



**Evidence-based  
Treatments Targeting  
Aging**

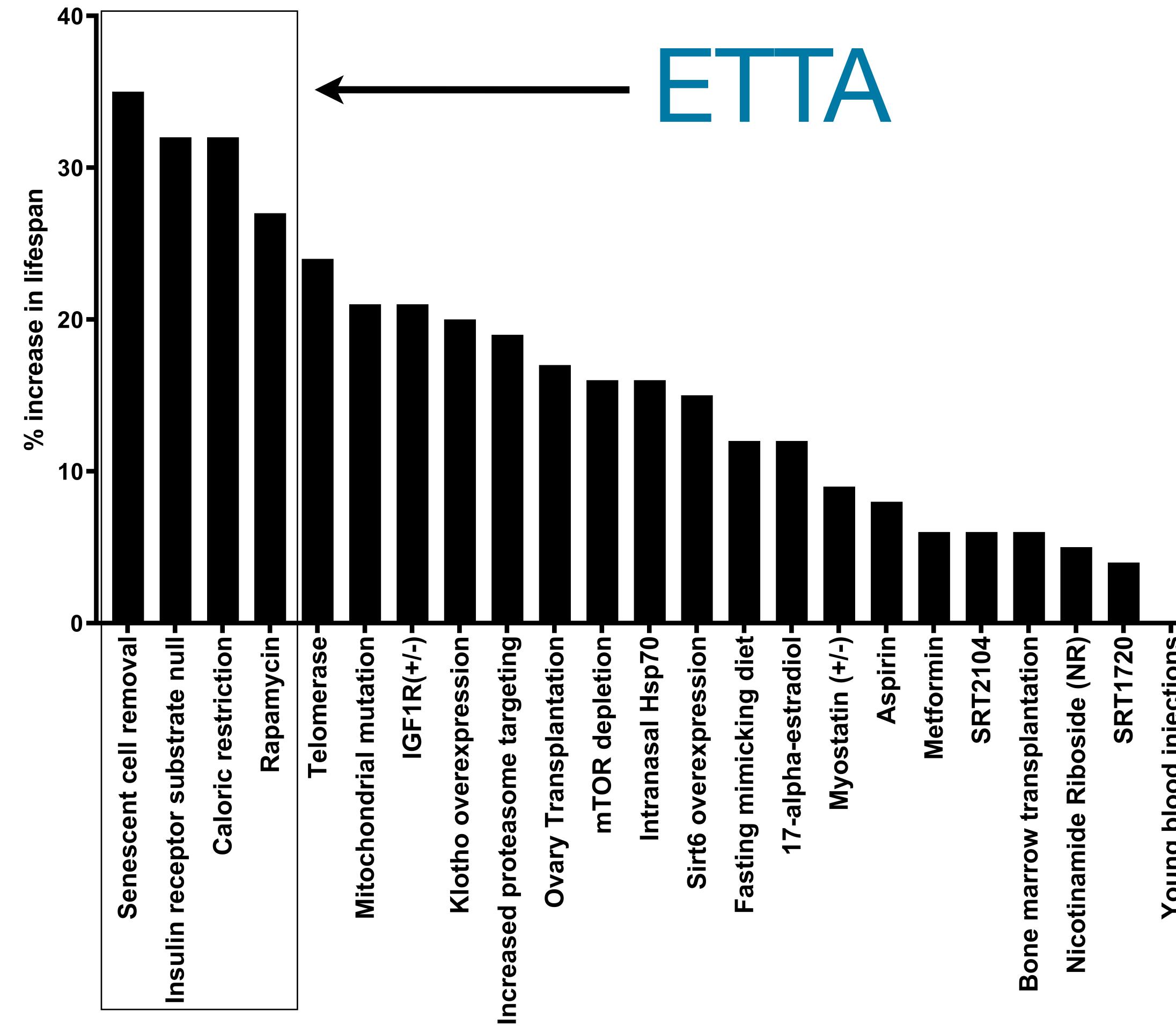
# Founder: Kyle Brewer



- Designed and developed >100 preclinical mRNA and DNA therapies.
- Second scientist at Rejuvenation Technologies, a Stanford mRNA startup.
- Postdoc at Stanford in the Wyss-Coray lab (young blood factors for brain rejuvenation).
- 2 patents filed for ETTA Biotechnology (oral and topical fisetin nanoparticles).



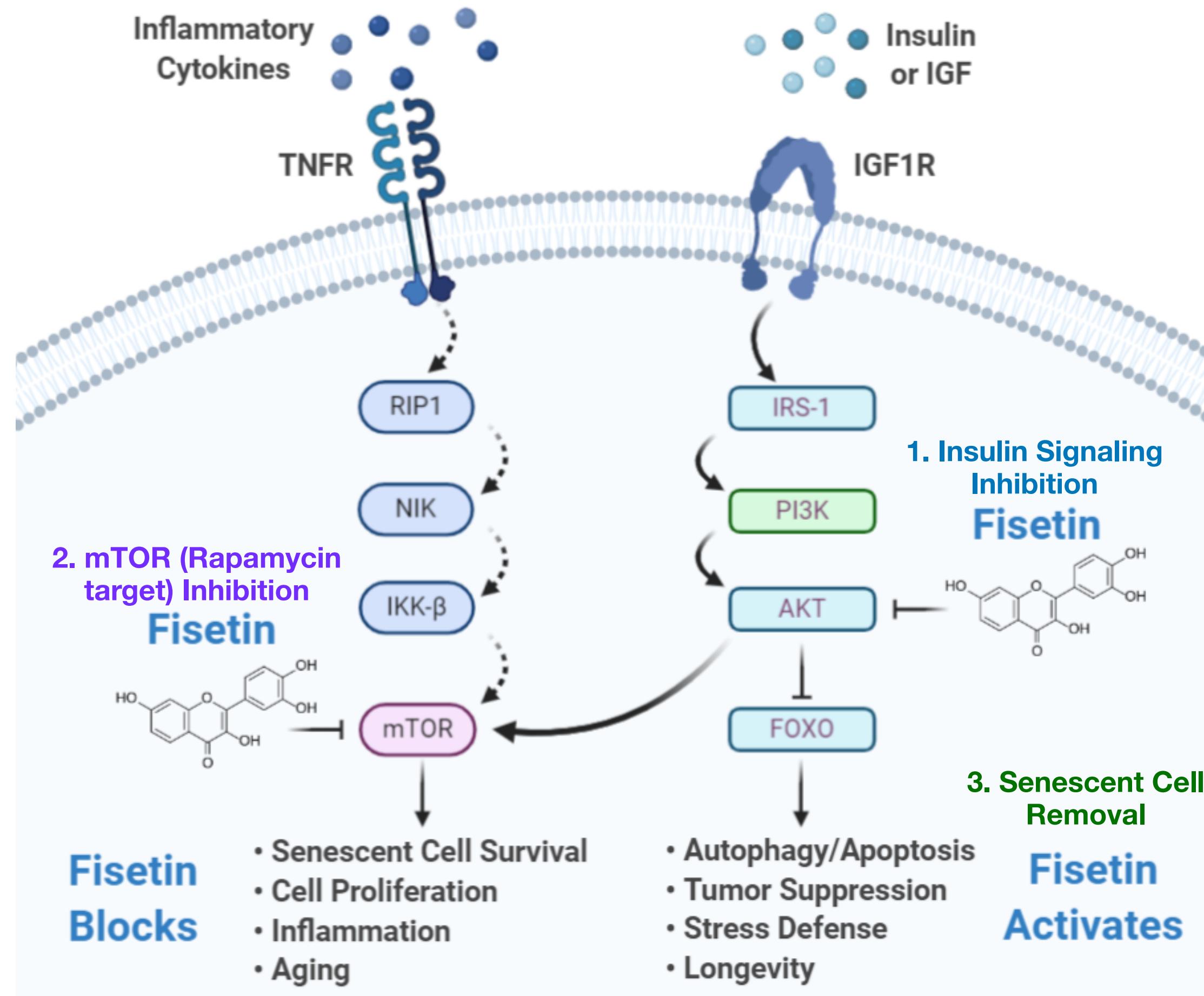
# ETTA Makes the Most Powerful Aging Interventions



- Potential to extend healthy lifespan by 30+ years.
- Emerging evidence to treat over 60 diseases and conditions.
- Estimated to be a \$367 trillion market by London economists.
- 90%+ efficacy in initial tests and case studies.



# Fisetin as a Therapeutic for Aging



# Emerging Evidence for Benefits of Fisetin In:

**Crohn's Disease and Colitis, Poor Digestion  
Psoriasis, Dermatitis, Scarring**

**Alzheimer's, Parkinson's, Huntington's, Multiple Sclerosis, Dementia, Neurodegeneration, Poor Sleep, Headaches  
Heart Disease, Atherosclerosis, Stroke, Hypertension, Heart Failure, Cardiomyopathy, Vascular Disease, Calcification**

**Chronic Obstructive Pulmonary Disease (COPD), Pulmonary Fibrosis, Tobacco/Vaping (Smokers Lung)**

**Fatty Liver Disease, Liver Cirrhosis, Kidney Disease, Renal Failure**

**Cancer (Colon, Lung, Brain, Skin, Gastric, Kidney, Liver, Pancreas, Lymphoma, Melanoma)**

**Osteoporosis. Osteoarthritis, Sarcopenia, Frailty**

**Progeria, Cockayne Syndrome, Werner Syndrome**

**Macular Degeneration, Cataracts, Glaucoma**

**Organ Transplantation Failure**

**Prostate Hypertrophy**

**Diabetes, Obesity**

**Hay Fever, Asthma**

**Inflammation, Lupus**

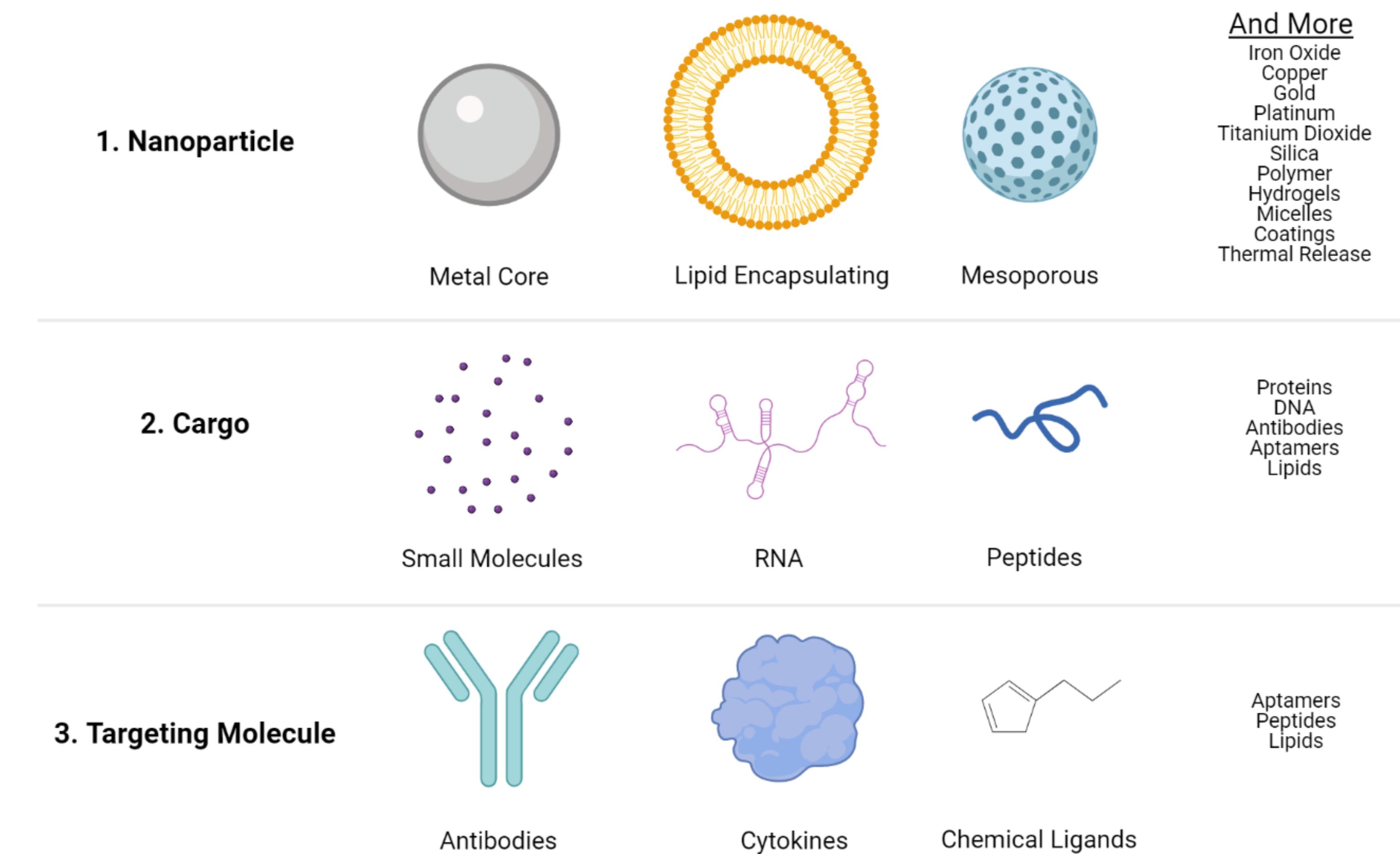
**COVID-19, Influenza, Infections, Wound Healing**

**Lifespan, Healthspan, Fertility**

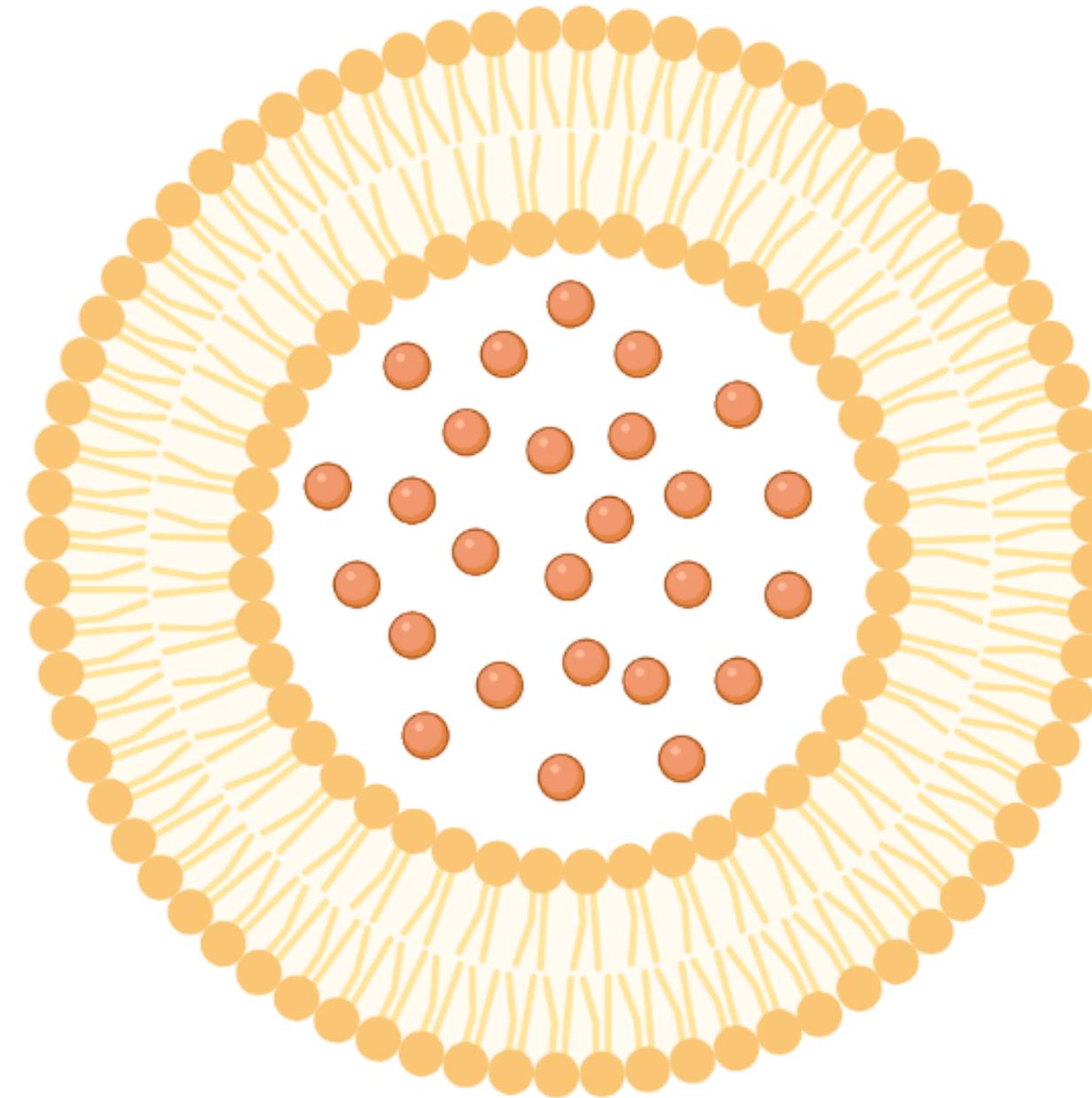
\*However, fisetin has poor solubility (0.01 mg/mL) and short half-life (5 minutes)



# ETTA's Nanoparticle Platform



# ET-001: Our Proprietary Oral Fisetin Nanoparticles for Aging



**ET-001 Fisetin  
Lipid Nanoparticle**

**3 People Dosed During Preliminary Safety Study:**  
No Negative Side Effects Observed or Reported at Highest Dose

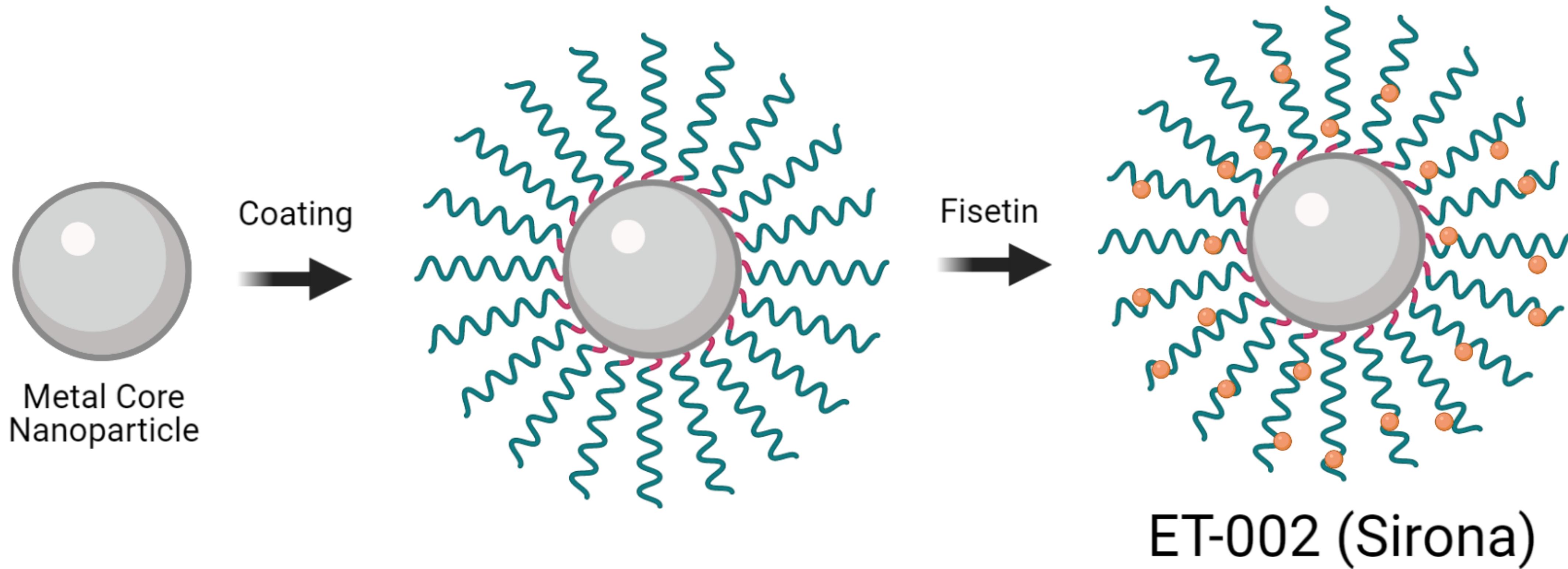
**Unexpected Early Results:**

1. Improved Digestion
2. Chronic Joint Pain Permanently Relieved
3. Blood Sugar Level Lowered to Normal Level (7.3 mmol/L to 5.1 mmol/L)
4. Slight Weight Loss (0-2 kg - All Normal Weight Volunteers)
5. Brain Clarity
6. Faster Wound Healing (2x faster)
7. Reduced Headaches
8. Improved Sleep Quality

**IP Filed**



# ET-002 (Sirona): Our Proprietary Topical Skin Nanoparticles



IP Filed



# Case Study of Psoriasis Using ET-002



Day 0



Day 7



Day 0



Day 7

- Completed: Irritation test of 25 healthy volunteers - no irritation and reports of improved skin appearance.
- More information: Reduced acne and wrinkles in collaboration with a large cosmeceutical distributor.



# Case Study of Scar Prevention Using ET-002



Day 0



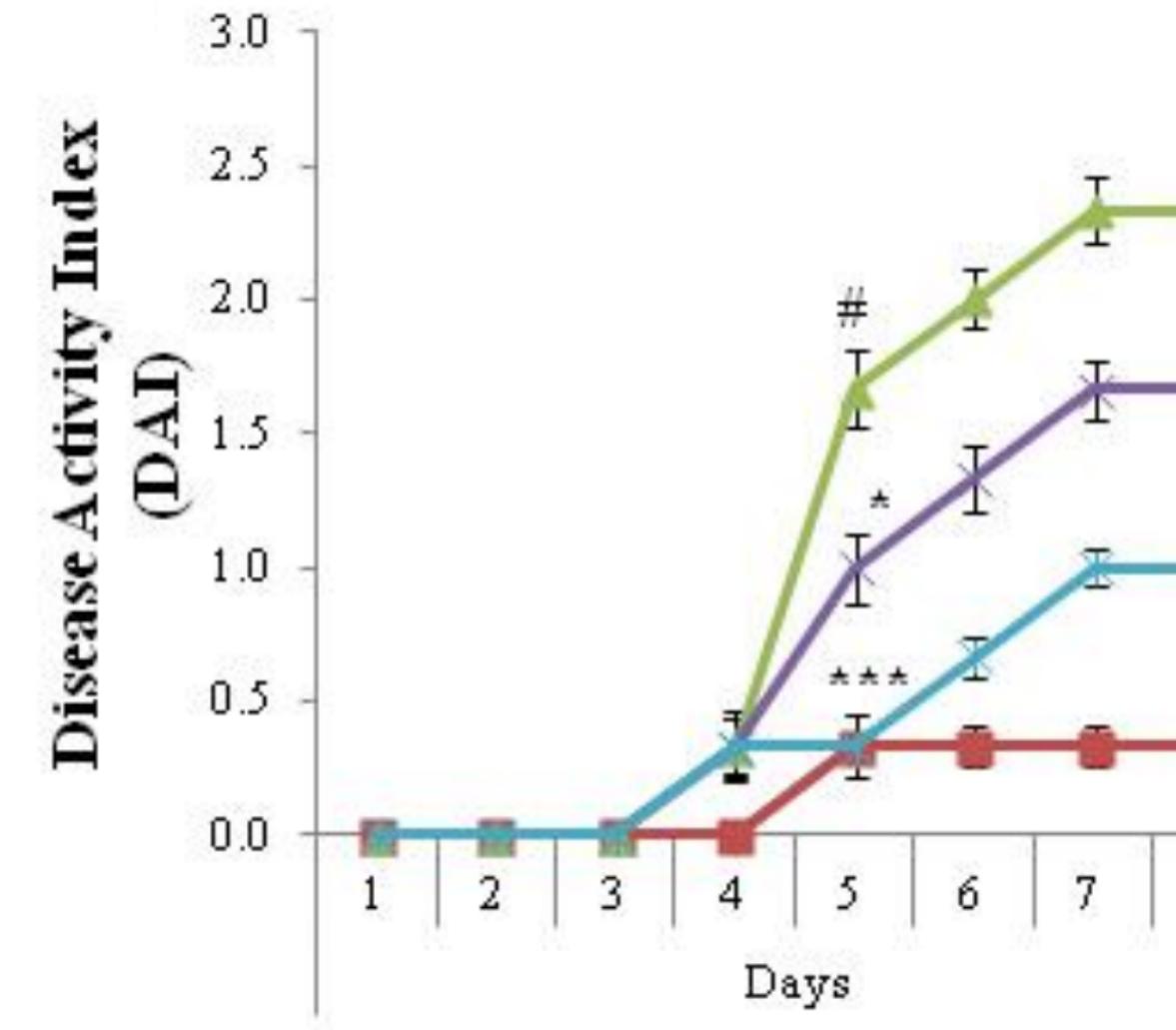
Day 60

- Patient presented with fingernail and chunk of flesh missing.
- Attending physician noted injury would definitely leave a scar.

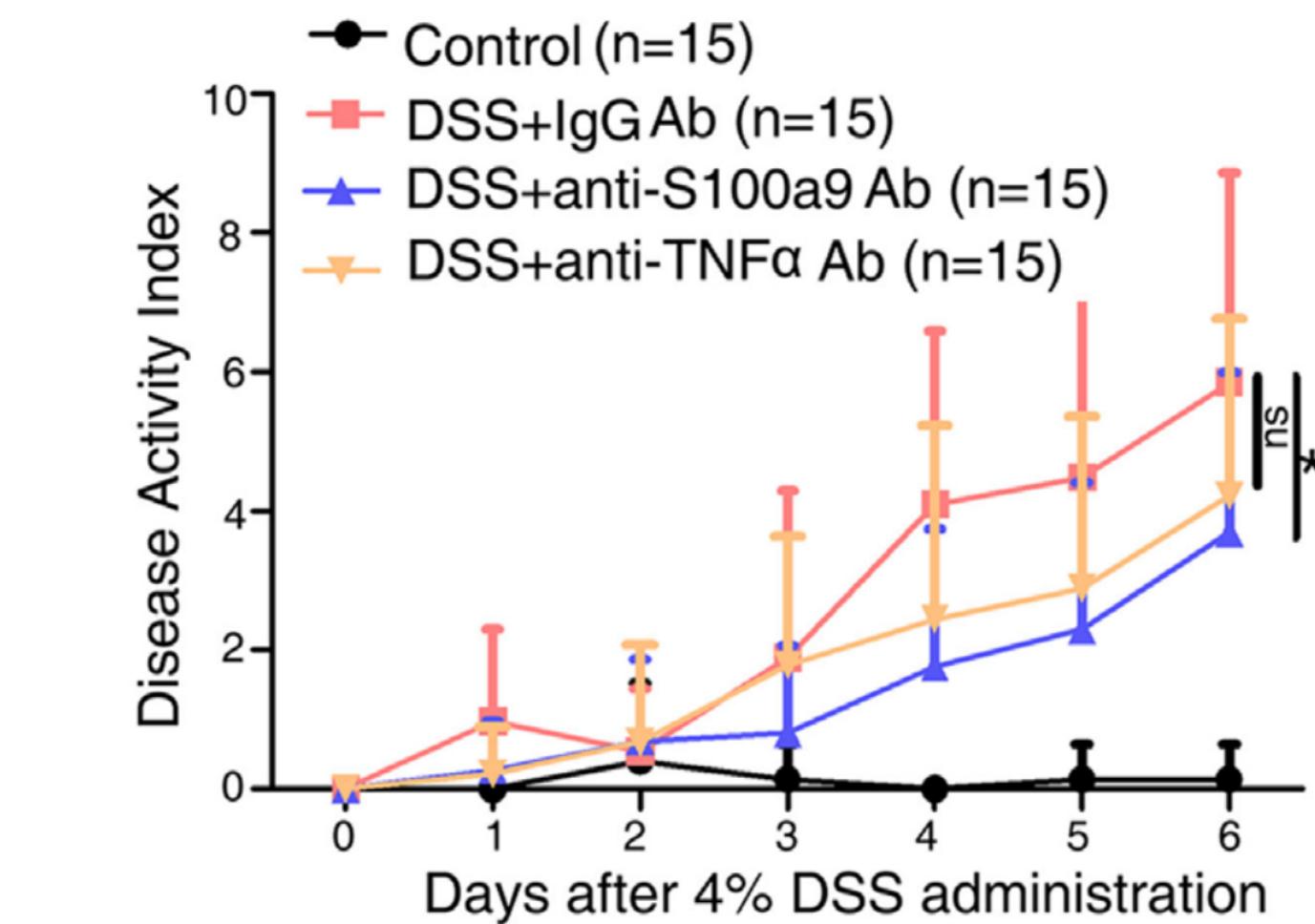


# Fisetin: Inflammatory Bowel Disease (IBD)

**IBD - \$20 Billion per Year Market**  
**1,600,000 Million Patients in the US**



**Disease Index After Fisetin**



**Disease Index After Standard of Care Treatment  
(anti-TNF $\alpha$  - Humira)**

\*Note: Humira is the 2nd most profitable drug of all time. Pricing is \$84,000 per year per patient.



# Economists: Increasing Life Expectancy Is Worth \$367 Trillion

ANALYSIS

<https://doi.org/10.1038/s43587-021-00080-0>

nature  
aging

 Check for updates

OPEN

## The economic value of targeting aging

Andrew J. Scott<sup>1</sup>✉, Martin Ellison<sup>2</sup> and David A. Sinclair<sup>1</sup><sup>3</sup>

Developments in life expectancy and the growing emphasis on biological and 'healthy' aging raise a number of important questions for health scientists and economists alike. Is it preferable to make lives healthier by compressing morbidity, or longer by extending life? What are the gains from targeting aging itself compared to efforts to eradicate specific diseases? Here we analyze existing data to evaluate the economic value of increases in life expectancy, improvements in health and treatments that target aging. We show that a compression of morbidity that improves health is more valuable than further increases in life expectancy, and that targeting aging offers potentially larger economic gains than eradicating individual diseases. We show that a slowdown in aging that increases life expectancy by 1 year is worth US\$38 trillion, and by 10 years, US\$367 trillion. Ultimately, the more progress that is made in improving how we age, the greater the value of further improvements.



# Use of Funds

1. Fisetin Nanoparticle Efficacy and Preliminary Toxicity Study: **\$250K**
  2. Fisetin Nanoparticle Initial GMP Manufacturing: **\$300K**
  3. Fisetin Nanoparticle Preclinical Toxicity Study: **\$1M**
  4. R&D for Lifespan Studies, Additional Therapeutics, and Nanoparticle Platform: **\$500K**
  5. Operating Buffer - **\$250K**
- Total: **\$2.3M**



# Team



Kyle Brewer, PhD

**15 years experience with nanoparticles, including for drug delivery, mRNA delivery, DNA delivery, tissue targeting, and aging**



Lulu Lorien, MSFA

**5 years experience in cosmeceutical and nanotechnology industries**



Biao Zhang, PhD

**30 years experience as a serial entrepreneur in nanotechnology with multiple successful exits**

- Reflectivity, Inc acquired by Texas Instruments in 2008
- True Material acquired by Affymetrix in 2011



Matt Yousefzadeh, PhD

**Assistant Professor - U. of Minnesota**  
Discovered Fisetin is a Senotherapeutic and Extends Lifespan



Jean Chamcheu, PhD

**Assistant Professor - U. of Louisiana Monroe**  
Dermatology of Fisetin Topicals



Khalid El Sayed, PhD

**Professor - U. of Louisiana Monroe**  
Pharmacology of Fisetin



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