عنوان مقاله:

Strategies to overcome drug resistance to imatinib inchronic myeloid leukemia cells

محل انتشار:

کنفرانس بین المللی ژنتیک و ژنومیکس انسانی (سال: 1400)

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خلاصه مقاله:

Chronic myeloid leukemia (CML) is a type of leukemia that results from theclonal proliferation of bone marrow hematopoietic stem cells and isdiagnosed with the BCR/ABL hybrid gene, which has abnormal tyrosinekinase activity. Using tyrosine kinase inhibitors (TKIs) such as imatinib(IM), significant advances have been made in the treatment of CML.However, drug resistance to IM has been identified as an important and basicbarrier in the treatment of this disease. Recent evidence has shown thatdisruption of miRNAs regulation is associated with drug resistance of CMLcells. miR-۲۲۱, miR-۱۹۹a/b-۵p, miR-۱۵۳-۳p, and miR-۵۷۷ were found to bedownregulated in IM-resistant cells. On the other hand, upregulation of miR-۲۲۱, miR-۱۹۹a/b-۵p, miR-۱۵۳-۳p, and miR-۵۷۷ increased IM efficiency andmarkedly reduced the proliferation and survival of resistant cells. In contrast,the downregulation of these miRNAs reversed these effects in resistant cells.Moreover, inhibition of autophagy by inhibitors including ۳-methyladenineand chloroquine significantly increased IM sensitivity in CML cells. Also,overexpression of miR-۱۹۹a/b-۵p and miR-۱۵۳-۳p led to induction ofapoptosis and decreased autophagy in resistant cells. To sum up, the resultsof these studies demonstrated that inhibition of autophagy andoverexpression of miR-۱۵۳-۳p, miR-۱۹۹a/b-۵p, miR-۲۲۱, or miR-۵۷۷combined with IM treatment could be a novel potential strategy to increasethe sensitivity of CML cells to IM.

کلمات کلیدی:

chronic myeloid leukemia (CML), imatinib (IM), drugresistance, autophagy, miRNA