Resveratrol is a potent inhibitor of JAK2, Pim1/2, S6K, and NLK

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Technology description

MARKETS ADDRESSED

Myeloproliferative diseases are a group of conditions wherein bone marrow produces excess cells, mainly related to Hematopoiesis. Myelodysplastic syndrome and acute myeloid leukemia are among the more devastating members of this family of disease.

AML has been shown to be a particularly intractable disease, comprising 1.2% of all cancer deaths in the US, despite its relatively low representation in overall new cases annually. Resveratrol and its analogs could prove to be a useful treatment of suffers of myeloproliferative diseases.

INNOVATIONS

Hematopoiesis is the cumulative result of intricately regulated signaling pathways, mediated by cytokines and their receptors that are subject to mutations that result in hyperproliferation. Research has revealed that hematopoietic cytokine receptor signaling is largely mediated by Janus kinases (JAKs) and their downstream transcription factors (STATs). Aberrations in these pathways, such as the JAK2V617F mutation, are underlying causes of leukemias and other myeloproliferative disorders. Several JAK2 inhibitors are currently under various stages of clinical development. However, these agents do not seem to significantly affect bone marrow fibrosis, alter histopathology, reverse cytopenias, or reduce transfusion requirements. There is a clear need for an improved JAK2 inhibitor for the treatment of myeloproliferative disorders.

Advantages

Researchers at Harvard Medical School have identified Resveratrol, a naturally occurring phenol found in the skin of red grapes and other fruits, as a potent JAK2 inhibitor, capable of suppression of JAK2 function at low micromolar concentrations.

Institution

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