Seliciclib

National Cancer Institute

Source

National Cancer Institute. Seliciclib. NCI Thesaurus. Code C62783.

An orally available small molecule and cyclin-dependent kinase (CDK) inhibitor with potential apoptotic and antineoplastic activity. CDKs, serine/threonine kinases that play an important role in cell cycle regulation, are overexpressed in various malignancies. Seliciclib primarily inhibits CDK 2, 7, and 9 by competing for the ATP binding sites on these kinases, leading to a disruption of cell cycle progression. In addition, this agent seems to interfere with CDK-mediated phosphorylation of the carboxy-terminal domain of RNA polymerase II, thereby inhibiting RNA polymerase II-dependent transcription. This may lead to the down-regulation of anti-apoptotic factors, such as myeloid cell leukemia sequence 1 (Mcl-1), a protein crucial for the survival of a range of tumor cell types. The down-regulation of anti-apoptotic factors may lead to an induction of apoptosis, thereby further contributing to seliciclib's antiproliferative effects.