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P89. GENOTOXICITY OF MERCURY COMPOUNDS

Bayram YÜKSEL, Arzu EROĞLU, Zeliha KAYAALTI

Ankara Police Forensic Laboratory, Turkish National Police, Ankara, Turkey
Ankara University, Institute of Forensic Sciences, Cebeci, Ankara

Genetic toxicology is the scientific discipline concerning with the toxic effects of chemical, physical and biological agents on deoxyribonucleic acid (DNA) of living organisms. Genetic information encoded chemically in DNA is continued, replicated and transmitted to following generations with high fidelity. Either direct or indirect damage to DNA can be originated from normal biologic process or as the result of interaction of DNA with chemical, physical or biological mechanisms. Mercury exists in elemental, inorganic and organic forms. Methlymercury has been an environmental interest to public health and regulatory agencies for many years because of its neurotoxicity. People are at risk of mercury exposure by fish food, mercury vapor from amalgam tooth fillings and antiseptic and antifungal agent including organomercury compound named as thimerosal. Mercury genotoxicity has been generally featured to its ability to react with the sulfhydryl groups of tubulin, damaging spindle function and leading to chromosomal defects and polyploidy. Another substantial mechanism of mercury genotoxicity is its capability to produce free radicals which can cause DNA damage. In vivo studies have demonstrated a clastogenic effect of mercury on people who are exposed to this element. Elevated numbers of chromosome mutaions and micronuclei have been reported in miners, workers of explosive factories and people who consume contaminated fish. Since genetic toxicology and toxicogenetic become important scientific fields recently, mercury compounds which affect DNA and cause to changes on DNA were mentioned in present review.

* bayramyuksel83@gmail.com
Corresponding Author: zkayaalti@gmail.com