

Mitochondrially-Encoded Adenosine Triphosphate Synthase 6 Gene Haplotype Variation among World Population during 2003-2013

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Abstrak

Adaptation and natural selection serve as an important part of evolution. Adaptation in molecular level can lead to genetic drift which causes mutation of genetic material; one of which is polymorphism of mitochondrial

DNA (mtDNA). The aim of this study is to verify the polymorphism of mitochondrially-encoded Adenosine Triphosphate synthase6gene (MT-ATP6) as one of mtDNA building blocks among tropic, sub-tropic, and polar areas.

Methods: This descriptive quantitative research used 3,210 mtDNA sequences, taken from GenBank, as secondary data

from 27 different populations. The data were grouped into 3 population groups based on the climates of their location.

After grouping, the sequences were then aligned and trimmed using Unipro EUGENE, and analyzed by Arlequin and

MitoTool. Results: Results demonstrated 21 haplotypes distributed among 3 populations with variations between each

climate population. In the tropic and sub-tropic populations, the dominant haplotype is h1 while h6 is dominant in the

polar population. Conclusions: There is a variation of haplotype polymorphism between tropic, sub-tropic, and polar

climate population.