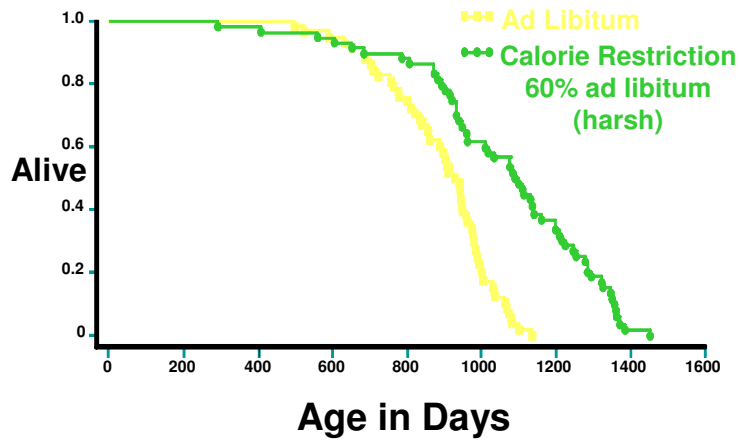


CALORIE RESTRICTION EXTENDS LIFE SPAN UNIVERSALLY



**MICE
RATS
FLIES
WORMS
YEAST**

**KNOWN FOR
70+ YEARS.**

**HOW DOES
IT WORK?**

Data from Arlan Richardson

Arlen Richardson

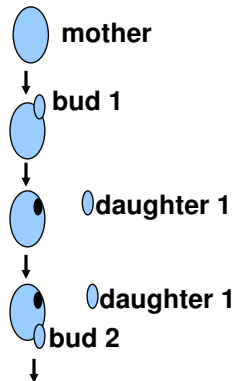
QuickTime™ and a Cinepak decompressor are needed to see this picture.

CALORIE RESTRICTION IMPACTS MAJOR DISEASES OF AGING IN RODENT MODELS

Calorie restriction mitigates diseases - cancer, cardiovascular disease, diabetes, neuro-degenerative disease (AD, PD, HD), auto-immune disease and yes, promotes longevity.

New therapeutic strategy.

Aging in yeast is defined by the number of buds a mother cell produces



REPLICATIVE

Aging in worms is defined by the number of days the worm lives



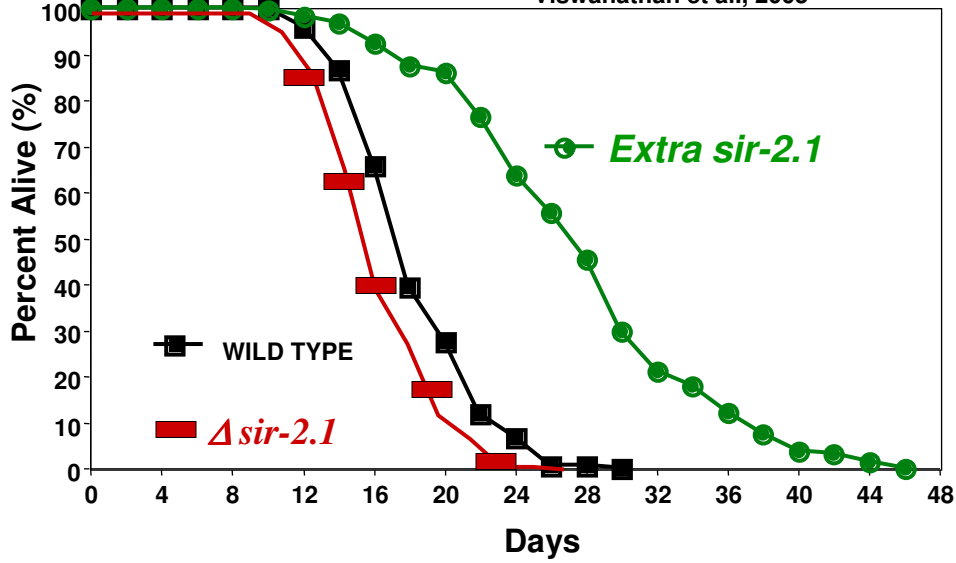
↓
Pick adult away from progeny

↓
Tap every 2-3 days
Does it move?

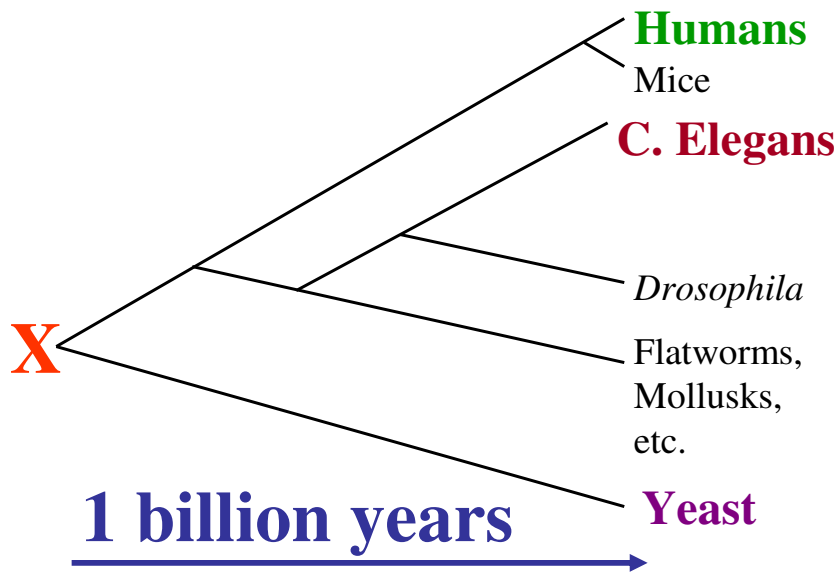
**POST-MITOTIC
959 SOMATIC CELLS**

SIR2 IS AN ANTI-AGING GENE

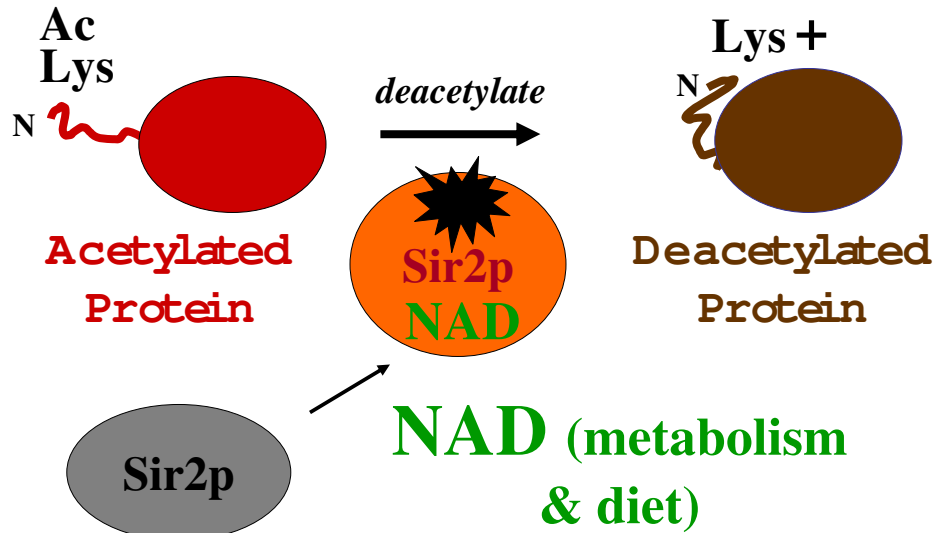
Tissenbaum and Guarente, 2001
Viswanathan et al., 2005



SIR2 IS PREDICTED TO BE ANTI-AGING IN HUMANS



SIR2 PROTEIN IS A **NAD**-DEPENDENT DEACETYLASE



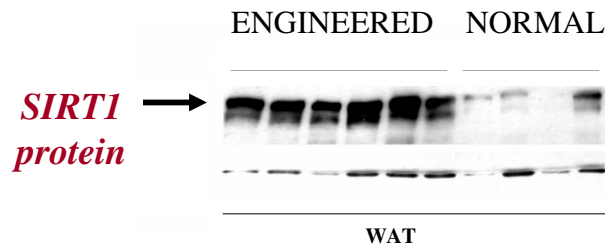
Imai et al., 2000
Landry et al., 2000

SIR2 MAY BE THE
REGULATOR THAT DELIVERS
THE BENEFITS OF **CALORIE**
RESTRICTION.

**PUBLISHED DATA SUPPORTS THIS CONCLUSION
IN YEAST, WORMS AND FRUIT FLIES.**

WHAT ABOUT MAMMALS?

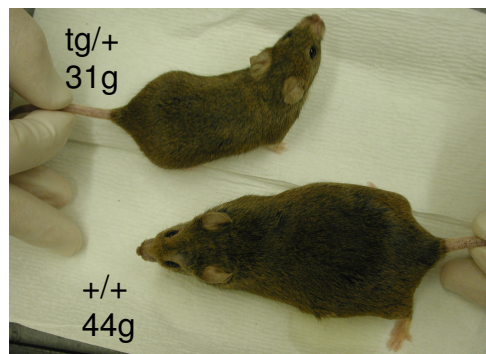
GENETICALLY ENGINEERED MICE HAVE EXTRA MAMMALIAN SIR2, **SIRT1**



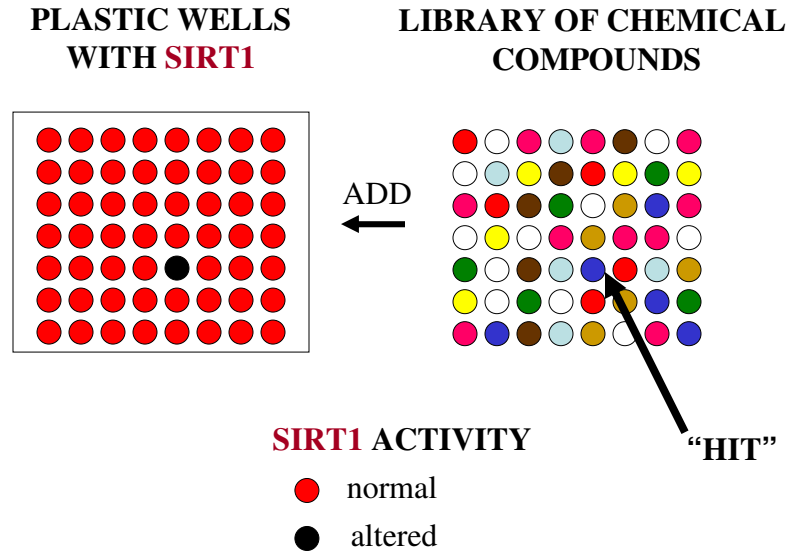
Laura Bordone, Ashley Robinson, Ed van Veen, Maria Carla Motta, Hayley Lintz, Stephen Marmor, Jianyuan Luo, **Wei Gu**

SIRT1 ENGINEERED MICE MIMIC **CALORIE RESTRICTION**

1. SMALLER
2. LOWER BODY FAT
3. LOWER CHOLESTEROL
4. LOWER INSULIN
5. LOWER GLUCOSE
6. HIGHER INSULIN SENSITIVITY
7. HIGHER METABOLIC RATE



*SCREEN FOR CALORIE RESTRICTION
MIMETIC DRUGS*



CALORIE RESTRICTION MIMETICS

-- A WHOLE NEW APPROACH TO

FIGHT DISEASES OF AGING AND

EXTEND THE DURATION OF

ROBUST HEALTH IN HUMANS.

**THIS NEW THERAPEUTIC STRATEGY TO
PREVENT AND TREAT *THE* MAJOR
DISEASES WILL PROVIDE RELIEF TO
OUR HEALTH CARE SYSTEM AND
FOSTER HEALTHIER, PRODUCTIVE
AGING. INVESTMENT IN THIS AREA
WILL MORE PROVIDE A HUGE RETURN.**

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