

National Institute on Aging (NIA)/National Institutes of Health (NIH): Studies on the Potential of Resveratrol to Help Control Age-Related Disorders [NIA]

Resveratrol (RSV) is an activator of a family of enzymes that may be able to control age-related disorders such as the aging process, obesity, metabolic syndrome, and type 2 diabetes. In this study, middle-aged male mice on a high calorie diet and administered RSV lived longer than the mice who were on a high calorie diet but were not supplemented with RSV. The mice that were administered RSV also showed an improved metabolic profile and activity levels similar to those observed in mice on a standard diet. Although, the effect of this small molecule in humans is unknown, preclinical observations suggest that RSV is safe and has enormous potential in the treatment of obesity and insulin resistance in humans.

Lead Agency:

National Institute on Aging (NIA)

National Institutes of Health (NIH)

Agency Mission:

- Support and conduct genetic, biological, clinical, behavioral, social, and economic research related to the aging process, diseases and conditions associated with aging, and other special problems and needs of older Americans.
- Foster the development of research and clinician scientists in aging.
- Communicate information about aging and advances in research on aging to the scientific community, health care providers, and the public.

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Partner Agencies:

Salk Institute in La Jolla, CA
Sirtris Pharmaceuticals of Cambridge, MA, which is developing therapeutics to modulatesirtuins

General Description:

Studies over the last few years have shown that resveratrol (RSV), a natural compound found in common foods such as grapes, wines, and nuts, can extend lifespan in yeast, worms, flies, and fish. Resveratrol is an activator of a family of enzymes known as sirtuins, which may be able to control age-related disorders such as the aging process, obesity, metabolic syndrome, and type 2 diabetes in various organisms and in humans. An NIH study placed middle-aged male mice on one of three different diets: a standard mouse diet, a high calorie diet, and a high calorie diet supplemented with resveratrol. After six months, the scientists observed a clear trend toward increased survival and insulin sensitivity (important for the body's efficient processing of glucose into energy) in the high calorie diet supplemented with resveratrol relative to that seen in middle-aged male mice on the high fat diet without resveratrol supplementation. In effect, resveratrol shifted the physiology of middle-aged mice on a high calorie diet toward that of mice on a standard diet, essentially preempting most of the negative effects of the high calorie diet and extending the animals' lives. Although, the effect of this small molecule in humans is unknown, preclinical observations suggest that RSV is safe and has enormous potential in the treatment of obesity and insulin resistance in humans.

Excellence: What makes this project exceptional?

The findings are the first to demonstrate that resveratrol can affect the health and longevity of mammals. However, the safety and effectiveness of dietary supplementation with resveratrol in humans have not been established.

Significance: How is this research relevant to older persons, populations and/or an aging society?

Since the beginning of the 20th century, life expectancy at birth in the United States has increased from less than 50 years to more than 76 years. By the middle of the 21st century, the number of Americans over the age of 65 will double, and the number of Americans over age 85 will increase fivefold or more, placing a significantly greater number of people at risk for disease and disability.

Effectiveness: What is the impact and/or application of this research to older persons?

Resveratrol has become the subject of intensive scientific inquiry for its potential to improve health among older adults. By activating sirtuins, resveratrol may be the first known compound that has the potential to control aging processes, obesity, and metabolic syndrome as well as potentially extend lifespan.

Innovativeness: Why is this exciting or newsworthy?

Compounds such as resveratrol, which may have protective effects against the aging process and certain age-related disorders and conditions such as obesity, may provide a new avenue for therapeutic intervention.