Faculty of Engineering
Tokushima University

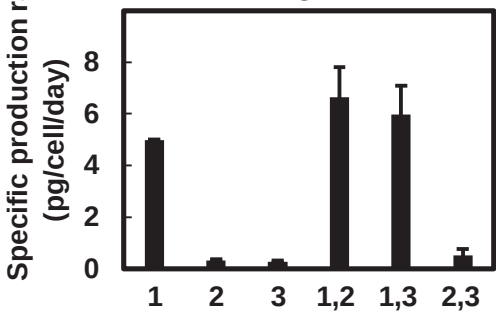
Cell engineering for therapeutic antibody production

Designated Assistant Professor Noriko Yamano

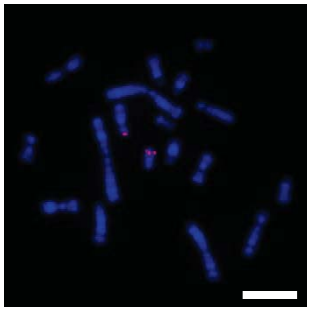
Rotation culture of CHO cells

Determination of antibody concentration

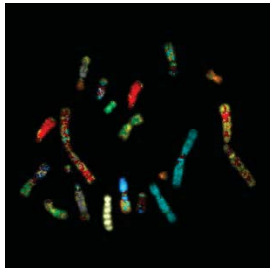
Productivity differences within the vector integration sites



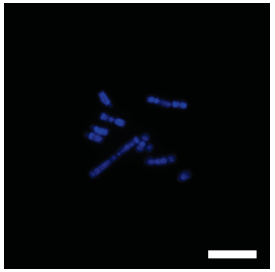
BAC-FISH

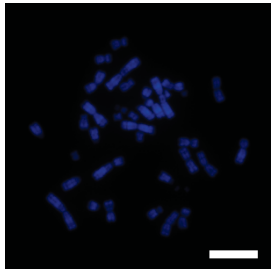


Multicolor-FISH



Chromosome aneuploidy





Scale bars; 10 μm

Chinese hamster ovary (CHO) cell lines are widely used in the field of biotechnology to produce therapeutic antibodies. Chromosomes of CHO cell are unstable and variation of chromosome number occurs in the CHO cells.

I focus on genomic instability of CHO cells to establish productive cell lines.

We have previously constructed a CHO genomic BAC library which enables us to distinguish all the 20 individual chromosomes in CHO cells. Using this material, I am working on the stability of each chromosome and would like to examine the differences in antibody productivity within various expression vector integration sites. I am also interested in the favorable chromosome distribution in antibody production, effects of chromosomal instability itself, and modifications of the cell function by genetic engineering.

Through these studies, the final goal of my research is to construct new cell lines that can more efficiently produce therapeutic antibodies.

Keywords : CHO cells, genomic instability, genetic engineering

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