

The role of c-KIT gene in cancer therapy

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Target therapy is the most recent addition to cancer treatment. The therapy uses drugs to identify and attack certain types of cells causing cancer. c-KIT is a gene that is of interest in this field. It is a gene that encodes receptor tyrosine kinase (CD117), which is mostly found in haematopoietic cells. The long arm of the chromosome accommodates the c-KIT proto-oncogene. c-KIT activation can be due to overexpression, mutation or gain of function. They can cause malignancies in gastrointestinal stromal tumours, acute myeloid leukaemia, mast cell leukaemia and melanoma. The KIT mutation sites and the types of activation differ based on different cancer types. The gene helps in the binding of stem cell factors thus increasing red blood cell production. This role of c-KIT gave the researchers an idea of using the inhibition activity of the gene as a target for cancer therapy. Studies have shown that the inhibition of c-KIT activity can decrease cellular proliferation and hence can be used in treating c-KIT dependent malignancies. This line of treatment can be a very promising affair in target therapy in cancer. The drug used for the same is a kinase inhibitor drug known as imatinib. However, the increasing resistance of the c-KIT gene against the drugs used is alarming and a cause of worry.

Keywords: c-KIT, Tyrosine kinase receptor, Inhibition of c-KIT activity, Target therapy, CD117

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