of the feeding behaviors in *Cladonema* medusae. Images from the movies of (A) Supplementary Movie 1 (wild type, 6W) and (B) Supplementary Movie 2 (feeding-defective strain, B2-18). The number on the top left corner in each image indicates the time after recoding (sec). Yellow boxes (a–f) show the observed behaviors of the tentacles (see Fig. 2A).



Supplementary Figure S2. Dose–response curve of the feeding behaviors in *Cladonema* medusae for *Artemia* extracts. An extract of *Artemia* was prepared following Rushforth and Hofman (1972), except artificial seawater was used instead of distilled water and the preparation was centrifuged at $12,000 \times g$ for 10 min at 4°C . Aliquots of 1 ml of the supernatant, approximate total protein content of 10 mg/ml, were frozen in liquid nitrogen and stored at -80°C . The serial two-fold dilutions of the extract were made in artificial seawater and a sample of $5 \mu\text{l}$ of each solution was administered to each medusa. The number of medusae that contracted five or more tentacles were counted. Each dilution point of response represents the value obtained on measurement of 10 medusae, wild type (N3, red square) and feeding-deficient (B2-18, blue diamond), in one experiment. Experiments were repeated in five series, each of which was performed on separate days.

Supplementary Movie 6. Response of *C. pacificum* feeding-deficient medusa (B2-18) to *Artemia* homogenates. We provided some intact *Artemia* nauplii to a feeding-defective strain (B2-18) and confirmed that the feeding-defective medusa could capture but not kill the prey or bend the tentacles. When we gave *Artemia* homogenates to the feeding-defective medusa at 4 sec after the video started, the tentacles contracted and bent.