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## New Insights into the Role of Glycogen Synthase Kinase (GSK) in Health, Metabolism and Diseases

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### Message from the Collection Editor

The activity of the GSK kinase is often aberrantly regulated in various diseases including cancers and brain disorders. Due to the diversity of GSK-3 cellular targets, global inhibition of the kinase may lead to severe side-effects. Thus, a selective modulation of a specific cellular pool of GSK-3 or specific down- or upstream partners of the kinase might provide more efficient therapies. The roles that GSK-3 plays in various diseases, as well as how this pivotal kinase interacts with multiple signaling pathways such as HEDGEHOG, NOTCH, PI3K/PTEN/Akt/mTOR, RAS/RAF/MEK/ERK, TP53, WNT/beta-catenin, and others will be discussed. Mutations that occur in these and other pathways can alter the effects that GSK-3 activity has on regulating these signaling circuits that can lead to various diseases. The roles that microRNAs play in GSK-3 regulation will also be evaluated. Targeting GSK-3 and these other pathways may improve therapy and overcome therapeutic resistance.



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