THE GENOMIC KITCHEN

LONGEVITY GENE HACKS
Empower SIRT-1 and AMPK!

EMPOWERMENT BENEFITS of SIRT-1 and AMPK

Activate Gene: FOXO

- FOXO activates your body's super-antioxidants CAT and SOD
  - Catalase (CAT) and Superoxide dismutase (SOD) act like firehoses to extinguish free radicals
  - Exponentially more powerful than dietary antioxidants!

Activate Gene: PPARGC1A

- Turns on beta-oxidation, your fat burning mechanism
- Prompts your body to produce new mitochondria
  - Mitochondria are your body's power plant
- Activates NrF2 (see below)

Activate Super Transcription Factor NrF2

- NrF2 prompts your body to activate its super-antioxidant power
  - SOD, CAT and GPx
- NrF2 turns on detoxification supporting genes
  - GST (Glutathione-S-Transferase) and NQO1
- NrF2 shuts down powerful inflammatory genes: TNF-alpha, IL-1, IL-6, IL-8

Help the body shutdown poorly functioning and disruptive cells

- We call this process **Apoptosis**

Deactivate Nf-kB

- A master pro-inflammatory switch

How to Empower these genes

- Time-Restricted Eating or Intermittent Fasting
- These genes respond to energy deficits and not energy excesses!
- Resveratrol

When You Turn On SIRT-1 and AMPK, You Turn Off m-TOR

Benefits of turning off m-TOR

You turn ON AUTOPHAGY
- Protects cellular health
- Eliminates damaged proteins and cellular components
- Recycles useful metabolic components
- Maintains and repairs mitochondria - your power plant

Your turn on key metabolic processes
- Beta-oxidation (Fat burning)
- Ketogenesis
- Gluconeogenesis
  Production of glucose from amino acids or glycerol

What turns m-TOR on?
Because we want it turned off most of the time!

- Over-nutrition
- Being significantly overweight and unfit
- Elevated blood sugar
- Persistently elevated insulin
- Certain amino acids → *Isoleucine, leucine, valine*

> m-TOR is a major growth regulator and controls most anabolic and catabolic processes in response to nutrients. A balance of m-Tor is required. Think: good for muscle cells but bad for controlling cancer growth