

Recovery of mating reactivity in senescent cells of *Paramecium caudatum* by microinjecting small double-stranded RNA

Nobuyuki HAGA and Tomoaki ABE (Dept. of Biol. Engin. Ishinomaki Senshu Univ.)

By microinjecting small double-stranded RNA (dsRNA) we have found recovery of mating reactivity in senescent Paramecia. The dsRNAs were synthesized according to the DNA sequences of Immaturin-related polypeptides that were isolated from immature cells. Microinjection of these dsRNAs into immature cells did not induce the expression of mating reactivity in the clones derived from recipients. On the other hand, microinjection of dsRNAs into senescent cells induced significant increase in the expression of mating reactivity. These results indicate the recovery of mating reactivity in senescent cells by dsRNA injection. The effect of dsRNA was reversible. The reinforced mating reactivity lasted until about 4 fissions after microinjection and eventually disappeared. The specificity of dsRNA effect was examined by using several control dsRNAs including dsRNA corresponding to glutathione-s-transferase gene. However, no significant effects were observed in those control experiments. If RNA interference were involved in our dsRNA effect, we have some contradiction between Immaturin effects and the effect of dsRNA. The biological meaning of the dsRNA effect will be discussed.