

'Zombie cell' therapy helps to hold back sands of time

Fiona McDonald

If you could take a drug to halt the onset of old age, would you want it? Does a midlife body scan to check how you are ageing at a cellular level appeal?

Vassilis Gorgoulis, a Greek pathology professor, is pursuing both holy grails in a laboratory at the University of Dundee. His research focuses on "zombie cells", senescent cells that no longer divide but will not die. These weaken organs and contribute to age-related diseases including rheumatic disorders and Alzheimer's and Parkinson's.

Gorgoulis and his colleagues, in partnership with the University of Athens, have created a drug that eradicates senescent cells without side-effects. Ultimately patients could be treated and the cells made to disappear before symptoms become apparent. Clinical trials are expected to take at least eight years.

Gorgoulis, 60, said the cells that caused age-related diseases develop in humans between the ages of 40 and 60. He has launched a trial using mice to see if he can be more precise.

He said of the treatment, which was

first introduced in the journal *Nature Ageing*: "It's like a guided missile that targets the black matter of the senescent cells. The behaviour of the mice that took the drug ... was very vivid. They did not demonstrate the muscle weakness and cachexia [muscle loss] that other mice did."

His "Dorian Gray" study is named after the Oscar Wilde character who sells his soul for eternal youth. He is also developing a screening system to highlight dysfunctional cells.

He added that his treatment would be unlikely to help people who are already elderly: "It should be administered progressively earlier."

If the drug is approved for a human trial, he said: "I'll be one of the first volunteers".

Russell Petty, chair of medical oncology at the School of Medicine in Dundee and co-author of the *Nature Ageing* article, said the research could transform cancer care.

"This work ... opens up the possibility of selective elimination of senescent cells in humans which could lead to the development of a new class of anti-cancer medicines and have applications for other age-related diseases."

