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A physics approach to understand aging

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Aging shows nearly universal quantitative patterns.

We explain them using a stochastic ODE for damage production and removal, deduced from experiments on damage dynamics in mice and in individual bacteria, the latter done by us. This simple model explains a wide range of phenomena in human aging and age-related diseases, as well as in model organisms. It pinpoints core molecular and cellular drivers of aging, and suggests interventions that, at least in mice, can compress the relative sickspan (fraction of lifespan that an individual is disabled).

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