

## CASE REPORT

### Materials and Methods for Identifying Genes/Agents that Alter Replicative Lifespan

This project is implemented through the CENTRAL EUROPE Programme co-financed by the ERDF.



# MATERIALS AND METHODS FOR IDENTIFYING GENES AND/OR AGENTS THAT ALTER REPLICATIVE LIFESPAN

## Summary

Although a number of yeast genes and corresponding human homologs have been identified, there remains a need to identify other genes that affect lifespan. Moreover, to the extent that certain lifespan genes are associated with disease, it is desirable to provide an assay that can be used quickly and reliably to screen putative therapeutic agents to determine their efficacy in treating or minimizing the effects of such disease.

Because of the conservation of many yeast and human pathways implicated in aging and senescence processes, i.e., both signalling and effecting pathways, the present invention afford a useful tool for identifying and evaluating the conserved genes involved in those aging and senescence pathways as well as evaluating pharmaceutical agents that can modify such pathways. Furthermore, approximately 20-30% of yeast genes are homologous to human genes. Many more function in analogous processes that are conserved. The possible role of most of these genes in lifespan has not been explored. The present invention promises to speed lifespan analyses by orders of magnitude, particularly when optimized for automated screening of an entire yeast deletion library for genes that both increase and decrease yeast lifespan, and also for chemical screens for compounds that affect lifespan.

## Technology

Recombinant materials, including DNA constructs, expression vectors, and host cells, and methods of identifying an environmental stimulus or a gene that alters the lifespan of an organism are identified. The recombinant DNA constructs include first and second chimeric genes that both encode substantially the same protein that is required for yeast replication, the first chimeric gene containing a promoter responsive to growth medium conditions and the second chimeric gene containing a promoter operable in mother cells but not daughter cells.

## Development stage

Early stage of development.

## Market/Opportunity

According to a new technical market research report, Anti-Aging Products and Services: The Global Market from BCC Research, the global market for anti-aging products and services was worth \$162.2 billion in 2008. This will increase to \$274.5 billion in 2013, for a compound annual growth rate of 11.1 percent.

The appearance market consists of the facial rejuvenation, skin rejuvenation, hair care and body shaping markets. The disease management market consists of preventive and reactive health care for all the diseases of aging such as joint and bone health, Alzheimer's, metabolic disorders, eye and cardiovascular diseases. The global anti-aging market is further categorized by the products market and services market. The majority of the products include facial care, skin care, hair care, drugs and supplements, nutraceuticals, cosmetic equipment and fitness equipment.

Leading competitors are Pfizer, Merck & Company, Wyeth, BASF, Eli Lilly etc.

## IP

US-Patent granted US2004265861, priority date Feb. 28, 2003, European patent filed.

Licensing and joint further development.

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