

**LOCALISED REDOX SIGNALING RELAYS IN *S. cerevisiae***

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Redox signaling is a process where oxidants reversibly modify particular thiols on particular proteins, which can change their functional behavior in an adaptive manner. The molecular mechanisms that give specificity and efficiency to redox signaling remain largely unexplored, as do the spatiotemporal dynamics of redox signaling cascades. To systematically investigate protein-to-protein redox relay chains that dynamically assemble in a highly-localized manner, we are combining genome-wide approaches with advanced microscopy techniques. We have generated libraries where genetically-encoded redox reporters were fused to all protein-coding ORFs, which reflect their sphere of immediate proximity and provide information on the local redox microenvironment of each ORF. We are monitoring how local redox microenvironments fluctuate during cell growth and how they respond to altered metabolic conditions. The combination of such techniques should allow to identify local oxidant sources, endogenous target proteins, and characterize the timeframe when redox relays are important.

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