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Sprague Dawley/NIN hairless mutant rat – A model to study carcinogenesis?

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Spontaneous mutations in rodents are valuable experimental models to study human disorders in biomedical research. Nude mutant rats are widely used in immunology, percutaneous drug absorption, wound healing, skin pharmacology and experimental carcinogenesis.

Hypotrichosis (hairless) mutation was observed for the first time in SD rat colony at National Centre for Laboratory Animal Sciences, NIN, India. The parents identified were isolated and further propagation was carried out by selective breeding. The data on morphological features in each generation have been recorded. At present, the mutant is in 9th generation. Studies have been conducted to evaluate the new SD/NIN hairless mutant rat for biochemical, immunological and molecular characterization as well as histopathological evaluation. Ninety days old (12 males and 12 females) animals both homozygous and heterozygous taken were housed using standard experimental conditions and observed for changes in ageing. Four females and two males developed spontaneous tumors. However, the dimensions as well as the weight were recorded and evaluated for histopathological analysis.

The results of the histopathological evaluation showed that most of the tumors were fibro -adenomas with predominant fibrous tissue which may progress to malignancy, if left untreated. The incidence of tumors was more in females than in males. As these mutant rats are hairless, depilation (time consuming) is not required and therefore, the tumors can easily be identified. Based on the above features it is presumed that mutant model may be used to study carcinogenesis and tumor therapy in future.

Biography

M Satya Vani has completed her PhD. from Osmania University. She is working as a Technical Officer at NCLAS, NIN, Hyderabad, India and has 27 years' experience in breeding management of laboratory animals. She also Underwent GLP training in IIBAT (International Institute of Biotechnology and Toxicology), Chennai, Tamilnadu, India. Dr. M. Satyavani has major involvement in establishing WNIN Obese rat model. She has published 8 papers to her credit in peer reviewed International Journals. She also attended several National and International conferences. Currently, she is the Principal Investigator for two intramural projects and Co-investigator in two more projects. She is further serving as a Treasurer of Indian Women Scientists Association (IWSA).

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