

You Are What you Eat

The link between the Gut Brain, and Microbiome, for a Healthier, Longer Lifespan

Hariom Yadav, PhD, FGSA
 Director of USF Center for Microbiome Research
 Microbiomes Institute
 Associate Professor (tenured) of Neurosurgery and Brain Repair
 University of South Florida, Tampa, FL

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Organoids
 Plate
 C. elegans
 Mammals
 Ubi

- Moving Science "PLATE TO PEOPLE"
- Longevity Screening
- Pre-clinical
 - Mechanism
 - Efficacy
 - Exploratory Claims
- Clinical Trials
- New Technology/Product Development

How can we fast track from the lab to the people?

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Fun Facts on Microbiome

- We are more "microbial" than "human"!
 - 10X more microbial cells than human cells (2kg microbial mass)
- Our DNA - 23,000-24,000 genes expressed versus microbiome's 300,000+ genes
- 60% metabolites circulating in blood originated from gut
- Gut microbiome responsible for:
 - Serotonin (90%) and Dopamine (50%) come from gut
 - GABA
 - Glutamine
 - Other Neurotransmitters, too!

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Microbiome-gut-brain axis in our daily life

This communication affects hunger and mood daily, and ultimately healthspan

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The Silver Tsunami is not coming...it is here

- Aging is not a disease
 - FDA: No drugs approved for anti-aging
- But aging is a major factor in many health conditions, but largely remains un-known:
 - How it promotes these conditions
 - How to prevent and treat these conditions

How can we fast track from the lab to the people?

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Targeting the biology of aging increases healthspan

Source: Franceschi, et al (2018), Nature Reviews Endocrinology, 14, 276-290.

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A "Midlife Crisis" Which Can Lead to Cognitive Decline

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Systemic inflammation during midlife and cognitive change over 20 years
The ABC study

Where does inflammation come from as we age?

Inflammaging

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Two major sources of inflammation in aging

Postbiotics

Senescence

Leaky gut

p16^{INK4} ↓ CDK4 → E2F3 → PGC-1α → Mitochondria
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They are Inter-connected

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Old gut harbors a dysbiotic microbiome, linked with increased systemic inflammation and leaky gut

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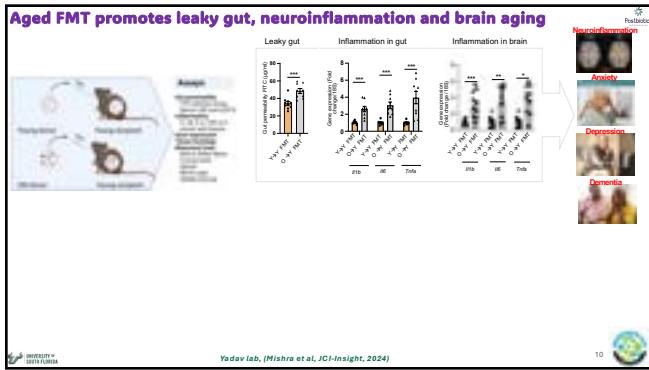
Whether aged microbiota induces leaky gut?

Chauthari et al, Yadav lab (Geroscience, 2022; PMID: 37213047)

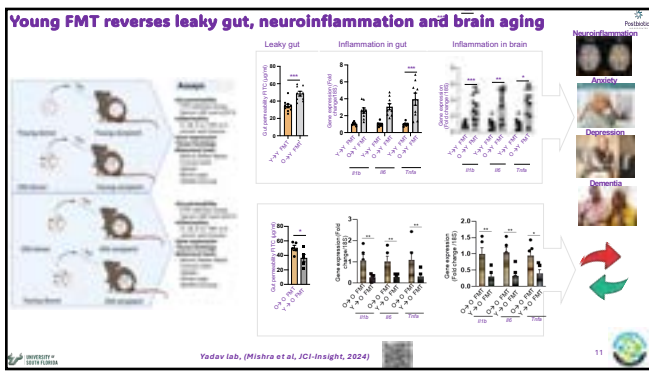
Yadav lab- Unpublished data

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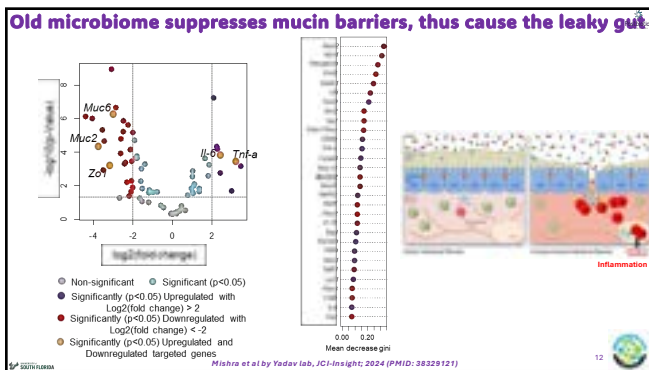
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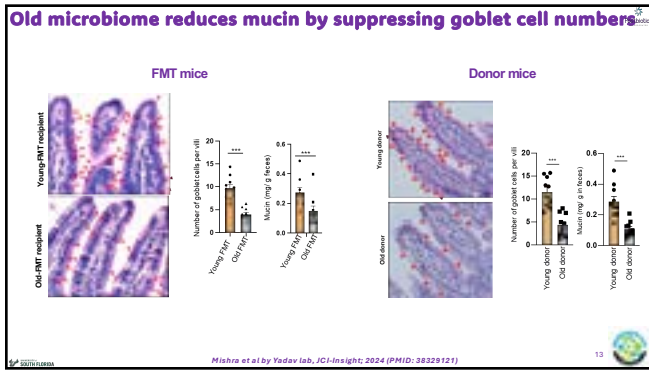
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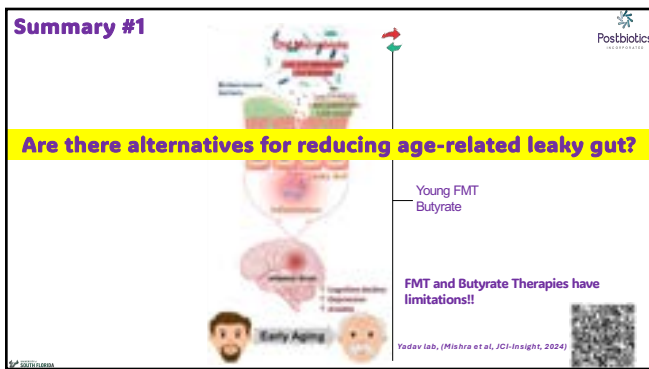
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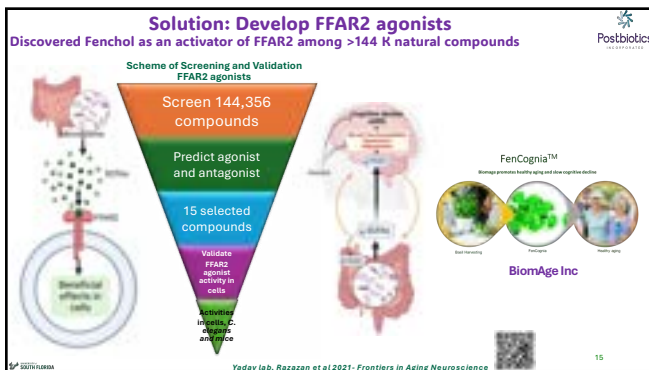
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Fenchol improves brain health by dampening Zombie cells

Aging → Zombie cells + Toxic proteins → brain plaque → Neurodegeneration

Increasing life-span Protecting neurotoxicity Reduces neuronal plaques

Are there alternatives for reducing age-related leaky gut?

Lessens Zombie (senescence) cells in neurons

Control A β Fenchol Fenchol + A β

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A Human Origin Postbiotics also reduces leaky gut and promote healthy aging

Wang et al. 2019, *Geroscience*
doi:10.1007/s11357-019-00137-4

A 30 Days Pilot Clinical Trial

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Postbiotics: Unrivalled efficacy and versatility

Capsules Gummies Heated Foods Petfood and Treats

Dairy/Smoothies Powder Beverages Functional Snacks Skincare/Cosmetics

Postbiotics for Life® and the Next Generation of Digestive Health®

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Large clinical studies guiding us to answer novel questions about the role of microbiome in aging and related disorders

Funded by FL State and NIA-R21
400 older adults (200 controls, 100 MCI and 100 dementias) with longitudinal follow-up

Funded by NHLBI-U54
1,000 older adults (750 heart failure and 250 controls) n=1,000 samples

Funded by NHLBI-U01
Randomized control trial in 80 HFpEF patients

MiToB study Database

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Our expertise is available for collaborations!!

- Gut Health**
 - Leaky Gut
 - Inflammation
 - Microbiome
 - Probiotics (screening to production)
- Cardiovascular Health**
 - Leaky blood vessels
 - Lipid metabolism
- Obesity and Diabetes**
 - GLP-1 secretion
 - Fat accumulation
 - Insulin secretion & sensitivity
- Brain Health**
 - Cognition, dementia
 - Leaky BBB
 - Neurodegeneration
 - Neurotransmitter production
- Aging Health/ Longevity**
 - Senescence
 - Muscles, QOL, Nutrition
- Dose Responses**
 - Toxicities and Accumulations

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PARTICIPANTS

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