

Introduction: Special Issue on Stress-Inducible Gene Expression Conference

This issue of *Gene Expression* is an outcome of a Conference on Stress-Inducible Gene Expression held in Danvers, MA on November 12–15, 1998, and is devoted to the topics of Stress Signaling and Stress-Inducible Gene Expression, a rapidly expanding area of research that encompasses issues from fundamental questions on the protein folding problem, response and adaptation of cells and tissues to transient or sustained stress, to the signaling mechanisms activated by stress that initiate events involved in tissue damage and repair.

Our cells and tissues are constantly challenged by conditions that cause acute and chronic stress. Consequently, adaptation and survival have necessitated the evolution of complex and essential networks of stress responses. The ability to detect, monitor, and respond to these diverse conditions, which include extreme temperatures, UV, oxidants, heavy metals, toxic chemicals, pharmacologically active molecules, mu-

tagens, and mutant proteins, osmotic changes and genotoxic damage, results in rapid changes in gene expression to synthesize proteins to attenuate the toxicity associated with the particular stress and in many instances to arrest biosynthetic processes such as replication, transcription, and protein synthesis with effects on the cell cycle. Upon recovery from stress, the molecular damage is repaired and the cell resumes normal function.

Consequently, many of these stresses, if prolonged, lead to cellular dysgenesis and result in pathologies associated with a diverse array of diseases due to tissue injury and repair, including stroke, myocardial reperfusion damage, ischemia, cancer, amyloidosis, and neurodegenerative diseases.

Richard I. Morimoto
Conference Chair