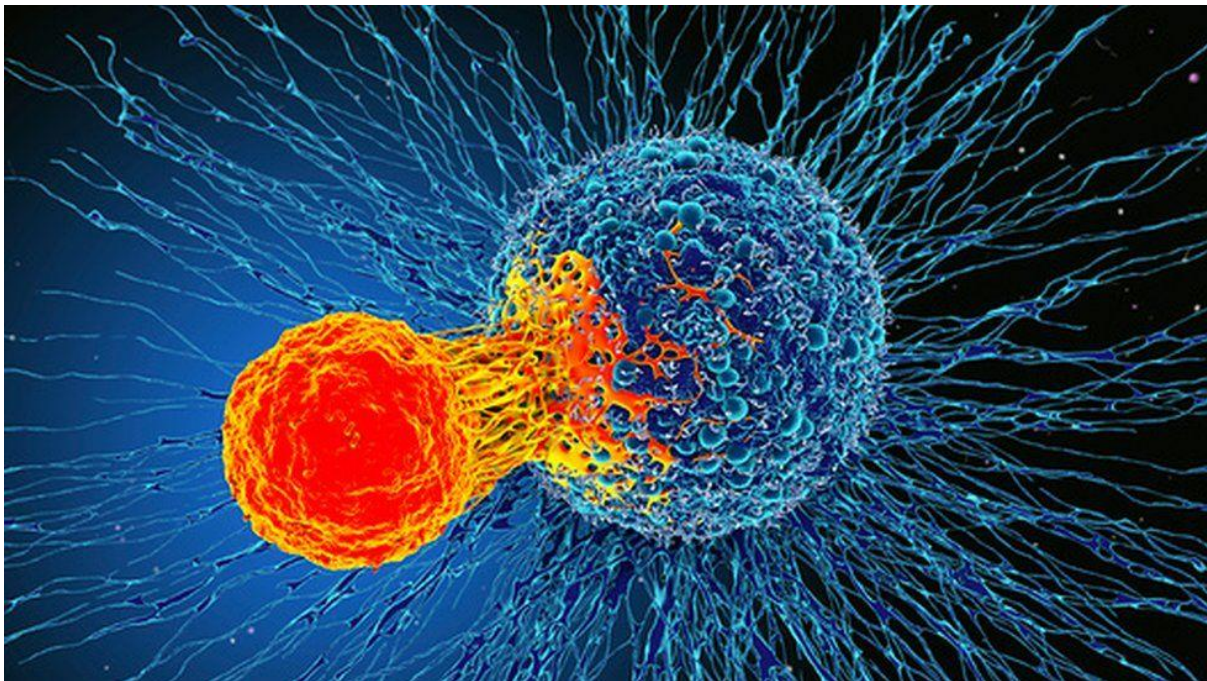


DBT-NIBMG scientists get newer insights on diversity of oral cancers

New Delhi, Sep 30: Cancer is not only a lethal disease but also a huge economic and emotional burden to the patients and their families. Losing a loved one to cancer despite all efforts could be a major blow to anyone. What makes cancers extremely difficult to treat is their diversity. The diverse cells of cancers render them successful in escaping current treatment strategies. They are typically caused due to excessive tobacco smoking and chewing habits.



While searching for options to treat these cancers, scientists previously discovered that few cancer cells serve as ‘seeds’ that give rise to new cancers. These cells named ‘Cancer Stem Cells’ (CSC) gave hope - as it meant that targeting them would remove the root cause of cancers. But unfortunately there was a problem. It was soon discovered that the non-CSC cells can also become CSCs under certain circumstances> This left scientists in a dilemma- which cell is to be called a CSC? and how to target them?

To understand this, scientific techniques of cell biology, flow cytometry were used, and CSCs were checked for in oral cancer patients’ tumors and cell lines. It was found that oral CSCs are not one single type but diverse pools of cells. To understand how different they are from one another, the pools of cells were separated in the laboratory and tested for their growth and how they give rise to the tumor diversity.

Suggesting hierarchy, not all cells are equal in terms of recapitulating tumor diversity, but at the same time all of them possess CSC-like properties. To further complicate the situation, when treated with standard chemotherapy drugs such as cisplatin, a specific CSC cell type, with low potential to give rise to other diverse cancer cells, turns out to have dangerous traits like high chemotherapy tolerance. This raises the question whether the current treatment

protocols in the clinics that aim to target all the cancer cells equally, are really curing or aggravating the cancers?

In conclusion, the research at DBT- National Institute of Biomedical Genomics (DBT-NIBMG) suggests that CSC-like dangerous properties in oral cancers are not confined to only one particular cell type as previously thought, but exists at varying degree among other under-appreciated cancer cells also. It seems, cancers succeed not only in following 'unity in diversity' but also go an extra mile for 'equality in diversity'.

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