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Possible missing genes of *Thermus thermophilus* HB8 genome

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Since *Thermus thermophilus* HB8 genomic sequence was open to the public[1], the data were widely used for various studies on genomics, proteomics, and so on. However, some genes that had been reported from *T. theromphilus* HB8 are missing in the genome. We reanalyzed the sequence data determined by the *T. thermophilus* HB8 genome project. First, we removed sequences included in the genome assemblies. Second, remained sequences were used for further assembly. We found contigs that are not a part of assembled *T. thermophilus* HB8 genome sequence, but that are most likely to be *T. thermophilus* HB8 genes. Their sequences are GC-rich (> 60 %), and encoded genes show high similarities to the genes from Deinococcus-Thermus group (*T. thermophilus*, *T. aquaticus*, *Meiothermus ruber*, *Deinococcus* spp.). For example, one of ORFs in these contigs hit to the xylose isomerase gene of *T. thermophilus* HB8[2,3] (Figure 1). To investigate whether these contigs are parts of *T. thermophilus* HB8 chromosome genome and plasmid sequences, we are going to analyze *T. thermophilus* HB8 genomic DNA that is extracted from the oldest cell stock of this strain kept by Dr. T. Oshima.

References

1. Structural-Biological Whole Cell Project (http://www.thermus.org/)
2. Dekker, K., H. Yamagata, K. Sakaguchi, and S. Udaka (1991) Xylose (glucose) isomerase gene from the thermophile *Thermus thermophilus*: cloning, sequencing, and comparison with other thermostable xylose isomerases. J. Bacteriol. 173: 3078-3083
3. Chang, C., B. C. Park, D-S. Lee, and S. W. Suh (1999) Crystal structures of thermostable xylose isomerases from *Thermus caldophilus* and *Thermus thermophilus*: possible structural determinants of thermostability. J. Mol. Biol. 288: 623-634

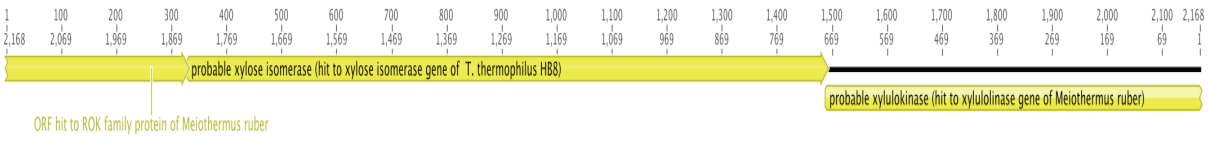

Figure 1. Overview of one of contigs. Three ORFs are found on the contig. With BlastX search, two of three ORFs hit to the genes of *Meiothermus ruber* with highest probabilities. The remaining ORF hit to the Xylose isomerase gene of *T. thermophilus* HB8 reported by Dekker et al. (1991).