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Novel perspective in transplantation therapy of mesenchymal stem cells: targeting the ferroptosis pathway

Key Words: Mesenchymal stem cells; Ferroptosis; Oxidative stress; Iron metabolism; Lipid peroxidation; Glutathione peroxidase 4

Research Summary

In this review, we investigated the mechanisms of ferroptosis in MSCs to improve the potential for future applications of MSC transplantation.

1 Iron Metabolism in MSCs

2 Oxidative Stress in MSCs

3 Lipid Peroxidation in MSCs

4 System Xc^-/GSH/GPX4 Axis in MSCs

5 Other Ferroptosis-related Pathways in MSCs

Innovation points

We summarized some novel molecular mechanisms of ferroptosis and their potential interactions with MSCs' therapy.

Especially, the advantages of ferroptosis pathway to improve the efficacy therapy of MSCs for transplantation therapy were discussed in detail.

We also put forward our opinions about the research prospect in transplantation therapy of mesenchymal stem cells: targeting the ferroptosis pathway.