

Bioinformatic analysis of acyl carrier protein (ACP) in eukaryotes and prokaryotes

Masoumeh Fallah Ziarani¹, Masoud Tohidfar*^{1,2}

¹Department of Plant Biotechnology & Life Science, Shahid Beheshti University, Tehran, Iran;

²Biotechnology Agricultural Biotechnology Research Institute of Iran, Karaj, Iran.

*E-mail: gtohidfar@yahoo.com

Abstract: Acyl-acyl carrier protein (ACP) thioesterase is the chain-length determining enzyme in denovo biosynthesis of plant fatty acids[1]. The biosynthesis pathway of fatty acids is one of the important pathways in the body of most organisms [2] [3]. This study intends the phylogenetic analysis of ACP gene. This research intended to study of the phylogenetic analysis of ACP genes. Phylogenetic analysis that show number of exons and introns ACP gene in eukaryotes and prokaryotes. Result indicate that this gene has 4 exons, 3 introns and and 2 mRNA in prokaryotes and 13 exons, 12 introns and 9 mRNA in eukaryotes. The results of multiple alignments indicate that the ACP genes between bacterial species are more protected than plant species. It also was determined the percentage of GC of ACP genes in prokaryotes more of the eukaryotes. The result show this gene in the prokaryotes more stable of eukaryotes against heat. High aliphatic index in eukaryotes and prokaryotes showed that the structure of the protein studied in both is in a broad range of temperature stable. GRAVY analysis of this protein indicate that protein ACP in prokaryotes and eukaryotes is the different rang of GRAVY. The study of protein structure help to detect function and structure of protein can be useful in studies of the active site of the protein and docking .

Keywords: phylogenetic analysis; ACP gene; alignment; eukaryote; prokaryot.

References

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