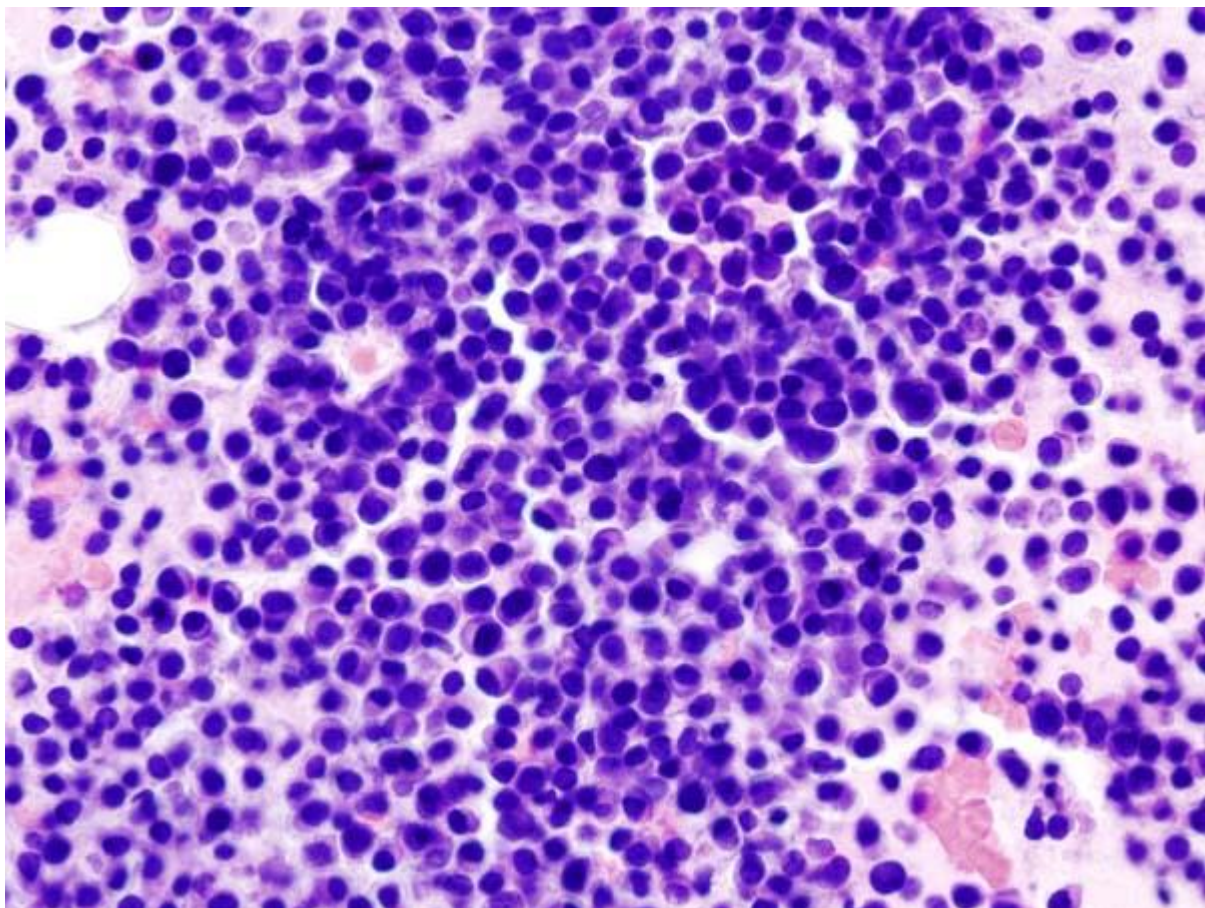


## **DBT-NCCS scientists identify promising biomarker for multiple myeloma**

New Delhi, Sep 17: Multiple myeloma (MM) is the second most prevalent blood cancer at the global level. It is a cancer that is associated with plasma cells, a type of white blood cells that make antibodies. Plasma cells develop from immune cells in the blood, called B cells, when the latter have been activated by the presence of harmful microorganisms. Under normal conditions, antibodies produced by the plasma cells help the body to get rid of these pathogens, thus protecting it. However, when the plasma cells turn cancerous, they become deformed and overproduce antibodies that are non functional. Diagnosis of this cancer at an early stage is of utmost importance, since it is incurable in most cases.



Tumour markers are often used to diagnose cancers and track the progress of the disease and the effect of the treatment regimen. These markers are molecules, such as proteins and other substances, that are found in or on the tumours, or in other tissues and bodily fluids of cancer patients. These molecules are either present in or produced by the cancer cells themselves, or are produced by other cells in the body, in response to the cancer.

Genomic markers like tumour gene mutations, tumour-specific gene expression patterns, and non-gene-associated changes in tumour DNA, are also being increasingly used as tumour

markers. Such markers provide valuable information about the cancer, such as how aggressive it is, whether it could be treated with a specific therapy, or whether it is responding to the treatment.

In the case of multiple myeloma, however, there is a lack of suitable tumour markers. This contributes to its poor prognosis. There is a need to look for and identify new markers and targets for the diagnosis and treatment of this cancer.

The National Centre for Cell Science (DBT-NCCS) in Pune, an autonomous institute of the Department of Biotechnology (DBT), has been involved in research aimed at identifying such molecular markers. Using cutting-edge proteomics and bioinformatics tools, scientists here have identified some promising proteins that could potentially serve as biomarkers for multiple myeloma.

From among these, they studied a specific protein called “MZB1” in greater detail, using a cell culture called ‘RPMI-8226’ grown in the laboratory, which serves as an experimental model for multiple myeloma. They found that the MZB1 protein is associated with the progression of this cancer, and could therefore potentially be used as a biomarker and also as a therapeutic target for multiple myeloma in the future.

However, more studies would be required to validate these findings, and to move them closer towards application in the clinical management of multiple myeloma. These studies, which were published in the International Journal of Oncology, were carried out in association with the Army Hospital in New Delhi and the Armed Forces Medical College in Pune. They underscore the importance of collaborations between scientists and clinicians in addressing health-related challenges meaningfully.

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