MicroRNAs extending lifespan

OCR Number: OCR 4029

Description:
Few remedies exist to slow the ravages of old age such as Parkinson’s, Alzheimer’s, and osteoporosis. The lin-4 microRNA represses a molecule in the insulin signaling pathway, a pathway known to regulate lifespan in nematodes, flies and mice. Delivering this microRNA to humans will slow the effects of aging and assist in treating diseases of old age. MicroRNAs are natural human chemicals and hence microRNA treatments utilize a natural pathway which are likely to be more effective than other approaches.

Field of Application: Therapeutics for combating diseases of aging. Diagnostics that identify individuals who are more susceptible to diseases of aging.

Advantages: MicroRNAs are natural cellular chemicals. Treatments affecting the microRNA pathways should be more effective and create fewer unwanted side effects.

Stage of Development: Work to date has centered on C. elegans, but lin-4 is conserved in humans. The levels of lin-4 homologues in mammalian populations related to diseases of aging should be evaluated. The effect of manipulating the mammalian homologues needs to be tested. We need to show that this microRNA extends lifespan when delivered to mouse models.

Publications:
Michelle Boehm, Frank J. Slack. MicroRNA Control of Lifespan and Metabolism, Cell Cycle 5:8, 837-840, 15 April 2006

Licensing Contact: John Puziss
john.puziss@yale.edu