# Abstract

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## Delayed ageing through damage protection by the Arf/p53 pathway.

**BACKGROUND**: The tumour-suppressor pathway formed by the alternative reading frame protein of the Cdkn2a locus (Arf) and by p53 (also called Trp53) plays a central part in the detection and elimination of cellular damage, and this constitutes the basis of its potent cancer protection activity. Similar to cancer, ageing also results from the accumulation of damage and, therefore, we have reasoned that Arf/p53 could have anti-ageing activity by alleviating the load of age-associated damage.

**RESULTS**: Here we show that genetically manipulated mice with increased, but otherwise normally regulated, levels of Arf and p53 present strong cancer resistance and have decreased levels of ageing-associated damage.

**CONCLUSION**: These observations extend the protective role of Arf/p53 to ageing, revealing a previously unknown anti-ageing mechanism and providing a rationale for the co-evolution of cancer resistance and longevity.

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