

Studies on the mating substances in *Paramecium caudatum*:  
Analysis of the polypeptides appearing in mating reactive ciliary membrane fractions

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**SUMMARY**

*Paramecium caudatum* has two different kinds of complementary mating types, designated as O (Odd) type and E (Even) type, which are genetically determined. When cells of complementary mating types under expressing mating reactivity are mixed, they immediately form agglutinates. This sexual cell agglutination is called mating reaction. Previous biochemical studies suggested the presence of ciliary membrane proteins, named mating substances which play a role of sexual cell recognition. In this study, we will demonstrate the preparation of mating reactive ciliary membrane fractions purified from both O and E types. These membrane fractions induce sexual agglutination in the cells of E-type. SDS-PAGE analysis indicates a polypeptide with molecular weight of about 52 kDa as one of the candidates of mating reaction inducing factors. Four partial amino acid sequences of this polypeptide were obtained from mass spectrometric data. Based on one of them, 3'-RACE was performed. 3'-RACE showed that two mRNA were detected. They are named FEV-1 or -2. There was not homologue between them, therefore they are independent each other. To determine the mRNA translated polypeptides of candidates is either FEV-1 or -2, gene cloning and function assay about FEV-1 and -2 would be the most important subject in future.