

# Aging and Environmental Factors: Effects of Nutrition

IST1-05

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Aging is inevitably associated with metabolic alterations. Redox balance disturbances and severe oxidation are often leading to irreversible protein modification. If not degraded in time, such protein material accumulates. Such accumulated protein aggregates – also referred to as lipofuscin – have a number of metabolism-modulating effects, often enhancing the aging process itself. It is well established that postmitotic cells are especially prone to accumulate lipofuscin, among those neurons, skeletal muscle and cardiomyocytes and also  $\beta$ -cells.

Although this is known for some time, the metabolic and functional consequences of lipofuscin accumulation are still under investigation. Especially, the influence of nutrition and the metabolic state on this aspect of the aging process is hitherto not well understood.

Our studies focused on the investigation of  $\beta$ -cells and cardiomyocytes and the influence of nutrition on their metabolism and function in various age stages with special emphasis on the role of lipofuscin accumulation.