

Table S1. Additional information on the dogs with inflammatory bowel disease (IBD) and intestinal lymphoma

Group	Histologic diagnosis	IHC for CD3 and CD20	PARR of <i>IgH</i> and <i>TCRγ</i>	Antibiotic-free interval (weeks)	The number of Tregs (cells/62500 cm ² Treg density	
IBD	Lymphocytes plasma cells enteritis	Mixed	Negative	2	8.291822302	Reference
	Lymphocytes plasma cells enteritis	Mixed	Negative	>2	0.113080726	Low
	Lymphocytes plasma cells enteritis	Mixed	Negative	2	0.171368093	Low
	Lymphocytes plasma cells enteritis	Mixed	Negative	2	0.048389594	Low
	Lymphocytes plasma cells enteritis	Mixed	Negative	2	1.629655382	Reference
	Lymphocytes plasma cells enteritis	Mixed	Negative	>2	7.971971843	Reference
	Lymphocytes plasma cells enteritis	Mixed	Negative	2	1.32545789	Reference
	Lymphocytes plasma cells enteritis	Mixed	Negative	>2	0	Low
Intestinal lymphoma	Large cell lymphoma	CD20+	<i>IgH</i> +	>2	4.648675018	Reference
	Large cell lymphoma	CD3+	<i>TCRγ</i> +	2	11.67268904	High
	Small cell lymphoma	CD3+	<i>TCRγ</i> +	>2	4.466981142	Reference
	Small cell lymphoma	CD3+	<i>TCRγ</i> +	2	6.908173669	Reference
	Small cell lymphoma	CD3+	<i>TCRγ</i> +	2	5.250599301	Reference
	Small cell lymphoma	CD3+	<i>TCRγ</i> +	2	11.67268904	High
	Small cell lymphoma	CD3+	<i>TCRγ</i> +	2	20.03738698	High
	Small cell lymphoma	CD3+	<i>TCRγ</i> +	2	28.18145266	High

IHC, immunohistochemistry; PARR, polymerase chain reaction for antigen receptor gene rearrangement; Treg, regulatory T cell.

Table S2. Relative proportion of all bacterial taxa in this study

Phylum	Class	Order	Family	Medians % (min-max %)* of sequences				Number of dogs harboring taxa					
				Healthy		IBD		Intestinal lymphoma	Kruskal-Wallis P value**	Healthy	IBD	Intestinal lymphoma	χ^2 test P value
				Genus									
Actinobacteria				0.05 (0.00-1.02)	0.11 (0.02-8.81)	0.05 (0.01-0.13)	0.383	15	8	8	1.000		
	Actinobacteria			0.05 (0.00-1.02)	0.10 (0.02-8.81)	0.05 (0.01-0.13)	0.436	15	8	8	1.000		
		Actinomycetales		0.02 (0.00-0.07)	0.03 (0.01-0.11)	0.01 (0.00-0.05)	0.271	15	8	6	0.046		
			Actinomycetaceae	0.00 (0.00-0.04)	0.01 (0.00-0.03)	0.00 (0.00-0.00)	0.057	11	7	3	0.082		
			<i>Actinomyces</i>	0.00 ^{ab} (0.00-0.02)	0.00 ^a (0.00-0.02)	0.00 ^b (0.00-0.00)	0.037	11	7	2	0.020		
			<i>Parascardovia</i>	0.00 (0.00-0.01)	0.00 (0.00-0.01)	0.00 (0.00-0.00)	0.252	5	4	0	0.078		
			Corynebacteriaceae	0.00 (0.00-0.03)	0.01 (0.00-0.08)	0.00 (0.00-0.03)	0.806	12	7	6	0.815		
			<i>Corynebacterium</i>	0.00 (0.00-0.03)	0.01 (0.00-0.08)	0.00 (0.00-0.03)	0.806	12	7	6	0.815		
			Microbacteriaceae	0.00 (0.00-0.02)	0.00 (0.00-0.01)	0.00 (0.00-0.01)	0.985	7	4	2	0.524		
			<i>Leucobacter</i>	0.00 (0.00-0.02)	0.00 (0.00-0.01)	0.00 (0.00-0.01)	0.992	6	4	2	0.585		
			Bifidobacteriales	0.02 (0.00-1.01)	0.05 (0.01-8.73)	0.02 (0.00-0.12)	0.653	14	8	8	0.576		
			Bifidobacteriaceae	0.02 (0.00-1.01)	0.05 (0.01-8.73)	0.02 (0.00-0.12)	0.653	14	8	8	0.576		
			<i>Bifidobacterium</i>	0.02 (0.00-1.01)	0.05 (0.01-8.73)	0.02 (0.00-0.12)	0.653	14	8	8	0.576		
			Nitrospirales	0.00 (0.00-0.00)	0.00 (0.00-0.07)	0.00 (0.00-0.00)	0.146	4	4	0	0.073		
			Euzeybiales	0.00 (0.00-0.00)	0.00 (0.00-0.07)	0.00 (0.00-0.00)	0.146	4	4	0	0.073		
			Euzeybiaceae	0.00 (0.00-0.00)	0.00 (0.00-0.07)	0.00 (0.00-0.00)	0.146	4	4	0	0.073		
			<i>Euzeybia</i>	0.00 (0.00-0.00)	0.00 (0.00-0.07)	0.00 (0.00-0.00)	0.146	4	4	0	0.073		
Bacteroidetes				1.24 (0.10-21.34)	0.49 (0.18-13.13)	2.34 (0.07-25.94)	0.997	15	8	8	1.000		
	Bacteroidia			1.24 (0.10-21.34)	0.49 (0.18-13.13)	2.34 (0.07-25.94)	0.997	15	8	8	1.000		
		Bacteroidales		1.24 (0.10-21.34)	0.49 (0.18-13.13)	2.34 (0.07-25.94)	0.997	15	8	8	1.000		
			Bacteroidaceae	1.21 (0.05-21.22)	0.34 (0.14-13.07)	1.53 (0.04-25.53)	0.991	15	8	8	1.000		
			<i>Bacteroides</i>	1.17 (0.05-20.88)	0.34 (0.14-13.06)	1.50 (0.04-25.09)	0.991	15	8	8	1.000		
			Porphyromonadaceae	0.00 ^a (0.00-0.19)	0.00 ^{ab} (0.00-0.01)	0.14 ^b (0.00-3.93)	0.016	10	8	8	0.042		
			<i>Parabacteroides</i>	0.00 ^a (0.00-0.19)	0.00 ^{ab} (0.00-0.01)	0.14 ^b (0.00-3.92)	0.013	10	5	8	0.150		
			<i>Porphyromonas</i>	0.00 ^a (0.00-0.00)	0.00 ^b (0.00-0.00)	0.00 ^{ab} (0.00-0.01)	0.011	2	7	2	0.000		
			Prevotellaceae	0.00 (0.00-0.10)	0.00 (0.00-0.41)	0.00 (0.00-0.01)	0.925	14	7	6	0.458		
			Paraprevotellaceae	0.01 ^a (0.00-1.38)	0.06 ^b (0.00-7.23)	0.01 ^{ab} (0.00-0.03)	0.034	13	8	8	0.320		
			<i>Prevotella</i>	0.02 (0.00-1.44)	0.06 (0.00-7.23)	0.02 (0.00-0.03)	0.109	15	8	8	1.000		
Firmicutes				97.08 (65.28-99.64)	97.60 (67.62-99.31)	86.17 (72.78-99.74)	0.528	15	8	8	1.000		
	Bacilli			0.54 (0.28-77.59)	22.90 (0.62-66.43)	11.40 (0.66-46.32)	0.146	15	8	8	1.000		
		Bacillales		0.00 (0.00-0.09)	0.01 (0.00-0.04)	0.01 (0.00-0.15)	0.556	11	7	6	0.728		
			Staphylococcaceae	0.00 (0.00-0.09)	0.01 (0.00-0.04)	0.01 (0.00-0.15)	0.324	11	7	6	0.728		
			<i>Staphylococcus</i>	0.00 (0.00-0.03)	0.00 (0.00-0.01)	0.00 (0.00-0.01)	0.911	4	2	4	0.458		
			Lactobacillales	0.45 (0.26-77.57)	22.87 (0.55-65.77)	11.20 (0.55-46.28)	0.096	15	8	8	1.000		
			Aerococcaceae	0.00 (0.00-0.02)	0.00 (0.00-0.01)	0.00 (0.00-0.06)	0.736	3	4	4	0.218		
			Enterococcaceae	0.13 (0.01-77.35)	0.19 (0.01-36.49)	0.59 (0.11-45.60)	0.470	15	8	8	1.000		
			<i>Enterococcus</i>	0.08 (0.01-67.65)	0.12 (0.00-29.75)	0.42 (0.06-35.59)	0.503	15	8	8	1.000		
			Lactobacillaceae	0.05 (0.00-0.25)	0.07 (0.03-3.52)	0.07 (0.01-17.62)	0.793	14	8	8	0.576		
			<i>Lactobacillus</i>	0.03 (0.00-0.14)	0.04 (0.01-3.46)	0.03 (0.00-1.45)	0.962	13	8	8	0.320		
			<i>Pediococcus</i>	0.00 (0.00-0.00)	0.00 (0.00-0.00)	0.00 (0.00-2.37)	0.065	2	4	6	0.011		
			Streptococcaceae	0.15 (0.08-62.34)	10.36 (0.19-65.71)	0.52 (0.21-32.64)	0.057	15	8	8	1.000		
			<i>Lactococcus</i>	0.00 (0.00-0.03)	0.00 (0.00-0.00)	0.00 (0.00-0.01)	0.999	5	4	2	0.563		
			<i>Streptococcus</i>	0.14 (0.07-59.77)	9.96 (0.17-60.28)	0.48 (0.18-32.01)	0.062	15	8	8	1.000		
			Turicibacteriales	0.02 (0.00-0.69)	0.02 (0.00-0.63)	0.03 (0.00-6.31)	0.992	15	8	8	1.000		
			Turicibacteraceae	0.02 (0.00-0.69)	0.02 (0.00-0.63)	0.03 (0.00-6.31)	0.992	15	8	8	1.000		
			<i>Turicibacter</i>	0.02 (0.00-0.69)	0.02 (0.00-0.63)	0.03 (0.00-6.31)	0.992	15	8	8	1.000		
			Clostridia	92.41 (19.82-98.48)	60.73 (30.59-94.55)	67.90 (28.76-81.08)	0.199	15	8	8	1.000		
			Clostridiales	85.50 (19.59-98.23)	59.61 (30.15-89.62)	66.31 (28.13-79.11)	0.191	15	8	8	1.000		
			Clostridiaceae	7.72 (0.36-49.95)	1.48 (0.18-50.95)	6.35 (0.47-57.59)	0.683	15	8	8	1.000		
			<i>Clostridium</i>	7.56 (0.35-46.24)	0.71 (0.16-50.07)	6.33 (0.45-57.57)	0.570	15	8	8	1.000		
			<i>Sarcina</i>	0.00 (0.00-1.12)	0.00 (0.00-0.82)	0.00 (0.00-0.01)	0.937	10	5	7	0.479		
			Eubacteriaceae	0.00 ^a (0.00-0.02)	0.01 ^b (0.00-0.24)	0.02 ^b (0.00-7.32)	0.003	5	7	8	0.002		
			<i>Eubacterium</i>	0.48 (0.02-11.74)	0.63 (0.05-2.76)	1.84 (0.17-13.94)	0.377	15	8	8	1.000		
			Lachnospiraceae	53.05 (2.85-88.66)	31.63 (20.61-73.43)	50.08 (4.47-69.98)	0.843	15	8	8	1.000		
			<i>Blautia</i>	29.99 (0.87-61.37)	14.85 (10.25-52.26)	22.62 (1.30-48.34)	0.717	15	8	8	1.000		
			<i>Coproccoccus</i>	0.00 ^a (0.00-0.09)	0.00 ^{ab} (0.00-1.62)	0.00 ^b (0.00-1.99)	0.013	5	7	8	0.002		
			<i>Dorea</i>	0.03 (0.00-0.47)	0.01 (0.00-0.06)	0.06 (0.00-0.47)	0.146	15	8	8	1.000		
			[<i>Ruminococcus</i>]	7.49 (0.89-19.61)	4.73 (0.93-27.84)	2.36 (0.24-14.97)	0.653	15	8	8	1.000		
			Peptococcaceae	0.00 (0.00-0.01)	0.00 (0.00-1.42)	0.01 (0.00-2.20)	0.261	11	8	8	0.086		
			<i>Peptococcus</i>	0.00 (0.00-0.01)	0.00 (0.00-1.42)	0.01 (0.00-2.20)	0.538	11	8	8	0.086		
			Peptostreptococcaceae	2.98 (0.11-89.68)	0.96 (0.09-36.61)	1.49 (0.22-3.74)	0.942	15	8	8	1.000		
			<i>Peptostreptococcus</i>	0.00 (0.00-0.07)	0.00 (0.00-0.01)	0.00 (0.00-0.02)	0.999	12	8	5	0.164		
			Ruminococcaceae	0.06 (0.01-0.88)	0.46 (0.03-23.57)	0.80 (0.05-7.69)	0.086	15	8	8	1.000		
			<i>Faecalibacterium</i>	0.01 (0.00-0.75)	0.01 (0.00-1.77)	0.01 (0.00-3.14)	0.994	14	8	8	0.576		
			<i>Oscillospira</i>	0.00 ^a (0.00-0.34)	0.09 ^{ab} (0.00-6.48)	0.11 ^b (0.01-2.54)	0.027	12	8	8	0.170		
			<i>Ruminococcus</i>	7.49 (0.89-19.61)	4.73 (0.93-27.84)	2.36 (0.24-14.97)	0.653	15	8	8	1.000		
			Veillonellaceae	0.01 (0.00-2.67)	0.01 (0.00-17.27)	0.08 (0.01-1.96)	0.545	15	8	8	1.000		
			<i>Megamonas</i>	0.00 (0.00-2.56)	0.01 (0.00-0.53)	0.00 (0.00-0.01)	0.183	15	8	6	0.046		
			<i>Phascolarctobacterium</i>	0.00 (0.00-0.01)	0.00 (0.00-0.02)	0.00 (0.00-0.88)	0.076	7	5	8	0.039		
			<i>Veillonella</i>	0.00 (0.00-2.35)	0.00 (0.00-17.02)	0.01 (0.01-1.93)	0.259	13	6	8	0.328		
			Coriobacteriales	0.02 (0.00-2.13)	0.01 (0.00-9.35)	0.02 (0.00-0.53)	0.935	15	7	7	0.367		
			Coriobacteriaceae	0.02 (0.00-2.13)	0.01 (0.00-9.35)	0.02 (0.00-0.53)	0.935	15	7	7	0.367		
			<i>Collinsella</i>	0.01 (0.00-2.12)	0.01 (0.00-9.33)	0.00 (0.00-0.50)	0.259	15	7	6	0.147		
			Erysipelotrichi	0.77 (0.03-12.53)	1.36 (0.24-3.00)	1.47 (0.12-14.98)	0.952	15	8	8	1.000		
			Erysipelotrichales	0.77 (0.03-12.53)	1.36 (0.24-3.00)	1.47 (0.12-14.98)	0.952	15	8	8	1.000		
			Erysipelotrichaceae	0.57 (0.02-12.22)	0.67 (0.04-2.83)	0.52 (0.11-14.06)	0.922	15	8	8	1.000		
			<i>Allobaculum</i>	0.02 (0.00-1.56)	0.03 (0.00-0.64)	0.02 (0.01-0.04)	0.999	15	8	8	1.000		
			[<i>Eubacterium</i>]	0.48 (0.02-11.74)	0.63 (0.05-2.76)	1.84 (0.17-13.94)	0.377	15	8	8	1.000		
			Coprobacillaceae	0.28 (0.01-4.00)	0.52 (0.01-1.68)	0.51 (0.01-1.47)	0.998	15	8	8	1.000		
			<i>Catenibacterium</i>	0.00 (0.00-0.40)	0.01 (0.00-1.65)	0.01 (0.00-0.56)	0.736	11	7	8	0.241		
Fusobacteria				0.09 (0.01-3.33)	0.23 (0.06-14.08)	0.08 (0.01-5.36)	0.455	15	8	8	1.000		
	Fusobacteria			0.09 (0.01-3.33)	0.23 (0.06-14.08)	0.08 (0.01-5.36)	0.455	15	8	8	1.000		
		Fusobacteriales		0.09 (0.01-3.33)	0.23 (0.06-14.08)	0.08 (0.01-5.36)	0.455	15	8	8	1.000		
			Fusobacteriaceae	0.09 (0.01-3.33)	0.23 (0.06-14.05)	0.08 (0.01-5.34)	0.455	15	8	8	1.000		
			<i>Fusobacterium</i>	0.00 (0.00-0.03)	0.00 (0.00-0.03)	0.00 (0.00-0.03)	0.845	8	6	3	0.317		
			J2										