Treating diseases associated with oxidative stress through the metalothioneine system

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Technology description

Since its initial discovery and characterization over 40 years ago by Vallee and colleagues, metallothionein has attracted a remarkable level of scientific attention due to its unique structural characteristics, its ubiquitous expression in eukaryotes, and its impressive metal binding and redox capabilities. Through years of studies, metallothionein has been associated with biological events ranging from protection against metal toxicity to involvement in inflammatory processes. However, a primary and therapeutically-relevant biological role for metallothionein has remained elusive. Professor Vallee now presents novel insights for targeting metallothionein to reduce oxidative stress in disease. Screens and therapeutic mechanisms for age-related CNS diseases such as Parkinson's and Alzheimer's are in the focus of these findings.

Application area

Oxidative stress has been associated with the etiology a numerous diseases and ageing. Preliminary therapeutic applications may target Parkinson's and Alzheimer's, both of which have shown signs of increased oxidative stress and expression of methionine sulfoxide. Other diseases associated with oxidative stress and relevant to the invention's approach may include: ALS, Creutzfeldt-Jakob disease, respiratory distress syndrome, muscular dystrophy, cataractogenesis, rheumatoid arthritis, progeria, Werner's syndrome, atherosclerosis, diabetes, essential hypertension, cystic fibrosis, and ulcerative colitis.

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