

Supplemental Data S3: Effect of Modulators on Intestinal Microbiota and Phenotype of Ruminants

Table S31: Effect of antibiotics on the phenotype and gastro-intestinal microbiota of ruminants

Ref	Intervention	Conditions	Methods	Phenotype		Diversity	Microbiota		
				Weight	Diarrhoea rate		Phylum	Lactic acid-producing bacteria	SCFA-producing bacteria
Kim 2021	Neomycin	Calf Male and Female Diarrheic	Antibiotic 7 weeks Sequencing	↑ BW	=	= β diversity	ND	Feces: ↑ Lactobacillus	Feces: ↓ Akkermansia ↑ Prevotella
Pereira 2018	Ceftiofur, Penicillin, Ampicillin and Oxytetracycline	Bos Taurus Male Healthy	Antibiotic (0.01µg/ml of ampicillin sodium, 0.1µg/ml of ceftiofur sodium, 0.005µg/ml of penicillin G sodium, and 0.3 µg/ml of oxytetracycline hydrochloride) 5 weeks Sequencing	ND	ND	= shanon index	= phylum abundance	ND	ND

Table S32: Effect of transplantation on the phenotype and gastro-intestinal microbiota of ruminants

Ref	Intervention	Conditions	Methods	Phenotype				Immunity	Microbiota			
				Weight	Food intake	FCR or FCE	Diarrhoea rate		Diversity	Phylum	Lactic acid-producing bacteria	SCFA-producing bacteria
Kim 2021	Fecal microbiota from healthy calves	Calf Male and Female Diarrheic	Transplantation (5g of feces) 7 weeks Sequencing	↑ BW	ND	ND	↓	ND	Modification of the β-diversity	ND	Feces: ↑ Lactobacillus	Feces: ↓ Akkermansia ↑ Prevotella ↑ Bacteroides
Yin 2021	Rumen fluid from 3 months old sheep	Sheep Female Healthy	Transplantation (25mL of rumen fluid) 6 weeks Sequencing	↓ ADG	↓ ADFI	=	ND	Serum: = [Ig] = [Antioxydant protein] ↑ [IL-6]	= α-diversity = β-diversity	Feces: ↓ Proteobacteria	ND	ND
	Rumen fluid from 1 year old sheep			↓ ADG	=	=	ND	Serum: = [Antioxydant protein] ↑ [IgA] ↑ [IL-6] ↑ [INFα]	= α-diversity Modification of β-diversity	Feces: ↓ Actinobacteria	ND	ND

Table S33: Effect of various interventions on the phenotype and gastro-intestinal microbiota of ruminants

Ref	Intervention	Conditions	Methods	Phenotype			Microbiota			
				Weight	Food intake	FCR or FCE	Diversity	Phylum	Lactic acid-producing bacteria	Pathogenic and/or Zoonotic bacteria
Hromadkova 2020	Colostrum	Holstein Healthy	Colostrum (50% of milk) 72H RTqPCR	ND	ND	ND	ND	ND	Ileum and Colon: = Lactobacillus = Bifidobacterium	Ileum and Colon: = E.coli
			Colostrum (100%) 72H RTqPCR	ND	ND	ND	ND	ND	Ileum and Colon: ↑ Lactobacillus = Bifidobacterium	Colon: ↑ E.coli
Wickramasinghe 2020	Water	Holstein Female Healthy	Water available from day 0 (vs day 17) 10 weeks Sequencing	ND	ND	ND	= shanon, simpson, ACE and Chao index = β diversity	= phylum abundance	ND	ND

Abbreviations:

BW: Body Weight

BWG: Body Weight Gain

ADG: Average Daily Gain

FCR: Feed Conversion Ratio

= No change compared with the control group

↑ Increase compared with the control group

↓ Decrease compared with the control group

ND: Not Determined

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