Taming your gut

IMMUNE BALANCE

GUT MICROBES

Th-1  Th-2  Th-17

T REG
Gut bacteria-triggered systemic events

Gastrointestinal bacteria

Migration and maturation

Interleukin-10

INFLAMMATION

CD40-CD40L

T_{EFF}

T_{REG}
Healing by gut feeling?
Benefits of Oxytocin

1. Builds love & trust
2. Bonds a family
3. Reduces social fears
4. Improves wound healing
5. Relieves stress
Vagus nerve: the oxytocin highway

MICROBES

BRAIN

Hypothalamus

Brain

GUT

Intestine

Vagus nerve
Why use animal models?

Gut bacteria

*Lactobacillus reuteri*

Fed to mice in drinking water then confirmed within intestine
These mice are brothers ....
Probiotic yogurt? Yummy.
Glow of Good Health

Bacteria-treated

Control
Skin biopsy technique

Full thickness skin biopsy

untreated

L. reuteri-treated
Growing luxuriant hair
Mice That Eat Yogurt Have Larger Testicles

Probiotics may endow rodents with a "mouse swagger"

By Elie Dolgin
Wound healing is 2X faster
Transfer of immune cells ......

Skinner! Shiny! Sexy!

... re-creates the effect

gut bacteria
day 6 after skin biopsy

Angiogenesis

Untreated control mouse

Mouse eating *L. reuteri*
Pilot Study in Human Subjects

Help us discover the key to “glow of health”

You are invited to participate in a research project.

Our research aims to investigate the connection of healthful bacteria to skin health and wound healing. Previous studies show a link between probiotic bacteria, radiant skin and shiny hair.

We are looking for female volunteers, ages 19-40, who are healthy and not taking any medication.

The study involves taking a probiotic supplement daily and undergoing a small skin biopsy. The total involvement is 5 weeks.

Division of Comparative Medicine
Contact: serdman@mit.edu
Taming your gut: mechanisms

- Gut bacteria
- Immunity
- Brain oxytocin
- Skin inflammation
Physical, mental & social fitness

“my bacteria made me do it”

Plasma Oxytocin

Brain-Hypothalamic pathways

![Image of a mouse with a diagram showing plasma oxytocin levels](image.jpg)

Control vs. L. reuteri, p=0.0004
Healing by gut feeling

brain

oxytocin

T_{REG}

gut

skin