Medical Xpress

CDK9 inhibitors: A promising combination partner in treating hematological malignancies

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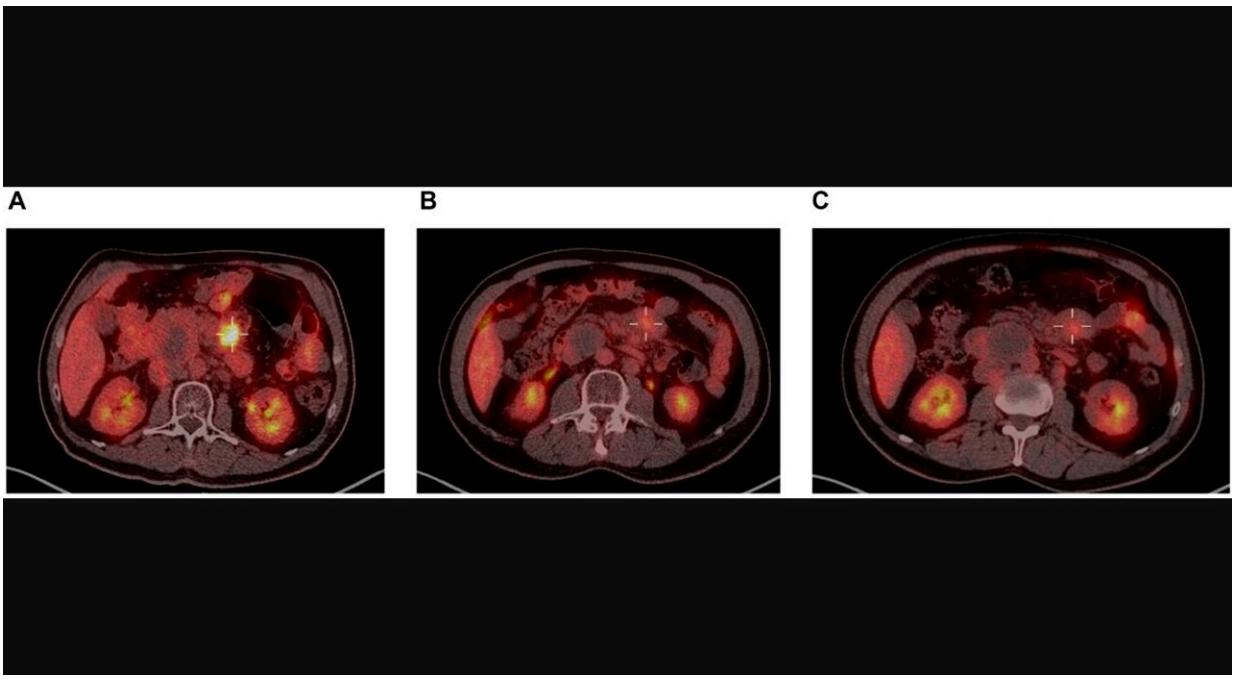

PET scan at screening (A), 5 months (B) and 8 months on treatment (C). Credit: *Oncotarget* (2023). DOI: 10.18632/oncotarget.28473

A new research perspective titled "CDK9 INHIBITORS: a promising combination partner in the treatment of hematological malignancies" has been published in *Oncotarget*.

In their new perspective, researchers Daniel Morillo, Gala Vega and Victor Moreno from Hospital Fundación Jiménez Díaz discuss cyclin-dependent kinases (CDK) in hematological malignancies. CDKs belong to a family of serine/threonine kinases that need to form heterodimeric complexes with cyclins to perform their functions. These kinases are involved in multiple processes within cells, including cell cycle, apoptosis, transcription and differentiation. These kinases are often overexpressed in different malignancies, making them potential targets for new drugs.

Most hematological malignancies are characterized by overexpression of certain cancer-promoting genes, such as MYC, MCL1 and cyclin D1. Preclinical studies in animal models have shown that CDK9 inhibitors suppress the transcription of these anti-apoptotic and pro-survival proteins, and suggest their potential synergism with other drugs. In its first in-human trial, enitociclib demonstrated clinical activity in a small cohort of patients with high grade B lymphoma with MYC and BCL2 and/or BCL6 rearrangements, inducing complete responses in 2 of 7 subjects (29%) in monotherapy.

"In summary, most hematological malignancies are characterized by overexpression of certain cancer promoting genes, such as MYC and MCL1. CDK9 inhibitors are relatively new drugs that inhibit transcription of these anti-apoptotic and pro-survival proteins," the researchers write.

More information: Daniel Morillo et al, CDK9 INHIBITORS: a promising combination partner in the treatment of hematological malignancies, *Oncotarget* (2023). DOI: 10.18632/oncotarget.28473

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