

PT-98

Screening and Analysis of *Bacteroides fragilis* Genome Sequence for D-Lactate Dehydrogenase Enzyme using Bioinformatic Tools

Zeynep Busra Bolat¹, Aysegul Erdemir¹, Oguz Ata², Hasan H. Balik², Dilek Turgut-Balik¹.

¹Yildiz Technical University, Faculty of Chemical and Metallurgical Engineering, Department of Bioengineering, Davutpasa Campus, 34210 Esenler, Istanbul, Turkey.

²Istanbul Aydin University, Faculty of Engineering, Department of Mechatronics Engineering, Inonu Street, Kucukcekmece, 34295, Istanbul, Turkey.

bolatb.zeynep@gmail.com

Lactate dehydrogenase (LDH) enzyme of *Bacteroides fragilis* was targeted to perform structure based drug design study. A literature and database search was conducted for the *Bacteroides fragilis* L-LDH prior to amplification of targeted gene. Even though there was evidence for the L-LDH enzyme in an article and metabolic pathway of *Bacteroides fragilis*, it was not possible to find the L-LDH enzyme in its genome. In order to enlighten the presence or absence of any LDH or LDH-like sequences in the genome of *Bacteroides fragilis*, some of LDH specific motifs and sequences were scanned in the genome of this bacterium using a program developed for this study. These were GXGXXG motif, known as nicotinamide adenine dinucleotide (NAD)-binding motif found in all organism's L-LDH enzyme, NPVD and NPMD sequences, commonly found in L-LDH of most organisms. Possible nucleotide sequences were found for each sequence; 5, 8 and 15 different nucleotide sequences were found in the genome of the *Bacteroides fragilis*, GXGXXG motif, NPVD and NPMD sequences, respectively. These nucleotide sequences were then searched against the genome of *Bacteroides fragilis* using the NCBI BLAST for annotation and none of them corresponded to L-LDH protein. This clearly suggests L-LDH being not present in the genome of targeted bacterium. Therefore study was directed on D-LDH enzyme with the aim of conducting structure-based drug design studies.

This project was supported by Yildiz Technical University Scientific Research Projects Coordination Department (Project No: 2012-07-04-YL02).