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**Title: "Protein Homeostasis: Is It A Determinant For Longevity? Inside View
With New Technologies"**

Abstract:

Maintenance of "quality" of proteome is the fundamental criteria for cell function and survival because most of the biological functions are driven by series of protein/enzyme-substrate reaction. However, it is now known that several key pathways are functionally impaired during aging because (i) proteins are sensitive to oxidation, (ii) decrease in efficiency of degradation of misfolded proteins by ubiquitin-proteasome system and (iii) accumulation of higher order aggregated proteins. Therefore, it is possible that several strategies would have evolved in long-lived species of animals for maintaining the "quality" of the proteome by attenuating protein oxidation, aggregation and functional activation of proteasome system. This is first systematic study to critically evaluate different components related to maintenance of good quality of proteins in short- and long-lived of rodents to determine if maintenance of protein homeostasis is a common mechanism used by evolutionary processes to increase longevity.