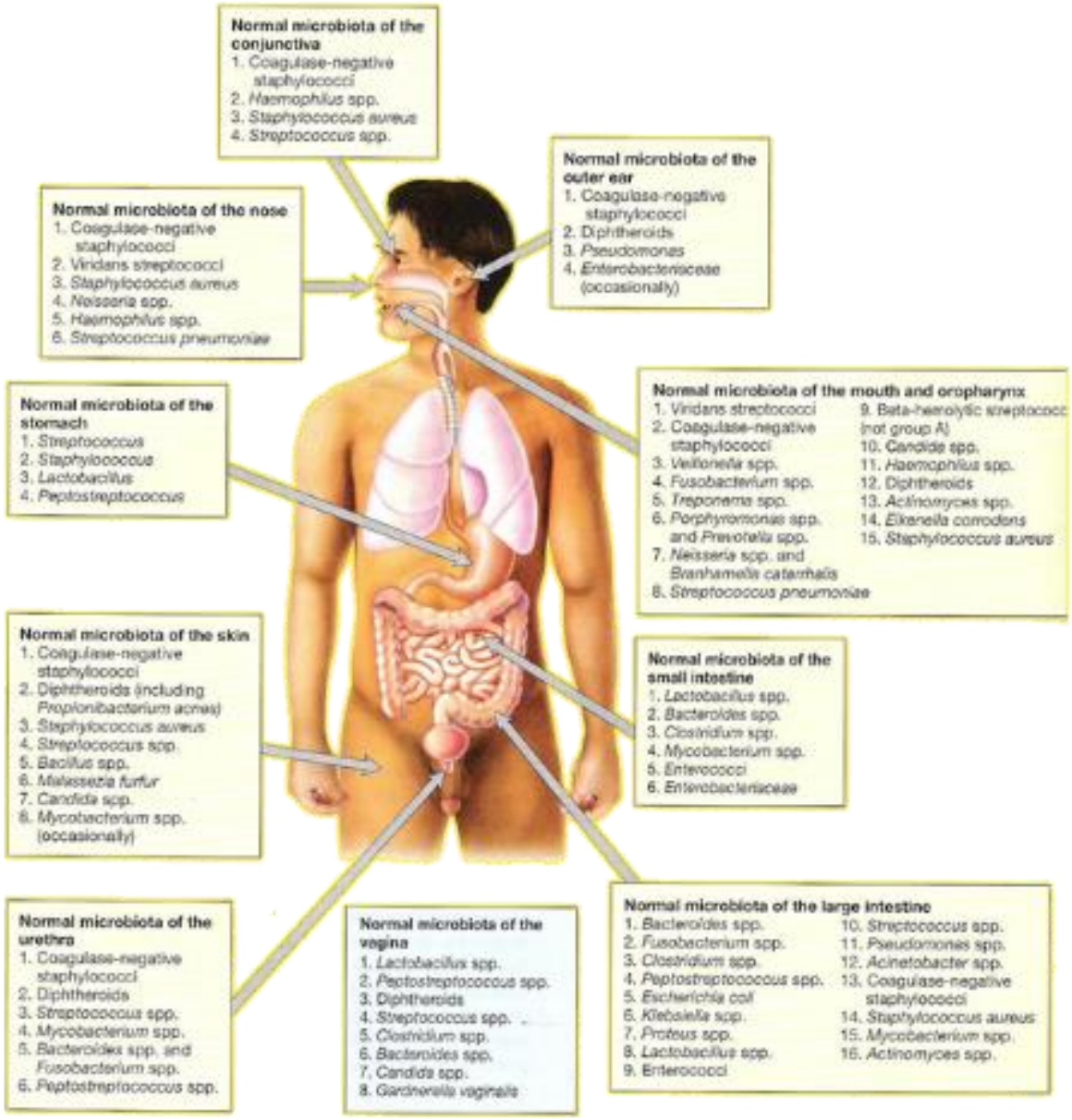
VCONNAE
CONGRESSO NORTE E NORDESTE
DE NUTRIÇÃO CLÍNICA E ESPORTIVA
24, 25 e 26 de Julho de 2019
Natal - RN

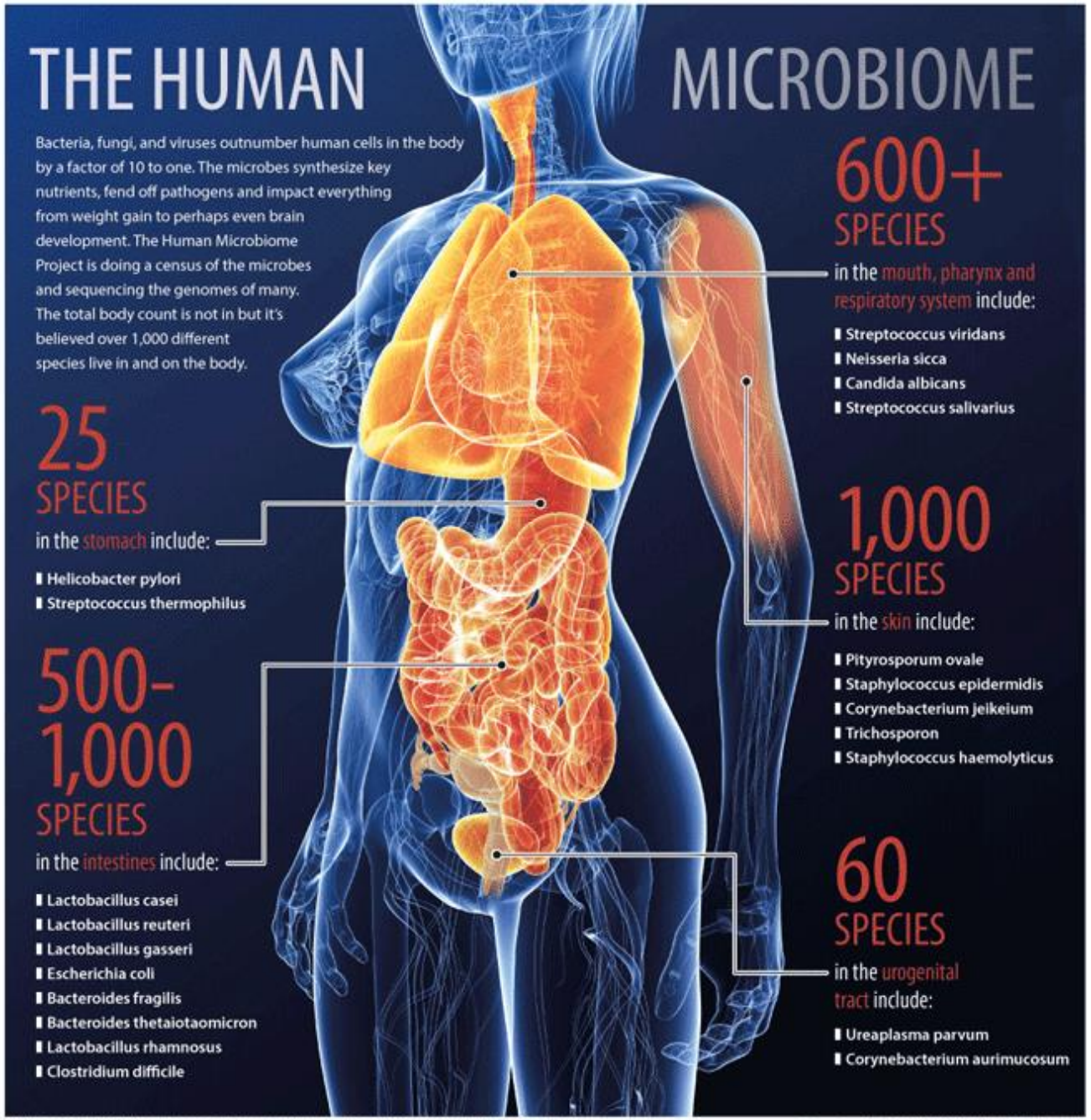
INI INSTITUTO DE NUTRIÇÃO INTEGRADA

Microbiota intestinal e imunidade: Modificações no esporte

PhD, Bruno Zylbergeld - Biólogo

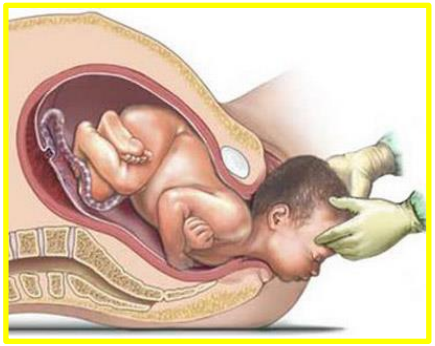
A nossa microbiota:

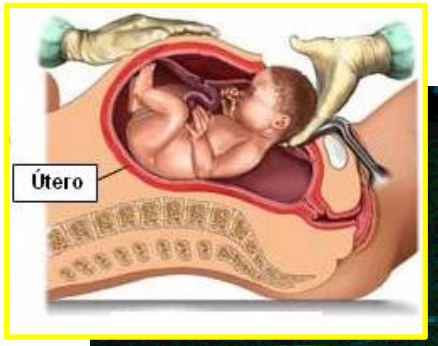




A colonização da nossa microbiota:

1º





Parto normal VS Cesária

2º

mbiente Hospitalar

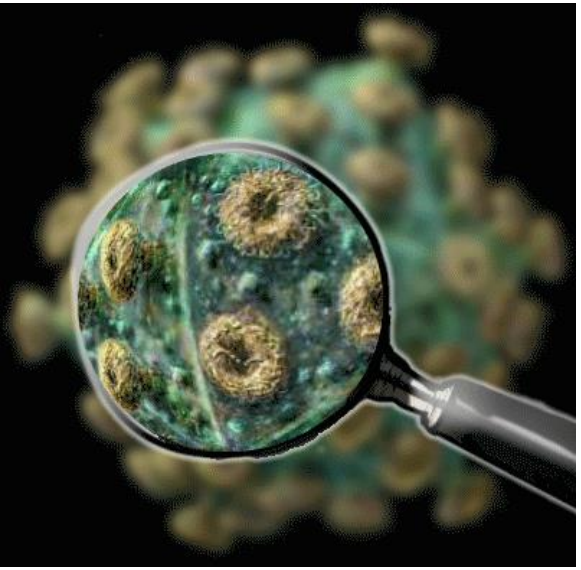
3º

Contato Familiar

4º

Contaminação ambiental

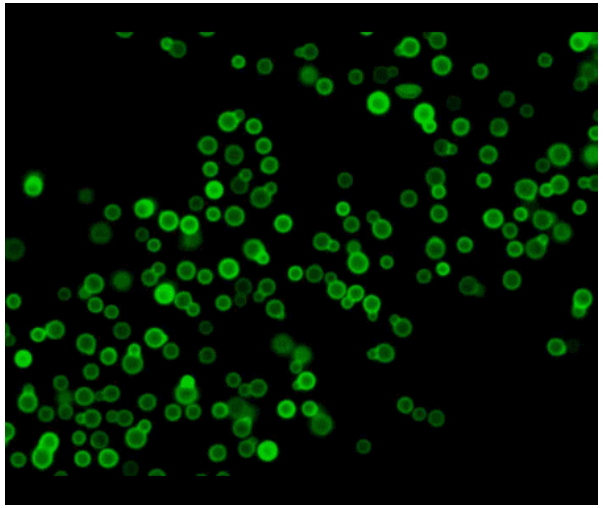
A composição da nossa microbiota:



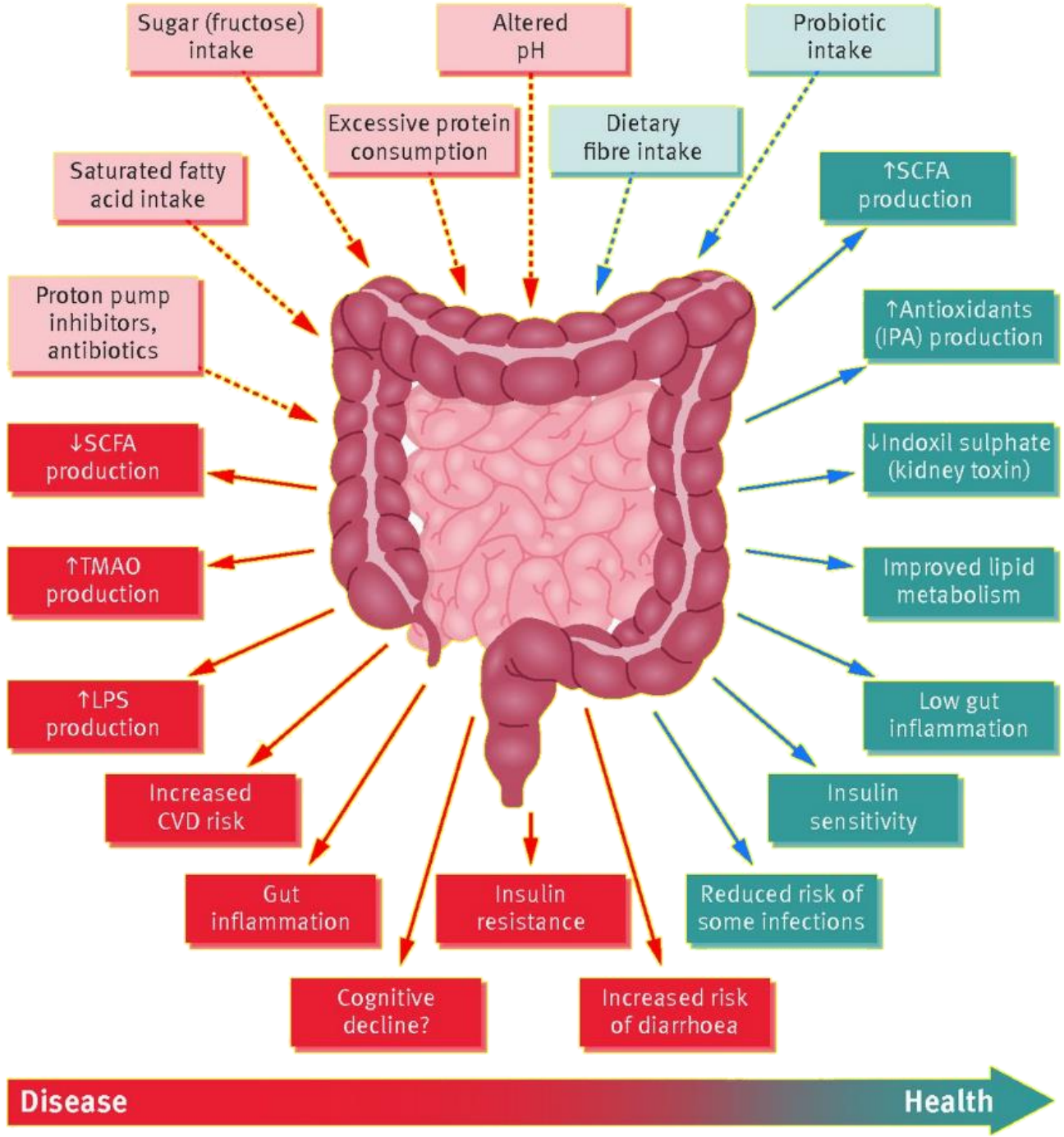
Vírus

Protozoários

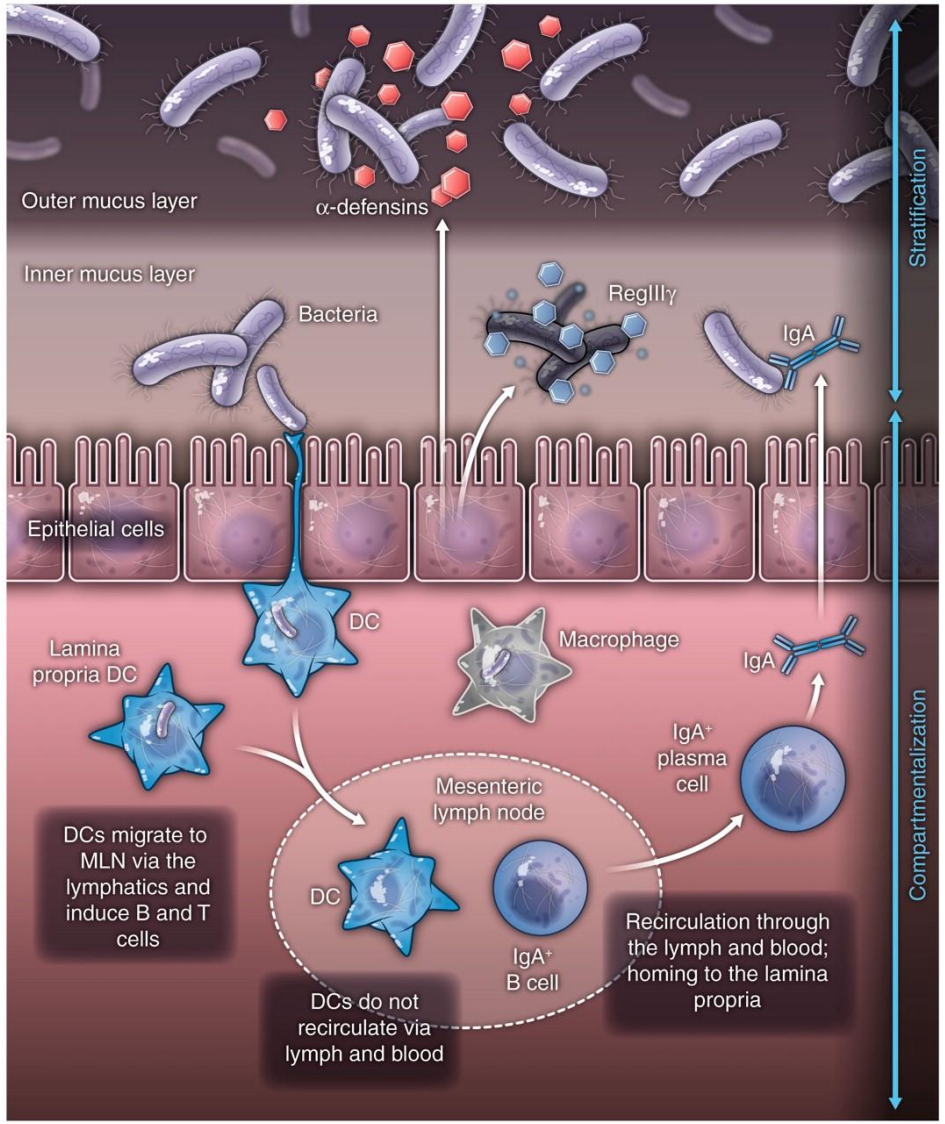
Bactérias



Leveduras

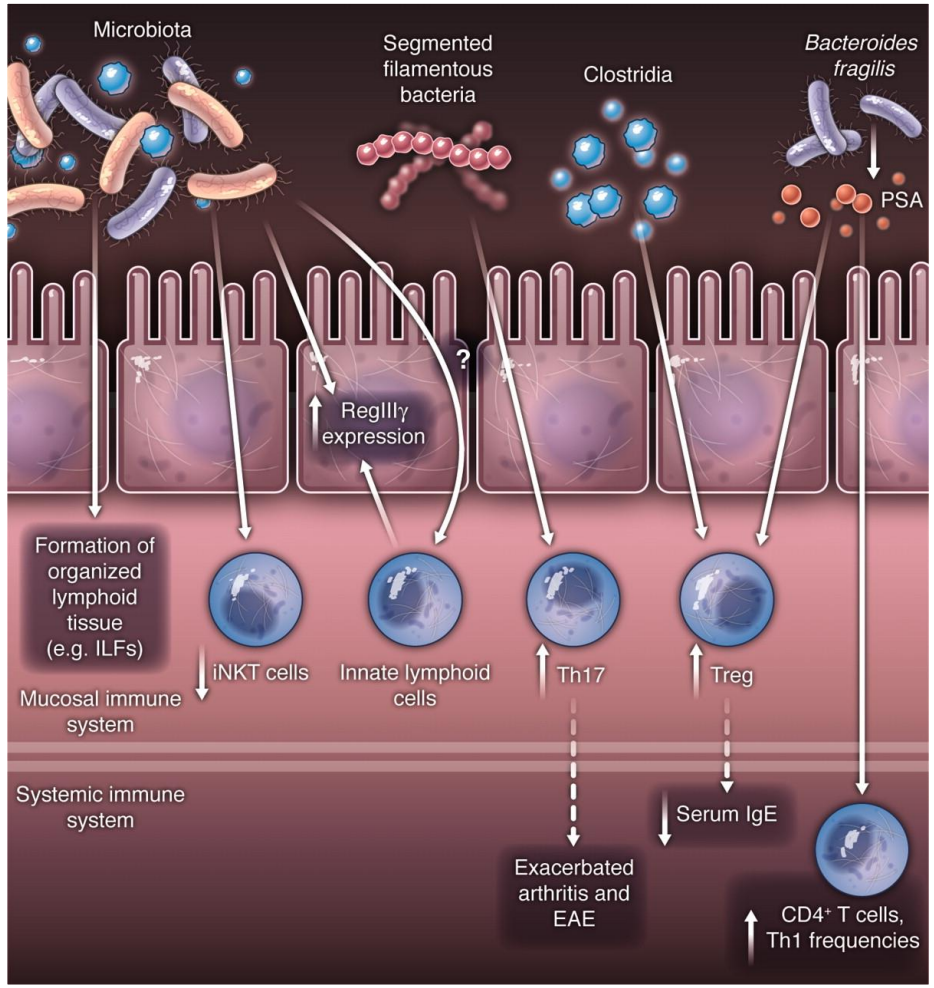

Sugar (fructose) intake
Altered pH
Probiotic intake
Excessive protein consumption
Dietary fibre intake
Saturated fatty acid intake
↑SCFA production
Proton pump inhibitors, antibiotics
↑Antioxidants (IPA) production
↓SCFA production
↓Indoxil sulphate (kidney toxin)
↑TMAO production
Improved lipid metabolism
↑LPS production
Low gut inflammation
Increased CVD risk
Insulin sensitivity
Gut inflammation
Insulin resistance
Reduced risk of some infections
Cognitive decline?
Increased risk of diarrhoea
Disease
Health

Imunidade e a microbiota

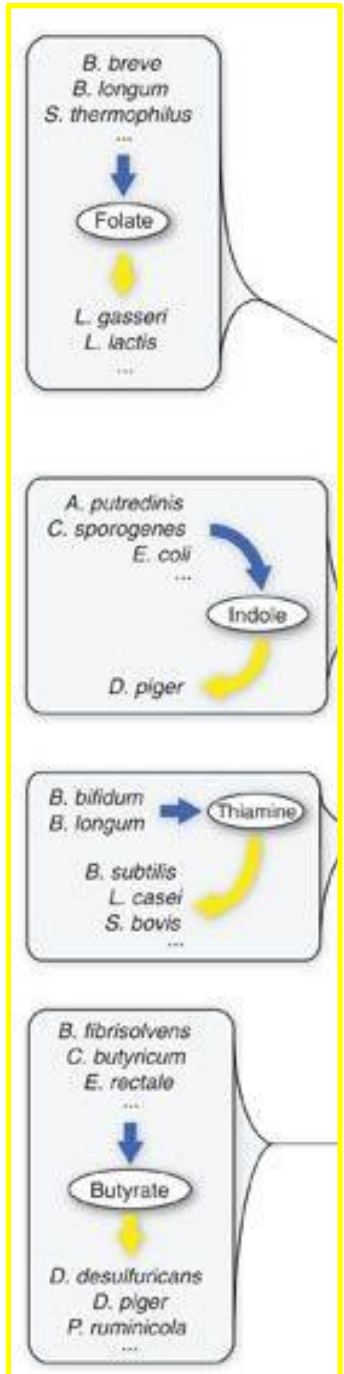


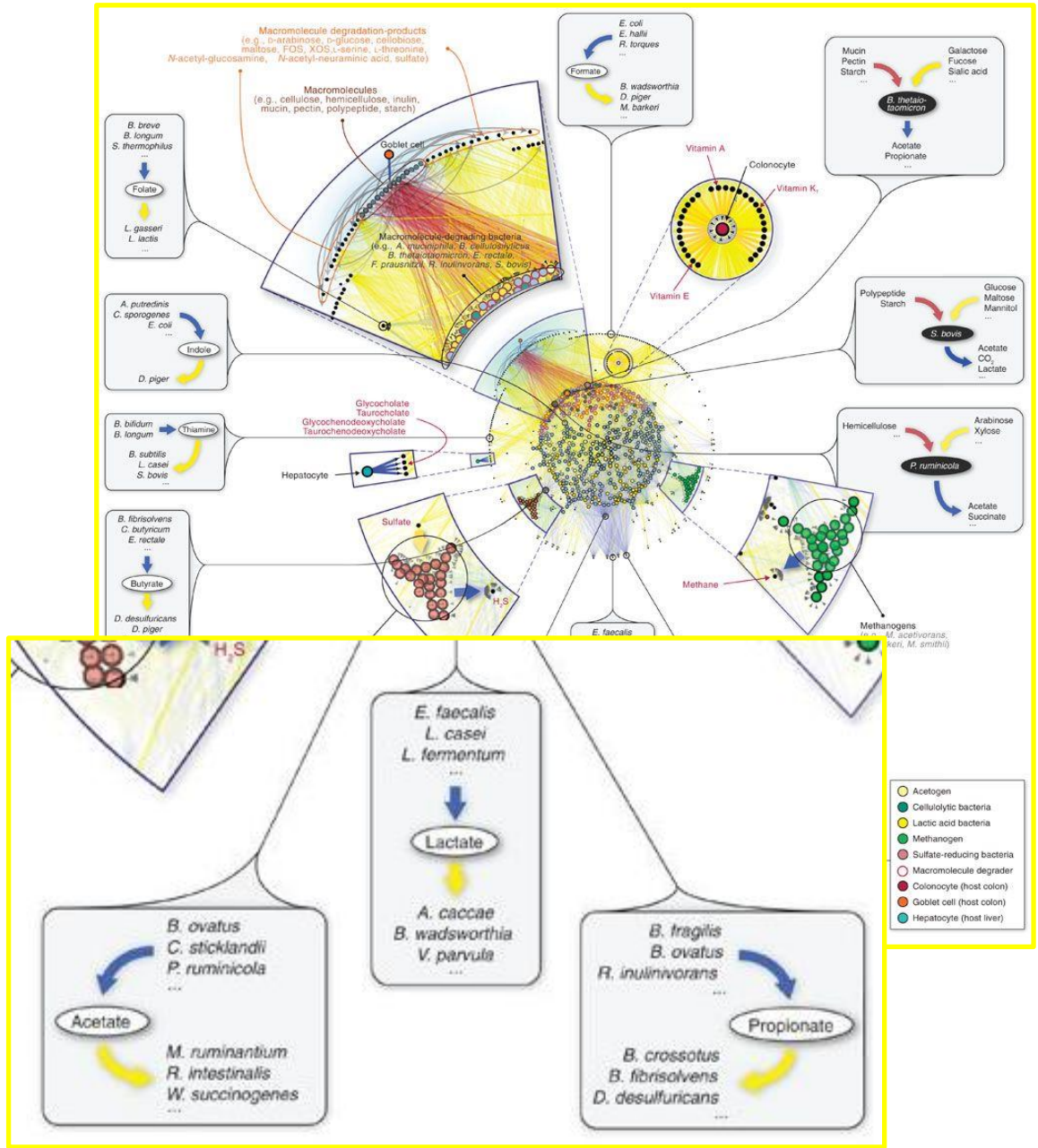
Os TLRs

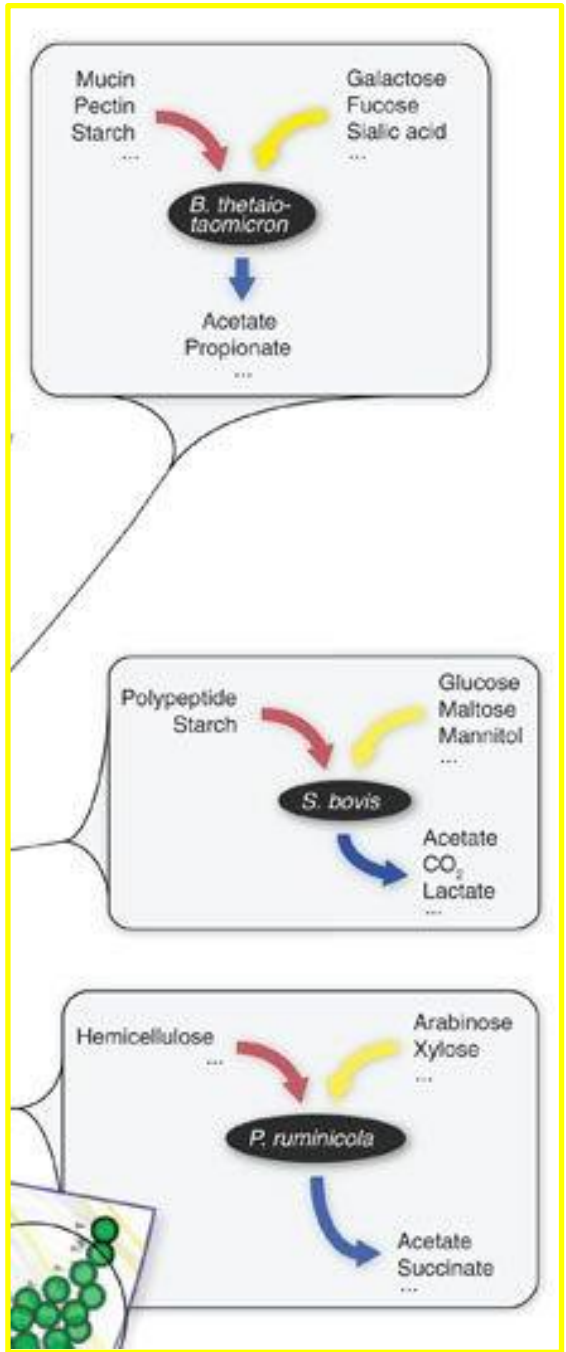
Estímulo celular



Metabolismo e metabólitos

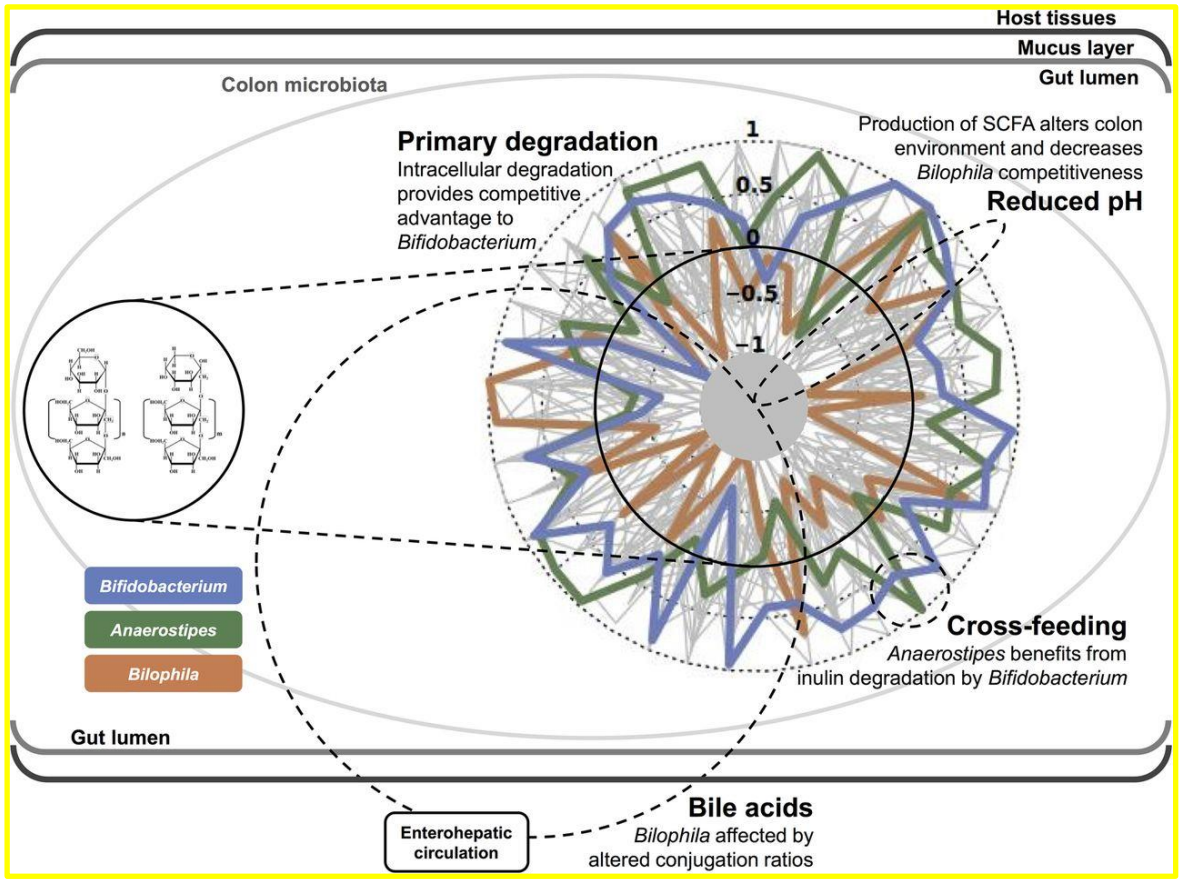






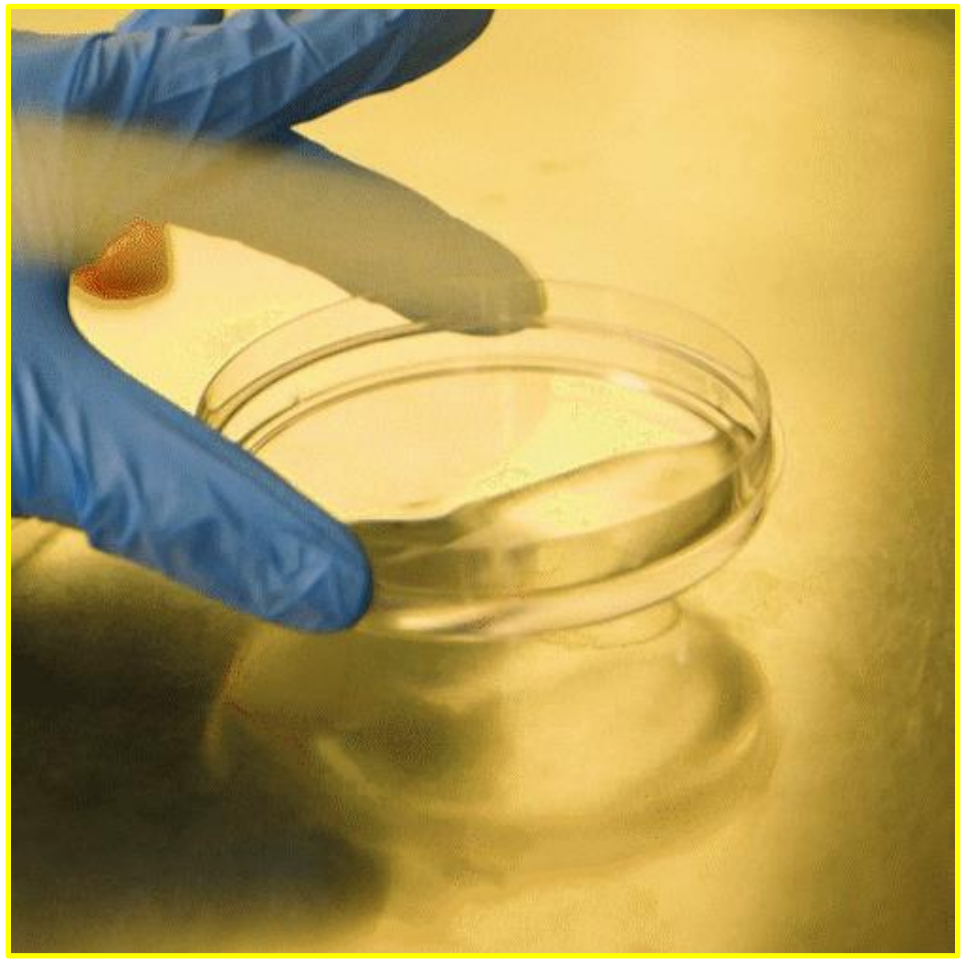
Nutrição microbiológica

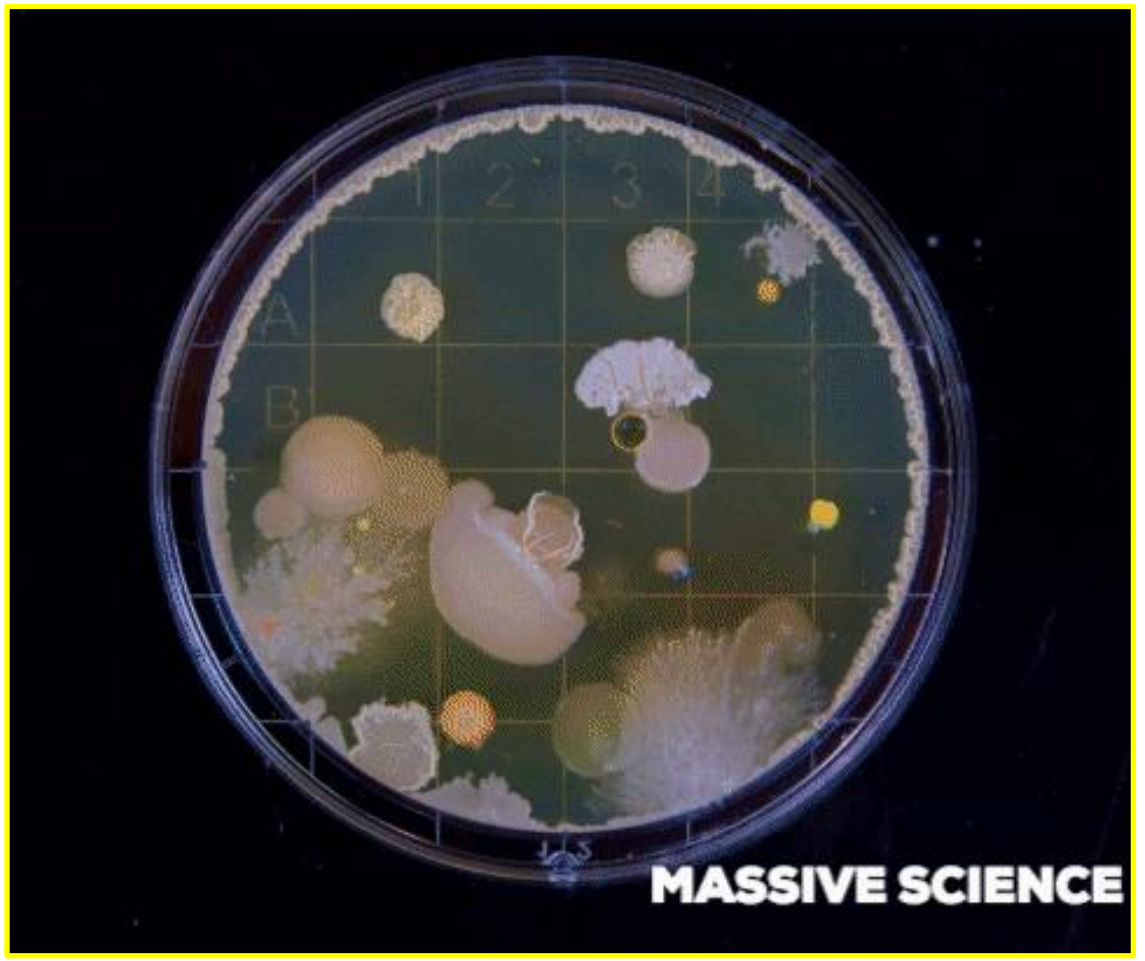
Exógena



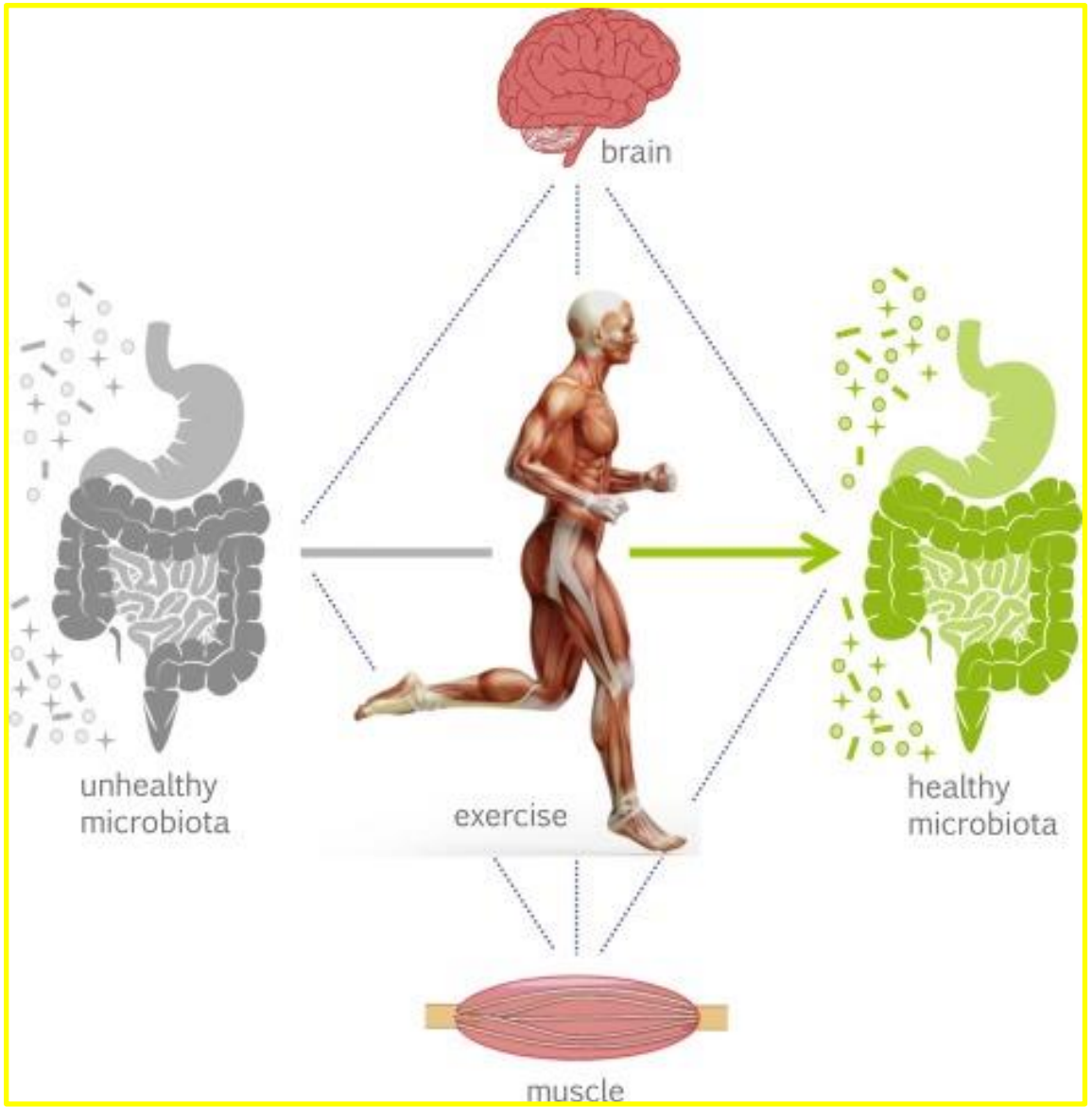
Endógena

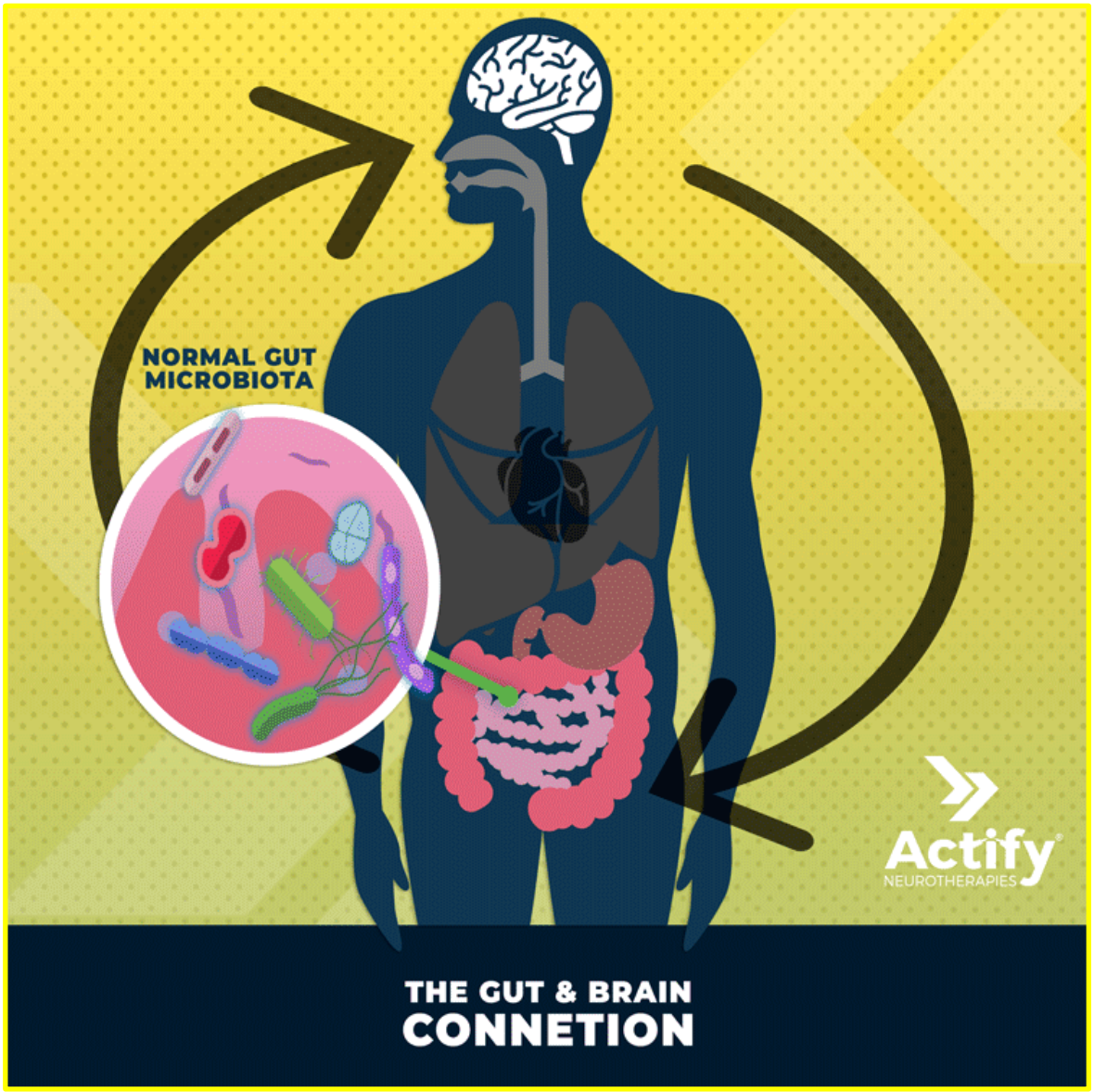
Meios de Cultura

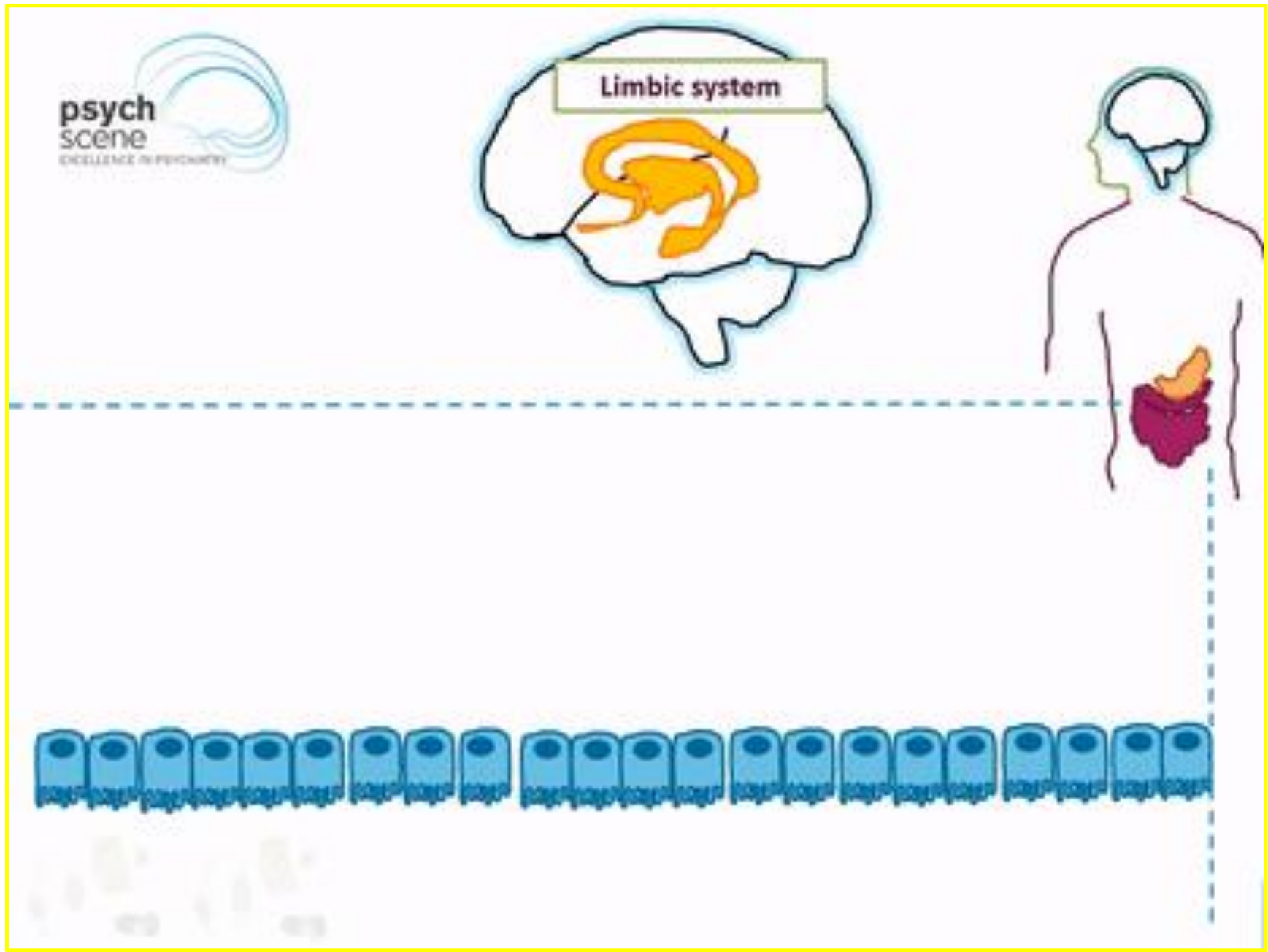




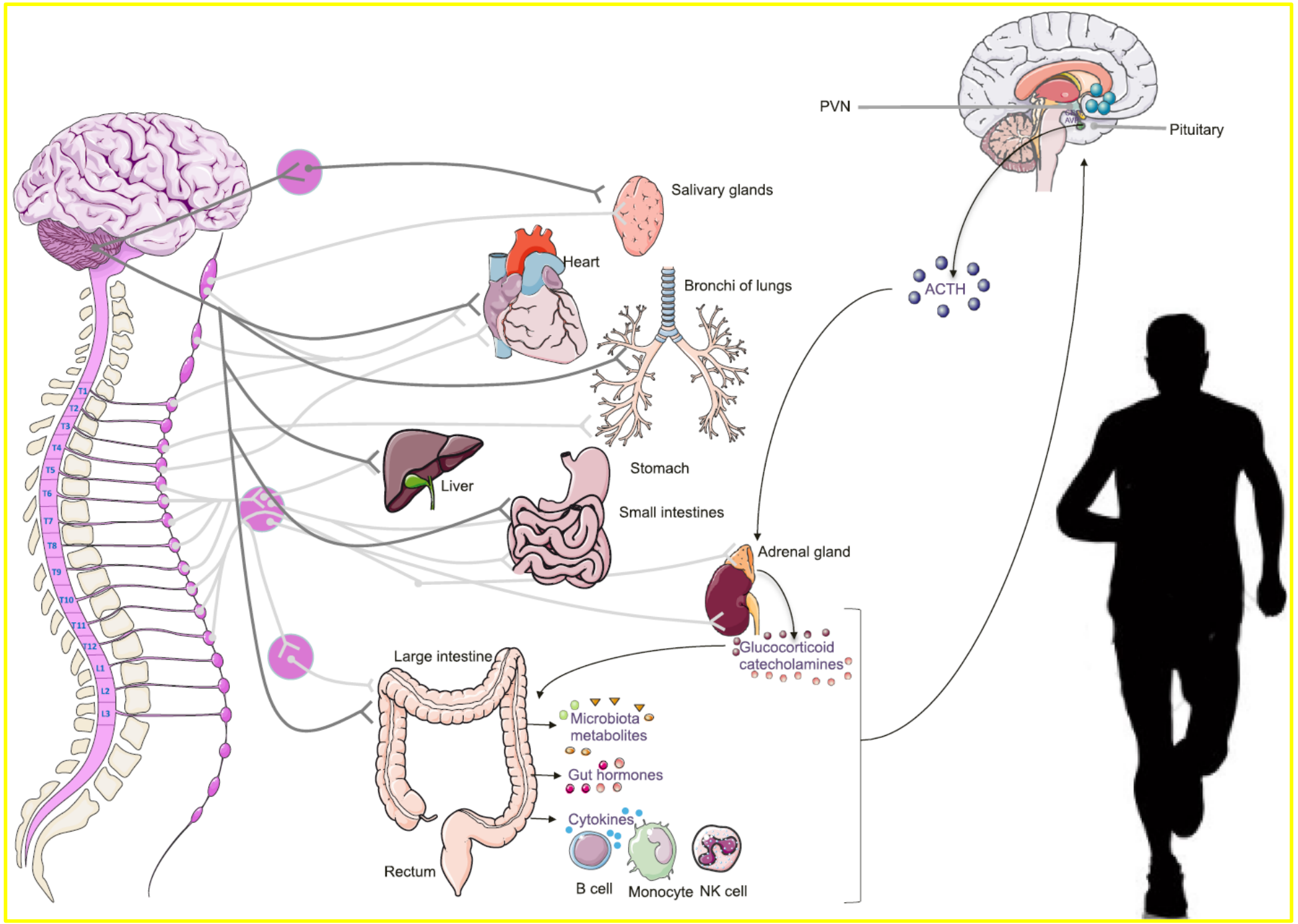
O eixo intestino cérebro



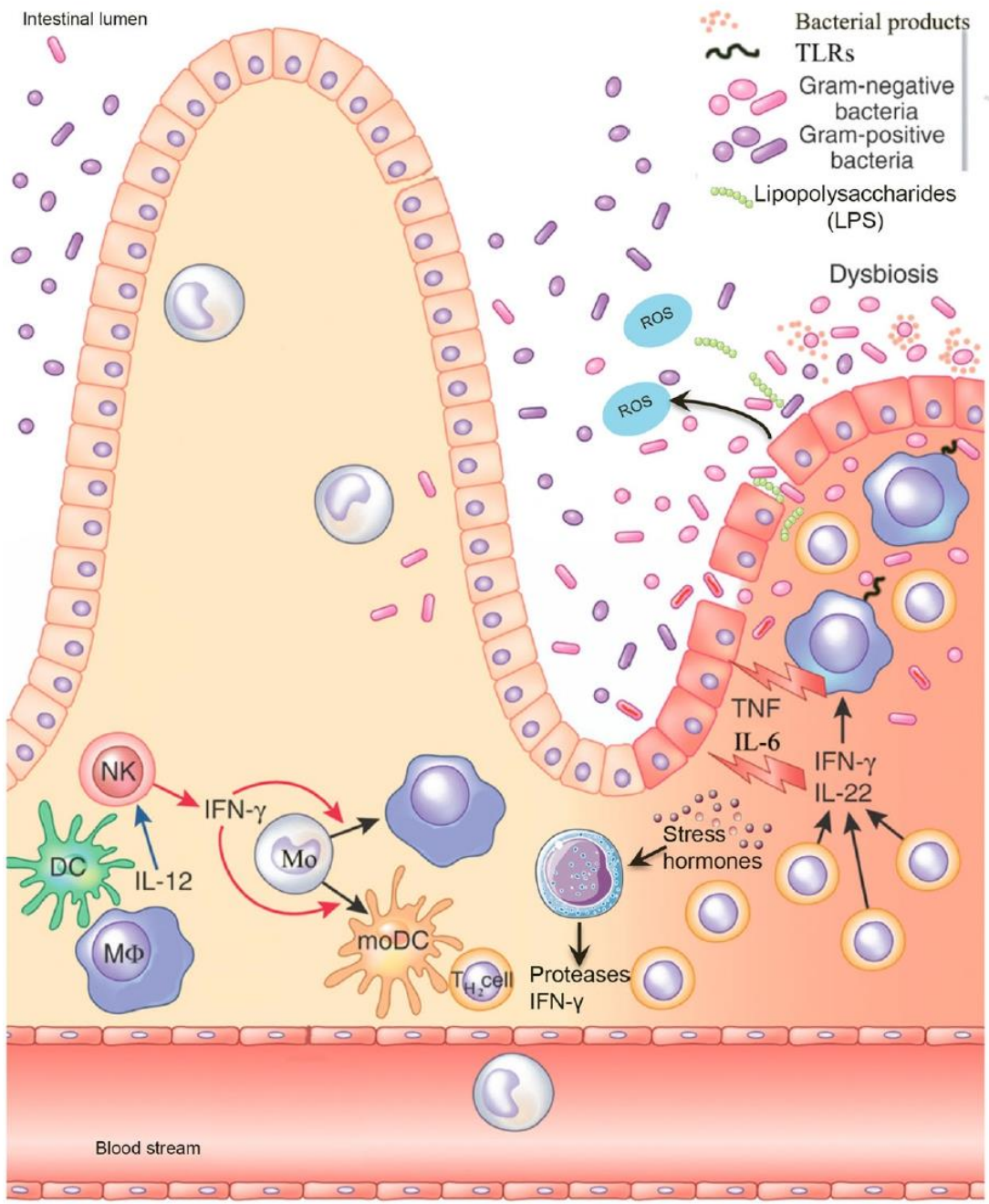


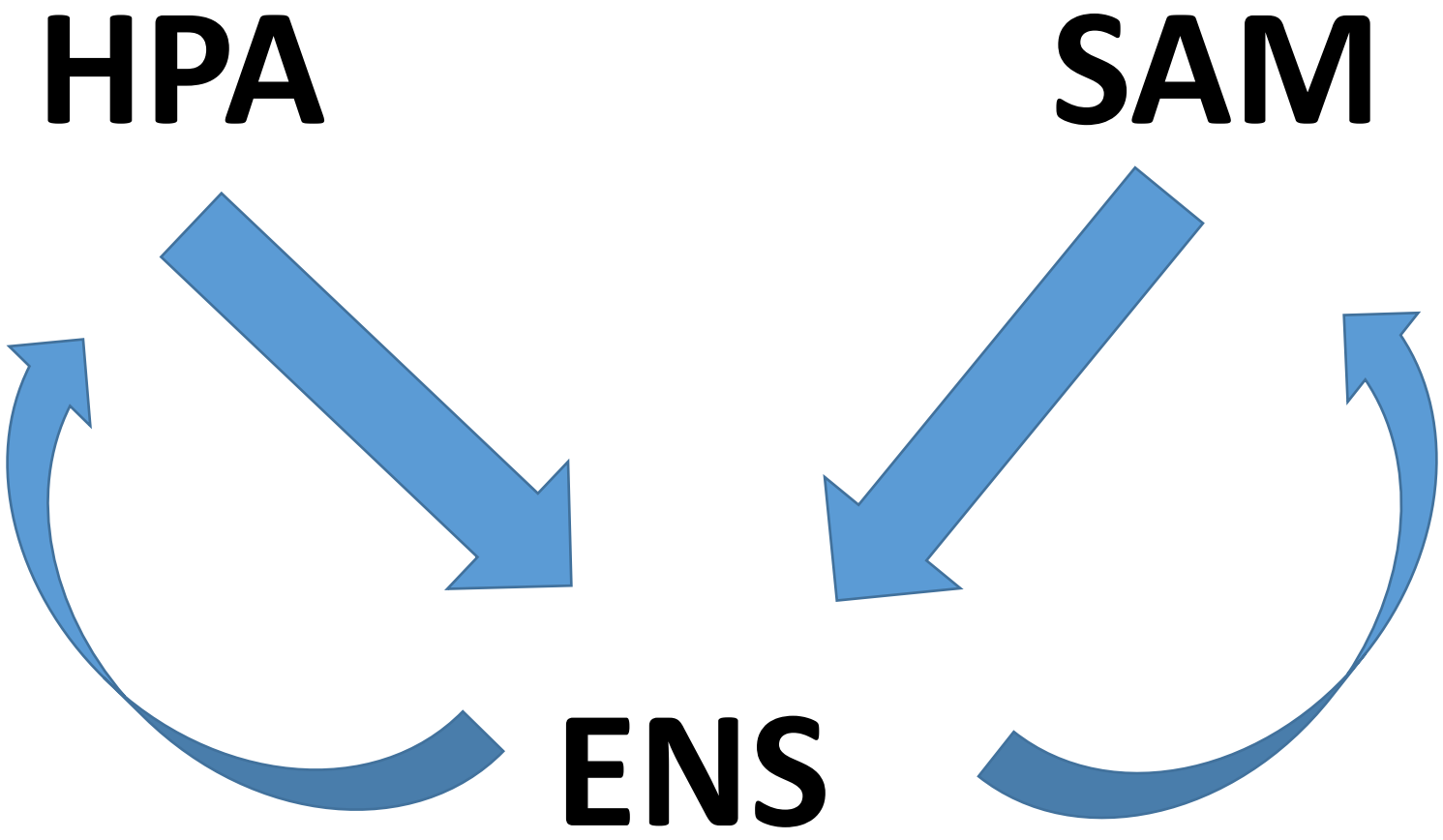

psych
scene
Limbic system

Via de mão dupla



Estresse causado por exercícios intensos e constantes



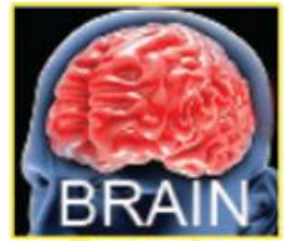

HPA
SAM
ENS

IBDs e IBSs em atletas

IBDs

IBSs

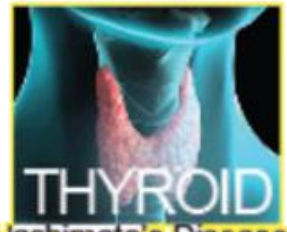
Acne
Rosacea
Eczema
Psoriasis



Depression
Anxiety
ADH Disorder
Dementia

Frequent Colds
Alergies

Food Sensitivities
Heartburn

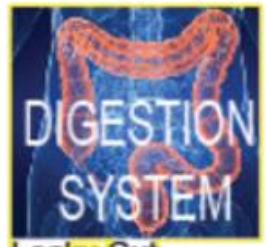


Hashimoto's Disease
Hypothyroidism

Disbiose

Appetite
Metabolism

Cardiovascular Disease

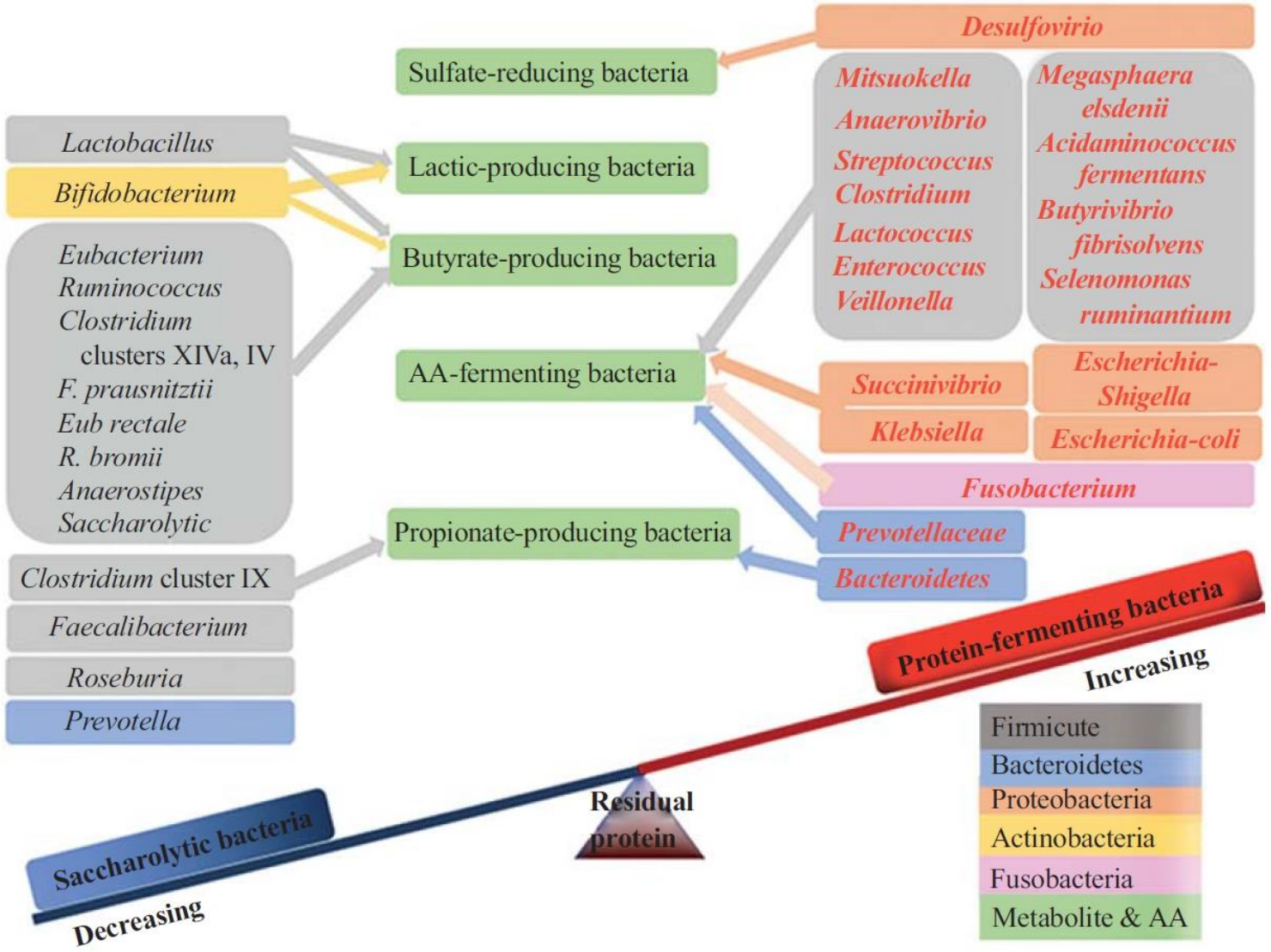


Leaky Gut
Diarrhea
Infl. Bowel Disease
Constipation

Immune Disorders
Low Body Protection
From Diseases

Rheumatoid Arthritis
Fibromyalgija
Fatigue

Suplementação irregular

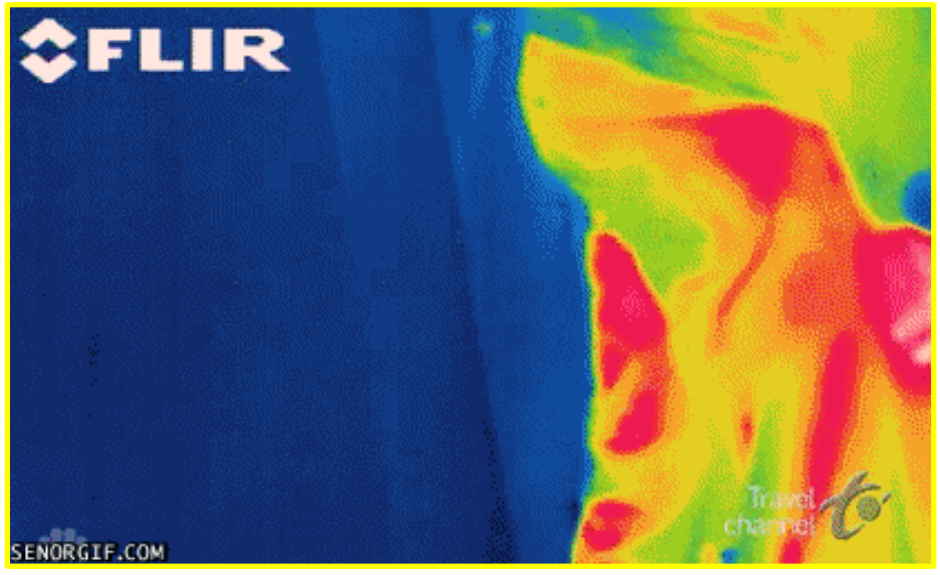


Excesso de proteínas e aminoácidos livres

Produção de gases tóxicos


MAKE GIFS AT GIFSOUP.COM


WHITE
FLIR
5/26/05 5:38:51PM


FLIR
SENORGIF.COM


MAKE GIFS AT GIFSOUP.COM

Reação de Maillard

D-aminoácidos

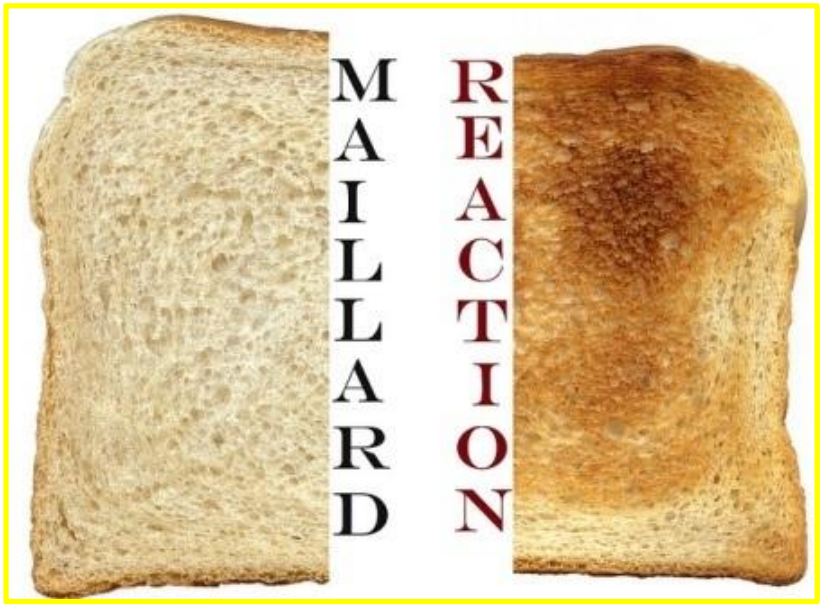
Phip

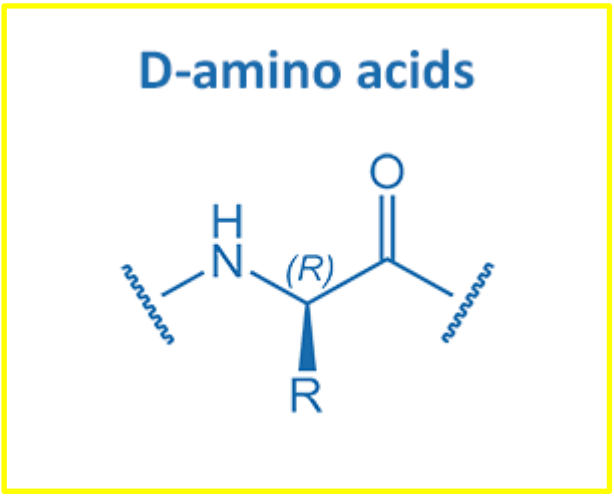
Amônia

- GABA

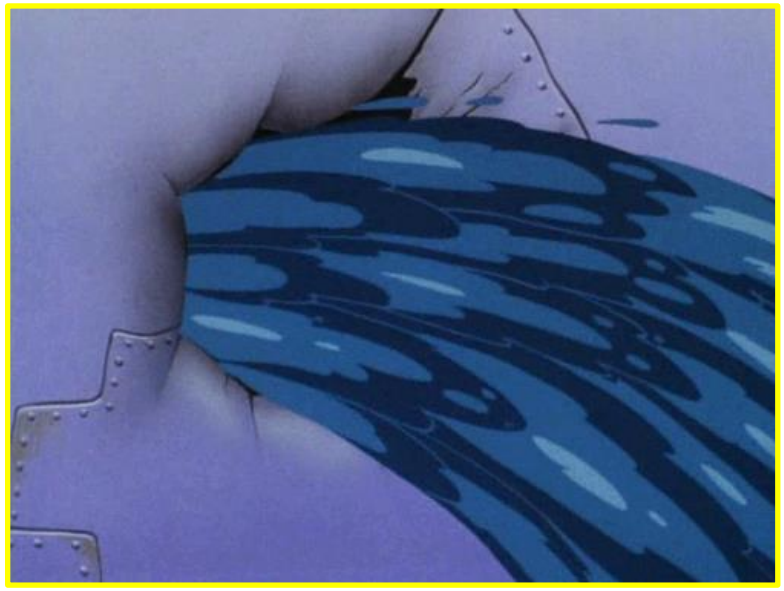
- Butirato

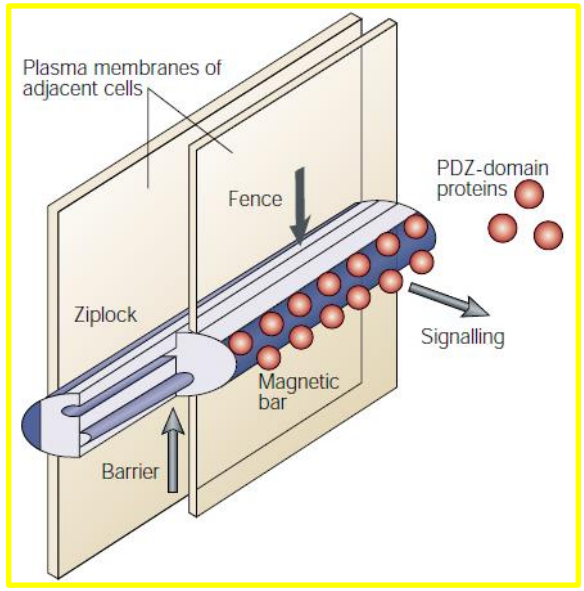
Encefalopatia hepática não alcoólica

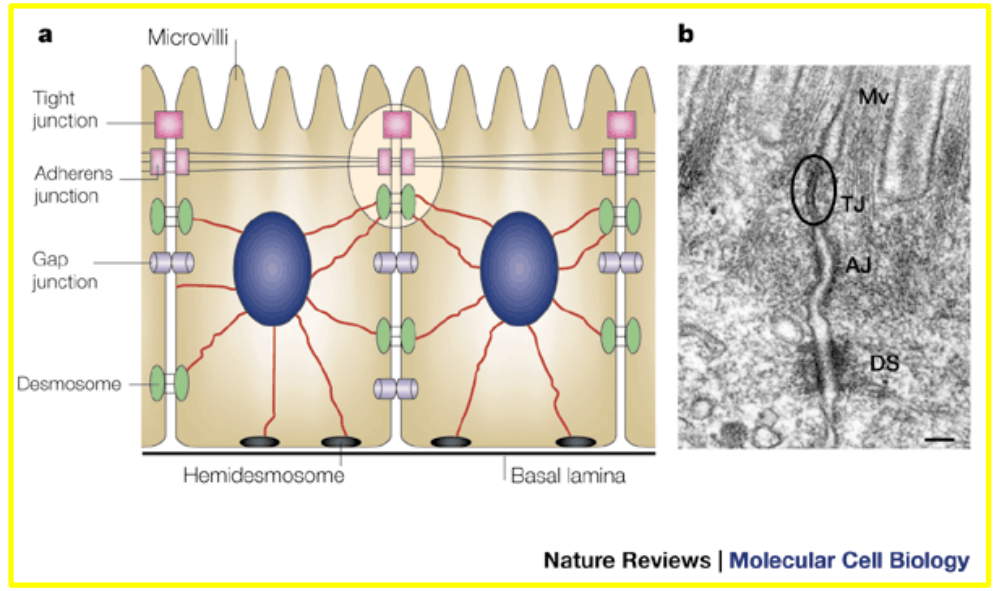




Estabelecimento do Leaky gut
(ocludina, claudina, caderinas e zonulinas)



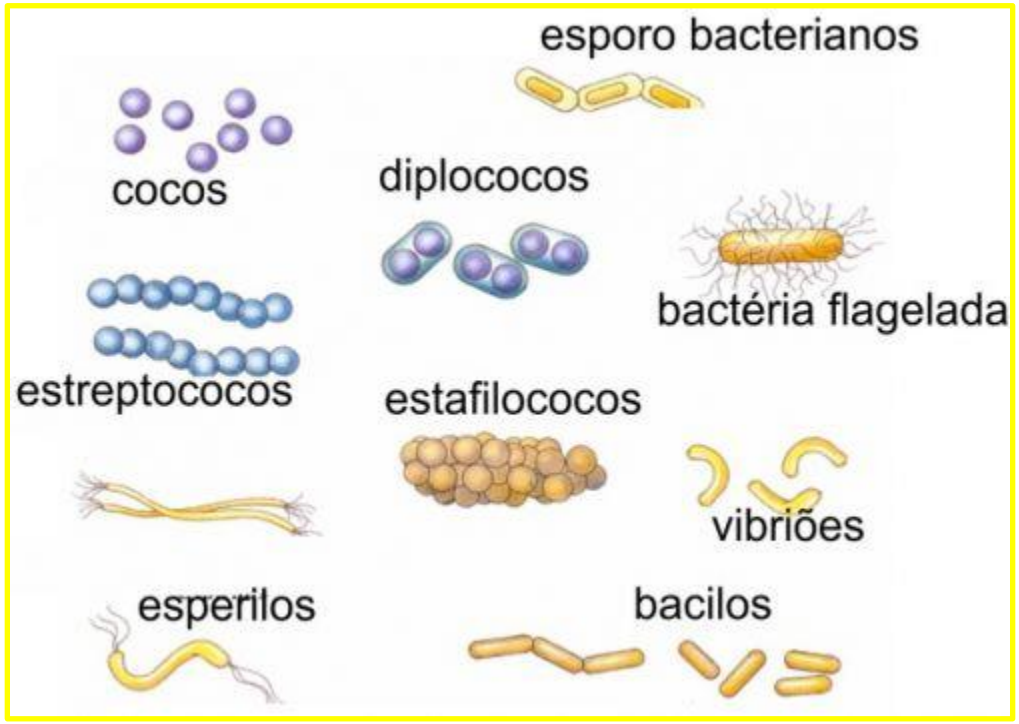


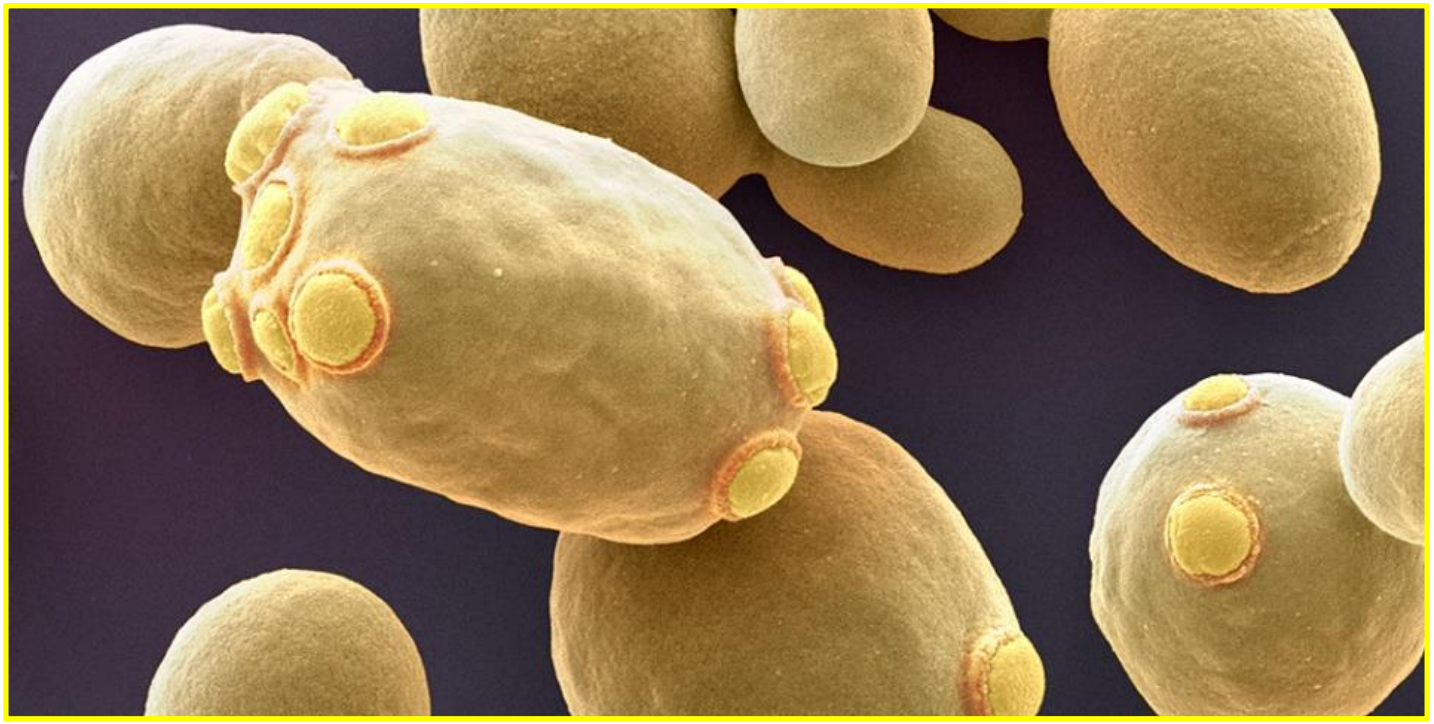


As ferramentas microbiológicas

Os probióticos e seus “postbiotics”

“Microrganismo vivo que administrado na dose correta cause benefício ao hospedeiro” (Roy Fuller 1989)



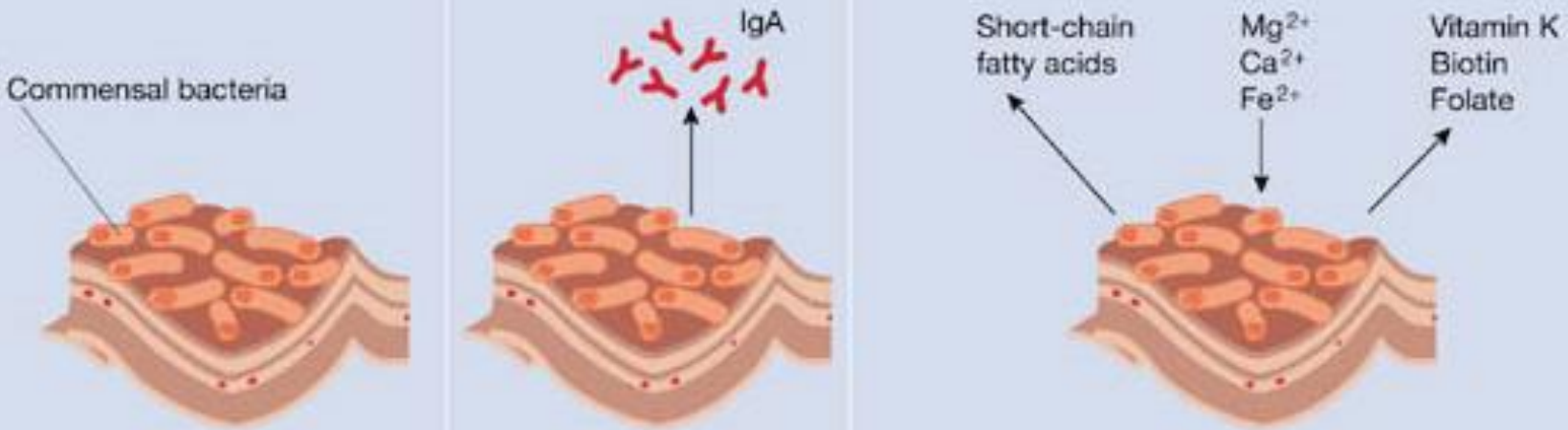


Espécie

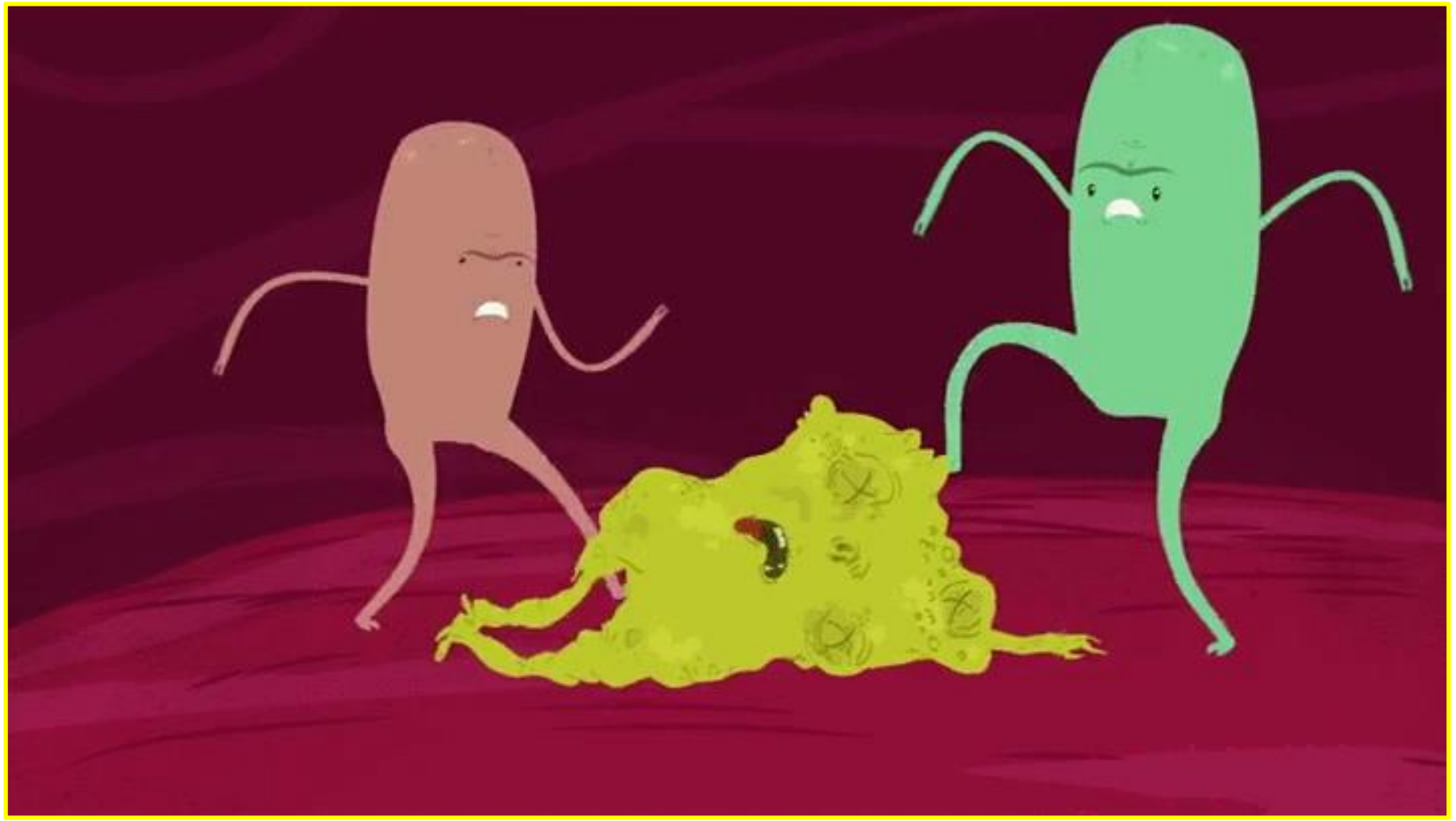
VS

Linhagem

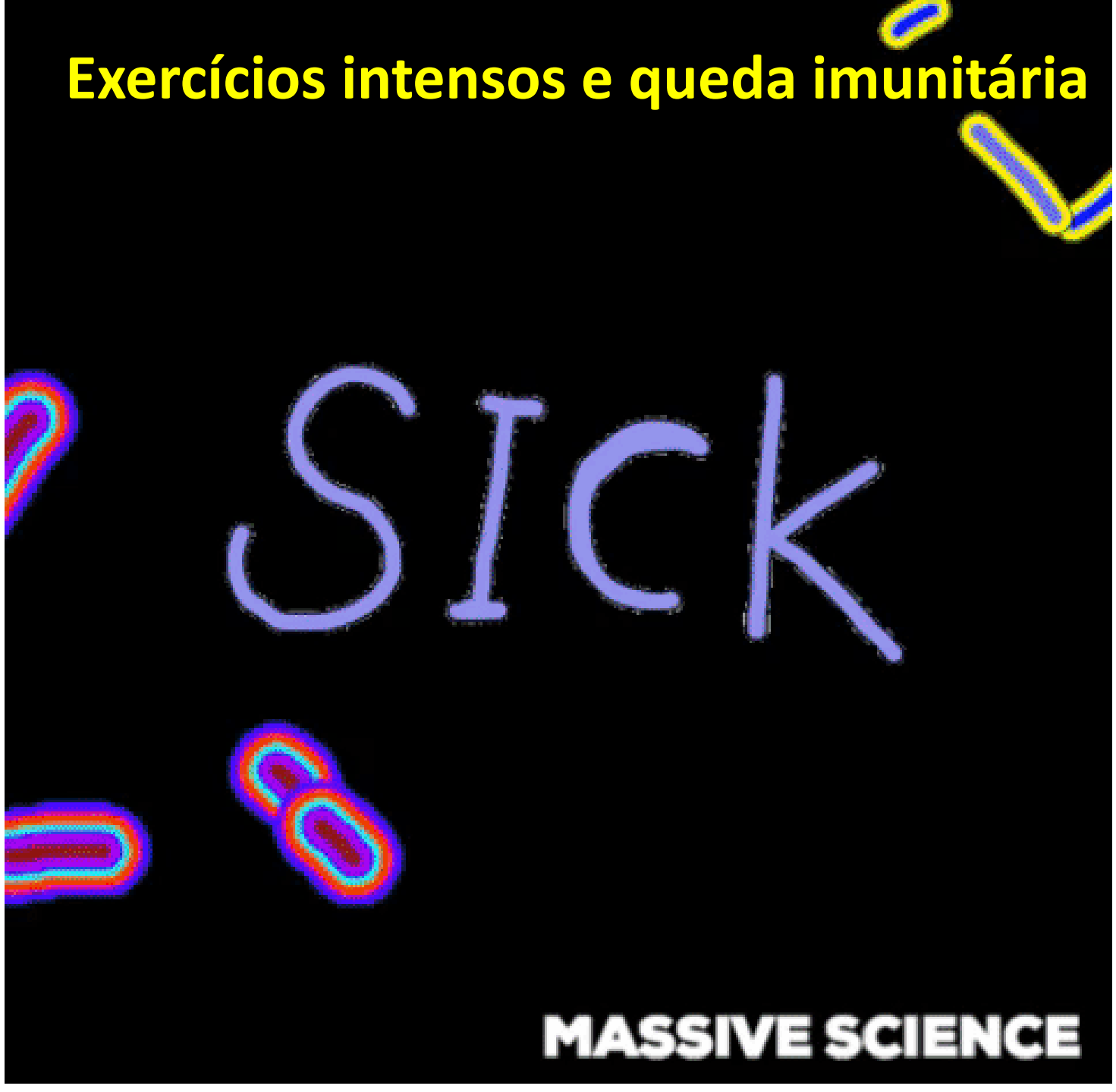
Protective functions	Structural functions	Metabolic functions	
Pathogen displacement	Barrier fortification	Control IEC differentiation and proliferation	Ferment non-digestible dietary residue and endogenous epithelial-derived mucus
Nutrient competition	Induction of IgA	Metabolize dietary carcinogens	Ion absorption
Receptor competition	Apical tightening of tight junctions	Synthesize vitamins e.g., biotin, folate	Salvage of energy
Production of anti-microbial factors e.g., bacteriocins, lactic acids	Immune system development		



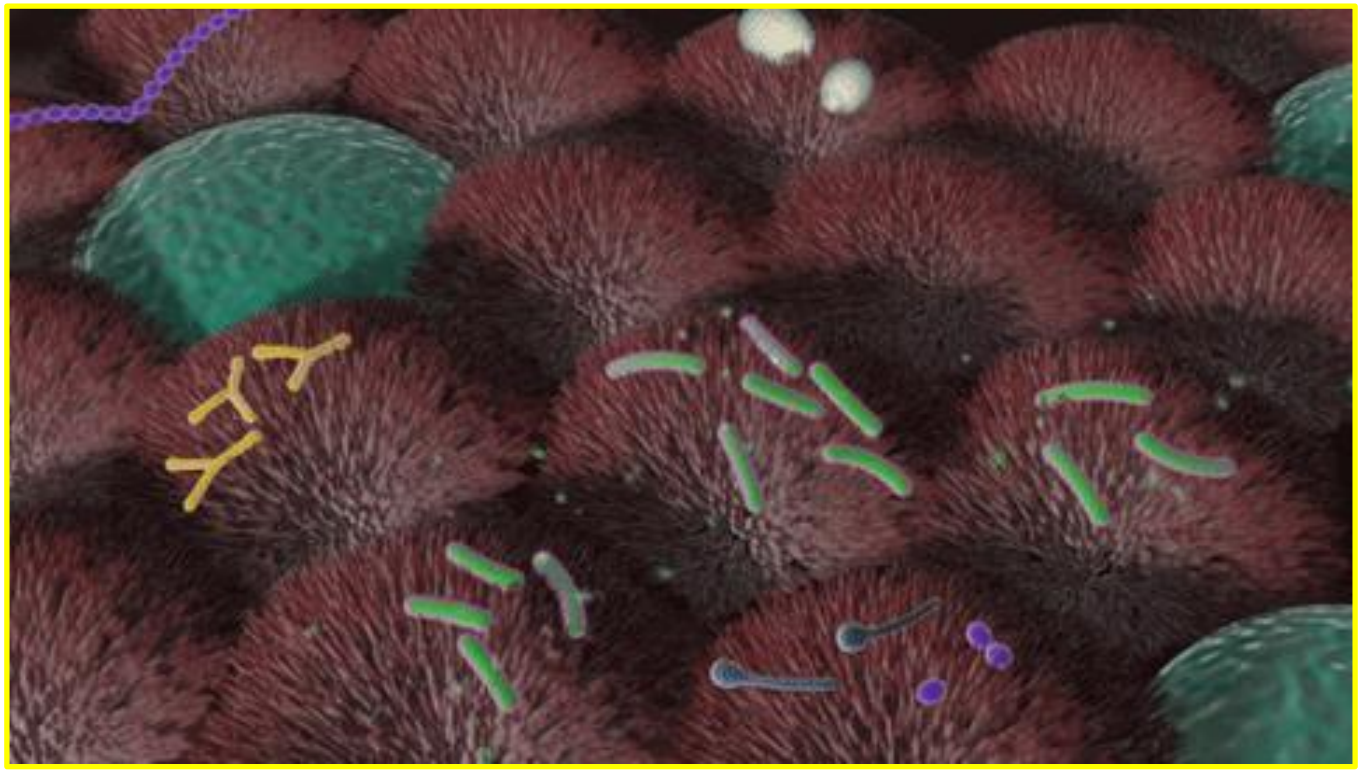
Realocação de patógenos



Exercícios intensos e queda imunitária



Aumento da imunidade



International Journal of Sport Nutrition and Exercise Metabolism, 21, 2011, 55-64

Daily Probiotic's (*Lactobacillus casei* Shirota) Reduction of Infection Incidence in Athletes

Michael Gleeson, Nicolette C. Bishop, Marta Oliveira, and Pedro Tauler

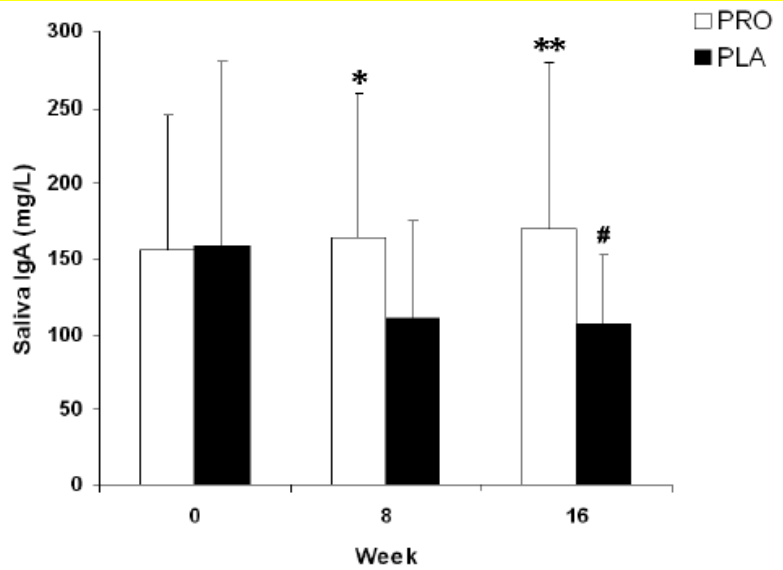


Figure 2 — Saliva IgA concentration before and after 8 and 16 weeks of the study for the subjects who completed the study and for whom saliva samples were obtained on all three visits (PRO $n = 32$, PLA $n = 24$), $M \pm SD$. Saliva IgA concentration was higher on PRO than PLA, significant trial effect $F(1, 54) = 5.1$, $p = .03$; this difference was not evident at baseline but was significant after 8 and 16 weeks of supplementation (*$p < .05$; **$p < .01$). PLA = placebo; PRO = probiotic. #$p < .05$ versus Week 0.

Contents lists available at ScienceDirect

Journal of Science and Medicine in Sport

journal homepage: www.elsevier.com/locate/jsams

Original research

Probiotic supplementation reduces the duration and incidence of infections but not severity in elite rugby union players

Brylee A. Haywood [a], Katherine E. Black [a,*], Dane Baker [b], James McGarvey [b], Phil Healey [b], Rachel C. Brown [a]

International Journal of Sport Nutrition and Exercise Metabolism, 2012, 22, 235-242

Effects of a *Lactobacillus salivarius* Probiotic Intervention on Infection, Cold Symptom Duration and Severity, and Mucosal Immunity in Endurance Athletes

Michael Gleeson, Nicolette C. Bishop, Marta Oliveira, Tracey McCauley, Pedro Tauler, and Claire Lawrence

Table 2 Total and Differential Leukocyte Counts (Cells × 10^9/L) Before and After 8 and 16 Weeks of the Intervention, *M* (*SD*)

	Before	8 weeks	16 weeks	*p* (interaction, time, treatment)
Leukocytes				
placebo, $n = 25$	5.50 (1.35)	5.52 (1.47)	5.60 (1.21)	.970, .460, .802
probiotic, $n = 22$	5.56 (1.24)	5.57 (1.28)	5.77 (1.04)	
Neutrophils				
placebo	2.96 (1.11)	2.97 (1.14)	2.87 (0.80)	.883, .997, .119
probiotic	2.59 (0.76)	2.57 (0.77)	2.65 (0.83)	
Monocytes				
placebo	0.48 (0.11)	0.47 (0.15)	0.49 (0.15)	.797, .748, .651
probiotic	0.48 (0.13)	0.50 (0.19)	0.50 (0.13)	
Lymphocytes				
placebo	1.84 (0.42)	1.87 (0.52)	1.99 (0.46)	.957, .013[a], .014[a,b]
probiotic	2.18 (0.54)	2.22 (0.66)	2.36 (0.61)	

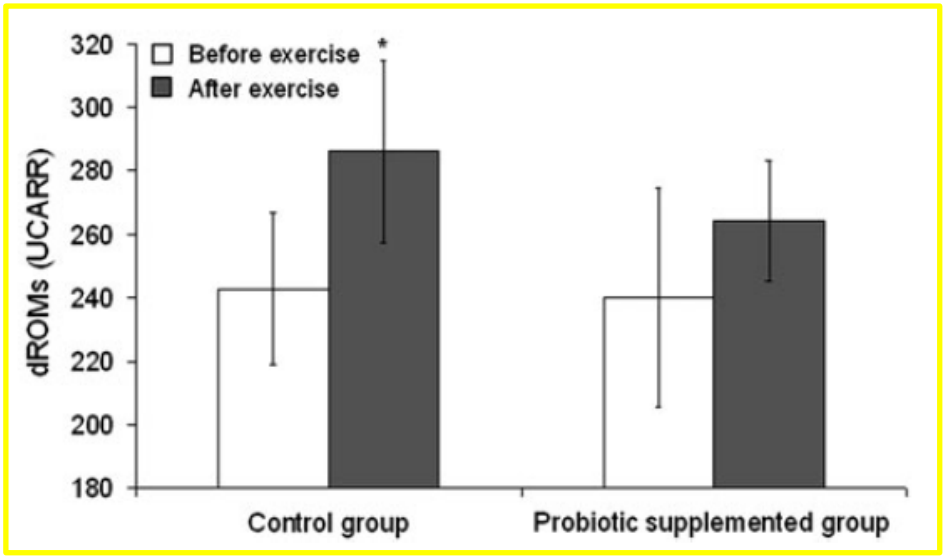
[a]Before > 16 weeks, $p = .010$. [b]Probiotic > placebo.

Efeito antioxidante

Curr Microbiol (2011) 62:1689–1696
DOI 10.1007/s00284-011-9915-3

Effect of a Probiotic Intake on Oxidant and Antioxidant Parameters in Plasma of Athletes During Intense Exercise Training

Daniele Martarelli · Maria Cristina Verdenelli · Stefania Scuri · Mario Cocchioni · Stefania Silvi · Cinzia Cecchini · Pierluigi Pompei



Research Article

Antioxidant and free radical scavenging activities of an exopolysaccharide from a probiotic bacterium

Vidya Prabhakar Kodali and Ramkrishna Sen

Department of Biotechnology, Indian Institute of Technology, Kharagpur, West Bengal, India

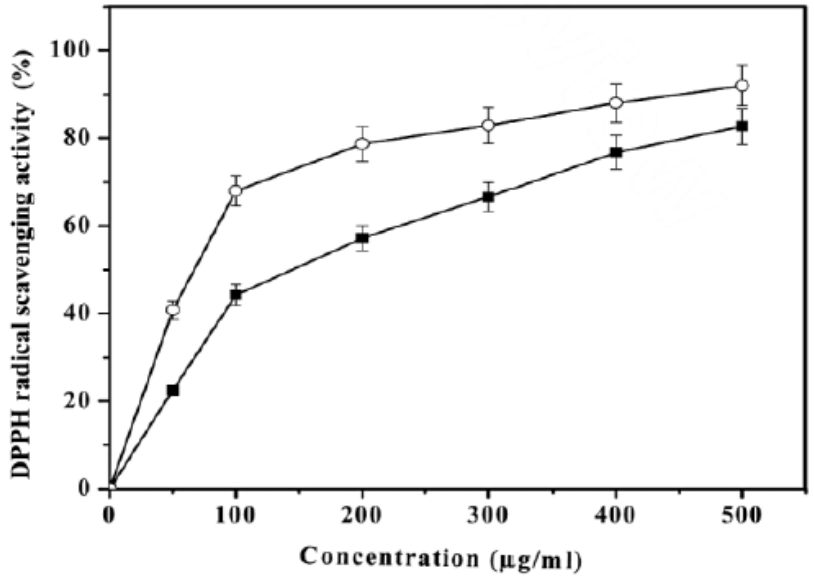


Figure 4. Scavenging effects of EPS against DPPH· radical with vitamin C used as positive control. Values are means of triplicates ± SD. EPS (■), vitamin C (○).

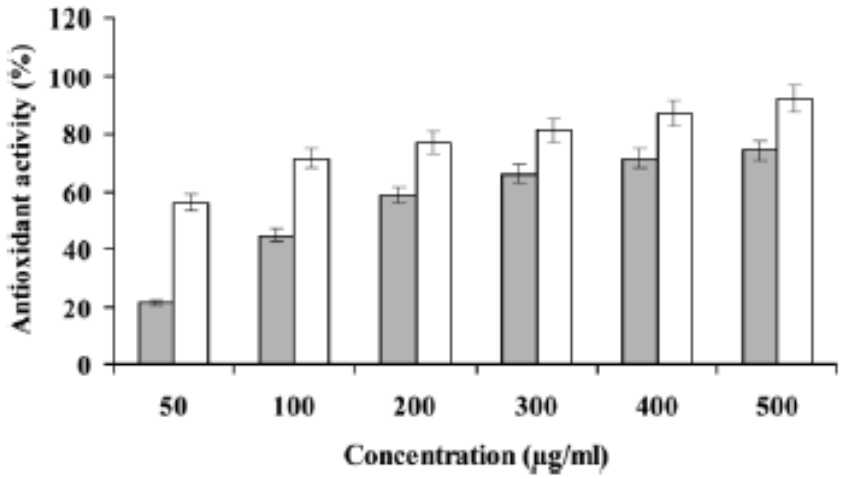


Figure 2. Antioxidant activity of EPS in β-carotene-linoleic acid model system with vitamin C used as positive control. Values are means of triplicates ± SD. EPS (■), vitamin C (□).

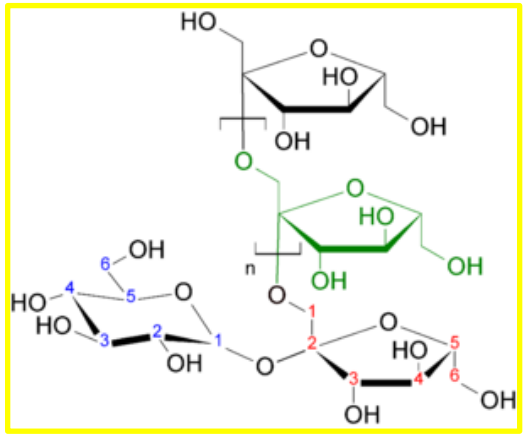
Os Pscicobióticos, os Flavobióticos e os Cosmebióticos

Ainda não são termos científicos

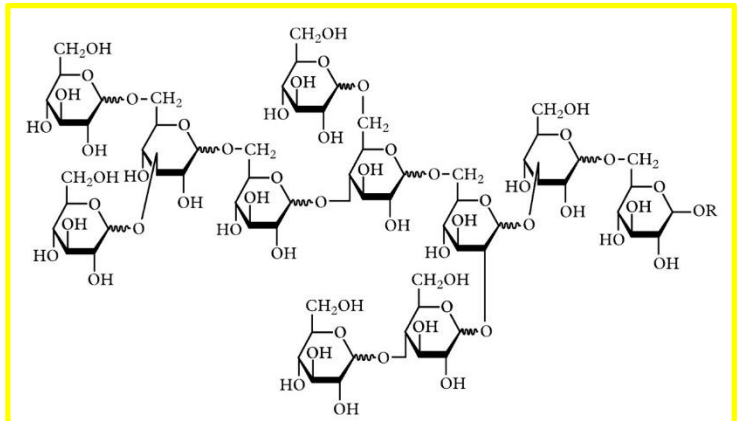
Prebióticos:
“Qualquer fibra solúvel que promova o crescimento de probioticos”

Fibra solúvel:
“Qualquer carboidrato não digerível e fermentável.”

Inulina



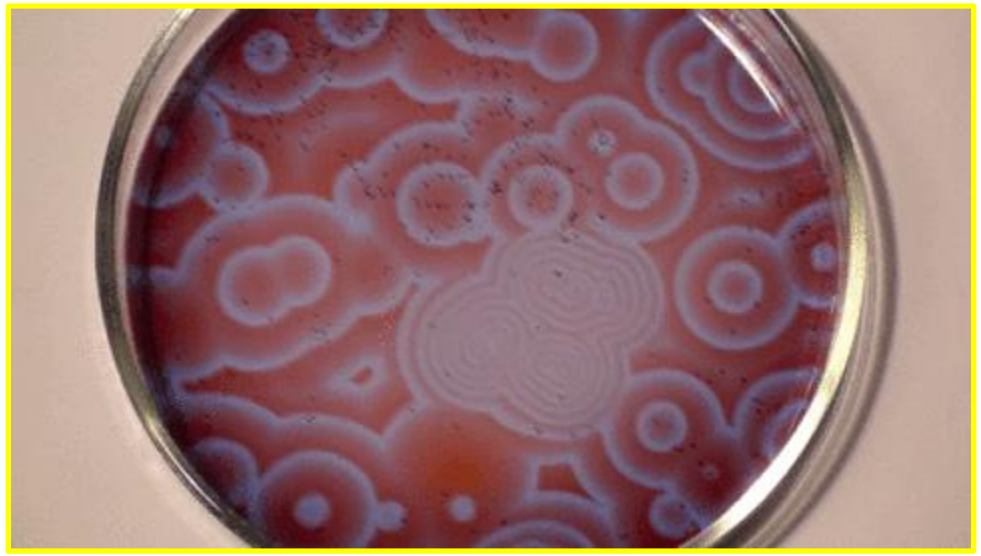
Polidextrose



Alimentação

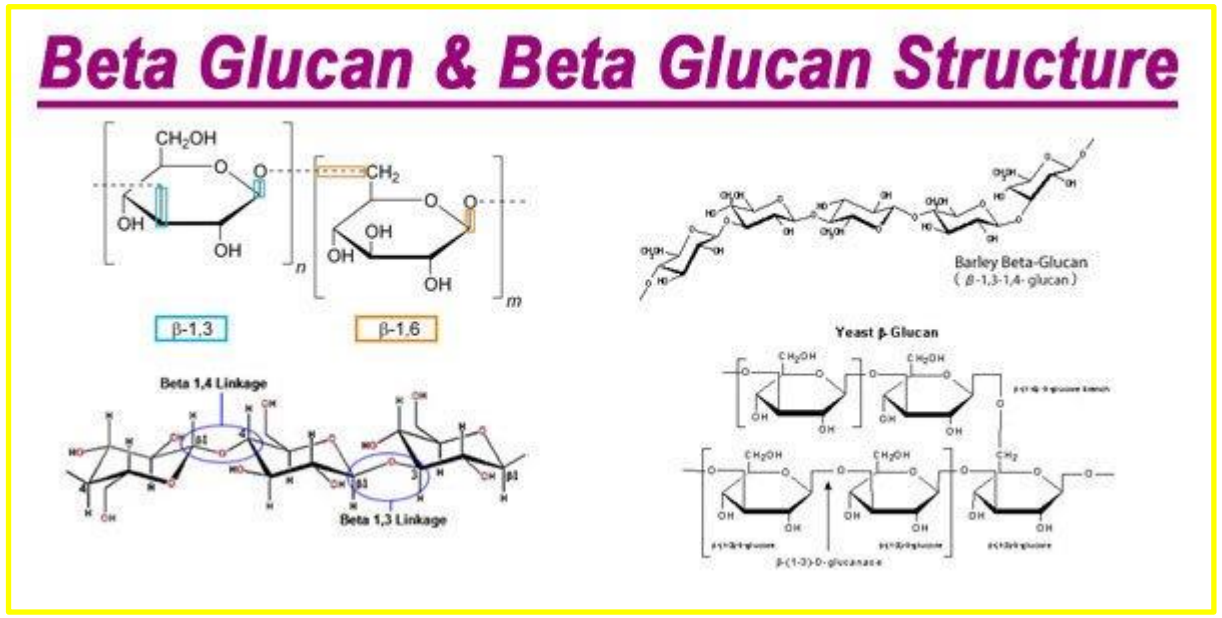
Fermentação

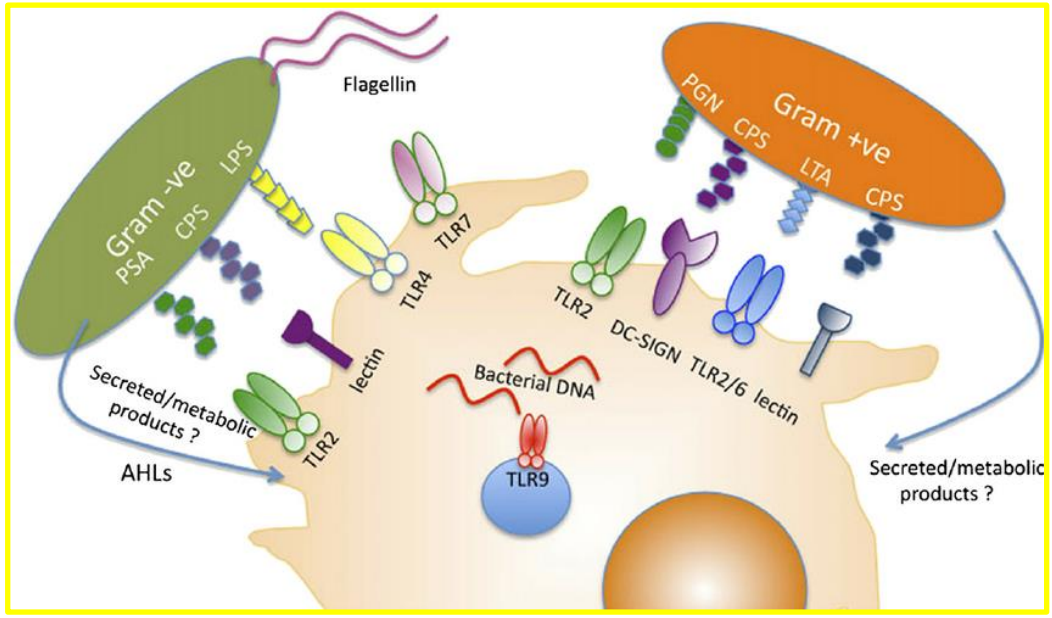
Meio de cultura para nossas bactérias

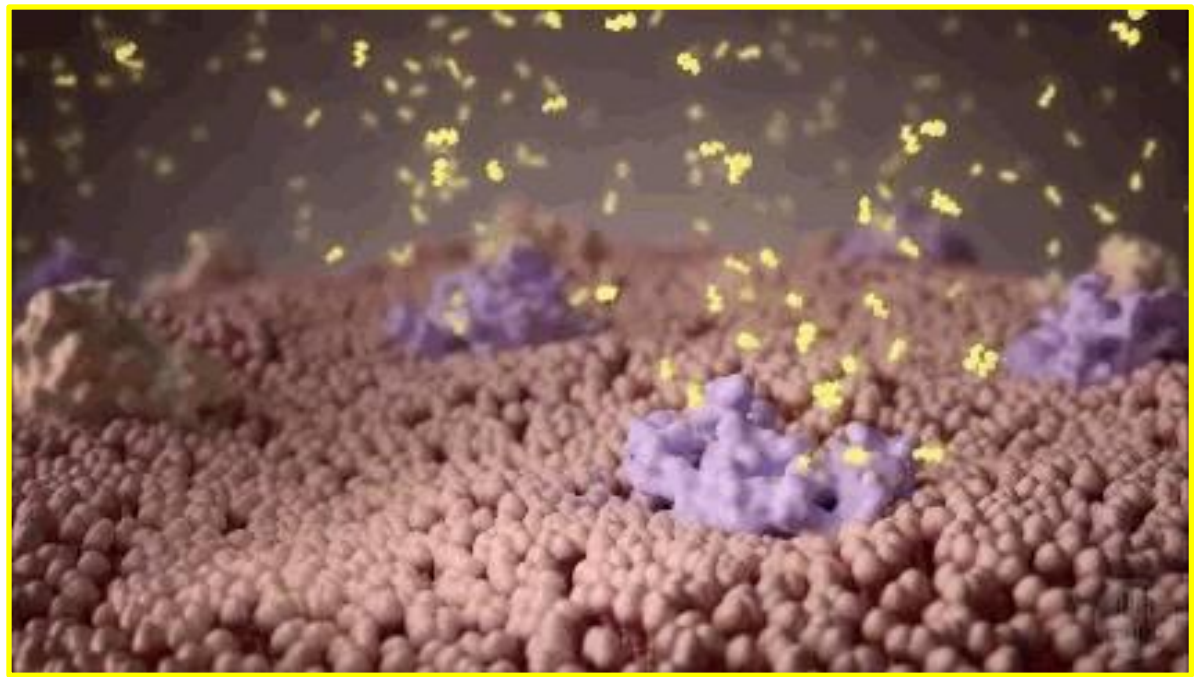


Paraprobióticos e as “Partículas microbianas”

MAMPs, (microbe associated molecular patterns)
PAMPs, (Pathogen associated molecular patterns)







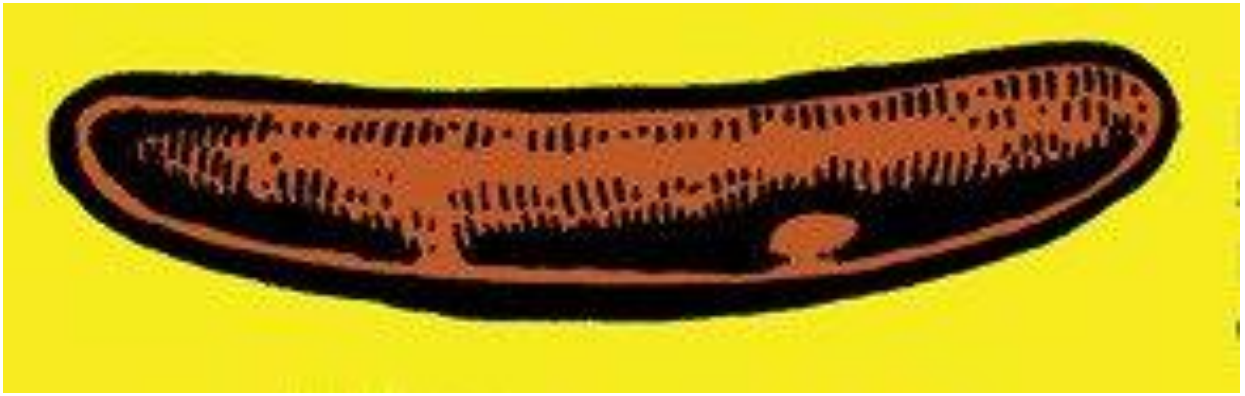

gifilike.com

The Bristol 4 project

Em busca do cocô perfeito!

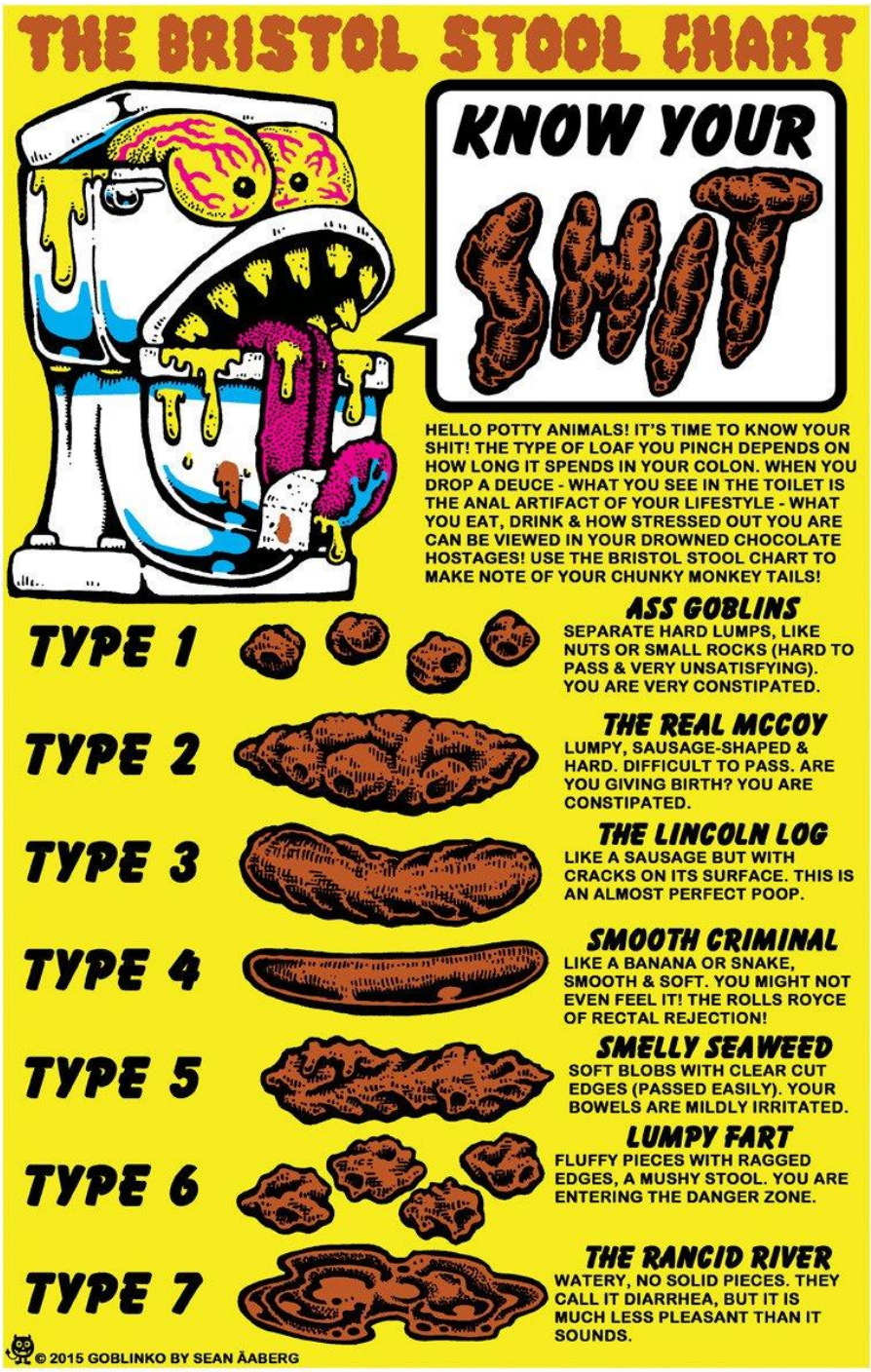
PROJETO

BRISTOOL 4



SMOOTH CRIMINAL

LIKE A BANANA OR SNAKE, SMOOTH & SOFT. YOU MIGHT NOT EVEN FEEL IT! THE ROLLS ROYCE OF RECTAL REJECTION!



Anamnese:

- **Nascimento: Cessária ou parto norma?**

- **Infância: Muitos acometimentos alérgicos?**
- **Rinites, Otites, Sinusites, dermatites.**
-
- **Antibióticoterapia? Quais?**

- **Corticóides?**

- **Consistência Fecal**

Flutua?

Difícil higiene?

Cheiro?

Gases?

Dores? Alivia com a evacuação?

Intestino solto ou preso? Quantas vezes Evacua ao dia?

Meteorismo?

Cor

ho'oponopono


havaianas
37/38
havaianas
37/38

ho'oponopono colônico

Microbiota sinto muito

Microbiota me perdoe

Microbiota sou grato

Microbiota EU TE AMO!

OBRIGADO PELA ATENÇÃO

@BrunoZylber