



MiDOG All-in-One Test

# Report Navigation Tutorial

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## Clinically relevant microbes.

Lists the detected microbes from each taxa that are suspected to be clinically relevant, based on established literature, cell counts, and relative abundance. Literature citations appear next to the microbe's name as a bracketed number.

<b>Patient Name:</b>	<b>Health Status:</b> Other	<b>Account #:</b>
<b>Owner's Name:</b>	<b>Ordered by:</b>	<b>Internal ID:</b> md1290_54
<b>Breed:</b>	<b>Email:</b>	<b>Sample Type:</b> Feces
<b>Age:</b>	<b>Hospital:</b>	<b>Received Date:</b> 2/26/2026
<b>Species:</b> Dog	<b>Location:</b>	<b>Report Date:</b> 03/02/26

### Potential Clinically Relevant Microbes Detected:

Top 5 potential Bacterial and Eukaryotic pathogens are listed. The comprehensive list of all microbes are shown in page 3. "Inferred" column indicates the difference of the species' abundance from "Normal Range", i.e. its abundance in clinical healthy animals. Less than 1000 cells of Bacteria or less than 10 cells of Fungi are often not clinically significant.

#### 1. Bacteria

Species Detected	AID*	Percentage	Cells per Sample	Normal Range	Inferred Status
<i>Anaerobiospirillum</i> sp. [1]	--	2.8 %	280,000,000	NA	NA
<i>Clostridium perfringens</i> [2]	--	1.1 %	110,000,000	NA	NA
<i>Helicobacter rappini</i> [5]	[Link]	0.1 %	10,000,000	NA	NA
<i>Campylobacter helveticus</i> [6]	[Link]	0.1 %	5,000,000	0-4.6 %	● Normal

#### 2. Fungi

No Known Eukaryotic Pathogen Detected!

#### 3. Parasites

Species Detected	AID*	Percentage	Cells per Sample	Normal Range	Inferred Status
<i>Tritrichomonas foetus</i> [7]	--	96.0 %	2,100	NA	NA
<i>Giardia duodenalis</i> [8]	--	3.5 %	78	NA	NA

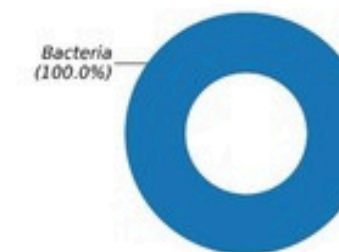
#### Abbreviation Key:

- **Normal Range.** Species detected within the reference range of clinically healthy animals.
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- **Disease Range.** Species detected significantly higher than the reference range of clinically healthy animals.

\* AID stands for Animal Infection Database. It is a resource center to provide more information for microbes in animal microbiome settings.

### Microbial Composition Overview:

Taxa	Percentage
Bacteria	99.99%
Fungi	0%
Other_Eukaryota	0%



Grand Composition



These links provide important information about the pathogens in the sample

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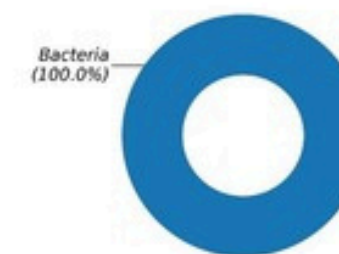
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Clicking on these links opens the associated information in the MiDOG Animal Infections Database (AID).

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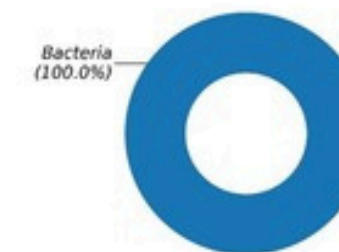
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**Animal Infection Database (AID)**  
Veterinary Resource Center for Microbes in Animal Microbiome



*Helicobacter*

(This is NOT a diagnosis. AID is primarily intended for informational purposes only.)

**Introduction:**  
*Helicobacter* species are Gram-negative, spiral-shaped or curved rod bacteria with flagella, which provide motility and allow them to navigate through the mucous lining of the gastrointestinal tract. They are microaerophilic, requiring low levels of oxygen (typically 5-10% oxygen) for growth, which aligns with the conditions found in their primary habitats. *Helicobacter* species are commonly found in the stomachs and intestines of various mammals and birds, where they persist as part of the natural microbiota or establish themselves under specific conditions. These bacteria are notable for their production of urease, an enzyme that hydrolyzes urea to produce ammonia, helping neutralize stomach acid and allowing them to survive in the harsh acidic environment of the stomach. *Helicobacter* species exhibit a high degree of genetic diversity and adaptation, enabling them to colonize diverse hosts and environments within the gastrointestinal tract (Kusters et al., 2006; Lee et al., 1997; Solnick & Schauer, 2001).

**Infections:**  
*Helicobacter* species are associated with various infections across different animal species and body sites, often affecting the gastrointestinal tract but also being implicated in extra-intestinal infections.



These columns indicate the percentage of the microbiome of each pathogen, their cell counts within the sample, and the normal range of the pathogen in clinically healthy individuals.  
 (Please note, normal ranges are not available for all pathogens, sample types, or animal species)

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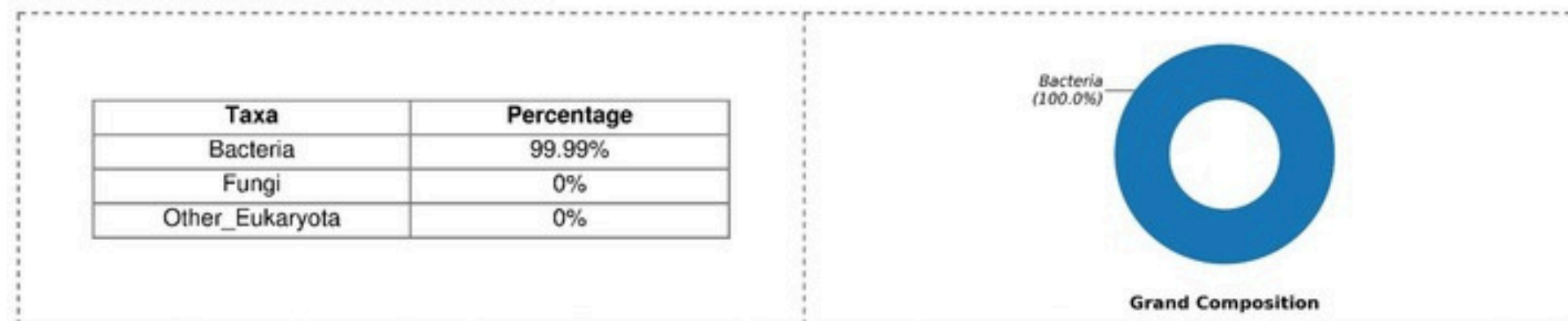
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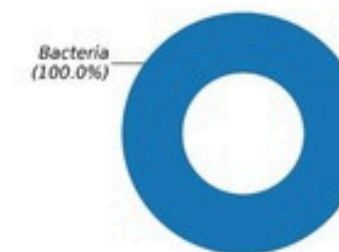
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Other parasites, such as Giardia, tapeworms, and roundworms, will be reported here.



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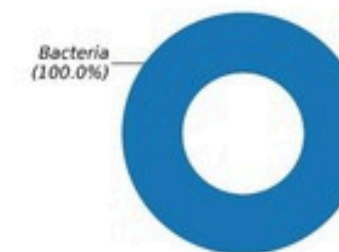
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Grand Composition

Here, we show the microbial overview. This demonstrates what percentage of the microbiome is dominated by Bacteria vs. Fungi vs. Other Eukaryota like protists and parasites.



### Antimicrobial Resistance for Detected Clinically Relevant Microbes

The sample was screened for antibiotic resistance genes and intrinsic resistances. Please follow antimicrobial stewardship guidelines for cautious antibiotic use.

Drug Tiers*	Antibiotics	<i>Anaerobiospirillum</i> sp. (2.8 %)	<i>Enterococcus lactis</i> (1.1 %)	<i>Helicobacter rappini</i> (0.1 %)	<i>Campylobacter helveticus</i> (0.1 %)	Suggested Dose†	Drug Delivery
1st	Cefazolin	-	R	-	-	15 mg/kg, q 12 hrs	IV, SC
	Cephalothin	-	R	R	R	4-20 mg/kg, q 8 hrs	PO
	Cephalexin	-	R	-	-	22 mg/kg, q 12 hrs	PO
	Cefadroxil	-	R	-	G	22 mg/kg, q 12 hrs	PO
	Cefoxitin	-	R	-	-	15 mg/kg, q 12 hrs	IV, SC
	Penicillin	-	R	-	-	8-10 mg/kg, q 8 hrs	PO
	Penicillin G	-	G	-	R	-	-
	Oxacillin	-	G	-	-	22 mg/kg, q 8 hrs	IV
	Ampicillin	-	G	-	-	22 mg/kg, q 8 hrs	IV, SC
	Amoxicillin	-	G	G	-	22 mg/kg, q 8 hrs	PO
	Clavamox	-	G	-	-	13.75 mg/kg, q 12 hrs	PO
	Gentamicin	-	R	-	-	6 mg/kg, q 24 hrs	IV, SC
	Tobramycin	-	R	-	-	-	IV/Topical Use
	Neomycin	-	R	-	-	-	Topical Use
	Clindamycin	-	R	R	R	5.5 mg/kg, q 12 hrs	PO
	Lincomycin	-	R	R	R	15-25 mg/kg, q 24hrs	PO
	Doxycycline	-	-	-	-	5 mg/kg, q 12 hrs	PO
	Minocycline	-	-	-	-	10 mg/kg, q 12 hrs	PO
	Tetracycline	-	-	-	-	20 mg/kg, q 12 hrs	PO
	Sulfonamide	-	-	-	-	30 mg/kg, q 12 hrs	PO
Trimethoprim-sulfamethoxazole	-	R	-	-	15-30 mg/kg, q 24 hrs	PO	
Metronidazole	-	-	-	-	10 mg/kg, q 8 hrs	IV	
Cefovecin	-	-	-	-	8 mg/kg, once	SC	
2nd	Cefpodoxime	-	-	-	-	5 mg/kg, q 24 hrs	PO
	Ceftiofur	-	-	-	-	2.2 mg/kg, q 24 hrs	SC
	Timentin	-	-	-	-	-	Topical Use
	Azithromycin	-	IR	-	-	5 mg/kg q 12 hrs	PO
	Orbifloxacin	-	-	-	-	2.5-7.5 mg/kg, q 24 hrs	PO
	Chloramphenicol	-	G	-	-	35 mg/kg q 8 hrs	PO
3rd	Florfenicol	-	-	-	-	20 mg/kg, q 12 hrs	PO
	Amikacin	-	R	-	-	15 mg/kg, q 24 hrs	IV, SC
	Ritampin	-	-	-	-	5-10 mg/kg, q 12 hrs	PO
	Imipenem	-	G	-	-	10 or 20 mg/kg, q 8 hrs	-
	Levofloxacin	-	-	-	-	10-30 mg/kg, q 24 hrs	IV/PO
	Marbofloxacin	-	-	-	-	2.75-5.5 mg/kg, q 24 hrs	PO
	Pradofloxacin§	-	-	-	-	3.0 mg/kg, q 24 hrs	PO
	Enrofloxacin	-	-	-	-	5 mg/kg, q 24 hrs	PO
	Ciprofloxacin¶	-	-	-	-	-	Topical Use
	Ceftazidime	-	R	-	-	3-30 mg/kg, q 6-8 hrs	IV
	Mupirocin	-	R	R	R	-	Topical Use
	Nitrofurantoin	-	G	-	-	4.4-5mg/kg, q 24 hrs	PO
	Colistin	-	-	-	-	8-8g/kg, q 24 hrs	PO
	Ticarcillin	-	-	-	-	3.1 g, q 4-6 hrs	IV
	Piperacillin-Tazobactam	-	-	-	-	90 mg/kg, 30min q 8 hrs	IV
	Fusidic acid‡	-	R	R	R	-	Topical Use
Tulathromycin	-	IR	-	-	2.5mg/kg	SC	
Tylosin	-	IR	-	-	10-25mg/kg	PO	

<b>R</b> Not Recommended (resistance genes detected, intrinsic resistance, or <10% effectiveness in antibiogram studies)	<b>PO</b> Oral, by mouth	<b>*</b> Antibiotic Drug Tiers for Companion Animals, ARSI, University of Minnesota
<b>IR</b> Intermediate Resistance Predicted	<b>IV</b> Intravenous injection	<b>§</b> Contraindicated in some animals
<b>-</b> No resistance detected/no info	<b>SC</b> Subcutaneous injection	<b>¶</b> Variable bioavailability in animals
<b>P</b> No resistance detected and Poor Efficacy (< 50% effectiveness in antibiogram studies)	<b>TU</b> Topical use	<b>‡</b> Used in combination with other antibiotics (except quinolones)
<b>F</b> No resistance detected and Fair Efficacy (< 75% effectiveness in antibiogram studies)		<b>†</b> Doses may vary with patient species and infections.
<b>G</b> No resistance detected and Good Efficacy (> 75% effectiveness in antibiogram studies)		

Lists clinically relevant pathogens identified on page 1, along with detected resistance and efficacy. Antibiotic efficacy is found in the key and based on previously published antibiogram studies.



### Antimicrobial Resistance for Detected Clinically Relevant Microbes

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	Ampicillin	-	G	-	-	22 mg/kg, q 8 hrs	IV, SC
	Amoxicillin	-	G	G	-	22 mg/kg, q 8 hrs	PO
	Clavamox	-	G	-	-	13.75 mg/kg, q 12 hrs	PO
	Gentamicin	-	R	-	-	6 mg/kg, q 24 hrs	IV, SC
	Tobramycin	-	R	-	-	-	IV/Topical Use
	Neomycin	-	R	-	-	-	Topical Use
	Clindamycin	-	R	R	R	5.5 mg/kg, q 12 hrs	PO
	Lincomycin	-	R	R	R	15-25 mg/kg, q 24hrs	PO
	Doxycycline	-	-	-	-	5 mg/kg, q 12 hrs	PO
	Minocycline	-	-	-	-	10 mg/kg, q 12 hrs	PO
	Tetracycline	-	-	-	-	20 mg/kg, q 12 hrs	PO
	Sulfonamide	-	-	-	-	30 mg/kg, q 12 hrs	PO
Trimethoprim-sulfamethoxazole	-	-	R	-	15-30 mg/kg, q 24 hrs	PO	
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	Florfenicol	-	-	-	-	20 mg/kg, q 12 hrs	PO
	Amikacin	-	R	-	-	15 mg/kg, q 24 hrs	IV, SC
	Ritampin	-	-	-	-	5-10 mg/kg, q 12 hrs	PO
	Imipenem	-	G	-	-	10 or 20 mg/kg, q 8 hrs	-
	Levofloxacin	-	-	-	-	10-30 mg/kg, q 24 hrs	IV/PO
	Marbifloxacin	-	-	-	-	2.75-5.5 mg/kg, q 24 hrs	PO
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	Ticarcillin	-	-	-	-	3.1 g, q 4-6 hrs	IV
Piperacillin-Tazobactam	-	-	-	-	90 mg/kg, 30min q 8 hrs	IV	
Fusidic acid‡	-	R	R	R	-	Topical Use	
Tulathromycin	-	IR	-	-	2.5mg/kg	SC	
Tylosin	-	IR	-	-	10-25mg/kg	PO	

To make the AMR information easy to interpret, we provide a color key explaining the different results/recommendations

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<b>IR</b> Intermediate Resistance Predicted	<b>IV</b> Intravenous injection	<b>§</b> Contraindicated in some animals
<b>-</b> No resistance detected/no info	<b>SC</b> Subcutaneous injection	<b>¶</b> Variable bioavailability in animals
<b>P</b> No resistance detected and Poor Efficacy (< 50% effectiveness in antibiogram studies)	<b>TU</b> Topical use	<b>‡</b> Used in combination with other antibiotics (except quinolones)
<b>F</b> No resistance detected and Fair Efficacy (< 75% effectiveness in antibiogram studies)		<b>†</b> Doses may vary with patient species and infections.
<b>G</b> No resistance detected and Good Efficacy (> 75% effectiveness in antibiogram studies)		



### Antimicrobial Resistance for Detected Clinically Relevant Microbes

The sample was screened for antibiotic resistance genes and intrinsic resistances. Please follow antimicrobial stewardship guidelines for cautious antibiotic use.

Drug Tiers*	Antibiotics	<i>Anaerobiospirillum</i> sp. (2.8 %)	<i>Enterococcus lactis</i> (1.1 %)	<i>Helicobacter rappini</i> (0.1 %)	<i>Campylobacter helveticus</i> (0.1 %)	Suggested Dose†	Drug Delivery
1st	Cefazolin	-	R	-	-	15 mg/kg, q 12 hrs	IV, SC
	Cephalothin	-	R	R	R	4-20 mg/kg, q 8 hrs	PO
	Cephalexin	-	R	-	-	22 mg/kg, q 12 hrs	PO
	Cefadroxil	-	R	-	G	22 mg/kg, q 12 hrs	PO
	Cefoxitin	-	R	-	-	15 mg/kg, q 12 hrs	IV, SC
	Penicillin	-	R	-	-	8-10 mg/kg, q 8 hrs	PO
	Penicillin G	-	G	-	R	-	-
	Oxacillin	-	G	-	-	22 mg/kg, q 8 hrs	IV
	Ampicillin	-	G	-	-	22 mg/kg, q 8 hrs	IV, SC
	Amoxicillin	-	G	G	-	22 mg/kg, q 8 hrs	PO
	Clavamox	-	G	-	-	13.75 mg/kg, q 12 hrs	PO
	Gentamicin	-	R	-	-	6 mg/kg, q 24 hrs	IV, SC
	Tobramycin	-	R	-	-	-	IV/Topical Use
	Neomycin	-	R	-	-	-	Topical Use
	Clindamycin	-	R	R	R	5.5 mg/kg, q 12 hrs	PO
	Lincomycin	-	R	R	R	15-25 mg/kg, q 24hrs	PO
	Doxycycline	-	-	-	-	5 mg/kg, q 12 hrs	PO
	Minocycline	-	-	-	-	10 mg/kg, q 12 hrs	PO
	Tetracycline	-	-	-	-	20 mg/kg, q 12 hrs	PO
	Sulfonamide	-	-	-	-	30 mg/kg, q 12 hrs	PO
Trimethoprim-sulfamethoxazole	-	-	R	-	15-30 mg/kg, q 24 hrs	PO	
Metronidazole	-	-	-	-	10 mg/kg, q 8 hrs	IV	
Cefovecin	-	-	-	-	8 mg/kg, once	SC	
2nd	Cefpodoxime	-	-	-	-	5 mg/kg, q 24 hrs	PO
	Ceftiofur	-	-	-	-	2.2 mg/kg, q 24 hrs	SC
	Timertin	-	-	-	-	-	Topical Use
	Azithromycin	-	IR	-	-	5 mg/kg q 12 hrs	PO
	Orbifloxacin	-	-	-	-	2.5-7.5 mg/kg, q 24 hrs	PO
	Chloramphenicol	-	-	G	-	35 mg/kg q 8 hrs	PO
	Florfenicol	-	-	-	-	20 mg/kg, q 12 hrs	PO
Amikacin	-	-	R	-	15 mg/kg, q 24 hrs	IV, SC	

**R:** These drugs are not recommended for the indicated pathogen due to either wide-spread intrinsic resistance, a powerful AMR gene in this pathogen, or this drug has been shown to work on <10% of strains.

R	Not Recommended (resistance genes detected, intrinsic resistance, or <10% effectiveness in antibiogram studies)
IR	Intermediate Resistance Predicted
-	No resistance detected/no info
P	No resistance detected and <b>Poor</b> Efficacy (< 50% effectiveness in antibiogram studies)
F	No resistance detected and <b>Fair</b> Efficacy (< 75% effectiveness in antibiogram studies)
G	No resistance detected and <b>Good</b> Efficacy (> 75% effectiveness in antibiogram studies)



**IR:** We detected a moderate to weak AMR gene in this microbe within the sample. Not all AMR genes are enough to confer resistance above clinical breakpoints, but they provide evidence that resistance may be accumulating in this pathogen. If multiple **IR** genes accumulate in a pathogen, they can function together to confer resistance, and the key will automatically update from **IR** to **R**

### Antimicrobial Resistance for Detected Clinically Relevant Microbes

The sample was screened for antibiotic resistance genes and intrinsic resistances. Please follow antimicrobial stewardship guidelines for cautious antibiotic use.

Drug Tiers*	Antibiotics	<i>Anaerobiospirillum</i> sp. (2.8 %)	<i>Enterococcus lactis</i> (1.1 %)	<i>Helicobacter rappini</i> (0.1 %)	<i>Campylobacter helveticus</i> (0.1 %)	Suggested Dose†	Drug Delivery
1st	Cefazolin	-	R	-	-	15 mg/kg, q 12 hrs	IV, SC
	Cephalothin	-	R	R	R	4-20 mg/kg, q 8 hrs	PO
	Cephalexin	-	R	-	-	22 mg/kg, q 12 hrs	PO
	Cefadroxil	-	R	-	G	22 mg/kg, q 12 hrs	PO
	Cefoxitin	-	R	-	-	15 mg/kg, q 12 hrs	IV, SC
	Penicillin	-	R	-	-	8-10 mg/kg, q 8 hrs	PO
	Penicillin G	-	G	-	R	-	-
	Oxacillin	-	G	-	-	22 mg/kg, q 8 hrs	IV
	Ampicillin	-	G	-	-	22 mg/kg, q 8 hrs	IV, SC
	Amoxicillin	-	G	G	-	22 mg/kg, q 8 hrs	PO
	Clavamox	-	G	-	-	13.75 mg/kg, q 12 hrs	PO
	Gentamicin	-	R	-	-	6 mg/kg, q 24 hrs	IV, SC
	Tobramycin	-	R	-	-	-	IV/Topical Use
	Neomycin	-	R	-	-	-	Topical Use
	Clindamycin	-	R	R	R	5.5 mg/kg, q 12 hrs	PO
	Lincomycin	-	R	R	R	15-25 mg/kg, q 24hrs	PO
	Doxycycline	-	-	-	-	5 mg/kg, q 12 hrs	PO
	Minocycline	-	-	-	-	10 mg/kg, q 12 hrs	PO
	Tetracycline	-	-	-	-	20 mg/kg, q 12 hrs	PO
	Sulfonamide	-	-	-	-	30 mg/kg, q 12 hrs	PO
Trimethoprim-sulfamethoxazole	-	R	-	-	15-30 mg/kg, q 24 hrs	PO	
Metronidazole	-	-	-	-	10 mg/kg, q 8 hrs	IV	
Cefovecin	-	-	-	-	8 mg/kg, once	SC	
2nd	Cefpodoxime	-	-	-	-	5 mg/kg, q 24 hrs	PO
	Ceftiofur	-	-	-	-	2.2 mg/kg, q 24 hrs	SC
	Timertin	-	-	-	-	-	Topical Use
	Azithromycin	-	IR	-	-	5 mg/kg q 12 hrs	PO
	Oribloxacin	-	-	-	-	2.5-7.5 mg/kg, q 24 hrs	PO
	Chloramphenicol	-	G	-	-	35 mg/kg q 8 hrs	PO
	Florfenicol	-	-	-	-	20 mg/kg, q 12 hrs	PO
Amikacin	-	R	-	-	15 mg/kg, q 24 hrs	IV, SC	

R	Not Recommended (resistance genes detected, intrinsic resistance, or <10% effectiveness in antibiogram studies)
IR	Intermediate Resistance Predicted
-	No resistance detected/no info
P	No resistance detected and <b>Poor</b> Efficacy (< 50% effectiveness in antibiogram studies)
F	No resistance detected and <b>Fair</b> Efficacy (< 75% effectiveness in antibiogram studies)
G	No resistance detected and <b>Good</b> Efficacy (> 75% effectiveness in antibiogram studies)



### Antimicrobial Resistance for Detected Clinically Relevant Microbes

The sample was screened for antibiotic resistance genes and intrinsic resistances. Please follow antimicrobial stewardship guidelines for cautious antibiotic use.

Drug Tiers*	Antibiotics	Anaerobiospirillum sp. (2.8 %)	Enterococcus lactis (1.1 %)	Helicobacter rappini (0.1 %)	Campylobacter helveticus (0.1 %)	Suggested Dose†	Drug Delivery
1st	Cefazolin	-	R	-	-	15 mg/kg, q 12 hrs	IV, SC
	Cephalothin	-	R	R	R	4-20 mg/kg, q 8 hrs	PO
	Cephalexin	-	R	-	-	22 mg/kg, q 12 hrs	PO
	Cefadroxil	-	R	-	G	22 mg/kg, q 12 hrs	PO
	Cefoxitin	-	R	-	-	15 mg/kg, q 12 hrs	IV, SC
	Penicillin	-	R	-	-	8-10 mg/kg, q 8 hrs	PO
	Penicillin G	-	G	-	R	-	-
	Oxacillin	-	G	-	-	22 mg/kg, q 8 hrs	IV
	Ampicillin	-	G	-	-	22 mg/kg, q 8 hrs	IV, SC
	Amoxicillin	-	G	G	-	22 mg/kg, q 8 hrs	PO
	Clavamox	-	G	-	-	13.75 mg/kg, q 12 hrs	PO
	Gentamicin	-	R	-	-	6 mg/kg, q 24 hrs	IV, SC
	Tobramycin	-	R	-	-	-	IV/Topical Use
	Neomycin	-	R	-	-	-	Topical Use
	Clindamycin	-	R	R	R	5.5 mg/kg, q 12 hrs	PO
	Lincomycin	-	R	R	R	15-25 mg/kg, q 24hrs	PO
	Doxycycline	-	-	-	-	5 mg/kg, q 12 hrs	PO
	Minocycline	-	-	-	-	10 mg/kg, q 12 hrs	PO
	Tetracycline	-	-	-	-	20 mg/kg, q 12 hrs	PO
	Sulfonamide	-	-	-	-	30 mg/kg, q 12 hrs	PO
2nd	Trimethoprim-sulfamethoxazole	-	R	-	-	15-30 mg/kg, q 24 hrs	PO
	Metronidazole	-	-	-	-	10 mg/kg, q 8 hrs	IV
	Cefovecin	-	-	-	-	8 mg/kg, once	SC
	Cefpodoxime	-	-	-	-	5 mg/kg, q 24 hrs	PO
	Ceftiofur	-	-	-	-	2.2 mg/kg, q 24 hrs	SC
	Timertin	-	-	-	-	-	Topical Use
	Azithromycin	-	IR	-	-	5 mg/kg q 12 hrs	PO
	Orbifloxacin	-	-	-	-	2.5-7.5 mg/kg, q 24 hrs	PO
	Chloramphenicol	-	G	-	-	35 mg/kg q 8 hrs	PO
	Florfenicol	-	-	-	-	20 mg/kg, q 12 hrs	PO
Amikacin	-	R	-	-	15 mg/kg, q 24 hrs	IV, SC	

"-": No resistance genes were detected against this drug, and this drug has not been sufficiently described in existing literature to be effective against this pathogen.

R	Not Recommended (resistance genes detected, intrinsic resistance, or <10% effectiveness in antibiogram studies)
IR	Intermediate Resistance Predicted
-	No resistance detected/no info
P	No resistance detected and <b>Poor</b> Efficacy (< 50% effectiveness in antibiogram studies)
F	No resistance detected and <b>Fair</b> Efficacy (< 75% effectiveness in antibiogram studies)
G	No resistance detected and <b>Good</b> Efficacy (> 75% effectiveness in antibiogram studies)



### Antimicrobial Resistance for Detected Clinically Relevant Microbes

The sample was screened for antibiotic resistance genes and intrinsic resistances. Please follow antimicrobial stewardship guidelines for cautious antibiotic use.

Drug Tiers*	Antibiotics	<i>Anaerobiospirillum</i> sp. (2.8 %)	<i>Enterococcus lactis</i> (1.1 %)	<i>Helicobacter rappini</i> (0.1 %)	<i>Campylobacter helveticus</i> (0.1 %)	Suggested Dose†	Drug Delivery
1st	Cefazolin	-	R	-	-	15 mg/kg, q 12 hrs	IV, SC
	Cephalothin	-	R	R	R	4-20 mg/kg, q 8 hrs	PO
	Cephalexin	-	R	-	-	22 mg/kg, q 12 hrs	PO
	Cefadroxil	-	R	-	G	22 mg/kg, q 12 hrs	PO
	Cefoxitin	-	R	-	-	15 mg/kg, q 12 hrs	IV, SC
	Penicillin	-	R	-	-	8-10 mg/kg, q 8 hrs	PO
	Penicillin G	-	G	-	R	-	-
	Oxacillin	-	G	-	-	22 mg/kg, q 8 hrs	IV
	Ampicillin	-	G	-	-	22 mg/kg, q 8 hrs	IV, SC
	Amoxicillin	-	G	G	-	22 mg/kg, q 8 hrs	PO
	Clavamox	-	G	-	-	13.75 mg/kg, q 12 hrs	PO
	Gentamicin	-	R	-	-	6 mg/kg, q 24 hrs	IV, SC
	Tobramycin	-	R	-	-	-	IV/Topical Use
	Neomycin	-	R	-	-	-	Topical Use
	Clindamycin	-	R	R	R	5.5 mg/kg, q 12 hrs	PO
	Lincomycin	-	R	R	R	15-25 mg/kg, q 24hrs	PO
	Doxycycline	-	-	-	-	5 mg/kg, q 12 hrs	PO
	Minocycline	-	-	-	-	10 mg/kg, q 12 hrs	PO
	Tetracycline	-	-	-	-	20 mg/kg, q 12 hrs	PO
	Sulfonamide	-	-	-	-	30 mg/kg, q 12 hrs	PO
2nd	Trimethoprim-sulfamethoxazole	-	R	-	-	15-30 mg/kg, q 24 hrs	PO
	Metronidazole	-	-	-	-	10 mg/kg, q 8 hrs	IV
	Cefovecin	-	-	-	-	8 mg/kg, once	SC
	Cefpodoxime	-	-	-	-	5 mg/kg, q 24 hrs	PO
	Ceftiofur	-	-	-	-	2.2 mg/kg, q 24 hrs	SC
	Timertin	-	-	-	-	-	Topical Use
	Azithromycin	-	IR	-	-	5 mg/kg q 12 hrs	PO
	Orbifloxacin	-	-	-	-	2.5-7.5 mg/kg, q 24 hrs	PO
	Chloramphenicol	-	G	-	-	35 mg/kg q 8 hrs	PO
	Florfenicol	-	-	-	-	20 mg/kg, q 12 hrs	PO
Amikacin	-	R	-	-	15 mg/kg, q 24 hrs	IV, SC	

“P”: No resistance genes were detected against this drug, and this drug has been shown to work on < 50% of strains.

R	Not Recommended (resistance genes detected, intrinsic resistance, or <10% effectiveness in antibiogram studies)
IR	Intermediate Resistance Predicted
-	No resistance detected/no info
P	No resistance detected and <b>Poor</b> Efficacy (< 50% effectiveness in antibiogram studies)
F	No resistance detected and <b>Fair</b> Efficacy (< 75% effectiveness in antibiogram studies)
G	No resistance detected and <b>Good</b> Efficacy (> 75% effectiveness in antibiogram studies)



### Antimicrobial Resistance for Detected Clinically Relevant Microbes

The sample was screened for antibiotic resistance genes and intrinsic resistances. Please follow antimicrobial stewardship guidelines for cautious antibiotic use.

Drug Tiers*	Antibiotics	Anaerobiospirillum sp. (2.8 %)	Enterococcus lactis (1.1 %)	Helicobacter rappini (0.1 %)	Campylobacter helveticus (0.1 %)	Suggested Dose†	Drug Delivery
1st	Cefazolin	-	R	-	-	15 mg/kg, q 12 hrs	IV, SC
	Cephalothin	-	R	R	R	4-20 mg/kg, q 8 hrs	PO
	Cephalexin	-	R	-	-	22 mg/kg, q 12 hrs	PO
	Cefadroxil	-	R	-	G	22 mg/kg, q 12 hrs	PO
	Cefoxitin	-	R	-	-	15 mg/kg, q 12 hrs	IV, SC
	Penicillin	-	R	-	-	8-10 mg/kg, q 8 hrs	PO
	Penicillin G	-	G	-	R	-	-
	Oxacillin	-	G	-	-	22 mg/kg, q 8 hrs	IV
	Ampicillin	-	G	-	-	22 mg/kg, q 8 hrs	IV, SC
	Amoxicillin	-	G	G	-	22 mg/kg, q 8 hrs	PO
	Clavamox	-	G	-	-	13.75 mg/kg, q 12 hrs	PO
	Gentamicin	-	R	-	-	6 mg/kg, q 24 hrs	IV, SC
	Tobramycin	-	R	-	-	-	IV/Topical Use
	Neomycin	-	R	-	-	-	Topical Use
	Clindamycin	-	R	R	R	5.5 mg/kg, q 12 hrs	PO
	Lincomycin	-	R	R	R	15-25 mg/kg, q 24hrs	PO
	Doxycycline	-	-	-	-	5 mg/kg, q 12 hrs	PO
	Minocycline	-	-	-	-	10 mg/kg, q 12 hrs	PO
	Tetracycline	-	-	-	-	20 mg/kg, q 12 hrs	PO
	Sulfonamide	-	-	-	-	30 mg/kg, q 12 hrs	PO
2nd	Trimethoprim-sulfamethoxazole	-	R	-	-	15-30 mg/kg, q 24 hrs	PO
	Metronidazole	-	-	-	-	10 mg/kg, q 8 hrs	IV
	Cefovecin	-	-	-	-	8 mg/kg, once	SC
	Cefpodoxime	-	-	-	-	5 mg/kg, q 24 hrs	PO
	Ceftiofur	-	-	-	-	2.2 mg/kg, q 24 hrs	SC
	Timertin	-	-	-	-	-	Topical Use
	Azithromycin	-	IR	-	-	5 mg/kg q 12 hrs	PO
	Oribloxacin	-	-	-	-	2.5-7.5 mg/kg, q 24 hrs	PO
	Chloramphenicol	-	G	-	-	35 mg/kg q 8 hrs	PO
	Florfenicol	-	-	-	-	20 mg/kg, q 12 hrs	PO
Amikacin	-	R	-	-	15 mg/kg, q 24 hrs	IV, SC	

“F”: No resistance genes were detected against this drug, and this drug has been shown to work on 50-75% of strains.

R	Not Recommended (resistance genes detected, intrinsic resistance, or <10% effectiveness in antibiogram studies)
IR	Intermediate Resistance Predicted
-	No resistance detected/no info
P	No resistance detected and <b>Poor</b> Efficacy (< 50% effectiveness in antibiogram studies)
F	No resistance detected and <b>Fair</b> Efficacy (< 75% effectiveness in antibiogram studies)
G	No resistance detected and <b>Good</b> Efficacy (> 75% effectiveness in antibiogram studies)



### Antimicrobial Resistance for Detected Clinically Relevant Microbes

The sample was screened for antibiotic resistance genes and intrinsic resistances. Please follow antimicrobial stewardship guidelines for cautious antibiotic use.

Drug Tiers*	Antibiotics	Anaerobiospirillum sp. (2.8 %)	Enterococcus lactis (1.1 %)	Helicobacter rappini (0.1 %)	Campylobacter helveticus (0.1 %)	Suggested Dose†	Drug Delivery
1st	Cefazolin	-	R	-	-	15 mg/kg, q 12 hrs	IV, SC
	Cephalothin	-	R	R	R	4-20 mg/kg, q 8 hrs	PO
	Cephalexin	-	R	-	-	22 mg/kg, q 12 hrs	PO
	Cefadroxil	-	R	-	G	22 mg/kg, q 12 hrs	PO
	Cefoxitin	-	R	-	-	15 mg/kg, q 12 hrs	IV, SC
	Penicillin	-	R	-	-	8-10 mg/kg, q 8 hrs	PO
	Penicillin G	-	G	-	R	-	-
	Oxacillin	-	G	-	-	22 mg/kg, q 8 hrs	IV
	Ampicillin	-	G	-	-	22 mg/kg, q 8 hrs	IV, SC
	Amoxicillin	-	G	G	-	22 mg/kg, q 8 hrs	PO
	Clavamox	-	G	-	-	13.75 mg/kg, q 12 hrs	PO
	Gentamicin	-	R	-	-	6 mg/kg, q 24 hrs	IV, SC
	Tobramycin	-	R	-	-	-	IV/Topical Use
	Neomycin	-	R	-	-	-	Topical Use
	Clindamycin	-	R	R	R	5.5 mg/kg, q 12 hrs	PO
	Lincomycin	-	R	R	R	15-25 mg/kg, q 24hrs	PO
	Doxycycline	-	-	-	-	5 mg/kg, q 12 hrs	PO
	Minocycline	-	-	-	-	10 mg/kg, q 12 hrs	PO
	Tetracycline	-	-	-	-	20 mg/kg, q 12 hrs	PO
	Sulfonamide	-	-	-	-	30 mg/kg, q 12 hrs	PO
2nd	Trimethoprim-sulfamethoxazole	-	R	-	-	15-30 mg/kg, q 24 hrs	PO
	Metronidazole	-	-	-	-	10 mg/kg, q 8 hrs	IV
	Cefovecin	-	-	-	-	8 mg/kg, once	SC
	Cefpodoxime	-	-	-	-	5 mg/kg, q 24 hrs	PO
	Ceftiofur	-	-	-	-	2.2 mg/kg, q 24 hrs	SC
	Timertin	-	-	-	-	-	Topical Use
	Azithromycin	-	IR	-	-	5 mg/kg q 12 hrs	PO
	Orbifloxacin	-	-	-	-	2.5-7.5 mg/kg, q 24 hrs	PO
	Chloramphenicol	-	G	-	-	35 mg/kg q 8 hrs	PO
	Florfenicol	-	-	-	-	20 mg/kg, q 12 hrs	PO
Amikacin	-	R	-	-	15 mg/kg, q 24 hrs	IV, SC	

"G": No resistance genes were detected against this drug, and this drug has been shown to work on >75% of strains.

R	Not Recommended (resistance genes detected, intrinsic resistance, or <10% effectiveness in antibiogram studies)
IR	Intermediate Resistance Predicted
-	No resistance detected/no info
P	No resistance detected and <b>Poor</b> Efficacy (< 50% effectiveness in antibiogram studies)
F	No resistance detected and <b>Fair</b> Efficacy (< 75% effectiveness in antibiogram studies)
G	No resistance detected and <b>Good</b> Efficacy (> 75% effectiveness in antibiogram studies)



Here we show the most abundant microbes (bacteria and fungi) observed in the sample, including commensals and potential pathogens. We include the percentage of the microbial community occupied by each microbe to demonstrate the proportion of the community made up by potential pathogens.

Species Detected	AID*	Percentage	Cells per Sample	Normal Range	Inferred Status
<i>Segatella copri</i>	--	23.6 %	2,400,000,000	0-28.0 %	● Normal
<i>Blautia sp.</i>	--	9.9 %	1,000,000,000	NA	NA
<i>Catenibacterium sp.</i>	--	9.8 %	980,000,000	NA	NA
<i>Alloprevotella sp.</i>	--	8.7 %	870,000,000	NA	NA
<i>Prevotella sp.</i>	--	4.8 %	480,000,000	NA	NA
<i>Peptacetobacter sp.</i>	--	4.1 %	410,000,000	0-13.0 %	● Normal
<i>Holdemanella biformis</i>	--	3.0 %	300,000,000	0-2.9 %	● Abnormal
<i>Anaerobiospirillum sp.</i> [1]	--	2.8 %	280,000,000	NA	NA

#### Fungi Composition



Species Detected	AID*	Percentage	Cells per Sample	Normal Range	Inferred Status
<i>Periconia cookei</i>	--	100.0 %	1	0-0.2 %	● Abnormal

Donut plots above depict the relative abundance of all detected Bacterial or fungal species. Each color represents a different species. The larger the colored segment is, the more abundant that species is in the specimen.

The tables above lists top 8 bacterial/fungal species detected within the limit of detection. The absolute and relative abundances of each species is shown. Potential clinically relevant microbes are highlighted in red.

#### Abbreviation Key:

- **Normal Range.** Species detected within the reference range of clinically healthy animals.
- **Abnormal Range.** Species detected outside the reference range of clinically healthy animals.
- **Disease Range.** Species detected significantly higher than the reference range of clinically healthy animals.

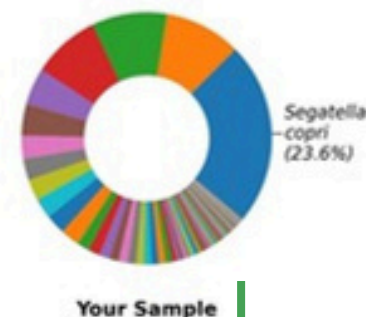
\* AID stands for Animal Infection Database. It is a resource center to provide more information for microbes in animal microbiome settings.

Potential pathogen species are colored red and commensals are blue



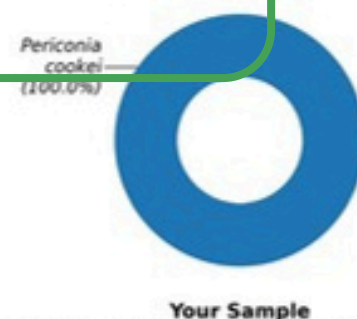
### Supplemental Data

#### Bacteria & Archaea Composition



Species Detected	AID*	Percentage	Cells per Sample	Normal Range	Inferred Status
<i>Segatella copri</i>	--	23.6 %	2,400,000,000	0-28.0 %	● Normal
<i>Blautia sp.</i>	--	9.9 %	1,000,000,000	NA	NA
<i>Catenibacterium sp.</i>	--	9.8 %	980,000,000	NA	NA
<i>Alloprevotella sp.</i>	--	8.7 %	870,000,000	NA	NA
<i>Prevotella sp.</i>	--	4.8 %	480,000,000	NA	NA
<i>Peptacetobacter sp.</i>	--	4.1 %	410,000,000	0-13.0 %	● Normal
<i>Holdemanella bififormis</i>	--	3.0 %	300,000,000	0-2.9 %	● Abnormal
<i>Anaerobiospirillum sp.</i> [1]	--	2.8 %	280,000,000	NA	NA

#### Fungi Composition



Species Detected	AID*	Percentage	Cells per Sample	Normal Range	Inferred Status
<i>Periconia cookei</i>	--	100.0 %	1	0-0.2 %	● Abnormal

Donut plots above depict the relative abundance of all detected Bacterial or fungal species. Each color represents a different species. The larger the colored segment is, the more abundant that species is in the specimen.

The tables above lists top 8 bacterial/fungal species detected within the limit of detection. The absolute and relative abundances of each species is shown. Potential clinically relevant microbes are highlighted in red.

#### Abbreviation Key:

- **Normal Range.** Species detected within the reference range of clinically healthy animals.
- **Abnormal Range.** Species detected outside the reference range of clinically healthy animals.
- **Disease Range.** Species detected significantly higher than the reference range of clinically healthy animals.

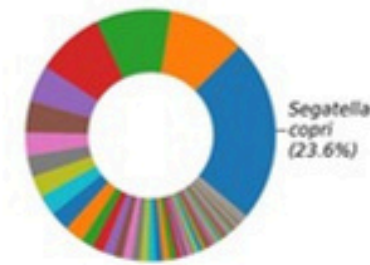
\* AID stands for Animal Infection Database. It is a resource center to provide more information for microbes in animal microbiome settings.

The donut plots visualize the overall composition and diversity of each group (bacteria, fungi, other eukaryota), and if known, how it compares to clinically healthy reference. Each color represents a different microbial species.



### Supplemental Data

#### Bacteria & Archaea Composition



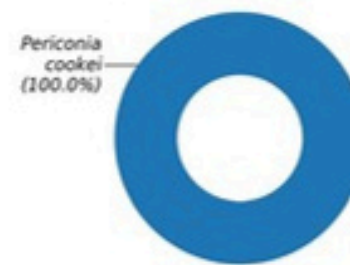
Your Sample



Clinically Healthy Reference

Species Detected	AID*	Percentage	Cells per Sample	Normal Range	Inferred Status
<i>Segatella copri</i>	--	23.6 %	2,400,000,000	0-28.0 %	● Normal
<i>Blautia sp.</i>	--	9.9 %	1,000,000,000	NA	NA
<i>Catenibacterium sp.</i>	--	9.8 %	980,000,000	NA	NA
<i>Alloprevotella sp.</i>	--	8.7 %	870,000,000	NA	NA
<i>Prevotella sp.</i>	--	4.8 %	480,000,000	NA	NA
<i>Peptacetobacter sp.</i>	--	4.1 %	410,000,000	0-13.0 %	● Normal
<i>Holdemanella bififormis</i>	--	3.0 %	300,000,000	0-2.9 %	● Abnormal
<i>Anaerobiospirillum sp.</i> [1]	--	2.8 %	280,000,000	NA	NA

#### Fungi Composition



Your Sample



Clinically Healthy Reference

Species Detected	AID*	Percentage	Cells per Sample	Normal Range	Inferred Status
<i>Periconia cookei</i>	--	100.0 %	1	0-0.2 %	● Abnormal

Donut plots above depict the relative abundance of all detected Bacterial or fungal species. Each color represents a different species. The larger the colored segment is, the more abundant that species is in the specimen.

The tables above lists top 8 bacterial/fungal species detected within the limit of detection. The absolute and relative abundances of each species is shown. Potential clinically relevant microbes are highlighted in red.

#### Abbreviation Key:

- **Normal Range.** Species detected within the reference range of clinically healthy animals.
- **Abnormal Range.** Species detected outside the reference range of clinically healthy animals.
- **Disease Range.** Species detected significantly higher than the reference range of clinically healthy animals.

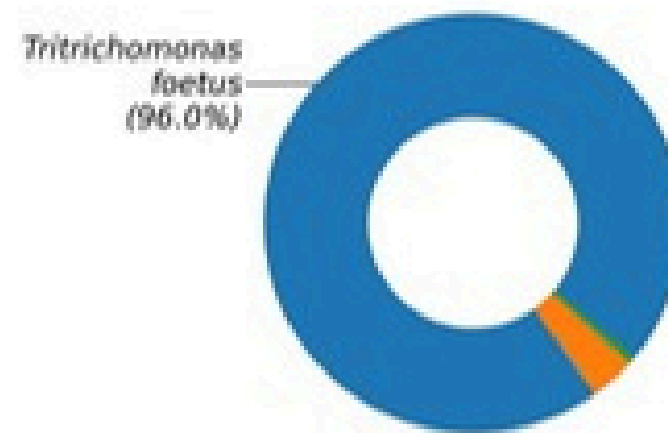
\* AID stands for Animal Infection Database. It is a resource center to provide more information for microbes in animal microbiome settings.

Microbes belonging to previously undescribed species that have been classified down to the genus level will include the 'sp' suffix to illustrate their status as novel organisms.



Here we highlight all non-fungal eukaryotes detected in the sample, including parasites.

## Eukaryota (Excluding Fungi) Composition



Your Sample

Species Detected	AID*	Percentage	Cells per Sample	Normal Range	Inferred Status
<i>Tritrichomonas foetus</i>	--	96.0 %	2,100	NA	NA
<i>Giardia duodenalis</i>	--	3.5 %	78	NA	NA
<i>(c)Cestoda sp.</i>	--	0.5 %	11	NA	NA

Donut plots above depict the relative abundance of all detected eukaryote or virus species. Each color represents a different species. The larger the colored segment is, the more abundant that species is in the specimen.

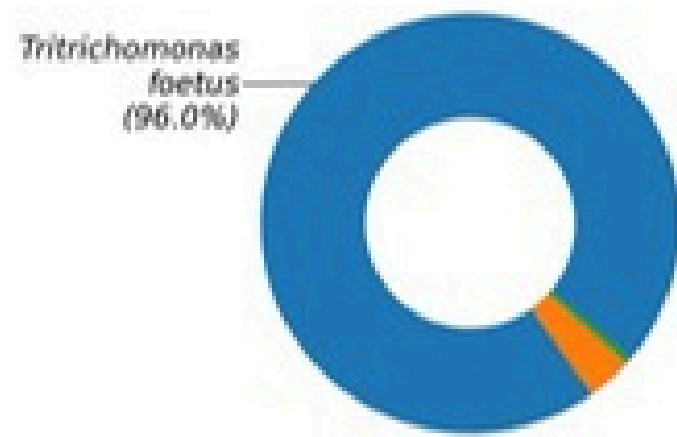
The tables above lists top 8 species detected within the limit of detection. The absolute and relative abundances of each species is shown. Potential clinically relevant microbes are highlighted in red.

\* AID stands for Animal Infection Database. It is a resource center to provide more information for microbes in animal microbiome settings.



Organisms that are unable to be classified down to the genus level are identified down to the closest phylogenetic rank: phylum (p), class (c), order (o), family (f)

### Eukaryota (Excluding Fungi) Composition



Your Sample

Species Detected	AID*	Percentage	Cells per Sample	Normal Range	Inferred Status
<i>Tritrichomonas foetus</i>	--	96.0 %	2,100	NA	NA
<i>Giardia duodenalis</i>	--	3.5 %	78	NA	NA
(c) <i>Cestoda sp.</i>	--	0.5 %	11	NA	NA

Donut plots above depict the relative abundance of all detected eukaryote or virus species. Each color represents a different species. The larger the colored segment is, the more abundant that species is in the specimen.

The tables above lists top 8 species detected within the limit of detection. The absolute and relative abundances of each species is shown. Potential clinically relevant microbes are highlighted in red.

\* AID stands for Animal Infection Database. It is a resource center to provide more information for microbes in animal microbiome settings.



The identity of the pathogens are important, but it's equally important to know what they are capable of. On this page we show the toxin genes and biofilm genes detected in the sample.

### Toxin/Biofilm Genes Detected

Predicted Host Species	Gene Symbol	Virulence Class	Read Counts	Description
<i>Clostridium perfringens</i> (1.03%)	nagH	Toxin	86	hyaluronidase
	nagl	Toxin	50	hyaluronidase
	colA	Toxin	50	collagenase
	nagJ	Toxin	40	hyaluronidase
	nagL	Toxin	34	hyaluronidase
	nagK	Toxin	31	hyaluronidase
	ploA	Toxin	21	perfringolysin O
	plc	Toxin	20	phospholipase C
	pfo	Toxin	4	Perfringolysin O
<i>Escherichia coli</i> (0.03%)	hlyB	Toxin	10	Hemolysin B
	cnf1	Toxin	4	cytotoxic necrotizing factor 1
	hlyC	Toxin	4	Hemolysin C
	hlyA	Toxin	2	Hemolysin A
	senB	Toxin	1	enterotoxin
<i>Helicobacter rappini</i> (0.1%)	cdtB	Toxin	3	CdtB
	sopE	Toxin	2	Toxin SopE
	mrkC	Biofilm	19	fimbrial biogenesis outer membrane usher protein mrkC precursor
	mrkJ	Biofilm	5	phosphodiesterase
	mrkH	Biofilm	4	transcriptional activator
	mrkI	Biofilm	2	LuxR family regulatory protein



Here, we show that *Clostridium perfringens* possesses several different toxin genes

### Toxin/Biofilm Genes Detected

Predicted Host Species	Gene Symbol	Virulence Class	Read Counts	Description
<i>Clostridium perfringens</i> (1.03%)	nagH	Toxin	86	hyaluronidase
	nagl	Toxin	50	hyaluronidase
	colA	Toxin	50	collagenase
	nagJ	Toxin	40	hyaluronidase
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	mrkJ	Biofilm	5	phosphodiesterase
	mrkH	Biofilm	4	transcriptional activator
	mrkI	Biofilm	2	LuxR family regulatory protein



Biofilms are structures that allow bacterial pathogens to adhere to surfaces, such as medical implants. They are critically important in several infection types, including wounds and UTIs. Biofilms help bacterial pathogens colonize the host and resist medical treatments.

### Toxin/Biofilm Genes Detected

Predicted Host Species	Gene Symbol	Virulence Class	Read Counts	Description
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	mrkJ	Biofilm	5	phosphodiesterase
	mrkH	Biofilm	4	transcriptional activator
	mrkI	Biofilm	2	LuxR family regulatory protein





### Toxin/Biofilm Genes Detected

Here, we demonstrate that *Helicobacter rappini* possesses genes required to form biofilms, illustrating its potential for prolonged and difficult to treat infection.

Predicted Host Species	Gene Symbol	Virulence Class	Read Counts	Description
<i>Clostridium perfringens</i> (1.03%)	nagH	Toxin	86	hyaluronidase
	nagl	Toxin	50	hyaluronidase
	colA	Toxin	50	collagenase
	nagJ	Toxin	40	hyaluronidase
	nagL	Toxin	34	hyaluronidase
	nagK	Toxin	31	hyaluronidase
	ploA	Toxin	21	perfringolysin O
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	pfo	Toxin	4	Perfringolysin O
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	hlyC	Toxin	4	Hemolysin C
	hlyA	Toxin	2	Hemolysin A
	senB	Toxin	1	enterotoxin
<i>Helicobacter rappini</i> (0.1%)	cdtB	Toxin	3	CdtB
	sopE	Toxin	2	Toxin SopE
	mrkC	Biofilm	19	fimbrial biogenesis outer membrane usher protein mrkC precursor
	mrkJ	Biofilm	5	phosphodiesterase
	mrkH	Biofilm	4	transcriptional activator
	mrkI	Biofilm	2	LuxR family regulatory protein



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