

Novel method developed at NCCS could help cancer drug development

By Dr. Bilqeesa Bhat

At Pune based research institute, the National Centre for Cell Science (NCCS), Dr. Sharmila Bapat and her research have developed a novel method to determine the tumour cell profile, i.e., how many 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 thus contribute to the growth of the tumour. This method 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 also help in identifying cell types that are likely to not respond to the treatment. Such valuable insights may help us to detect the cells which may cause relapse of the tumour in the long run, and may help in predicting the susceptibility of the tumour to a drug.

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 tumour comprise diverse cells which behave differently. Depending on type and properties, tumour cells can influence the progression of the tumour and treatment outcomes. 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 a specific drug. Hence, it becomes important to identify and characterize the different cell populations present in a tumour.

The method developed by Dr. Bapat's research team 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 journal, *Oncogene* and it was selected for the 'TCS Award in Basic Science' in recognition of the novel and creative use of flow cytometry in research.

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