

Global Cancer Conference & Medicare Summit

September 15-17, 2014 Hyderabad International Convention Centre, India

Effect of NDMA in the yeast O⁶-AGT (O⁶-alkylguanine-DNA alkyltransferase) gene

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Nitroso compound are known carcinogens with an effect of A: T to G: C transitions on DNA. O⁶-AGT (O⁶-alkylguanine-DNA alkyltransferase) is a yeast homologue of human MGMT (O⁶-methylguanine DNA methyltransferase) and is an important enzyme which helps in removal of NDMA formed adducts, thus maintaining the genome integrity. However, alterations in the very gene may lead to accumulation of mutations that may be induced by N-nitroso compounds and thus contribute to the genomic instability. These characteristics combined with the other epigenetic factors may contribute to tumorigenesis. In the present study, we treat *Saccharomyces cerevisiae* with NDMA (N-nitrosodimethylamine) and check the uptake of the same by HPLC. We also study the gene O⁶-AGT (O⁶-alkylguanine-DNA alkyltransferase) for any induced mutations by this nitroso compound. These results showed that NDMA was not metabolized by yeast and hence there were no prominent molecular consequences observed.

Biography

S Ashwini Devi, pursuing 3rd year of MSc Integrated Biotechnology at VIT University, Vellore, Tamil Nadu, India. She has worked on various research projects during the past 2 years and is working on the foresaid project since last 6 months.

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