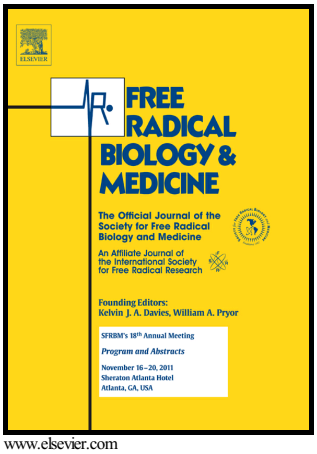

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An overview of chemical inhibitors of the Nrf2-ARE signaling pathway and their potential applications in cancer therapy

Jiayu Zhu[a,*], Huihui Wang[a,*], Feng Chen[b], Jingqi Fu[a], Yuanyuan Xu [a,#], Yongyong Hou[a], Henry H. Kou[a], Cheng Zhai[a], M. Bud Nelson[c], Qiang Zhang[d], Melvin E. Andersen[e], Jingbo Pi[a,#]

[a]*Program of Environmental Toxicology, School of Public Health, China Medical University, No. 77 Puhe Road, Shenyang North New area, Shenyang, 110122, China*

[b]*Department of Interventional Radiology, The First Affiliated Hospital of China Medical University, No. 155 Nanjing North Road, Heping Area, Shenyang, 110001, China*

[c]*MedBlue Incubator, Inc., Research Triangle Park, North Carolina, 27709, USA*

[d]*Department of Environmental Health, Rollins School of Public Health, Emory University, Atlanta, Georgia, 30322, USA*

[e]*Institute for Chemical Safety Sciences, The Hamner Institutes for Health Sciences, Research Triangle Park, North Carolina, 27709, USA, Current address: ScitoVation, LLC, Research Triangle Park, NC, USA*

**These authors contributed equally to this work*

[#]*Corresponding authors: Jingbo Pi, jbpi@cmu.edu.cn; jingbopi@163.com and Yuanyuan Xu, yyxu@cmu.edu.cn*

Abstract:

The nuclear factor erythroid 2-related factor 2 (Nrf2) is a key transcription factor regulating a wide array of genes for antioxidant and detoxification enzymes in response to oxidative and xenobiotic stress. A large number of Nrf2-antioxidant response element (ARE) activators have been screened for use as chemopreventive agents in oxidative stress-related diseases and even cancer. However, constitutive activation of Nrf2 occurs in a variety of cancers. Aberrant activation of Nrf2 is correlated with cancer progression, chemoresistance, and radioresistance. In this review, we examine recent studies of Nrf2-ARE inhibitors in the context of cancer therapy. We enumerate the possible Nrf2-inhibiting mechanisms of these compounds, their effects sensitizing cancer cells to chemotherapeutic agents, and the prospect of applying them in clinical cancer therapy.

Key words:

Nrf2, ARE, inhibitor, chemoresistance, cancer therapy