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Abstract for an Invited Paper
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Growth laws and mechanisms of global control in bacteria[1]

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The growth laws of Schaechter, Maaløe and Kjeldgaard are among the most striking discoveries in bacterial growth physiology: cell composition (mass/cell, RNA/cell, etc.) is a simple function of growth rate alone – irrespective of how that growth rate is established. I will review the growth laws, and discuss recent experiments that have uncovered new laws. A systems-level mathematical model is developed that suggests the growth laws arise from the partitioning of the protein synthesizing machinery of the cell (the ribosomes), and furthermore indicates a deep connection between growth rate control and central metabolism.

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