

Automated Assay for the Identification of Compounds and Genes that Alter Lifespan

Published date: Feb. 1, 2012

Technology description

Summary

Aging research has been slowed by the lack of a rapid assay. Our technology provides the only cell-based lifespan assay that lends itself to high-throughput screening.

Description

The standard yeast assay is tedious and too slow for high-throughput drug screening, since it requires a technician to separate a given mother yeast cell from its daughters to determine how long she is living. The conventional procedure positions mother cells on agar plates and monitors the explicative process using a light microscope. Each daughter cell is removed by hand. Our technology does not require constant monitoring or manual removal of daughter cells. It is the first process that permits quick screening of thousands of compounds and strains of yeast with modified genes. The concept has been tested with the SIR2 gene which is known to have a role in aging. Positive results have been obtained that shows the deletion of SIR2 reduces the reproductive capacity when compared to the wild-type parental strain. The result strongly supports the initiation of a program of drug discovery. Chemical screening of 130,000 compounds is being done under the auspices of the NIH Molecular Library Screening Center Network. In addition to large, unbiased screens, work has begun on a new lead compound that extends life under this assay.

Institution

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