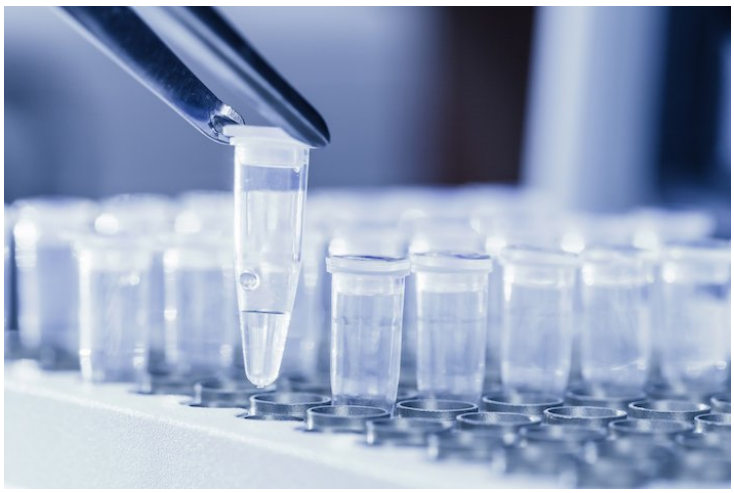
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Transgenic zebrafish could pave way for alternative anti-cancer therapy

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Using the INSPIRE Faculty programme Dr Vimalraj and his research team is further working to develop transgenic zebrafish model by use of the CRISPR/Cas9 gene-editing tool



Scientists are exploring an alternative anti-cancer therapy that involves targeting tumour generated by the formation of new blood vessels which allow the delivery of oxygen and nutrients to the body's tissues, technically called angiogenesis.

Dr Vimalraj Selvaraj, Centre for Biotechnology, Anna University, Chennai, a recipient of the INSPIRE Faculty Fellowship instituted by the Department of Science & Technology, Government of India, is exploring the role of compensatory angiogenesis signalling cues as key targets for cancer therapy.

He has already found that nitric oxide (NO) plays a key role in switching off angiogenesis under tumour microenvironment and that the melatonin hormone suppresses tumour angiogenesis.

Using the INSPIRE Faculty programme Dr Vimalraj and his research team is further working to develop transgenic zebrafish (which have exogenous genes added to their genome) model by use of the CRISPR/Cas9 gene-editing tool to further study the compensatory angiogenesis mechanism in tumour microenvironment. Differential expression of biomolecules between two types of angiogenesis (sprouting angiogenesis and intussusceptive angiogenesis) and their molecular mechanism will be analysed using transgenic zebrafish models in tumour microenvironment.

The transgenic or CRISPR/Cas9 edited Zebrafish platform (TZP) can be used for studying the efficacy of a drug as anti or pro-angiogenesis in the next phase of the project.

The transgenic zebrafish model has been selected for the intussusceptive angiogenesis study because of its rapid development, optically transparent, high yield in offspring, and easy techniques for forward and reverse gene manipulation.