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# TOXIC MECHANISM OF ATRAZINE IN TRANSGENIC MUTAGENESIS SYSTEM USING BIG BLUE® *RAT2 lacI* TRANSGENIC FIBROBLASTS AND HORMONAL DISTURBANCES *IN VITRO*

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Atrazine, one of herbicide widely used in agriculture, is classified as a possible human carcinogen (2B group) that may cause breast and ovarian cancers by IARC, and is known as an endocrine disruptor. Atrazine has been subjected to broad ranges of genotoxicity tests with predominantly negative results, but reported conflicting results across two or more independent tests as well. This fact indicates that a more comprehensive genotoxicity assessment needs for atrazine. Due to this, we assessed the induction of point mutations and cytogenetic damages by atrazine *in vitro* using transgenic mutagenesis assay and cytokinesis-blocking micronucleus assay in the Big Blue® *Rat2 lacI* transgenic fibroblasts. These assays carried out at the same concentrations of 261.7, 130.8 and 65.4 $\mu$g/ml of atrazine, the highest concentration giving 80% survival in both assays. From our results, no significant changes of mutant frequency and binucleated micronuclei frequency induced by atrazine were observed, and atrazine had little genotoxic potential. Thus, we performed E-screen and yeast transcriptional assay to examine whether the carcinogenicity of atrazine may be mediated by the mechanism that interferes with the endogenous hormonal system. Results will be represented at this report in detail.