

## ***IN VIVO* CHROMOSOME ABERRATION TEST FOR HYDROXYAPATITE IN MICE**

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**Introduction:** Dentistry has searched for the ideal material to place in osseous defects for many years and hydroxyapatite has been extensively used for such purposes. Hydroxyapatite is the primary mineral component of bone. The beneficial biocompatible properties of hydroxyapatite are that it is rapidly integrated into the human body and will bond to bone forming indistinguishable unions. But, before new materials are approved for medical use, mutagenesis systems to exclude cytotoxic, mutagenic or carcinogenic properties are applied worldwide. The purpose of this mammalian *in vivo* test is to detect any chromosomal aberrations induced by the test compound, synthetic hydroxyapatite granules (Manufactured in USM, Penang) in bone marrow cells of mice.

### **Objectives:**

1. To standardize the technique of production of chromosomes from bone marrow cells of mice
2. To study the mitotic index after exposure of animals to synthetic hydroxyapatite granules
3. To determine the extent of chromosomal aberrations induced by synthetic hydroxyapatite granules in the bone marrow cells of mice

**Scope and expected Outcomes:** The mammalian *in vivo* chromosome aberration test is used for the detection of structural chromosomal aberrations induced by test compounds in bone marrow cells of animals. The animals are divided into positive control, negative control and treatment groups and the negative control is injected with distilled water, positive control with Mitomycin C and the treatment groups with synthetic hydroxyapatite granules. The animals are sacrificed after arresting the cell division; bone marrow is collected and analyzed for chromosomal aberrations. In this study carried out so far, no chromosome aberrations were detected both in the negative control and treatment groups whereas in the positive control group chromosome aberrations are noticed. The study is in progress in more number of animals. This study will help in determining the cytotoxic as well as the clastogenic effect of a biomaterial.