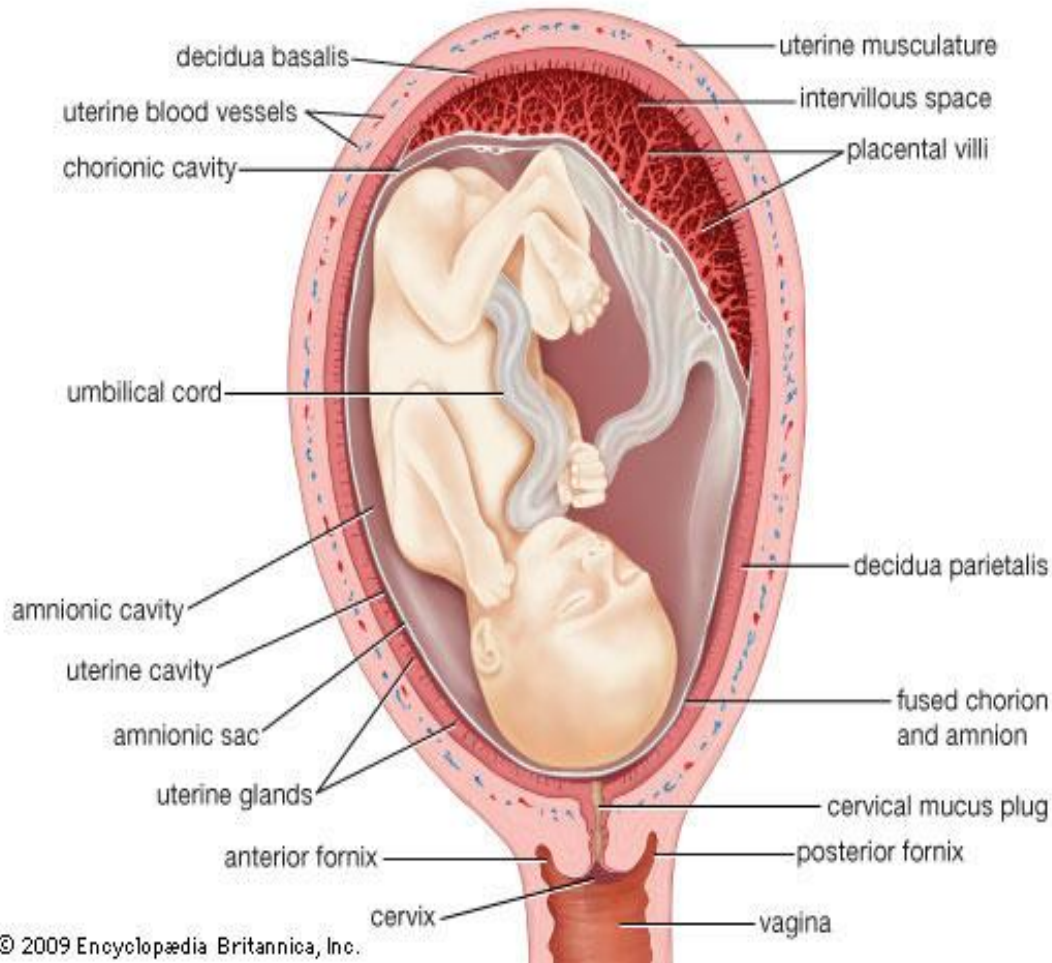




Bebek Beslenmesinde Güncel Yaklaşımlar

Dr. Funda ÖZGENÇ

Sinbiyotikler



1. Korunma
2. Beslenme
3. Detoksifikasyon

Sinbiyotikler



1. Korunma
2. Beslenme
3. Detoksifikasyon

Esopl

ids

GİS → *Patojen

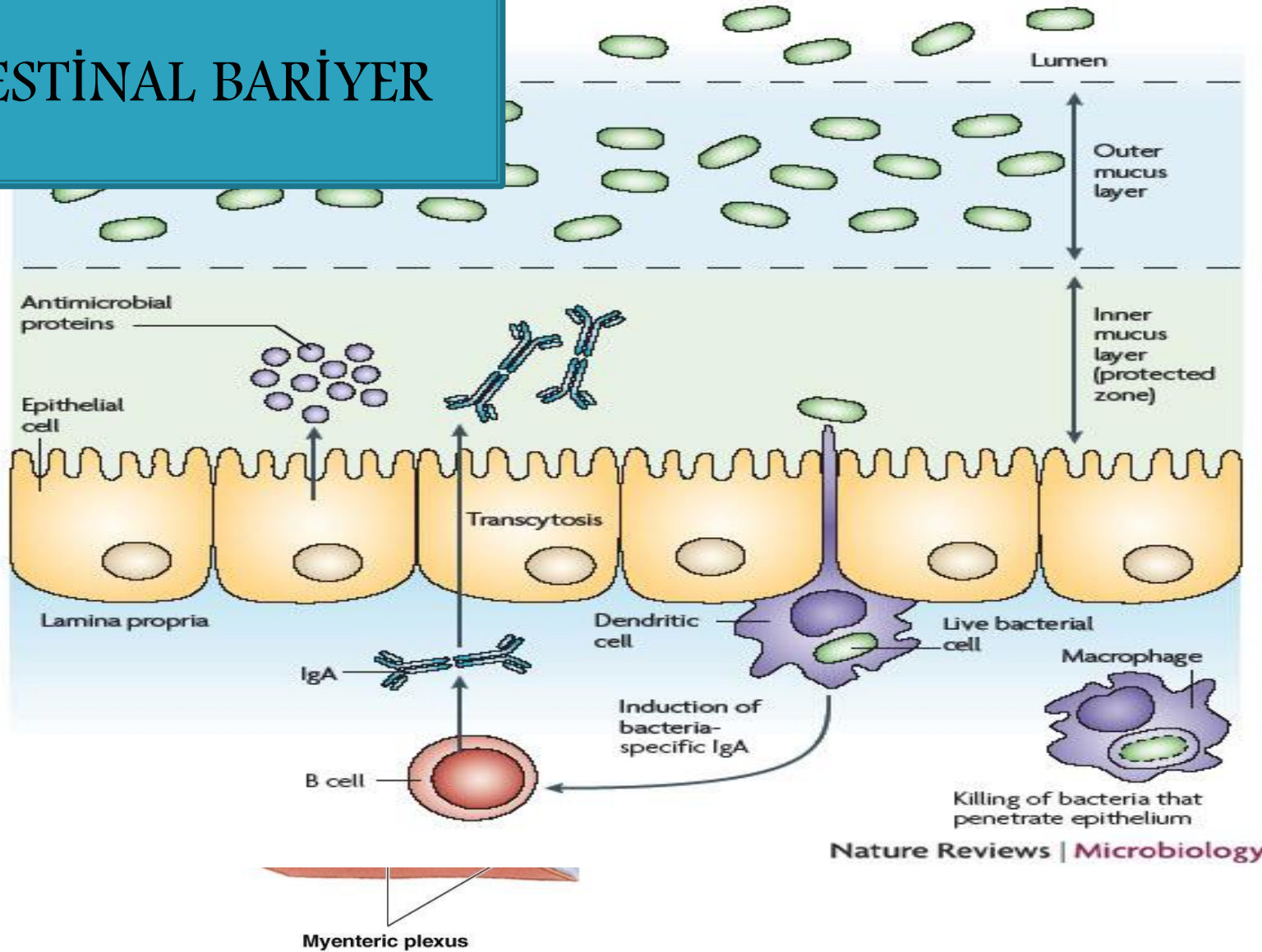
*Diyet antijenleri

AYIRT EDER

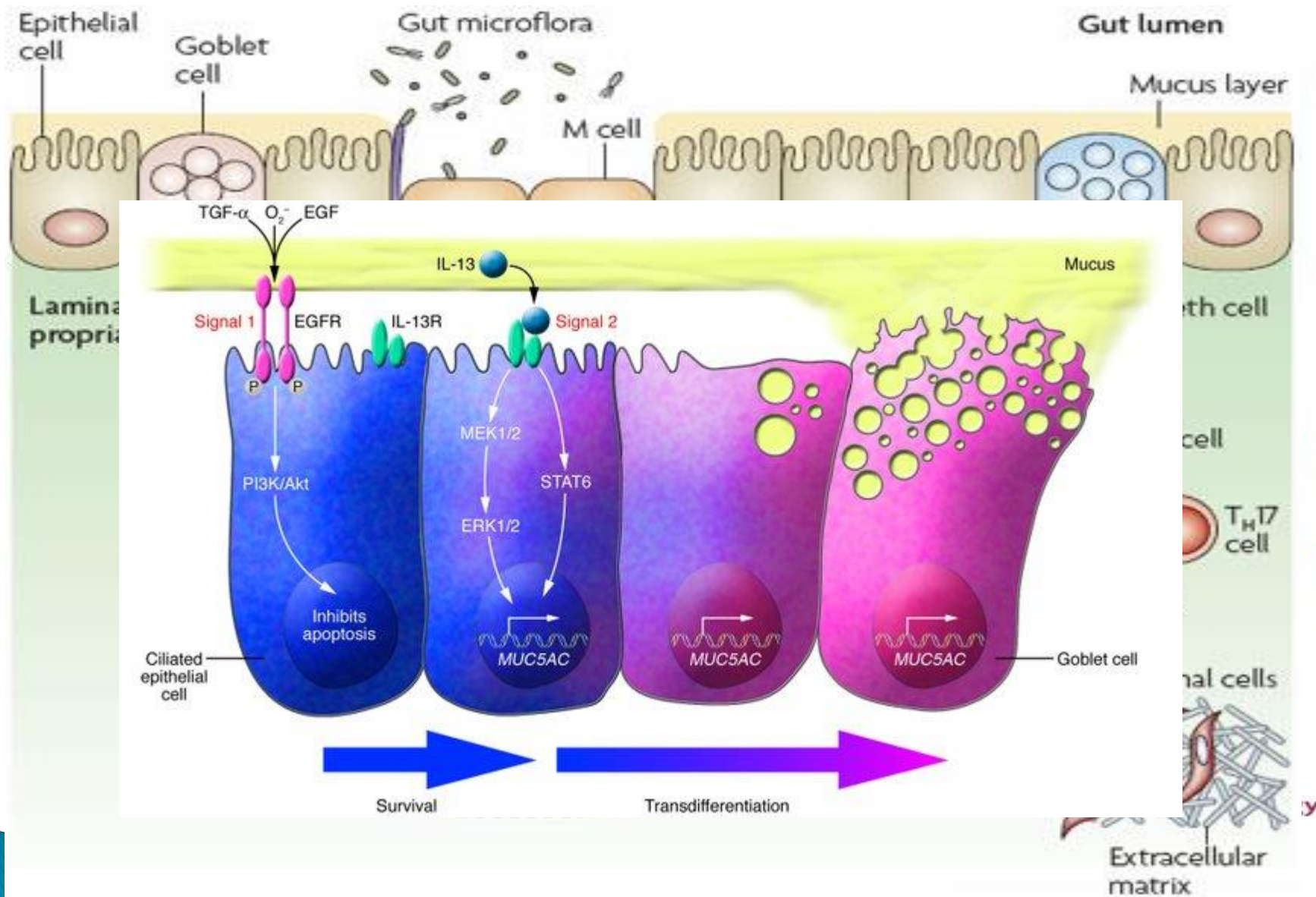
C
App

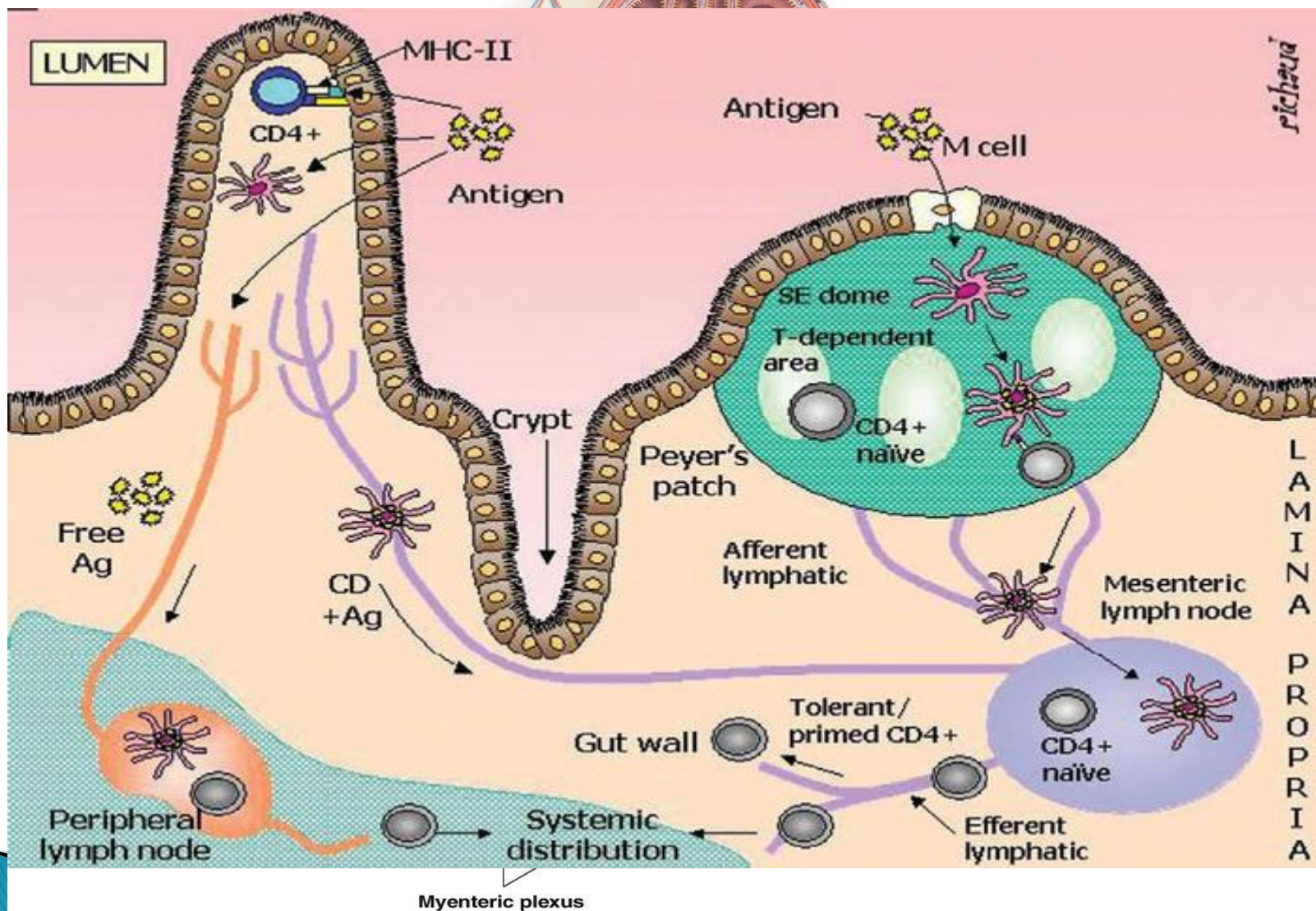
400 m2

İNTESTİNAL BARİYER

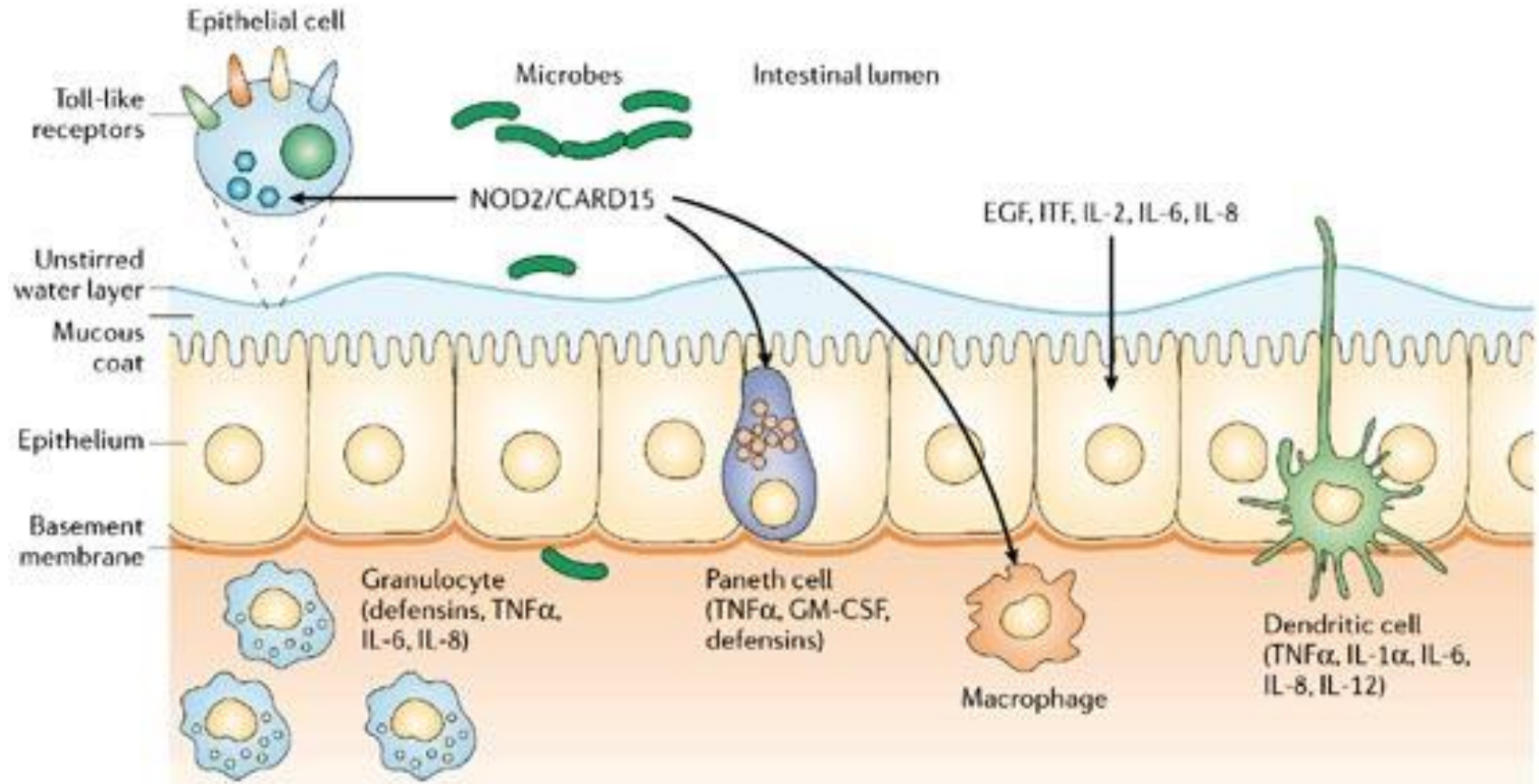


Nature Reviews | Microbiology

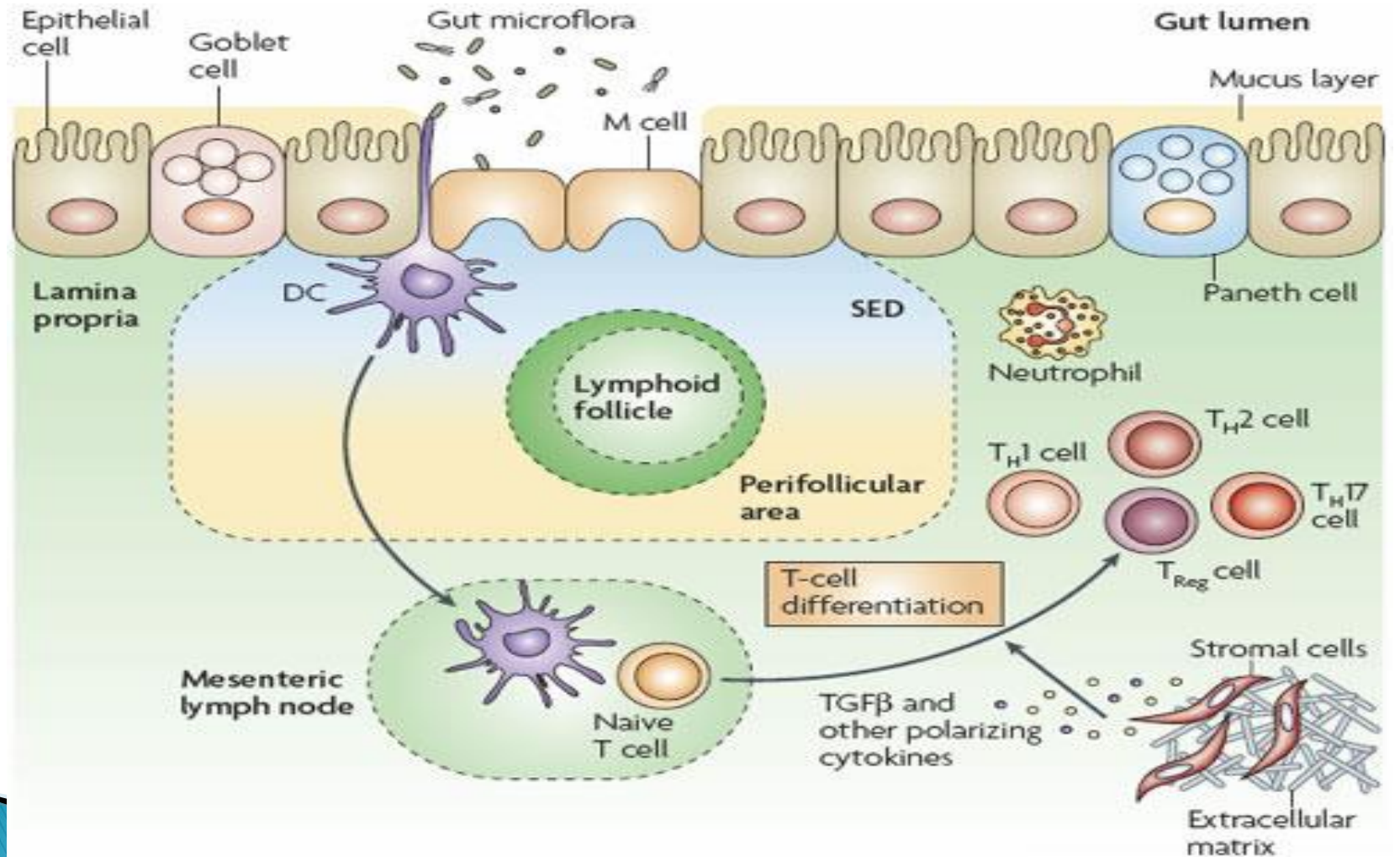


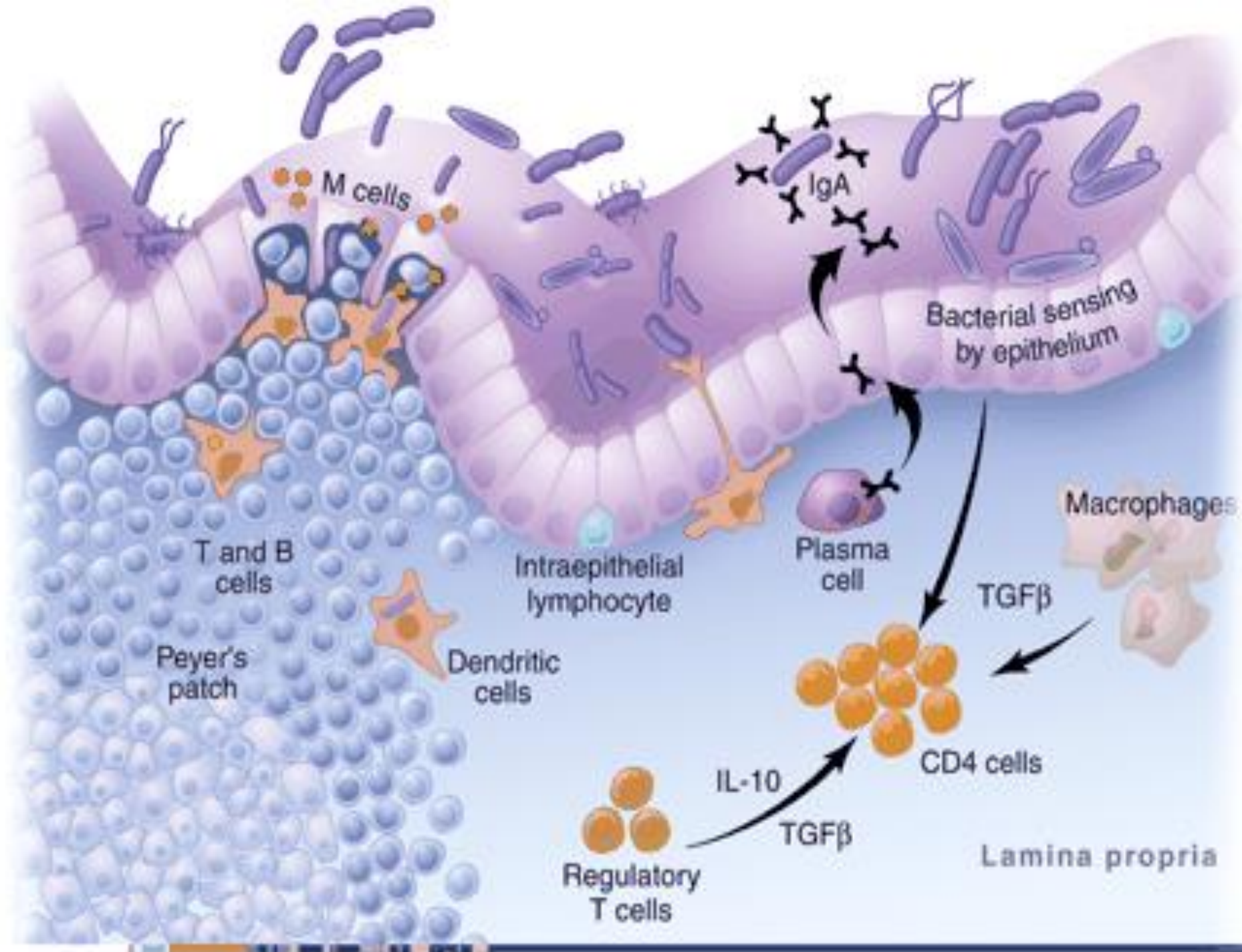


Mukozaal immun yanıt / DOĞAL

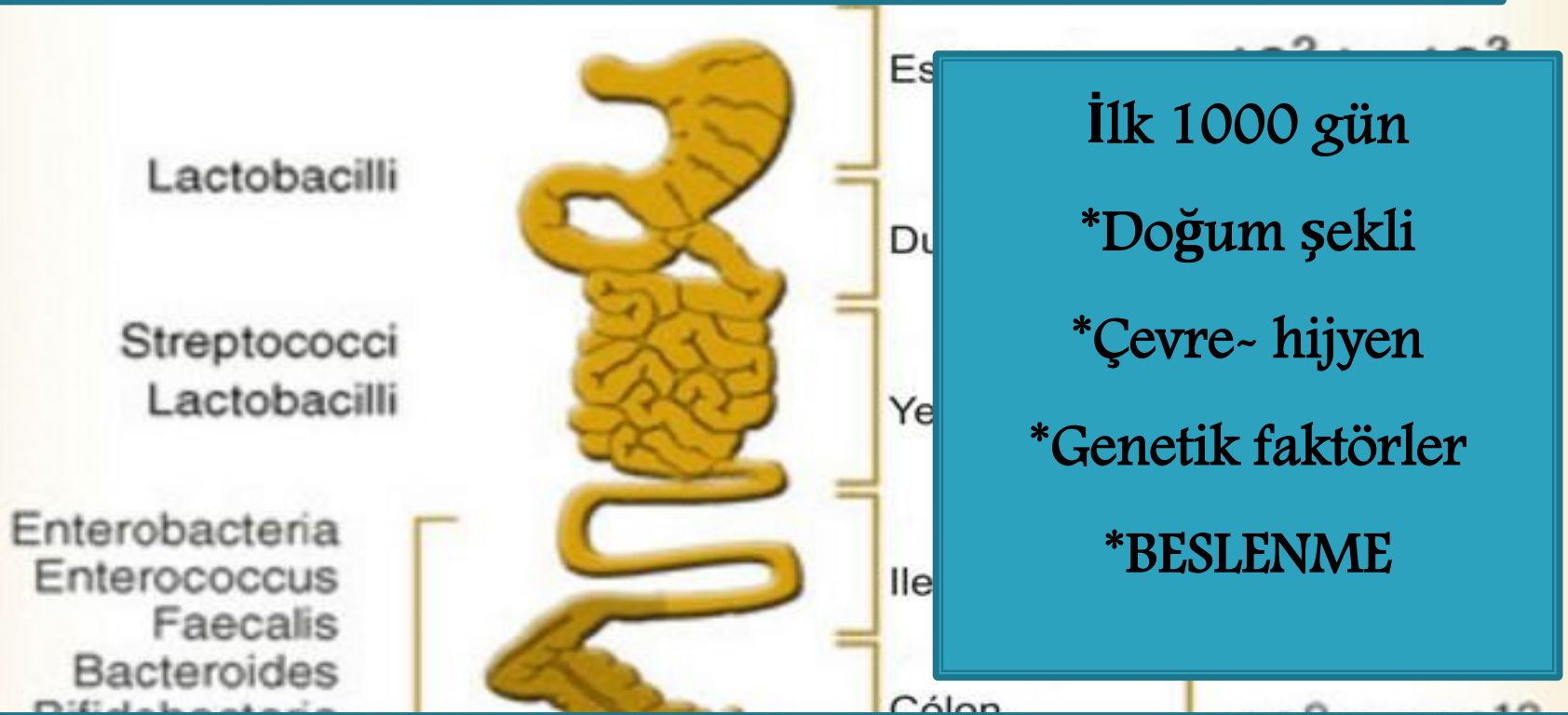


Mukozaal immun yanıt / KAZANILMIŞ





MİKROBİOTA



PROBİYOTİK

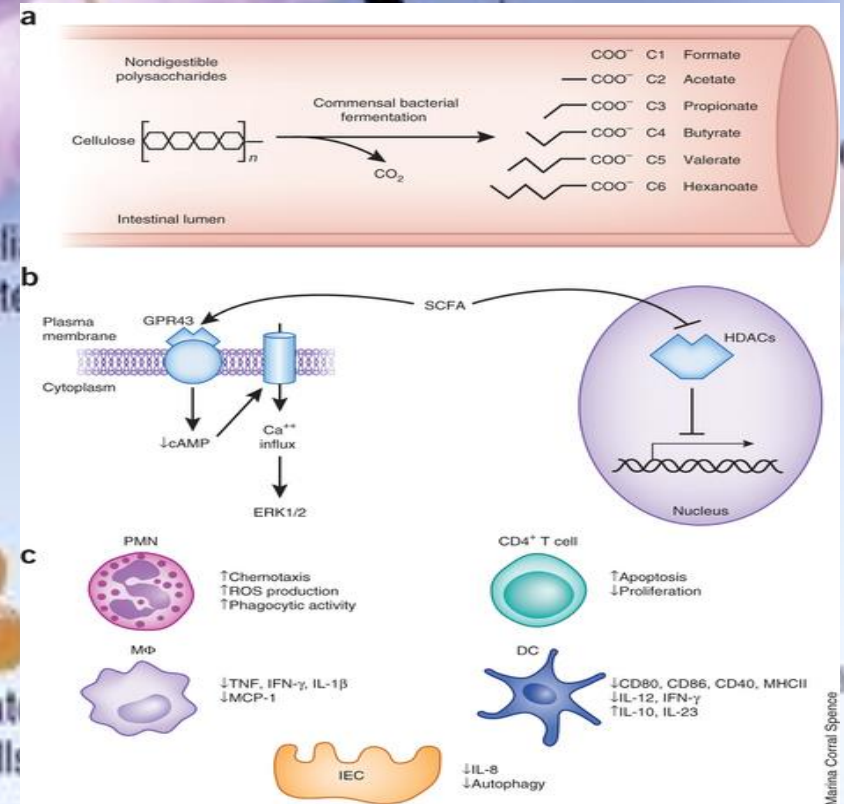
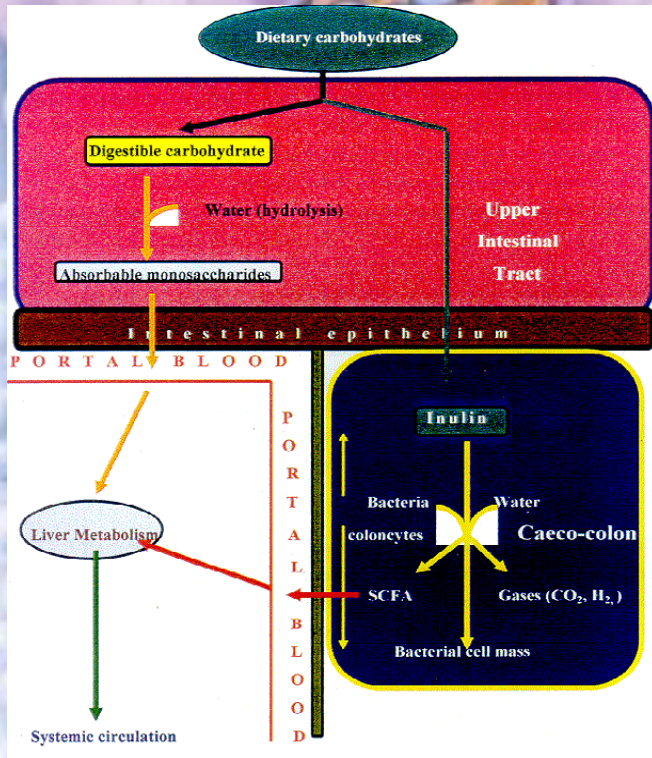
Yeterli miktarda alındığında konakçının mikrobiotasını düzenleyerek sağlık üzerine olumlu etkileri olan canlı mikroorganizmalar

Probiyotik

- Konakçı için güvenilirlik
- Tanımlama ve tiplendirmesinin iyi yapılmış olması
- Patojen ve toksik özelliklerinin bulunmaması (enterotoksin ve sitotoksin yapımı, enteroinvazivite, patojenik adhezyon, hemoliz, antibiyotik direnç geni taşıma dahil)
- Mide asidi ve safra ve pankreatik salgılara direnç
- Besin katkı maddelerine direnç
- İşleme koşullarına dirençli olma
- Bağırsak epiteline tutunabilme
- Gastrointestinal sistemde kolonize olabilme
- Sağlık üzerinde klinik olarak gösterilmiş yararlı etkiler yapmalı
- Konakçıda metabolik aktiviteleri etkileyebilme
- Besinler içerisinde yeterli sayıda canlı kalabilme, ürünün raf ömrü süresince canlı kalabilme
- Antimikrobiyal özellikte maddeler salgılayabilme
- Patojen bakterilerin tutunmasını inhibe etme
- Yüksek sayılarda canlı mikroorganizma içermeli
- Bağırsaklarda canlı kalabilmeli, metabolik aktivitesini sürdürebilmeli
- Saklama ve kullanım sırasında canlılığını sürdürebilmeli
- Hangi konakçıda kullanılacaksa o türden konakçıdan elde edilmiş olmalı
- İmmün sistemi düzenleme

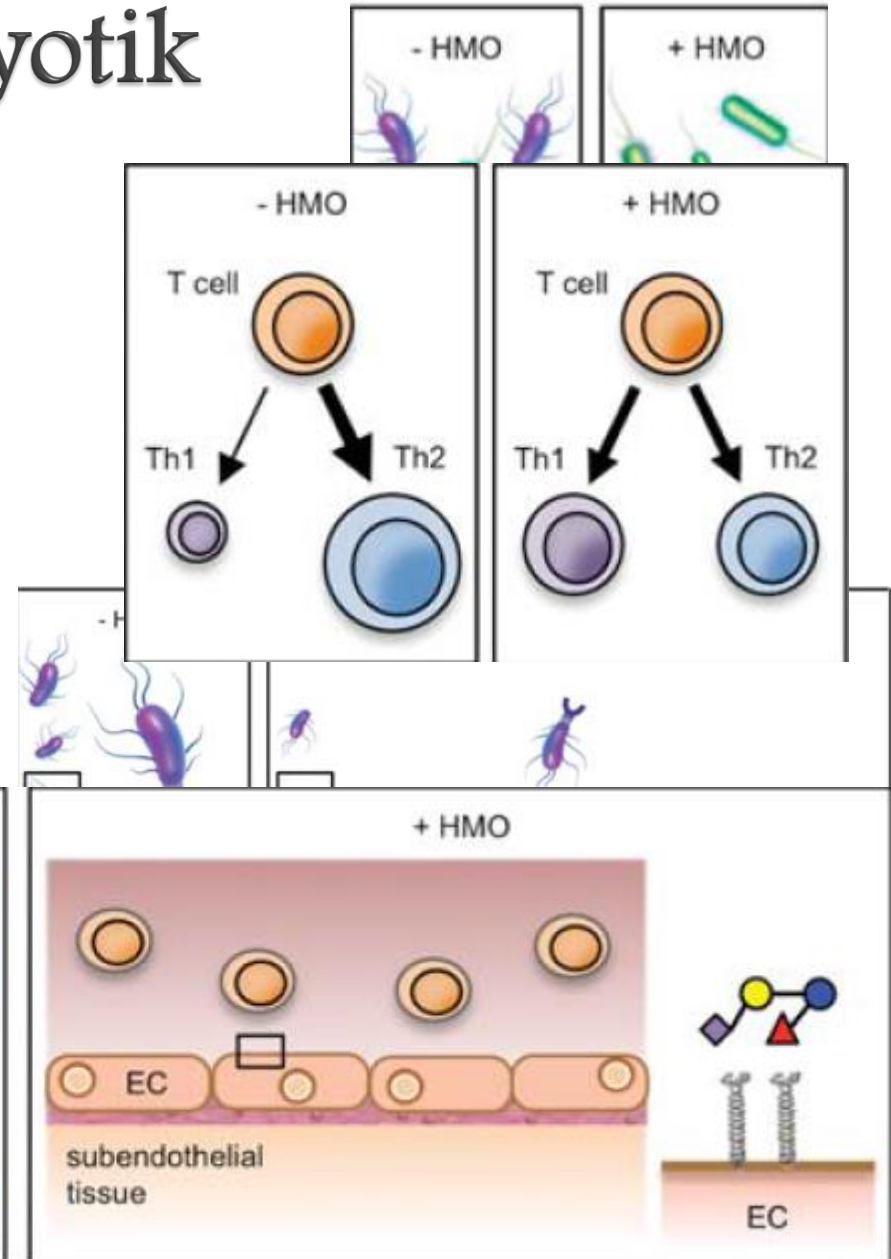
- Laktik asit bakterileri
- Bifidobakteriler
- Maya
- Diğer

PREBIYOTİK

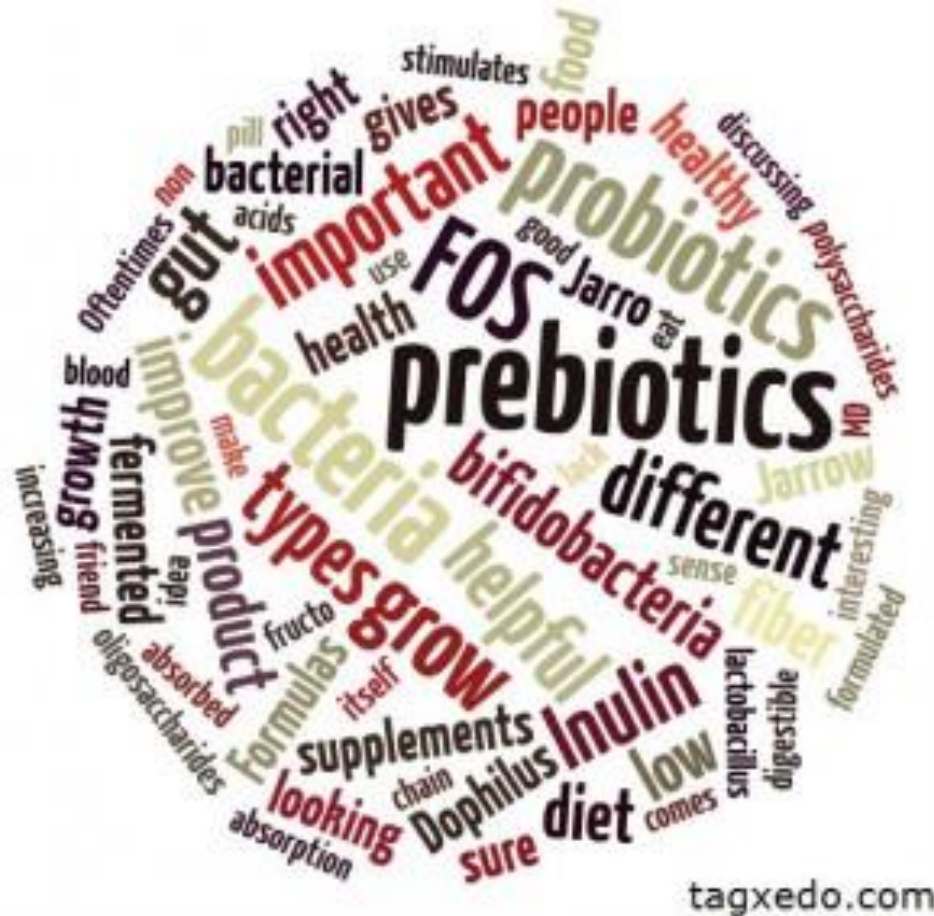


Prebiyotik

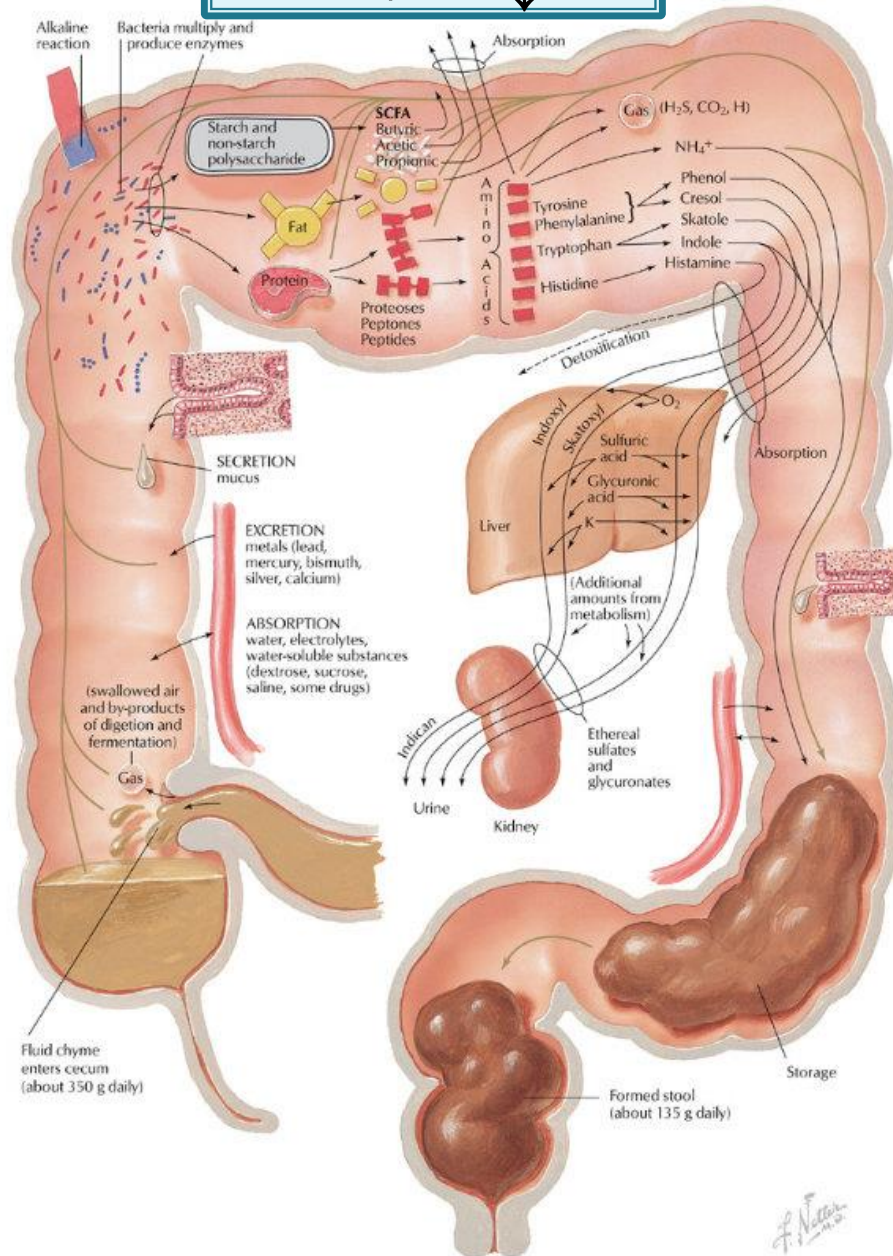
Prebiyotik karbon-hidrat	Kısaltması
Galaktooligosakkaritler	GOS
Polidekstroz	PDX
Laktuloz	LOS



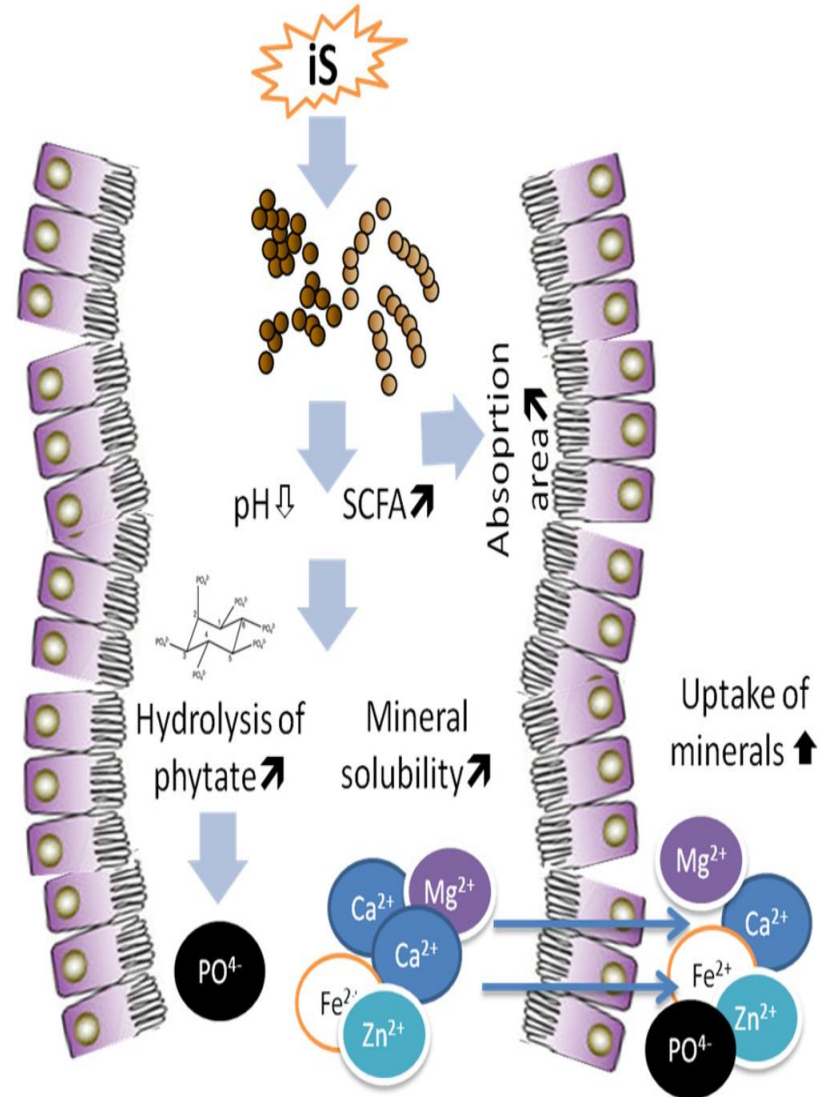
Simbiyotik

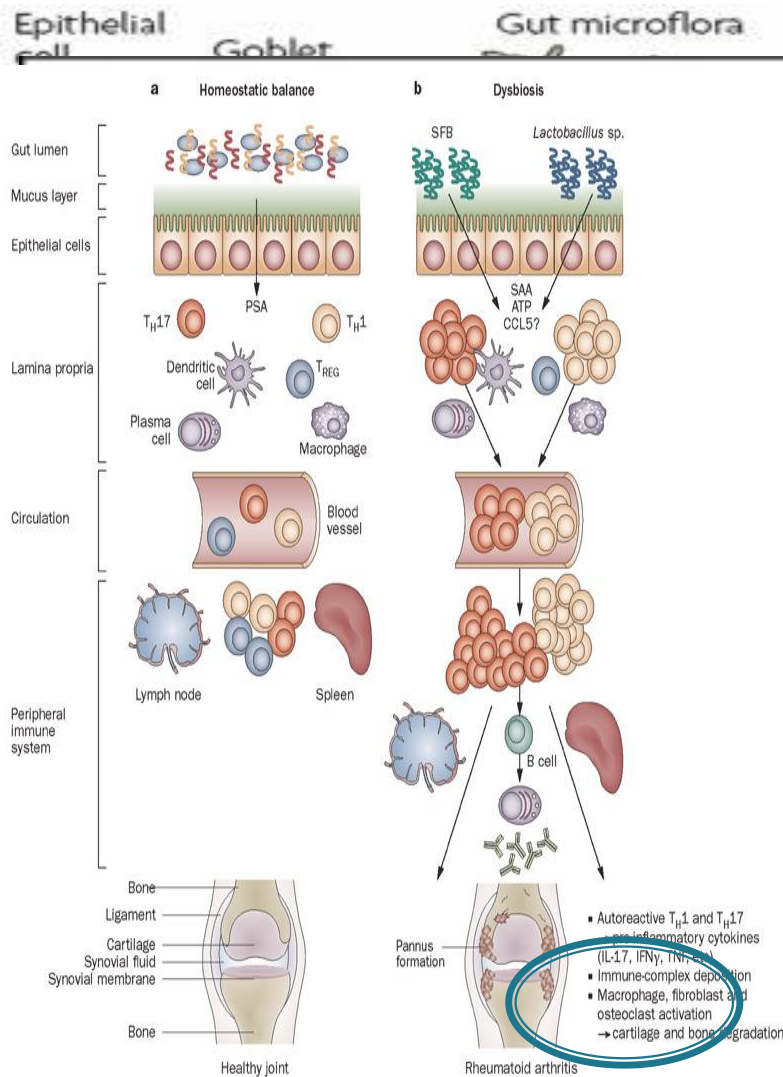


FGIDs ↓

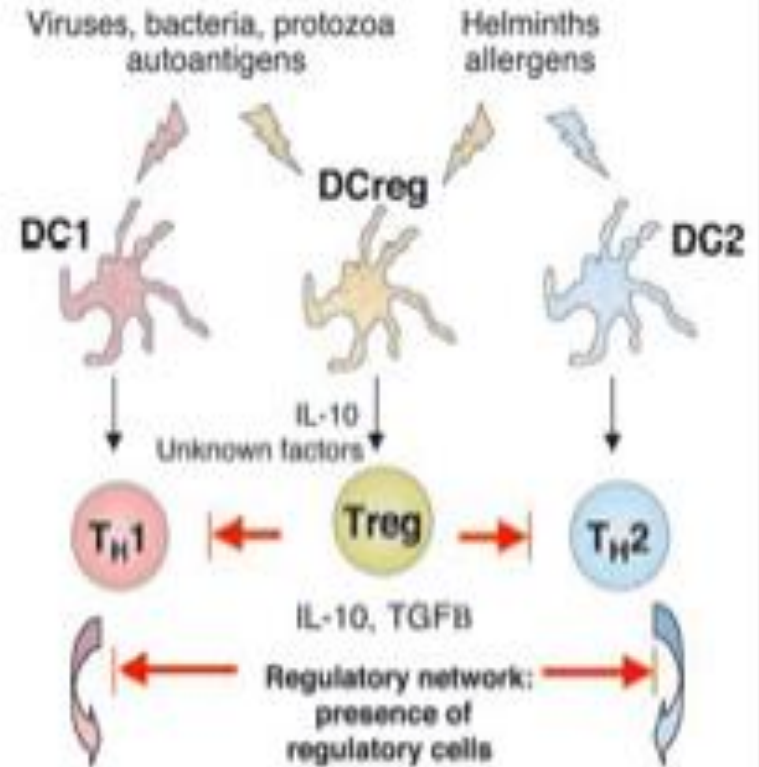


Mineral absorp. ↑



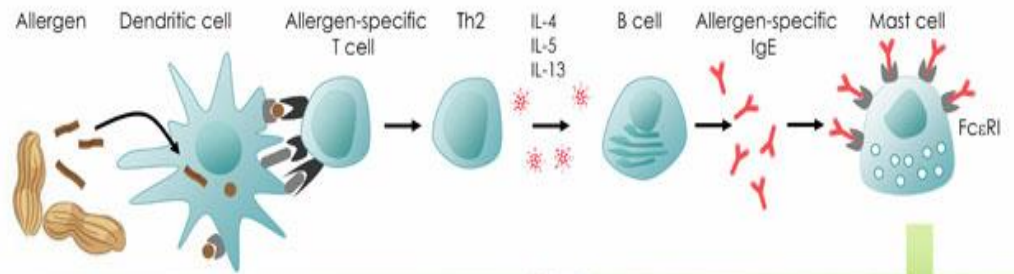
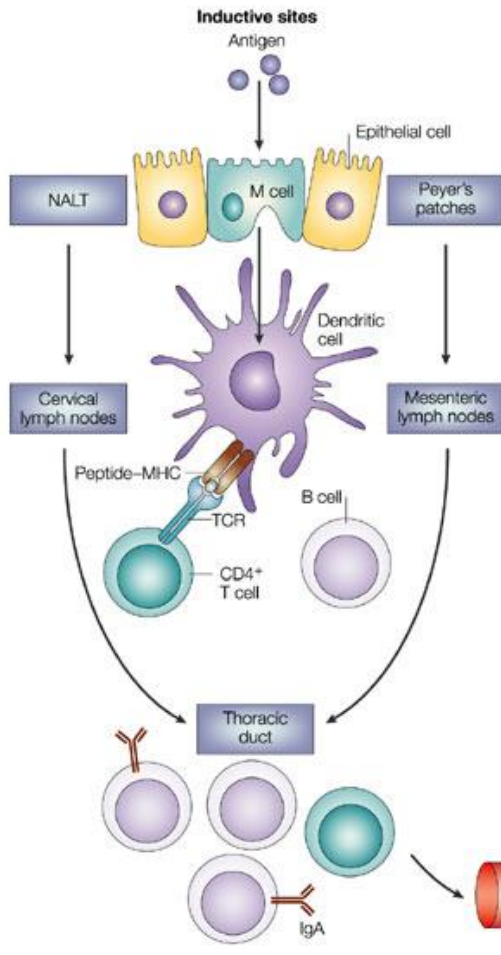


Low hygiene, high pathogen/adjuvant burden



İntestinal Sessizlik

Sensitisation



Allergic reaction



Local symptoms

Swelling
Itching
Nausea
Vomiting
Diarrhoea

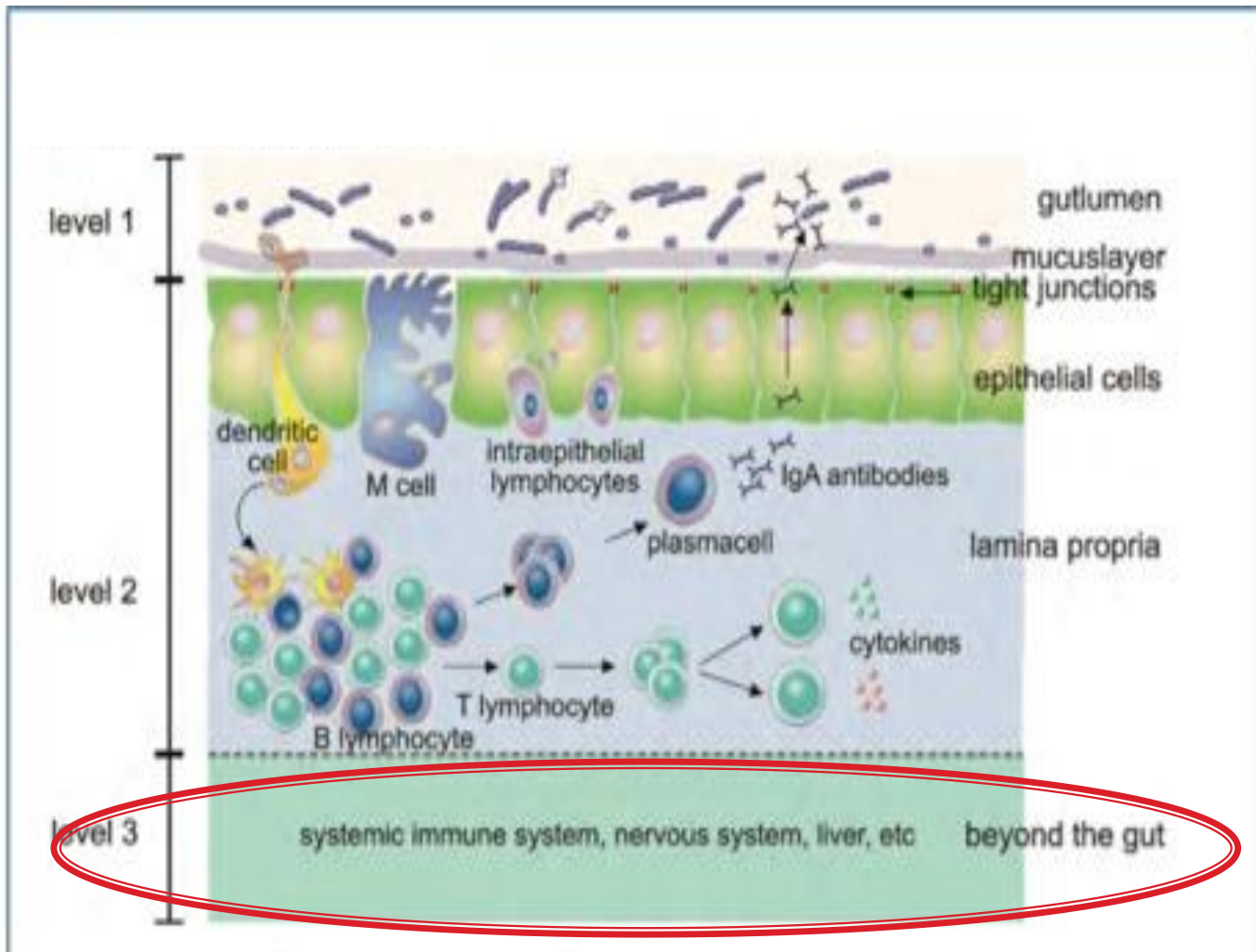
Systemic symptoms

Airway obstruction
Rashes
Blood pressure drop
Arrhythmia

Histamines
Leukotrienes
Cytokines
Prostaglandins
PAF

Mast cell degranulation

Simbiyotik



Mikrobiota = 2.Beyin

Pankreas

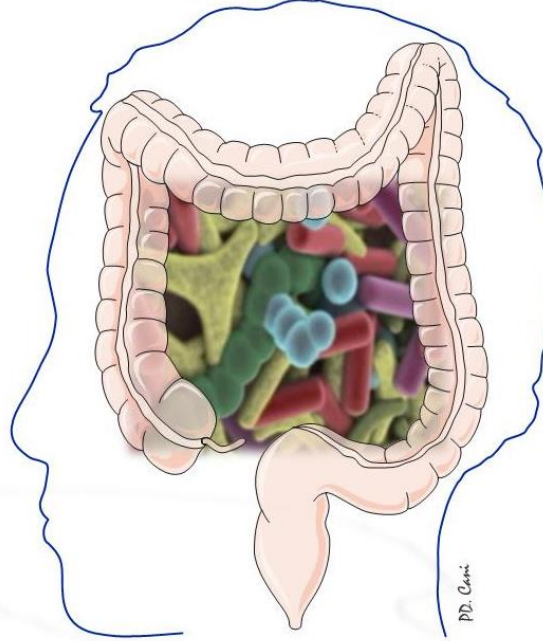
(örn., insulin salgılama)

Mide

(örn., gastrik boşalma,
salgılama)

Bağırsak mikroflorası

(örn., SCFA üretimi, sindirim,
Enfeksiyonlardan korunma,
Mukus salgılama....)



Beyin

(örn., sinir sistemi,
serotonin, iştah duyuları,
Bağırsak peptidleri)

Karaciğer

(örn., safra tuzları, kolesterol)

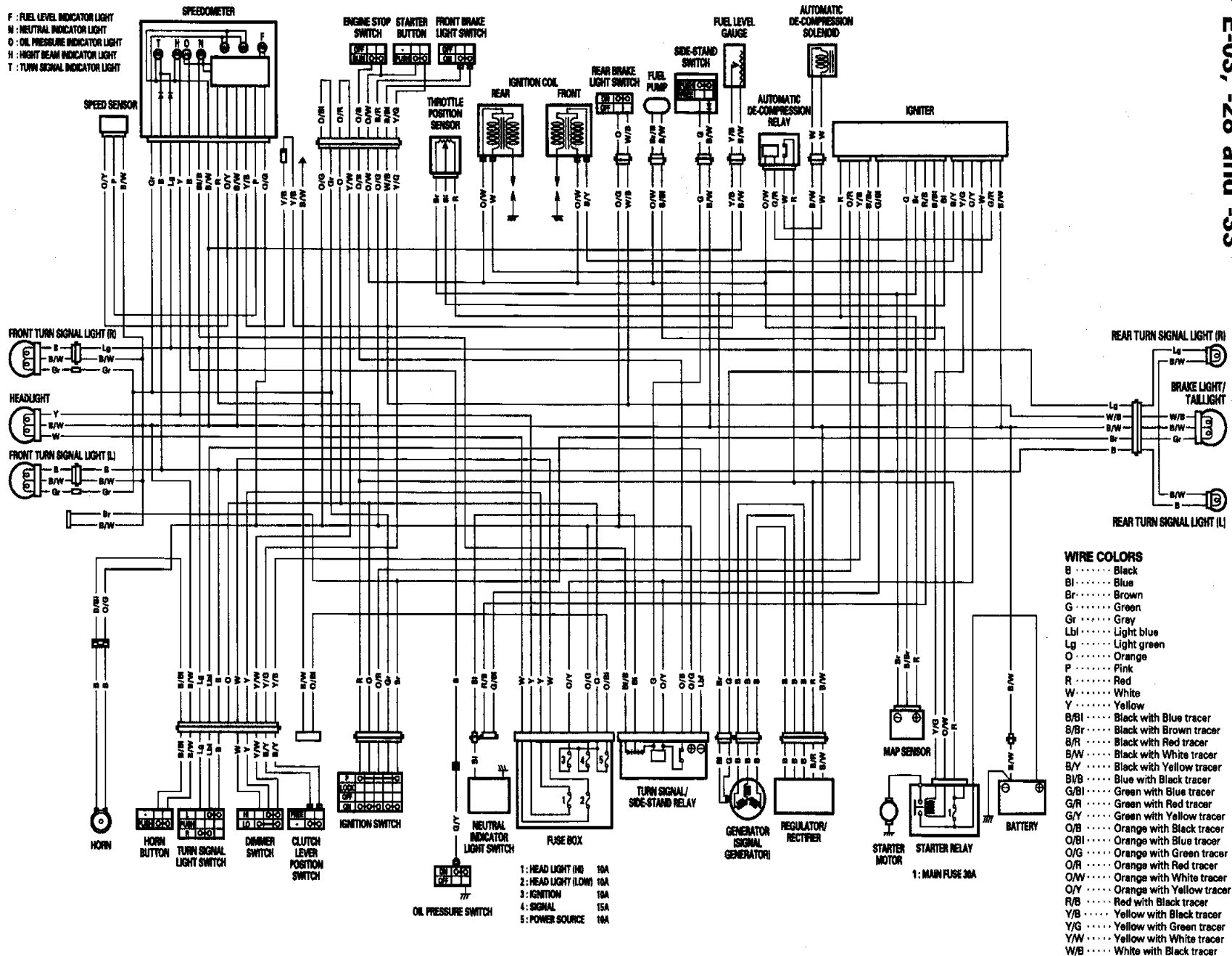
Bağıışıklık sistemi

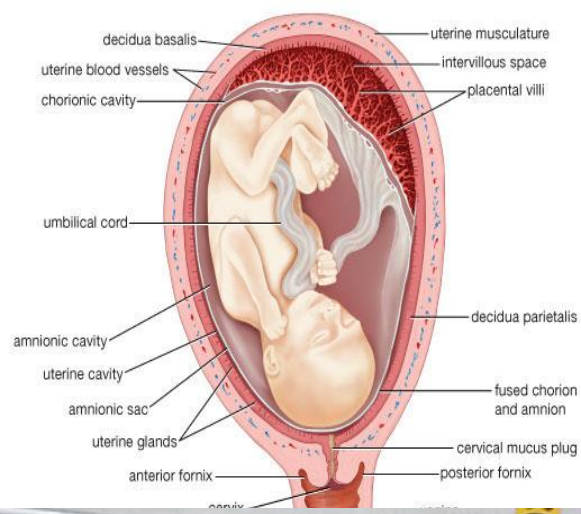
(örn., bağışıklık toleransı,
Mukosal ve sistematik
bağışıklık)

WIRING DIAGRAM

For E-03, -28 and -33

F : FUEL LEVEL INDICATOR LIGHT
N : NEUTRAL INDICATOR LIGHT
O : OIL PRESSURE INDICATOR LIGHT
H : HIGH BEAM INDICATOR LIGHT
T : TURN SIGNAL INDICATOR LIGHT





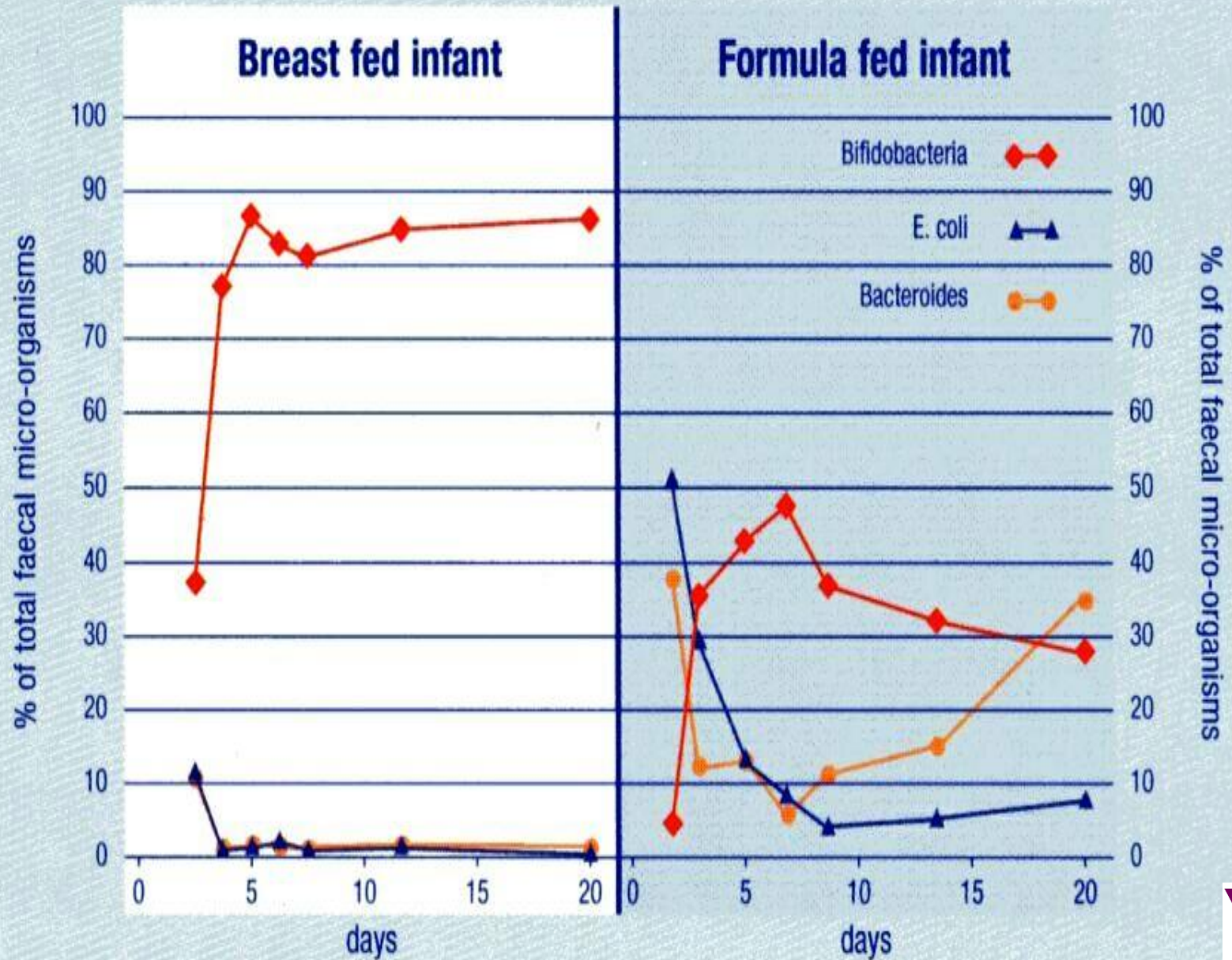
İyi bir başlangıç

Simbiyotik

		Prebiyotik karbon-hidrat	Kısaltması
		Galaktooligosakkaritler	GOS
Human		Polidekstroz	PDX
Protein (g/L)	8 ^a	Laktuloz	LOS
Fat (g/L)	41 ^a	Inulin	IN
Lactose (g/L)	70 ^a	Fruktooligosakkaritler	FOS
Oligosaccharides (g/L)	5–15 ^b	Anne sütü oligosakkaritleri	HOMS
Number of identified oligosaccharides	100+ ^{b,d}		
%fucosylated	50–80% ^{b,d,f}		
%sialylated	10–20% ^{b,d}		

Değişken

Difference in intestinal flora composition according to feeding regimen⁹



Simbiyotik

TABLE 3. Mean (SD) bacterial counts as a percentage of total bacteria at 2 months

	Study for	Breast-fed
Bifidobacteria*	52.6 (35.1)	49.7 (30.1)
Lactobacilli	0.1 (0.1)	0.1 (0.3)
Enterobacteria	8.4 (10.1)	8.5 (17.9)
Clostridia	9.5 (11.1)	5.5 (13.9)
Bacteroides	2.4 (3.8)	7.9 (13.5)

•Süt çocuğu→ 2~5 milyon cfu/g
•Çocuk→5~ 10 milyon cfu/g

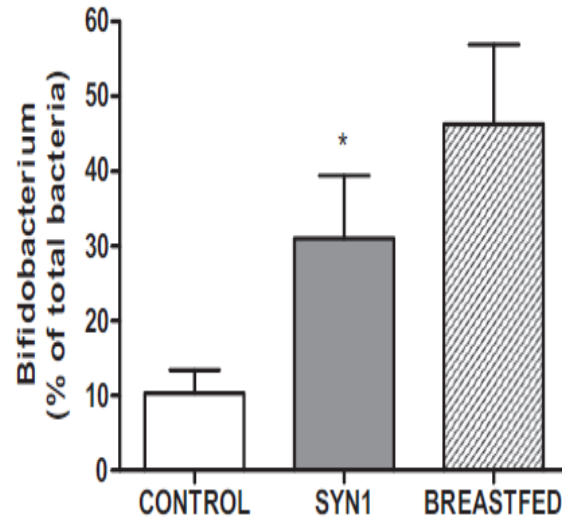


Fig. 2. Percentages of *Bifidobacterium* in the stool samples of the feeding groups at infant's age 3 months. The white bars indicate the control formula group, the grey bars indicate the prebiotic-supplemented formula group and the filled bars indicate the breastfed group. * $p < 0.05$ vs. control group.

Prebiyotik tipi	Dozu
Galaktooligosakkaritler (GOS)	2-3 gr/gün
İnulin	2-12 gr/gün (Avrupa diyeti) 5-8 gr/gün (Belçika) 7-12 gr/gün (İspanya)
Ksilooligosakkaritler	4 gr, ilk 3 hafta, 0.7 gr 10 gr/gün (gebeler)
Laktuloz	Bebek mamalarında %0.5 10 gr/gün (postmenopoz)
Fruktooligosakkaritler (FOS)	2-12 gr/gün
İnulin tipi fruktanlar	8-10 gr/gün 15 gr/gün (Crohn hastalığı)
Oligosakkaritler	4-12 gr/gün
GOS/FOS	4-12 gr/gün
Polidekstroz	4-12 gr/gün

4~8g/1

Supplementation of Infant Formula With Probiotics and/or Prebiotics: A Systematic Review and Comment by the ESPGHAN Committee on Nutrition

*ESPGHAN Committee on Nutrition: *Christian Braegger, *³Anna Chmielewska, †Tamas Decsi, ‡Sanja Kolacek, ‡‡Walter Mihatsch, §Luis Moreno, *³Małgorzata Pieścik, ||John Puntis, ¶¹Raanan Shamir, #Hania Szajewska, **²Dominique Turck, and ††Johannes van Goudoever*

ABSTRACT

Infant formulae are increasingly supplemented with probiotics, prebiotics, or synbiotics despite uncertainties regarding their efficacy. The present article, developed by the Committee on Nutrition of the European Society for Paediatric Gastroenterology, Hepatology, and Nutrition, systematically reviews published evidence related to the safety and health effects of the

Summary and interpretation of data on growth

The Committee notes that interpreting studies on the effects of probiotic supplementation of infant formula on growth is difficult due to the limited number of studies that analysed the effects of a given probiotic strain; the studies were often too small with insufficient power to identify relevant effects on growth, and the follow-up periods in the trials were short. In general, for a few probiotic strains that were used to supplement infant formula, it can be concluded that these strains support normal growth in healthy term infants.

criteria and adequate sample sizes. These studies should use validated clinical outcome measures to assess the effects of probiotic and/or prebiotic supplementation of formulae. Such trials should also define the optimal doses and

intake durations, as well as provide more information about the long-term safety of probiotics and/or prebiotics. Because most of the trials were company funded, independent trials, preferentially financed jointly by national/governmental/European Union bodies and other international organisations

Key

(JP

Summary and interpretation of data on growth

The Committee notes that interpreting studies on the effects of prebiotic supplementation of infant formula on growth can be difficult. This is because only a limited number of studies have analysed the effects of a given prebiotic, the studies were often too small with insufficient power to identify relevant effects on growth, and the follow-up periods in the trials were short. The Committee concludes that prebiotic supplementation of infant formula, primarily with a mixture of GOS/FOS, has no adverse effects on growth in healthy term infants, but the effect on improved growth is modest at best.

to infant formulae, follow-on formulae, and special medical foods. The Committee also concluded that there is no published evidence of any long-term clinical benefits of infant formula supplementation

Simbiyotik

- ▶ Fonksiyonel ürünler :
 - Prebiyotik = lifli sebze ve meyvalar, tam buğday ekmeği, keten tohumu
 - Probiyotik = probiyotikli yoğurtlar, kefir, bazı peynirler

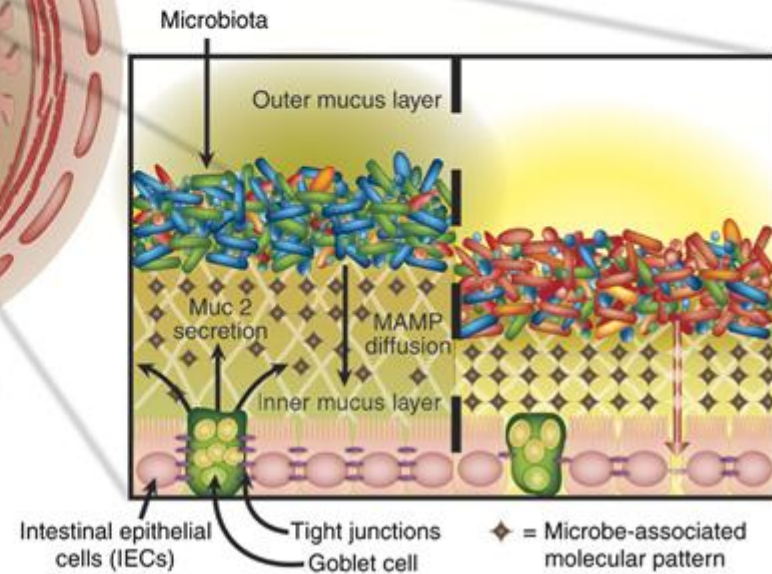
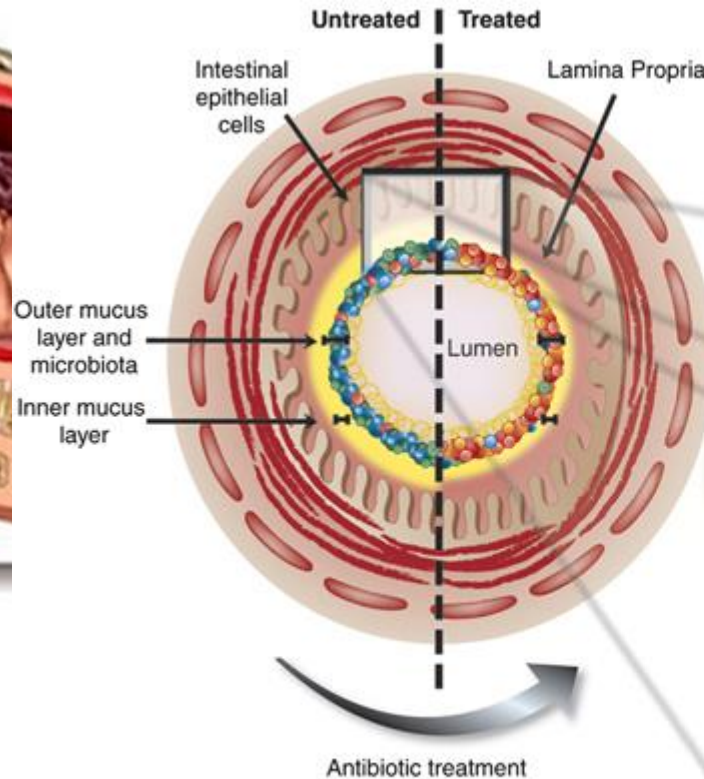


*From:
God*

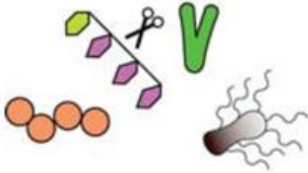
C-Section

VS

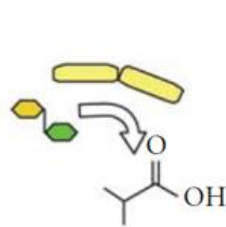
Normal Delivery



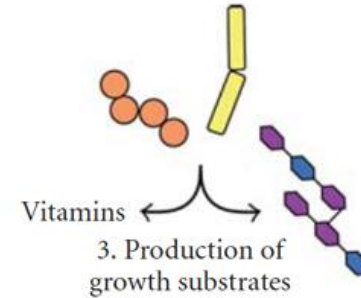
1. Competition for nutrients and prebiotics



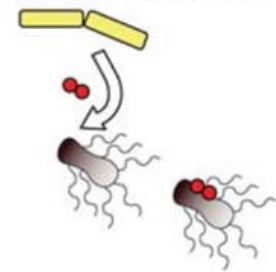
2. Bioconversions



3. Production of growth substrates



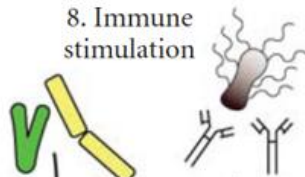
4. Direct antagonism



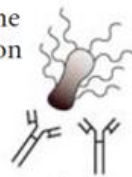
5. Competitive exclusion



6. Barrier function



8. Immune stimulation



7. Reduction of inflammation

