

Flow cytometrical analysis of a *Tetrahymena thermophila* population

Kenji TOMITA¹, Kotaro MORI², Akiko KASHIWAGI³ and Tetsuya YOMO^{1,2,4} (¹Department of Bioinformatics Engineering, Graduate School of Information Science and Technology, Osaka University ²Graduate School of Frontier Biosciences, Osaka University ³ Faculty of Agriculture and Life Sciences, Hirosaki University, ⁴Complex Systems Biology Project, ERATO, JST)

SUMMARY

In a co-culture of *Tetrahymena thermophila* and *Escherichia coli* that expresses RFP, we can observe not only fluctuations of population but also phenotypic variations of each organism. In order to observe the phenotypic variation in the co-culture system, we analyzed the co-culture using a flow cytometer, which allowed us to measure parameters of forward scatter, side scatter and fluorescence of single cells. As a result, we found that the distribution of the *Tetrahymena* population, especially based on data from red fluorescence, varied more in co-culture than in single-culture. We guess this variation results from the fact that *Tetrahymena* preyed on *E.coli*. Cell sorting and microscopic observation may allow us to confirm this. We suggest that flow cytometrical analysis can be a powerful tool to elucidate the multi-variate dynamics of a co-culture system.