

Non-coding RNA gene expressed during the early stage of conjugation in *Paramecium caudatum*

Hiroshi HASEGAWA and Hiroshi ENDOH
(Grad. Sch. of Natural Sci. and Technol., Kanazawa Univ.)

SUMMARY

Conjugation in *Paramecium* begins with interaction of complementary mating types. After the initial stages of conjugation such as mating reaction, holdfast union and paroral union formation, conjugating cells are committed to undergo meiosis and a series of subsequent nuclear events. This study analyzes the initial stage of conjugation in *P. caudatum* at the molecular level. We extracted RNA from cells at 0, 0.5, 1, 2, and 3 h after mating and identified 12 sequences, which are differently expressed, using PCR subtraction. Using BLAST search, 10 of the 12 sequences hit to hypothetical proteins in *P. tetraurelia* database and one sequence to hemoglobin. The remaining one is a homolog of *P. tetraurelia* *MS2A* that is mRNA-like non-coding RNA and expressed in the initial stage of autogamy. We specifically examined a gene named "*PIC1*", whose expression started 1 h after mating and then reached maximum at 2–3 h. In general, non-coding RNA localizes in the nucleus and plays a major role of transcriptional control. Considering the common expression timing of *PIC1* and *MS2A*, this non-coding RNA might play an important role in the commitment process of sexual reproduction, conjugation and autogamy, in *Paramecium*.