

## Role of the MAP Kinase Slt2p During Lithium Stress in Yeast

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*Saccharomyces cerevisiae* is a unicellular organism that needs to rapidly adapt to changes in environmental conditions. We used this model eukaryotic organism to study the effects of the pharmacologically important drug lithium. Lithium has been used to treat Bipolar Disorder since 1950s but its mechanism of action is still obscure. Here we show that lithium stress activates the MAP kinase Slt2p. The activation of this kinase is important for the adaptation of yeast cells because deletion of this gene turns lithium stress, which is cytostatic for WT cells, into a cytotoxic condition for the *slt2 del* strain. Deletion of other genes that act upstream of Slt2 in the signaling pathway known as the cell wall integrity pathway also makes yeast cells more sensitive to lithium stress. These results demonstrate the importance of the activation of Slt2p to the adaptation process of yeast cells during lithium stress. They also suggest that lithium might be affecting the cell wall structure. This hypothesis is currently being tested by our group.

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