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Abstract

This thesis is about developing a cancer treatment using a gene therapy approach focused on the p53 gene, which is responsible for one in six deaths worldwide. When we look at the origins of cancer, we observe tumour suppressor genes that control regular cell activity being expressed and then mis regulated by genetic alterations. Reversing cancer cell tumorigenicity gives vital hints for cancer therapies. Understanding the molecular pathways involved in the loss of tumour suppressor gene activity is a crucial obstacle for cancer treatments. During the project process, axolotl (*Ambystoma mexicanum*) variations of the p53 gene, known as the cancer resistance gene, were focused on. This is because mutations in the human p53 gene are the most common cause of cancer and increase cancer resistance in the future. The axolotl is an important amphibian with the ability to regenerate. In addition to its regeneration feature, it shows high resistance to cancer formation. Axolotl adults do not undergo metamorphosis and live in water. Despite this situation, it has been observed that it is resistant when exposed to carcinogens. The human p53 gene contains mutation sites in the axolotl p53 gene, which differs from the human p53 gene by 38 amino acids. If the data collected at the end of the study yields the desired findings, it is hoped to develop products with more in-depth research and conduct genetic treatment studies in cancer-cancer resistance.

Keywords

Axolotl, P53 gene, Cancer resistance, Recombinant DNA

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