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Jihe Zhao

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Cancer Stem Cells and Chemoresistance: The Smartest Survives the Raid

Jihe Zhao

Burnett School of Biomedical Sciences, University of Central Florida College of Medicine, Orlando, FL.

Address correspondence to: Jihe Zhao, Burnett School of Biomedical Sciences, University of Central Florida College of Medicine, 6900 Lake Nona Boulevard, Orlando, FL 32827; Tel.: 407 266-7099; Fax: 407 266-7002; E-mail: Jihe.Zhao@ucf.edu

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Abstract

Chemoresistant metastatic relapse of minimal residual disease plays a significant role for poor prognosis of cancer. Growing evidence supports a critical role of cancer stem cell (CSC) behind the mechanisms for this deadly disease. This review briefly introduces the basics of the conventional chemotherapies, updates the CSC theories, highlights the molecular and cellular mechanisms by which CSC smartly designs and utilizes multiple lines of self-defense to avoid being killed by chemotherapy, and concisely summarizes recent progress in studies on CSC-targeted therapies in the end, with the hope to help guide future research towards developing more effective therapeutic strategies to eradicate tumor cells in the patients.

Keywords: Cancer stem cell, chemotherapy, chemoresistance, targeted therapy.

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