Exploring the role of MIA-602 in overcoming doxorubicin-resistance in acute myeloid leukemia

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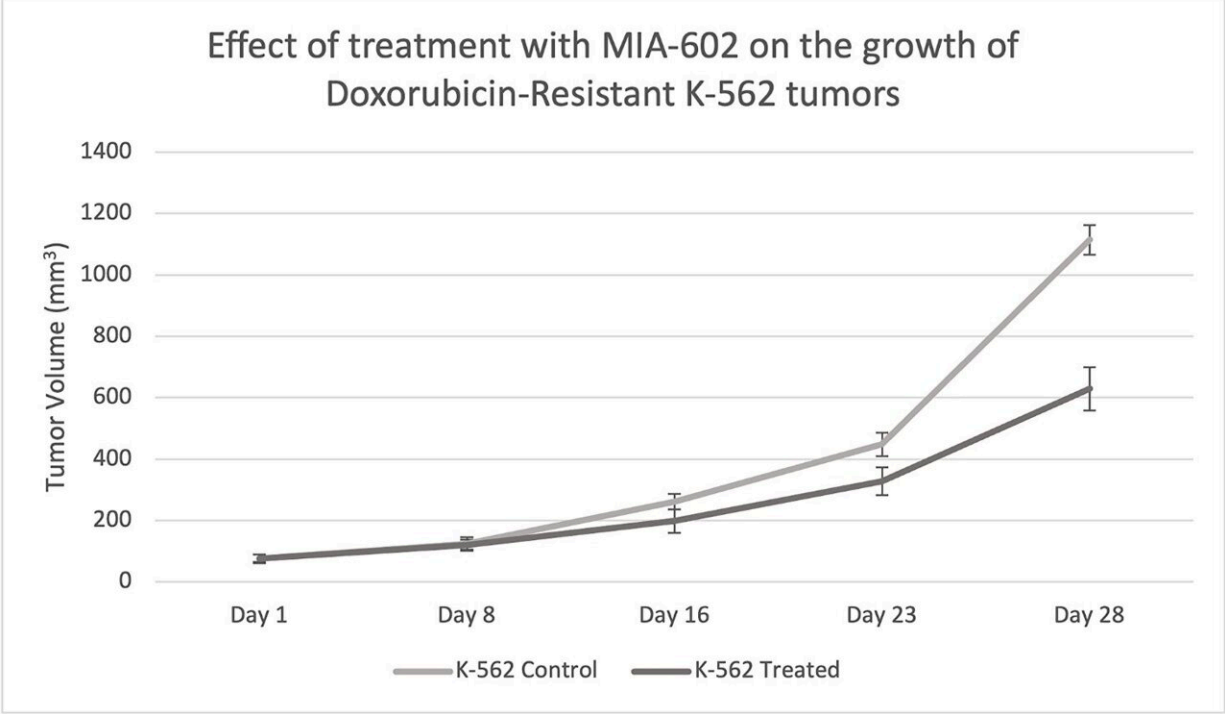

Effect of treatment with MIA-602 on the growth of Doxorubicin-resistant K-562 tumors xenographed into nude mice. Credit: *Oncotarget* (2024). DOI: 10.18632/oncotarget.28579

A new research paper titled "Exploring the role of GHRH antagonist MIA-602 in overcoming Doxorubicin-resistance in acute myeloid leukemia" has been published in *Oncotarget*.

Acute myeloid leukemia (AML) is characterized by the rapid proliferation of mutagenic hematopoietic progenitors in the bone marrow. Conventional therapies include chemotherapy and bone marrow stem cell transplantation; however, they are often associated with poor prognosis. Notably, growth hormone-releasing hormone (GHRH) receptor antagonist MIA-602 has been shown to impede the growth of various human cancer cell lines, including AML.

In this new study, researchers Simonetta I. Gaumond, Rama Abdin, Joel Costoya, Andrew V. Schally, and Joaquin J. Jimenez from the University of Miami, Florida Atlantic University and Veterans Affairs Medical Center, Miami examined the impact of MIA-602 as monotherapy and in combination with doxorubicin on three doxorubicin-resistant AML cell lines, KG-1A, U-937, and K-562.

The researchers observe, "Given the role of GHRH in multiple cancer types, it is possible that GHRH antagonists may offer an alternative treatment approach for AML as well as drug-resistant AML, which may circumvent the side effects associated with standard chemotherapy."

The in vitro results revealed a significant reduction in cell viability for all treated wild-type cells. Doxorubicin-resistant clones were similarly susceptible to MIA-602 as the wild-type counterpart. Their in vivo experiment of xenografted nude mice with doxorubicin-resistant K-562 revealed a reduction in tumor volume with MIA-602 treatment compared to control.

"Our study demonstrates that these three AML cell lines, and their Doxorubicin-resistant clones, are susceptible to GHRH antagonist MIA-602," the team concludes.

More information: Simonetta I. Gaumond et al, Exploring the role of GHRH antagonist MIA-602 in overcoming Doxorubicin-resistance in acute myeloid leukemia, *Oncotarget* (2024). DOI: 10.18632/oncotarget.28579

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