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Title:	Dual Molecular Signals Mediate the Bacterial Response to Outer-Membrane Stress
Authors:	Chaba, Rachna (/jspui/browse?type=author&value=Chaba%2C+Rachna)
Keywords:	Gram-negative bacteria Pathways Integrity
Issue Date:	2013
Publisher:	American Association for the Advancement of Science
Citation:	Science, 340(6134), pp.837-841.
Abstract:	In Gram-negative bacteria, outer-membrane integrity is essential for survival and is monitored by the σE stress-response system, which initiates damage-repair pathways. One activating signal is unassembled outer-membrane proteins. Using biochemical and genetic experiments in <i>Escherichia coli</i> , we found that off-pathway intermediates in lipopolysaccharide transport and assembly provided an additional required signal. These distinct signals, arising from disruptions in the transport and assembly of the major outer-membrane components, jointly determined the rate of proteolytic destruction of a negative regulator of the σE transcription factor, thereby modulating the expression of stress-response genes. This dual-signal system permits a rapid response to dysfunction in outer-membrane biogenesis, while buffering responses to transient fluctuations in individual components, and may represent a broad strategy for bacteria to monitor their interface with the environment.
Description:	Only IISERM authors are available in the record.
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