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Securinine disturbs redox homeostasis and elicits oxidative stress-mediated apoptosis via targeting thioredoxin reductase

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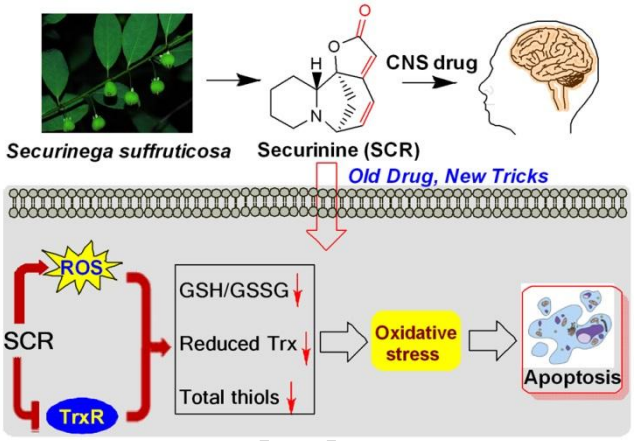
Graphical Abstract



Highlights

■ CNS drug securinine (SCR) inhibits thioredoxin reductase (TrxR).

■ Knockdown or pharmacological inhibition of TrxR enhances cytotoxicity of SCR.

■ SCR promotes elevation of oxidized glutathione and thioredoxin in cells.

■ SCR elicits oxidative stress-mediated apoptosis of HeLa cells.

■ Targeting TrxR by SCR provides a novel mechanism for its anticancer activity.