

DBT/ NATIONAL CENTRE FOR CELL SCIENCE (NCCS), PUNE

Novel method developed at NCCS could help cancer drug development

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New Delhi, April 01: Until recently, all the cells within a tumour were considered to be fast dividing and similar to each other. However, it is now known that the tumours can comprise diverse cells, which behave differently. This is of significance because depending on their type and properties, the cells can influence the progression of the tumour and outcome of treatment. For example, the response of the different cells in the tumour to drugs may vary. Consequently, the presence of populations of cells that remain unaffected by a drug could contribute to the tumour being resistant to treatment with that specific drug. Therefore, it is important to be able to identify and characterize the different cell populations present in a tumour.

Dr. Sharmila Bapat and her research team at the National Centre for Cell Science (NCCS) in Pune have developed a novel method using a technique called flow cytometry, to determine the tumour cell profile, i.e. to determine how many different types of cells are present in a tumour.

This method is especially useful in identifying the cancer stem cells and their derivatives, genetically altered cells, and cells that have the ability to multiply rapidly and could thus contribute to faster growth of the tumour. It provides a useful tool to monitor and track how the types and numbers of the different cells present in the tumour change over the duration of the treatment regimen. Such monitoring and analysis could help in identifying cell types that are likely to not respond to the treatment.

These insights are invaluable, since such cells might persist in the body and give rise to a relapse of the disease in the long run. Thus, the ability to monitor the behavior of the populations of the different tumour cell types in response to treatment may make it possible to predict the susceptibility of the tumour to a drug. Therefore, this method could help guide the treatment regimen appropriately, and could also facilitate the screening of new drug candidates for cancer and serve as a valuable tool in the drug development process. This novel method was recently granted a US patent. The research article related to this work was also published earlier by Dr. Bapat and her team in the prestigious journal, *Oncogene*, besides being selected for the 'TCS Award in Basic Science' in recognition of the novel and creative use of flow cytometry in research.

Links related to this story -

* **Twitter:** https://twitter.com/NCCS_Pune/status/1192472443518013440

* **Facebook page:** National Centre for Cell Science

* **NCCS Website announcement:** <https://www.nccs.res.in/index.php/Academics/LatestNews>

* **US Patent:** <http://patentsgazette.uspto.gov/week40/OG/html/1467-1/US10429393-20191001.html>

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