

Interdependence of Cell Growth and Gene Expression: Origins and Consequences

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Theory of Growth Control

Although quantitative studies of growth in bacterial cultures have been made for over 50 years, the relationship between cell proliferation and gene expression has not been clear. **Scott *et al.*** (p. 1099; see the Perspective by **Lerman and Palsson**) have revealed that mass per cell exponentially increased with linear increases in growth rate and that ribosome abundance increased linearly with growth rate depending on the rate of translation. Hence, the systems properties of the biological processes involved in growth can be derived without any molecular understanding of their basis and can be used to establish fundamental properties for the design of biotechnological procedures.

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