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Delivers Solutions

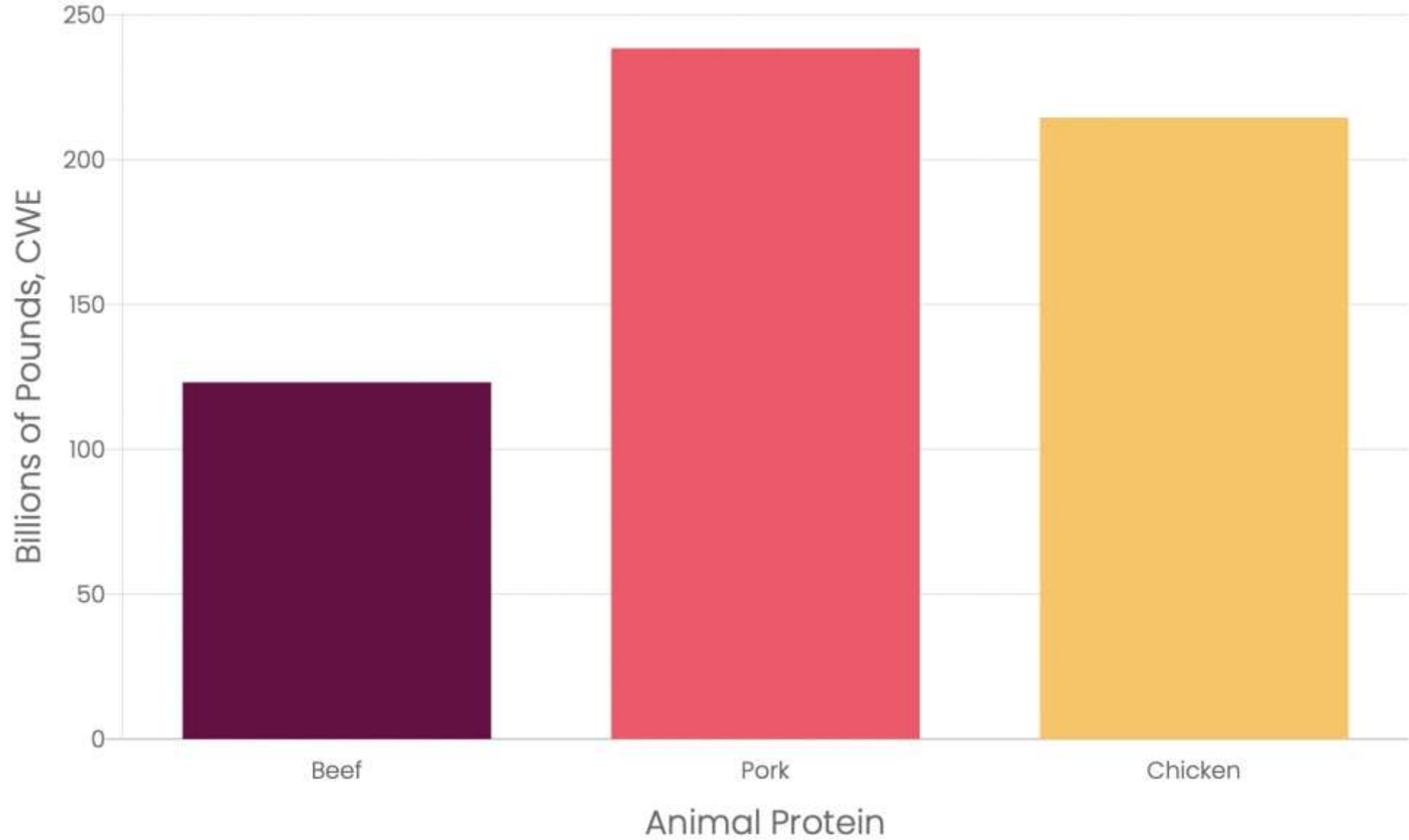
Cómo promover la salud intestinal a través de ingredientes de calidad

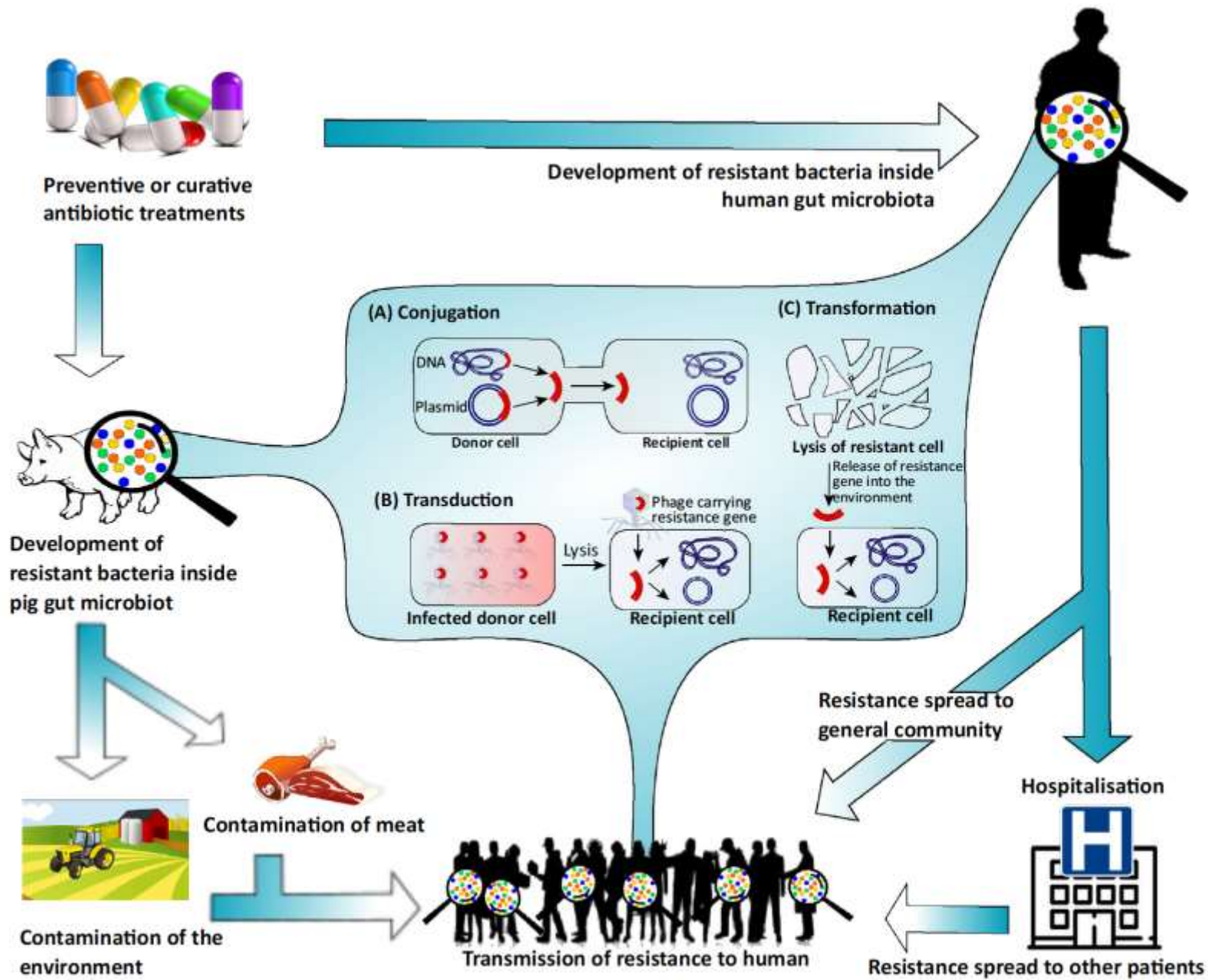
XX Congreso Internacional Porkaméricas

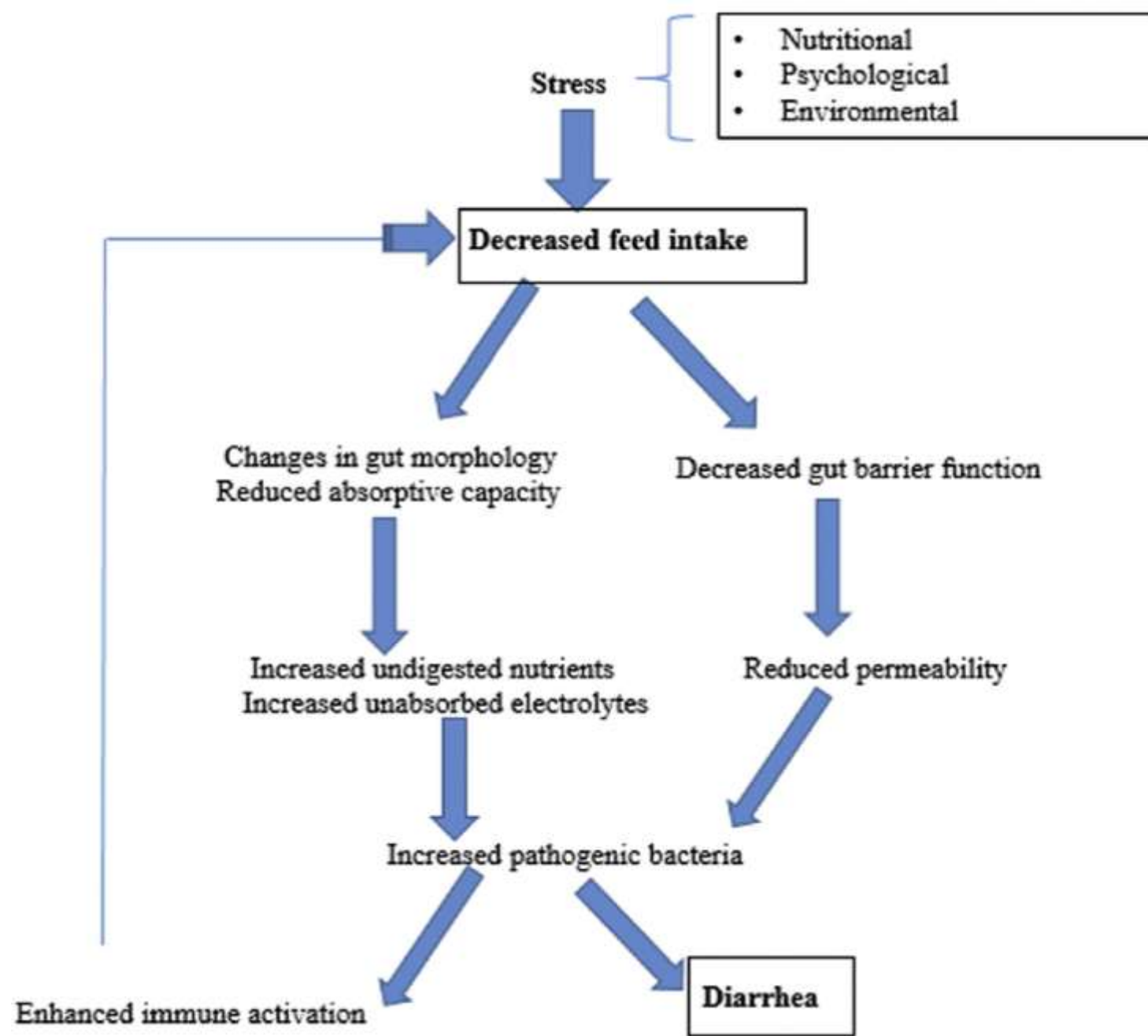
Cartagena de Indias, Julio 2022

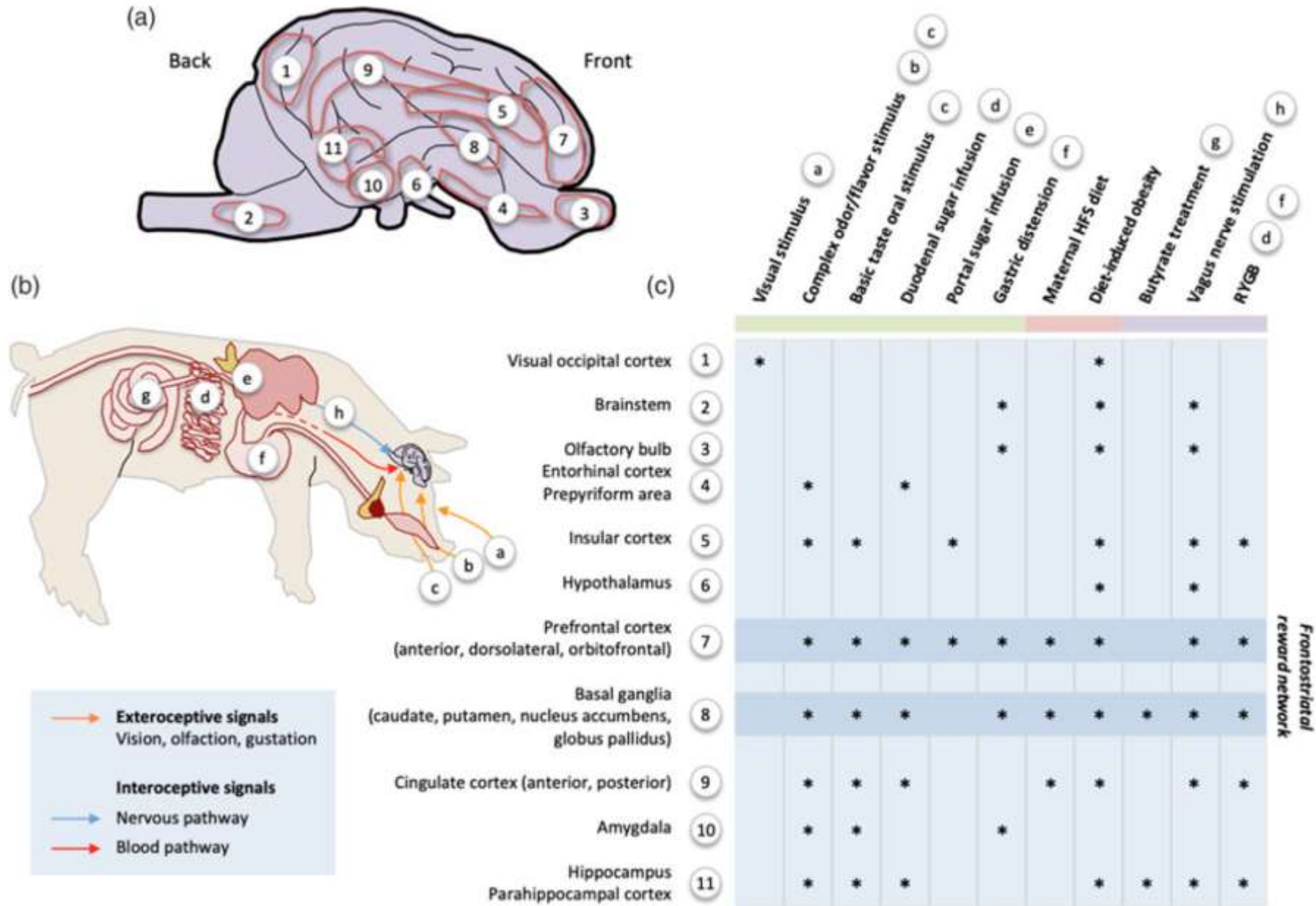
INTRODUCCIÓN





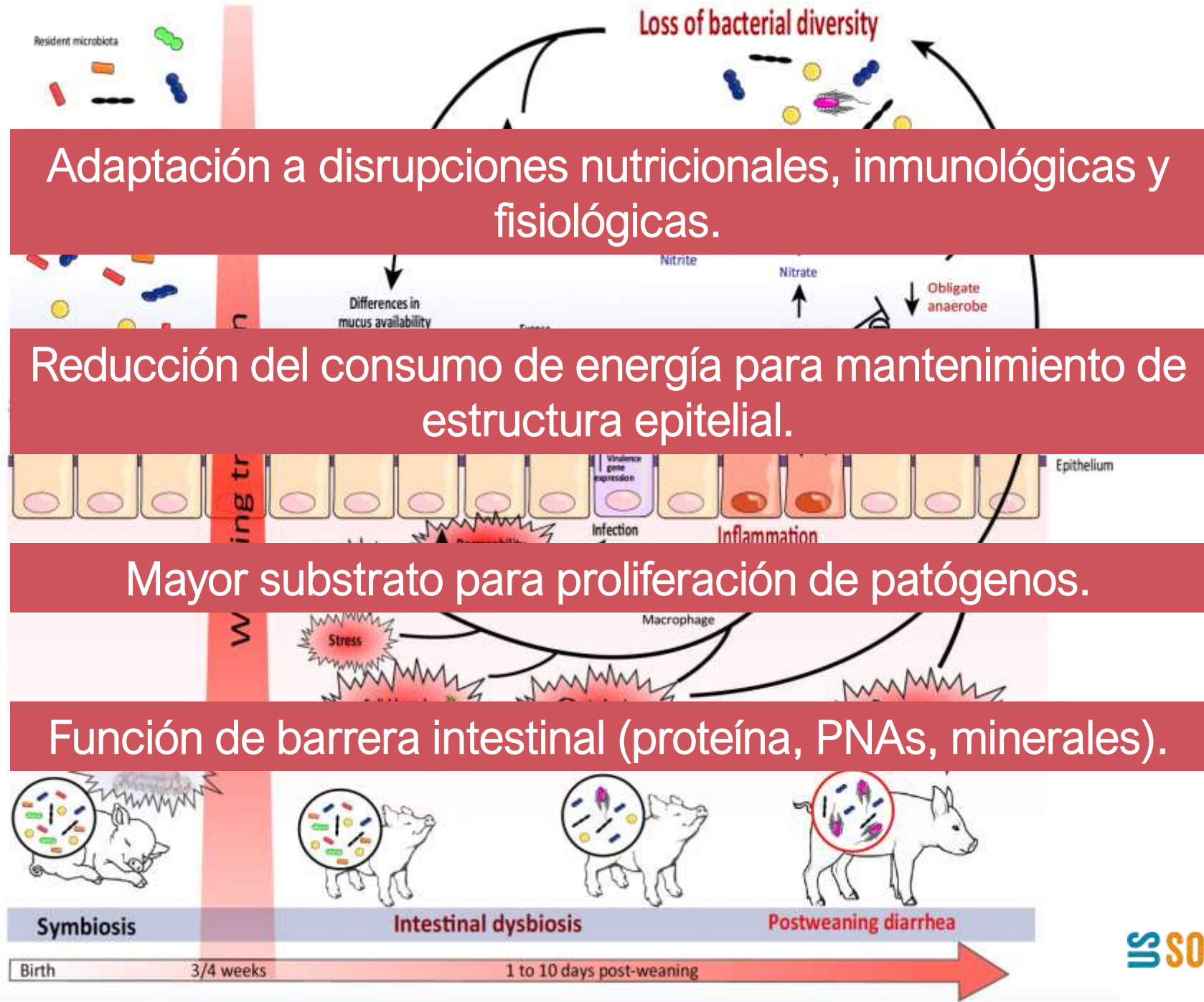








NUTRICIÓN TEMPRANA



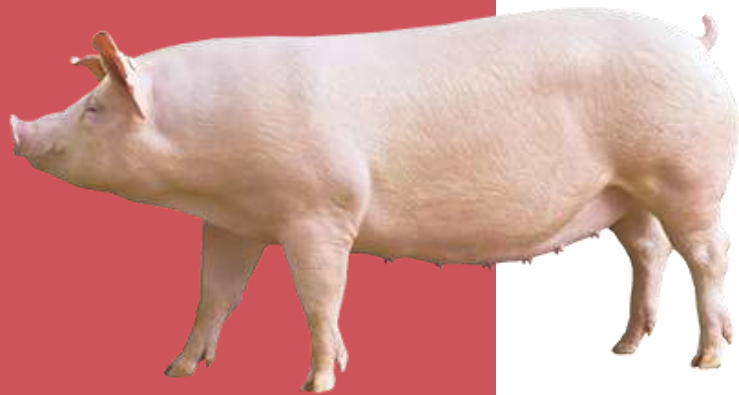
Adaptación a disrupciones nutricionales, inmunológicas y fisiológicas.

Reducción del consumo de energía para mantenimiento de estructura epitelial.

Mayor sustrato para proliferación de patógenos.

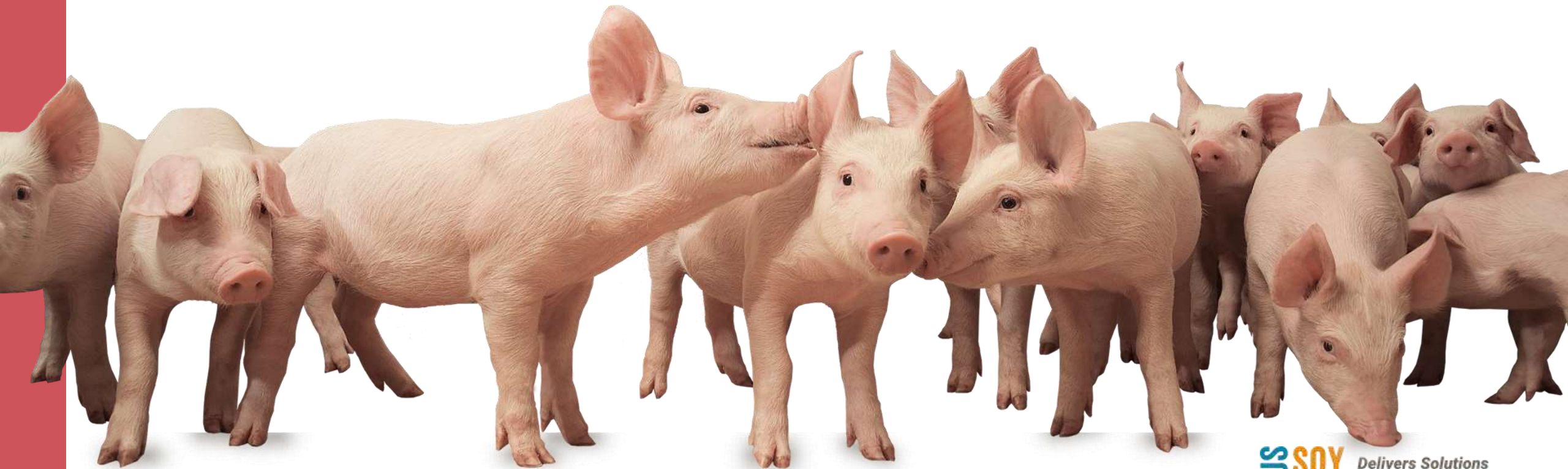
Función de barrera intestinal (proteína, PNAs, minerales).

SALUD INTESTINAL



Ausencia de enfermedades clínicas ?

"Estado donde el microbioma y el TGI existen en equilibrio simbiótico, y donde el desempeño no están limitados por la disfunción intestinal"



Funcionalidad gastrointestinal

Composición de la dieta

1. Fibra



2. Forma: granulometría, harina vs. pellet

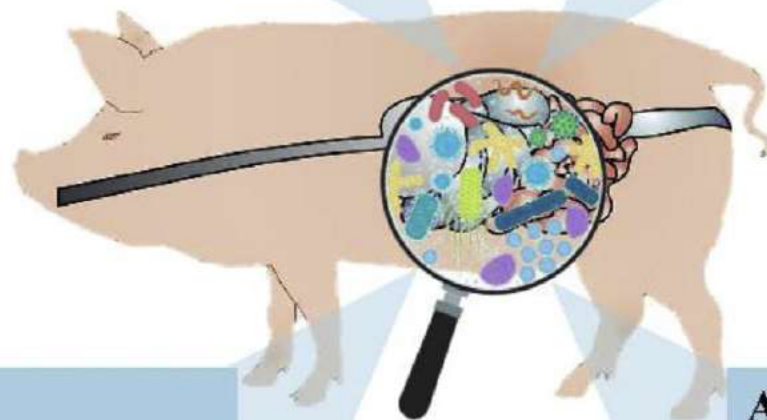
Microbiota

Host Factors

- Intestine region
- Age and growth stage
- Breeds
- Gender
- Production performance

Management and Environment

- Weaning
- Altitude
- Region
- Feeding mode
- Maternal factor



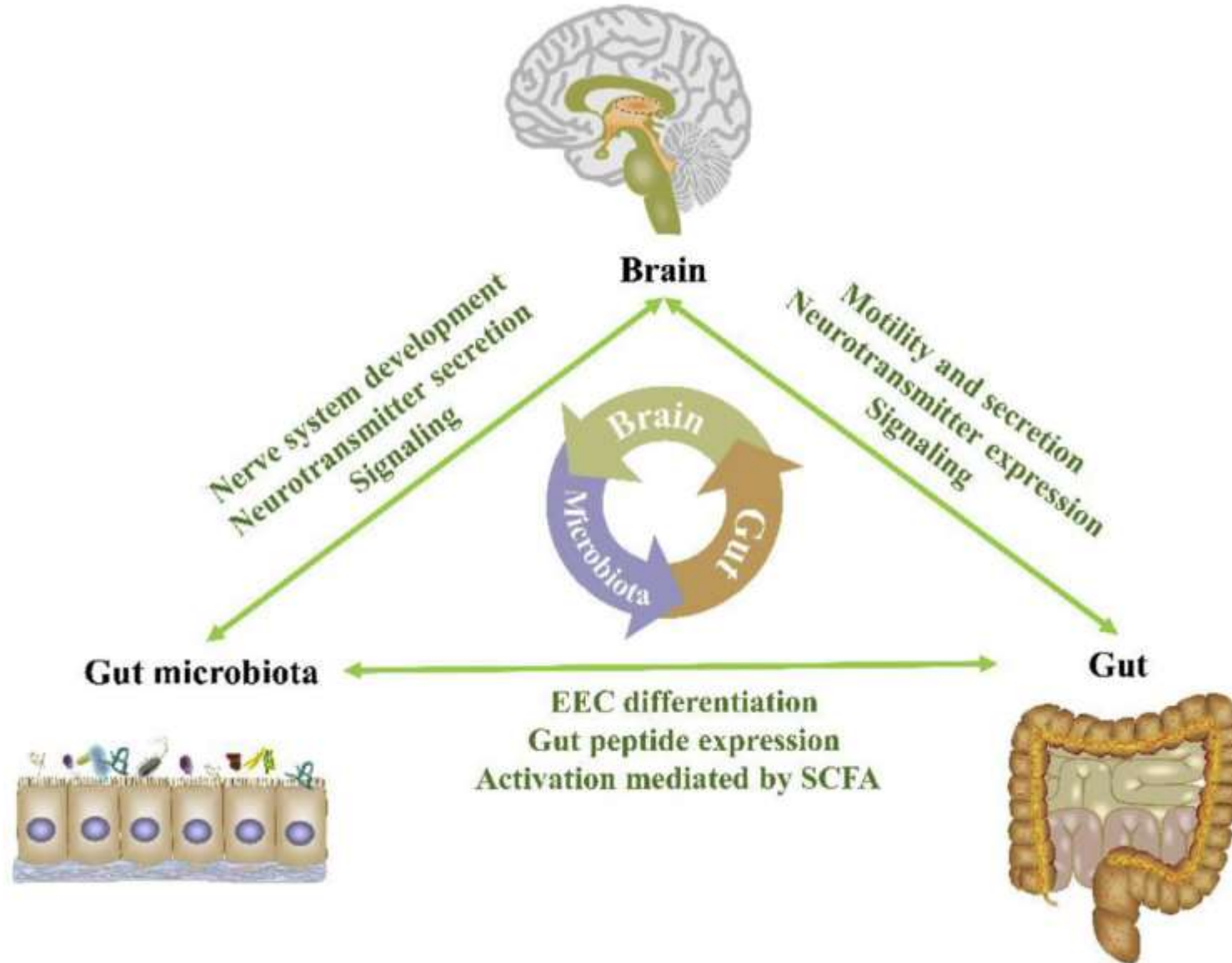
Diet

- Feed type
- Feed ingredient
- Energy resource
- Protein limitation
- Amino acid balance

Additives

- Antibiotics
- Probiotics
- Prebiotics
- Essential oils
- Organic acids

Sistema inmunológico





ESTRATEGIAS NUTRICIONALES

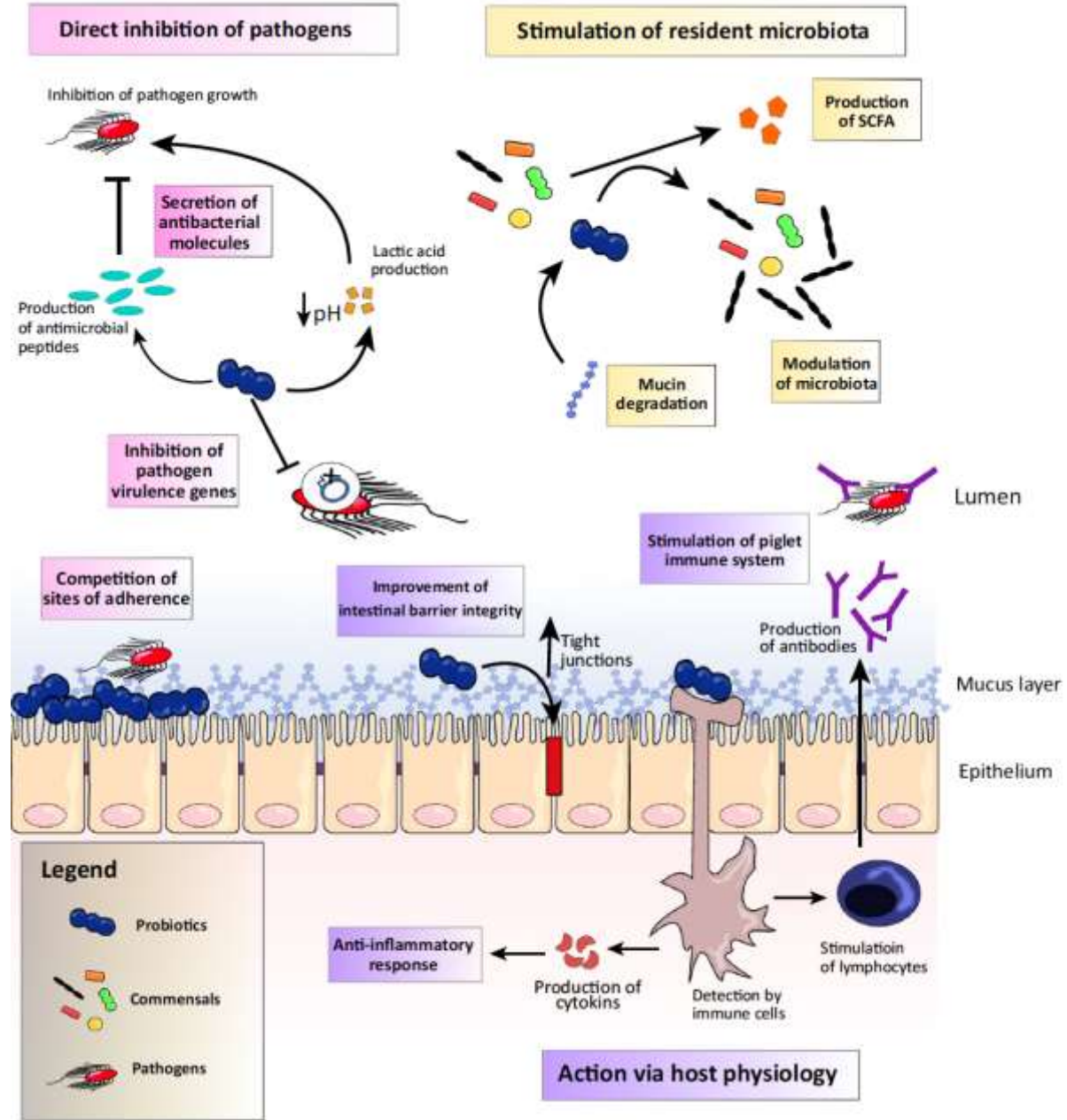
Aditivos

Definición

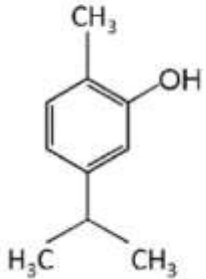
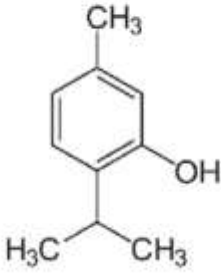
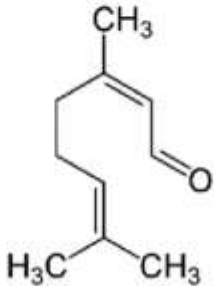
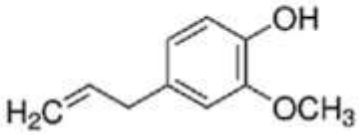
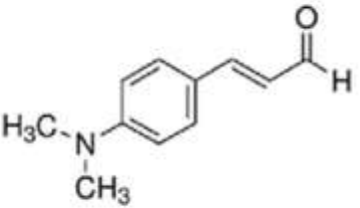
Características

Aplicaciones

Mecanismo de acción



Aditivos

Compound	Carvacrol	Thymol	Citral	Eugenol	Cinnamaldehyde
Chemical structure					

Definición

Efecto en el stress oxidativo

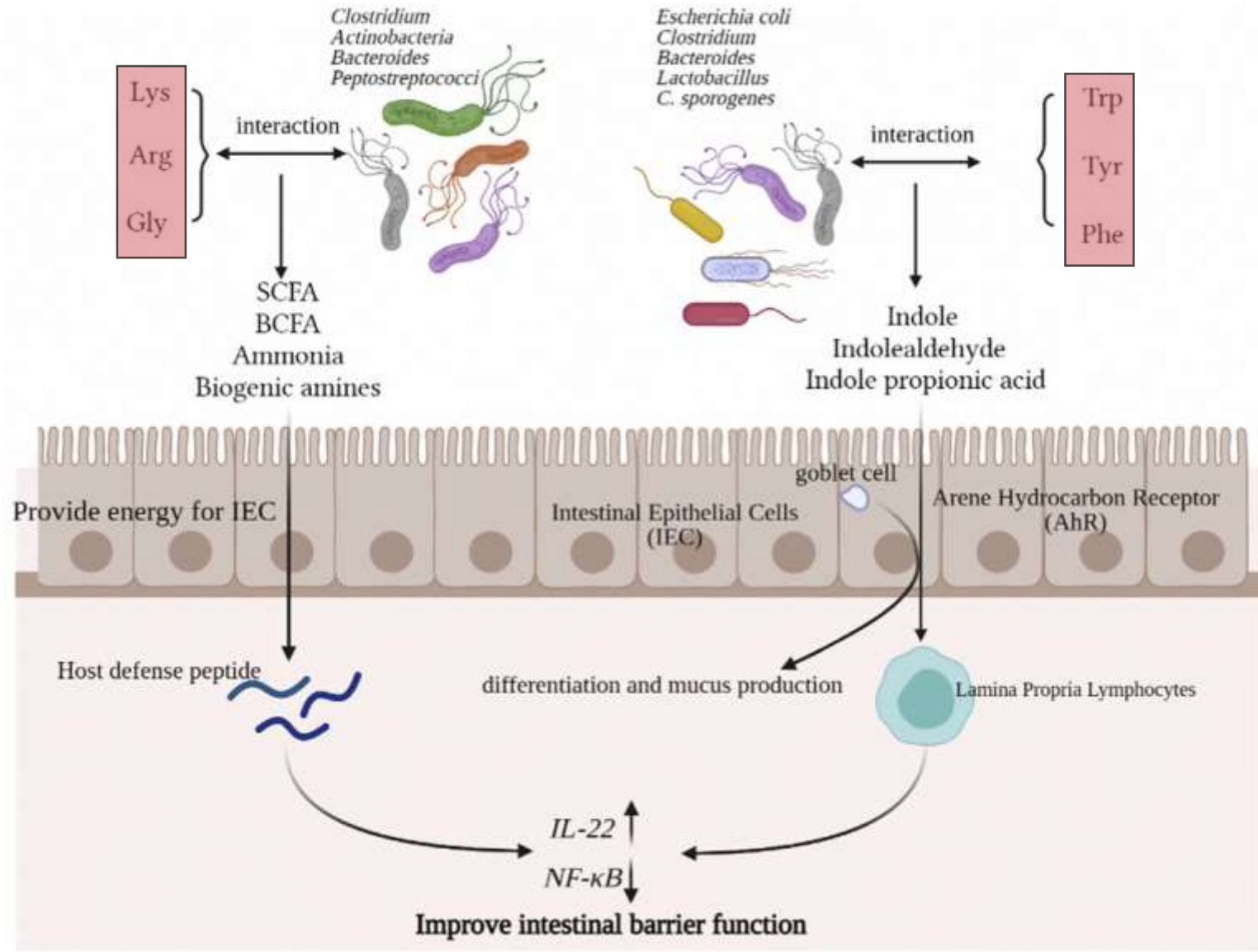
Mecanismo de acción

Efecto en la digestibilidad de nutrientes

Efecto en la inflamación intestinal

Efecto en el metabolismo de nutrientes

Ingredientes



The effects of fermentation process on crude protein and amino acids content of feed ingredients.

References	Fermenting agent	Substrate	Changes compared with native substrate ^a	Comment
Cervantes-Pahm and Stein (2010)	<i>Aspergillus oryzae</i>	Soybean meal	CP ↑, AAs ↑	
Opazo et al., 2012	Spontaneous fermentation with a proprietary mixture of enzymes (unknown)	Soybean meal	CP ↑, AAs ↑	
Rojas and Stein (2013)	<i>Bacillus subtilis</i> , <i>Streptococcus thermophilus</i> and <i>Saccharomyces cerevisiae</i>	Soybean meal	CP ↑	
Upadhaya and Kim (2015)	<i>Aspergillus oryzae</i> and <i>Bacillus subtilis</i>	Soybean meal	CP ↑, AAs ↑	
	Yeasts	Soybean meal	CP ↑, AAs ↑	
	<i>Bacillus</i> strains	Soybean meal	CP ↑, AAs ↑	
	Yeast and <i>Bacillus</i> strains	Soybean meal	CP ↑, AAs ↑	
Jeong et al. (2016)	<i>Enterococcus faecium</i>	Soybean meal	CP ↑, Sulphur, containing AAs ↓, The rest of AAs -	
Jazi et al. (2019)	<i>Lactobacillus acidophilus</i> , <i>Lactobacillus plantarum</i> , <i>Bacillus subtilis</i> , and <i>Aspergillus oryzae</i>	Soybean meal	CP ↑, AAs -	
Shi et al. (2017)	<i>Bacillus subtilis</i> and then <i>Enterococcus faecium</i>	Corn-soybean meal pig feed	CP ↑, Arg ↓, Lys ↓, Phe ↓, Tyr ↓, Cys ↓, Asp ↑, The rest of AAs -	Two-stage fermentation
Goodarzi Borojjeni et al. (2017)	<i>Bacillus subtilis</i>	Pea	CP ↑, AAs -	
Goodarzi Borojjeni et al. (2018)	Spontaneous fermentation with a blend of α-galactosidase, protease and pectinases <i>Bacillus subtilis</i> and <i>licheniformis</i>	Pea	CP -, AAs -	
Xu et al. (2012)	<i>Lactobacillus fermentum</i> and <i>Bacillus subtilis</i>	Rapeseed meal	CP ↑, Sulphur, containing AAs ↑, Lys ↑	
Zaworska et al. (2017)	<i>Enterococcus faecium</i> , <i>Lactobacillus plantarum</i> , <i>Lactobacillusbuchneri</i> and <i>Lactobacillus casei</i> and <i>Saccharomyces cerevisiae</i>	Blue narrow lupins	CP ↑, True protein ↑	
Jazi et al. (2017)	<i>Bacillus subtilis</i> , <i>Aspergillus niger</i> and <i>oryzae</i>	Cotton flour	CP ↑, AAs -	
Yeh et al. (2018)	<i>Bacillus subtilis</i> var. <i>natto</i> and then anaerobic fermentation with <i>Bacillus coagulans</i> , <i>Lactobacillus reuteri</i> , <i>Lactobacillus casei</i> , <i>Lactobacillus delbrueckii</i> and two strains of <i>Lactobacillus acidophilus</i>	Corn-soybean meal broiler feed	CP -, Essential AAs ↑, Total AAs ↑	Two-stage fermentation

^a AAs, Amino acids; CP, Crude protein; ↓, Decrease; ↑, Increase; -, No changes.

Mejora perfil nutricional del ingrediente (reducción de FANs, aumenta digestibilidad de nutrientes, AGCC)

Mejora desempeño animal (microbioma, VH:CD, función inmunológica)

Gracias!!

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