RAPAMYCIN LONGEVITY OVERVIEW

Rapamycin is the only compound that has shown very good longevity effects in multiple species and with results that are quite easy to reproduce. This is unique when it comes to longevity interventions.

A BRIEF HISTORY OF THE COMPOUND

1965 ♂ Georges Nógrády collects soil samples on Easter Island (Rapa Nui)

1975 Suren Sehgal discoveres rapamycin thanks to the collected soil samples

1978 Suren Sehgal discovers rapamycin's immunosuppressant properties

1984 National Cancer Institute (NCI) discovers that rapamycin inhibits cancer cell growth

1991 - 1994 David Sabatini, Michael Hall and Stuart Schreiber discovers mTOR

1998 - 2005 Suren Sehgal got colon cancer. He starts chemotherapy combined with rapamycin

1999 Rapamycin is FDA approved for organ transplant rejection

2002 David Sabatini and Michael Hall discovers mTORC1 and mTORC2

2003 Tibor Vellai discovers that mTOR inhibition extends lifespan in worms

2004 Pankaj Kapahi discovers that mTOR inhibition extends lifespan in flies

2005 Matt Kaeberlein discovers mTOR inhibition extends lifespan in yeast

2006 Mikhail Blagosklonny suggests that rapamycin could be a longevity drug

2009 - 2018 Different FDA approvals for using rapalog for kidney cancer and other types of cancer

2009 ITP study on mice showed lifespan extension on young and old mice

2014 Joan Mannick shows that rapalog improves immune system & influenza vaccine response

2015 Rapamycin is FDA approved to treat lymphangioleiomyomatosis (LAM)

2016 Rapamycin researcher Mikhail Blagosklonny starts taking rapamycin for longevity

2016 Physican Alan Green starts taking rapamycin for longevity

2017 Rapamycin in dogs is shown safe and has positive effects on their healthspan

2017 In the USA Alan Green starts prescribing rapamycin for longevity as a off-label drug

2018 Physican Peter Attia starts taking rapamycin for longevity

2018 Rapamycin researcher Matt Kaeberlein starts taking rapamycin

2019 - 2021 The website rapamycin.news and different social media rapamycin groups are started

2021 The longevity PEARL trial on healthy adults who take rapamycin is crowd funded by 243%

2021 Matt Kaeberlein start the TRIAD trial for monitoring healthspan and lifespan in dogs

2021 Statistics show a big increase in people who starts taking rapamycin for longevity

2021 The PEARL human longevity trial is started and lead by Sajad Zalzala

2022 FDA approves topical rapamycin gel for treatment of facial angiofibroma (skin disease)

2022 Ross Pelton publishes the first longevity book about rapamycin

2022 Longevity researcher Pankaj Kapahi starts taking rapamycin for longevity

2022 ITP study on mice show positive results with combining rapamycin and acarbose

THE PROMISING LONGEVITY INTERVENTIONS

	CALORIE RESTRICTION	RAPAMYCIN	ACARBOSE	EXERCISE
Mechanistic longevity pathway	Many	mTOR inhibition	Glucose regulation	Many
Additative effect data on a already healthy life	+++	++	+++	+++
Human healthspan data	++	++	++	++++
Reduction of human mortality data	++	No data	No data	+++
Best life span data in different species	+++	+++	++	+
Reproducible results	++++	++++	++	+++
Mice: Median life span	♀ 35% ♂ 33%	♀ 26% ♂ 23%	♀ 5% ♂ 22%	♀ ? ♂ 17%
Mice: Maximum life span	♀ 34% ♂ 36%	♀ 20% ♂ 18%	♀ 9% ♂ 12%	♀ ? ♂ 0%
Works if started early in life in mice	+++	++++	+++	+++
Works if started late in life in mice	+	+++	++	++
Weight loss effect	++++	+	++	++
Easy to practice	+	++++	++++	++
Low cost to practice	++++	++(+)	+++	+++
Easy to acquire	++++	++	++	+++(+)
Safety	+	++	+++	+++
Total clinical trials (2022)	281	914	108	> 100k
FDA approved drug since	N/A	1999	1999	N/A

♀ = FEMALES ♂ = MALES N/A = NOT APPLICABLE

THE BEST ITP LONGEVITY RESULTS

Intervention	Median lifespan	Max lifespan
Rapamycin: 14.7 ppm + Acarbose: 1000 ppm Age iniated 9 month	♀ 28% ♂ 37%	♀ 21% ♂ 24%
Rapamycin: 14 ppm Age iniated 9 month	♀ 22% ♂ 10%	♀ 21% ♂ 8%
Rapamycin: 42 ppm Age iniated 9 month	♀ 28% ♂ 22%	♀ 20% ♂ 8%
Rapamycin: 14.7 ppm + Acarbose: 1000 ppm Age iniated 16 month	♀ 12% ♂ 14%	♀ 15% ♂ 18%
Rapamycin: 14 ppm + Metformin: 1000 ppm Age iniated 9 month	♀ 24% ♂ 21%	♀ 17% ♂ 14%
Rapamycin: 14 ppm Age iniated 9 month	♀ 17% ♂ 8%	♀ 16% ♂ 11%
17-a-estradiol: 14 ppm Age iniated 10 month	♀ 2% ♂ 17%	♀ 0% ♂ 15%
Rapamycin: 4.7 ppm Age iniated 9 month	♀ 17% ♂ 3%	♀ 14% ♂ 6%
Rapamycin: 14 ppm Age iniated 20 month	♀ 13% ♂ 9%	♀ 14% ♂ 9%
Rapamycin: 42 ppm Age iniated 20 month	♀ 15% ♂ 11%	♀ 12% ♂ 9%
Acarbose: 1000 ppm Age iniated 16 month	♀ 3% ♂ 7%	♀ 6% ♂ 12%
Acarbose: 1000 ppm Age iniated 4 month	♀ 4% ♂ 22%	♀ 8% ♂ 11%
Acarbose: 1000 ppm Age iniated 8 month	♀ 5% ♂ 17%	♀ 3% ♂ 11%
Acarbose: 400 ppm Age iniated 8 month	♀ 0% ♂ 11%	♀ 2% ♂ 11%
Rapamycin: 42 ppm Age iniated 20 month (every other month)	♀ 8% ♂ 9%	♀ 10% ♂ 9%
Canagliflozin: 180 ppm Age iniated 7 month	♀ 1% ♂ 14%	♀ 3% ♂ 10%
Captopril: 180 ppm Age iniated 5 month	♀ 5% ♂ 14%	♀ 8% ♂ 7%
Acarbose: 2500 ppm Age iniated 8 month	♀ 4% ♂ 16%	♀ 3% ♂ 8%

ITP = Intervention Testing Program. The list is sorted by maximum lifespan

RESEARCH STUDIES AND TRIALS

Research study or trial	Dose regime/s
UW Rapamycin survey study Status: Completed in May 2023. Pubmed: 37191826	6 mg/weekly was the most common dose regime
RAPACAT: Hypertrophic cardiomyopathy in cats Status: Completed in September 2023. Pubmed: 37495229	0.3 mg/kg on weekly basis 0.6 mg/kg on weekly basis
ITP: Intervention testing program Status: Ongoing (Yearly results)	Testing different dose regimes and combinations
PEARL: Safety and efficacy in reducing aging measures Status: Ongoing	5 mg/weekly 10 mg/weekly
TRIAD: Helthspan efficacy in dogs Status: Ongoing	0.1 mg/kg on weekly basis
Lifespan study in common marmosets Status: Ongoing	1 mg/kg on daily basis
RMR: Combine four promising longevity interventions in mice Status: Ongoing	42 ppm/daily and different combinations of senolytics, gene and stem cell therapy
REACH: Effect on Alzheimer's and cognitive health Status: Ongoing	1 mg/daily
EVERLAST: Everolimus aging study Status: Ongoing	0.5 mg/daily of Everolimus 5 mg/weekly of Everolimus
VIBRANT: Effect of Rapamycin in ovarian aging Status: Ongoing	5 mg/weekly
RAP-PROTECT: Safety and efficacy of Rapamycin as a geroprotector Status: Ongoing	People at any dose can participate
RAP PAC: Dose escalation safety study of Rapamycin and Everolimus Status: Starts in 2023	5 mg/weekly 10 mg/weekly 15 mg/weekly
LONGER: Healthy longevity with Rapamycin Status: Submitted for ethics approval	6 mg/weekly
Effect on muscle performance in older adults Status: Funding	6 mg/weekly
Effects on periodontal disease Status: Submitted for ethics approval?	?

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