

## The collaboration research for the Dual Graduate School between VNU and JAIST

[Title of collaboration research]: **Genomic Sequencing of thermo-stable microorganisms**

[The members of collaboration research]: **Toshifumi Tsukahara**

[Reference home-page address]: <http://www.jaist.ac.jp/nmcenter/labs/tsukahara-www/>

[Other references]: M. Komatsu, E. Kominami, K. Arahata, T. Tsukahara: Cloning and characterization of two neural-salient serine/arginine-rich (NSSR) proteins involved in the regulation of alternative splicing in neurons. *Genes to Cells* (1999) **4**, 593-606.

YK. Hayashi, F-L. Chou, E. Engvall, M. Ogawa, C. Matsuda, S. Hirabayashi, K. Yokochi, BL. Ziober, RH. Kramer, SJ. Kaufman, E Ozawa, Y Goto, I Nonaka, T Tsukahara, J Wang, EP. Hoffman, K. Arahata: Mutations in the integrin alpha 7 gene cause congenital myopathy. *Nature Genetics* (1998) **19**, 94-97.

[Contents] Genomic sequencing of thermo-stable microorganisms is an efficient way for screening or generating thermo-stable useful enzymes. It is possible that there are various new thermo-stable microorganisms in Vietnam. We will cloning of fragments of genomic DNAs and sequencing them. All the fragments generated from a thermo-stable microorganism are inserted into a plasmid, then vectors allows for propagation and replication in E. coli. Each isolated plasmid should be sequencing by using ABI 3130xl sequencer, then sequences of fragments will be finally re-aligned based on overlaps in their sequences. By the complete genomic sequencing, we can deduce primary sequences of whole proteins in the thermo-stable microorganism. Thermo-stable proteins could be useful tools as nano-biomaterials.

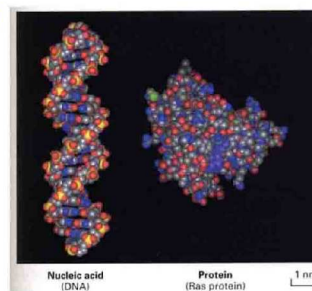
The research is concerned with the basic science underlying bioremediation efforts, structural science and genome science, as well as other uses of biotechnology. Identification of new thermo-stable proteins will enhance numerous possibilities to create super-biomolecules which will be added thermo-stability to specific functional proteins. The results of the investigations

may be contributed to generate stable bioreactors for degradation of hazardous waste, production of useful metabolic compounds and biomass.

### New Nano Material Science with Biomolecules

#### Feature of Biomolecules

- Nano-size Materials
- Self-Organization
- Molecular Recognition
- Specific Function
- Gene = Design
- Manufactured by Cells



#### Structure of Protein



#### Function of Protein

