

LSD1 as a promising target for various diseases treatment through cell stemness regulation

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Abstract

As the first discovered histone demethylase, LSD1 plays an important role in maintaining the function of normal and tumor cells. In previous studies, it has been found that LSD1 is highly expressed in a variety of tumor cells, such as acute myeloid leukemia, non-small cell lung cancer, prostate cancer, breast cancer, and gastric cancer, etc. Therefore, targeting LSD1 is a promising strategy for the treatment of tumors. Cell stemness refers to the characteristics of self-replication, rapid proliferation, and multidirectional differentiation potential. Moreover, cancer stem cells could regulate self-renewal, cell proliferation, migration and malignant phenotype. Therefore, lowering the tumor cells stemness could inhibit their growth effectively and inhibition of stem cell characteristics has a bright prospect in the field of tumor therapy. Up to now, there exist many studies revealing the significant role of LSD1 in regulating the stemness characteristics such as embryonic stem cells differentiation and inhibition of LSD1 decreased the property of cancer cell stemness. However, there lacks a detailed review about the relationship of LSD1 and cancer cell stemness. Herein, in this review, we summarized the mechanisms of LSD1 in regulating cell stemness comprehensively, in addition, related inhibitors targeting LSD1 to inhibit the proliferation characteristics of cancer stem cells are also described.

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