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A method for personalizing treatment for relapsed AML

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A cellular profiling method called dynamic BH3 profiling (DBP), developed by investigators at Dana-Farber Cancer Institute, has the potential to help guide personalized treatment for relapsed, drug-

resistant acute myeloid leukemia (AML), according to a new study published in *Blood Cancer Discovery*.

Using patient-derived xenograft models of AML in mice, Dana-Farber investigators, in collaboration with Shruti Bhatt, Ph.D., and researchers at the National University in Singapore, found that a reduction in the signaling involved in programmed cell death—called mitochondrial apoptotic priming—plays a role in drug resistance alongside other factors, such as acquired genetic mutations.

The team treated the models with a panel of targeted medicines for AML and profiled the treated cells using DBP. The test assesses the signaling associated with cell death and provides an indicator of a drug's potential to overcome resistance. The method predicted a response to drugs in animal models of AML and in human patients.

Patients with relapsed AML have few treatment options because the disease often resists a broad range of medicines. This study shows that a cellular profiling method called DBP could provide a rapid and personalized mechanism for selecting potentially active medicines for patients. This possibility is being explored in a phase 2 prospective clinical trial at Dana-Farber that will use DBP to select therapies for patients with relapsed AML.

More information: Elyse A. Olesinski et al, Acquired Multidrug Resistance in AML Is Caused by Low Apoptotic Priming in Relapsed Myeloblasts, *Blood Cancer Discovery* (2024). DOI: 10.1158/2643-3230.BCD-24-0001

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