

Putting the Brakes on Ageing

Host School/Institute: Heart Research Institute

URL: <http://www.hri.org.au/>

Project Code: HRI3

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Description of Project:

The diseases of ageing represent one of the major health challenges this century. Despite their rapidly increasing incidence, our understanding of the underlying causes of many of these diseases is still limited. Toxic free radicals are produced as a result of aerobic metabolism - young cells and organisms can deal efficiently with the damage caused by these reactive species but in ageing cells, oxidised proteins accumulate and can impair cell function. In this project we will examine the mechanisms by which cells recognise damaged proteins and chaperone them to the proteolytic machinery for degradation. We will investigate the phenomenon of 'hormesis' in which exposure to low levels of oxidative stress can protect cells against subsequent exposure to otherwise harmful oxidants. Manipulation of these mechanisms could provide an alternative strategy for limiting the damaging effects of oxidised protein accumulation in ageing and in age-related diseases.

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