

Technique identifies chemotherapy-resistant cells within acute myeloid leukemia tumors

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Although chemotherapy can sometimes cure acute myeloid leukemia and other hematologic cancers, many patients experience relapses when their tumors become resistant to available chemotherapies. This resistance may be caused by the survival and proliferation of chemotherapy-resistant cells that were already present in the tumor prior to treatment. Studying the characteristics of these cells could help researchers understand and develop better approaches to target chemotherapy-resistant cancers.

This month in the *JCI*, Anthony Letai and colleagues at the Dana-Farber Cancer Institute developed an assay to determine how variability within a population of [tumor cells](#) can predict responses to chemotherapy in acute myeloid leukemia patients.

The assay, which was performed on [single cells](#), measured each cell's sensitivity to mitochondrial apoptosis, a type of cell death that is induced by many existing chemotherapies.

They determined that the least sensitive cells in a tumor could predict how successfully a patient responded to chemotherapy. Developing the ability to identify chemotherapy-resistant tumors and tumor cells prior to treatment may lead to clinical insights that improve therapeutic outcomes in [acute myeloid leukemia](#) and other cancers.

More information: Patrick D. Bhola et al, Functionally identifiable apoptosis-insensitive subpopulations determine chemoresistance in acute

myeloid leukemia, *Journal of Clinical Investigation* (2016). [DOI: 10.1172/JCI82908](https://doi.org/10.1172/JCI82908)

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