



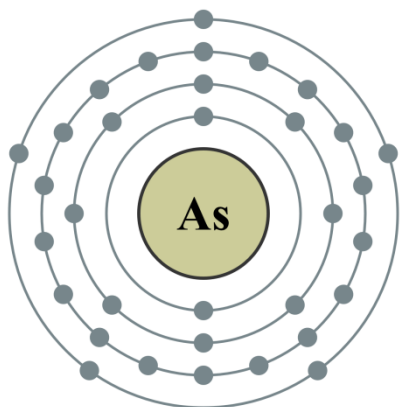
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## Interaction study of arsenic (III and V) ions with METALLOTHIONEIN GENE (MT2a)

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### Abstrakt

Arsenic (As) is a natural metalloid frequently occurred in soil, water and air. Furthermore, arsenicals are also by-products of copper, lead and of ores or coal consumption. Arsenic is classified as a worldwide pollutant and human carcinogen. Oxidative stress due to arsenic exposure is proposed as one potential mode of carcinogenic action. It's toxicity depends on



the oxidation state or methylation level during the biotransformation in the organism. Inorganic arsenic has two biological important oxidation states: As (V) (arsenate) and As(III) (arsenite). In the most cases in the environment the arsenate As (V) is occurred and arsenite As (III) when the anaerobic condition e.g. in the water. Although As(III) has high affinity to sulfhydryl compounds such as GSH and cysteine-rich proteins, As (V) does not bind to the sulfhydryl group. In humans, like in many mammalian species, inorganic arsenic is almost quantitatively reduced from pentavalent to trivalent arsenic in plasma and subsequently methylated to trivalent and pentavalent metabolites in the liver. The

inorganic arsenic is metabolized to the monomethylarsonic acid (MMAV) and monomethylarsinic acid (DMAV) which are highly reactive and responsible for arsenic intoxication.

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