

## The Gubernacular Development in Prenatal Rats After *in utero* Exposure to Bisphenol A

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Bisphenol A (BPA) is classified as an endocrine disrupting chemicals (EDCs) because of its anti-androgenic effect. The gubernaculum is a structure that pulls the gonad from the abdominal cavity into the scrotum during testis descent. Androgen is one of the factors involved in gubernacular development. The objective of the research was to study the ultrastructure of the gubernacular cone in the male prenatal Sprague-Dawley (SD) rats after *in utero* exposure to BPA.

Time-mated pregnant SD rats were obtained from the Animal Husbandry facility, Faculty of Medicine, University of Malaya Kuala Lumpur. The presence of a vaginal plug was marked as day 1 of gestational day (E1). The experimental group was administered orally with 10 mg/kg of body weight of BPA. The control group received Tween-80 as the vehicle. The treatments were started from E10 until E17/E19. The mothers were killed; the gubernacular were dissected, fixed in 4% glutaraldehyde and processed for transmission electron microscopy (TEM).

The gubernacular cone of the prenatal male control has 2 distinct parts; the mesenchymal core and the outer muscular layer. Ultrastructurally, the mesenchymal cell has an irregular shape with a large nucleus. The euchromatin and heterochromatin are seen in the nucleoplasm. The mitochondria and golgi apparatus are found in the cytoplasm. The myoblast is elongated in shaped; the nucleus is oval and located in the centre of the cell. The nucleolus is seen in the periphery of the nucleus and the euchromatin is scattered within the nucleoplasm. The cytoplasm contains abundant mitochondria and bundles of developing myofilaments. The gubernaculum of the BPA-treated animal shows a normal development in comparison to the control group. Therefore, it is suggested that the development of the gubernaculum during prenatal life is not affected by BPA.