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# Thioredoxin Reductase: Signaling Pathways and Pharmacological Targets

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## Message from the Guest Editor

Dear Colleagues,

Human thioredoxin reductase (TrxR) is a selenoprotein that utilizes highly reactive selenocysteine (Sec) residues in its active site. The pharmacological regulation of TrxR is typically presented in light of interactions with Sec residues and a few other mechanisms of action. The small-molecule-mediated regulation of TrxR signaling pathways has been investigated for its clinical significance and translational medicine in a variety of diseases. For example, the remarkable role of small molecules targeting the TrxR signaling pathway in anticancer and anti-infection, rheumatoid arthritis, and ischemia therapies has been explored in detail. Nonetheless, the rationale of the TrxR signaling pathway in therapeutic strategies for human diseases, the underlying molecular basis of small molecules targeting TrxR for therapeutic purposes, the downstream mechanisms of effect that may mediate therapeutic efficacy, and the diversity of therapeutic molecule structures and druggability are all topics that we will focus on in this Special Issue.

**Keywords:**

- thioredoxin
- thioredoxin reductase
- redox homeostasis
- redox regulation

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## Message from the Editor-in-Chief

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