All-in-One Microbial Test

Patient Name:		**Health Status:**		**Account #:**	
Owner's Name:		**Ordered by:**		**Sample ID:**	MI1900611
Breed:	Bloodhound	**Email:**		**Sample Type:**	Left Ear
Age:	3 years 5months	**Hospital:**		**Received Date:**	
Species:	Canine	**Location:**		**Report Date:**	02/17/22

Potential Clinically Relevant Microbes Detected:

Listed are those bacteria and fungi detected in the specimen that are of potential clinical relevance. Results from this report should be considered together with clinical data gathered by the veterinarian (physical examination, medical history, cytology, etc.) as the microbes detected may or may not be the cause of the clinical condition. For a comprehensive list of all microorganisms detected in this specimen see page 3 of this report. The purpose of Significance is to highlight those species that are above the expected range for the average clinically healthy dog.

1.Bacteria

Species Detected	Percentage	Cells per Sample	Normal Range	Significance
Pseudomonas aeruginosa [1][2][3]	50.1 %	140,000,000	0-249	🔴 High
Streptococcus canis [4]	39.1 %	110,000,000	0-1329	🔴 High
Corynebacterium mastitidis [5]	4.7 %	13,000,000	0-1158	⚪ Intermediate
Staphylococcus pseudintermedius [6]	2.6 %	7,200,000	0-60627	🔴 High
Proteus mirabilis [7]	1.2 %	3,300,000	0-0	🔴 High

2.Fungi

Species Detected	Percentage	Cells per Sample	Normal Range	Significance
Malassezia pachydermatis [8]	95.7 %	19,000	0-2887	🔴 High
Aspergillus subversicolor-sydowii-versicolor [9][10][11]	0.2 %	32	NA	NA

Abbreviation Key:

🟢 **Normal.** Species detected within the reference range of clinically healthy dogs.
⚪ **Intermediate.** Species detected outside the reference range of clinically healthy dogs.
🔴 **High.** Species detected significantly higher than the reference range of clinically healthy dogs.

Microbial Overview:

Bacteria vs Fungi: the relative abundance between Bacteria and Fungi. **Bacteria**: the percentage profile of bacterial species alone. **Fungi**: the percentage profile of fungi species alone. Each color represents a species. The larger the colored segment is, the more abundant the species is.

Antibiotic Resistance for Detected Clinically Relevant Microbes

The sample was screened for the presence of antibiotic resistance genes and intrinsic resistances of clinically relevant microorganisms. For this analysis more than 90 antibiotic resistance genes were screeened. The cautious use of any antibiotic drug is highly reccommended. Please follow the guidelines for antimicrobial stewardship in veterinary practice.

Drug Tiers*	Antibiotics	*Pseudomonas aeruginosa* (50.1 %)	*Streptococcus canis* (39.1 %)	*Corynebacterium mastitidis* (4.7 %)	*Staphylococcus pseudintermedius* (2.6 %)	*Proteus mirabilis* (1.2 %)	Suggested Dose†	Drug Delivery
1st	Cefazolin	NR	F	NRD	NR	F	15 mg/kg, q 12 hrs	IV, SC
	Cephalothin	NR	F	NRD	NR	G	4-20 mg/kg, q 8 hrs	PO
	Cephalexin	NR	F	NRD	NR	G	22 mg/kg, q 12 hrs	PO
	Cefadroxil	NR	F	NRD	NR	F	22 mg/kg, q 12 hrs	PO
	Cefoxitin	NR	F	NRD	NR	G	15 mg/kg, q 12 hrs	IV, SC
	Penicillin	NR	F	NRD	NR	NR	8–10 mg/kg, q 8 hrs	PO
	Penicillin G	NR	G	NRD	NR	NR	--	--
	Oxacillin	NR	NRD	NRD	NR	NR	22 mg/kg, q 8 hrs	IV
	Ampicillin	NR	G	NRD	NR	NR	22 mg/kg, q 8 hrs	IV, SC
	Amoxicillin	NR	F	NRD	NR	F	22 mg/kg, q 8 hrs	PO
	Clavamox	NR	G	NRD	NR	G	13.75 mg/kg, q 12 hrs	PO
	Gentamicin	NR	NR	NRD	NR	NR	6 mg/kg, q 24 hrs	IV, SC
	Tobramycin	NR	NR	NRD	NR	NR	--	IV/Topical Use
	Neomycin	NR	NR	NRD	NR	NR	--	Topical Use
	Clindamycin	NR	G	NRD	G	NR	5.5 mg/kg, q 12 hrs	PO
	Lincomycin	NR	NRD	NRD	F	NR	15–25 mg/kg, q 24hrs	PO
	Doxycycline	NR	NR	NRD	NR	NR	5 mg/kg, q 12 hrs	PO
	Minocycline	NR	NR	NRD	NR	NR	10 mg/kg, q 12 hrs	PO
	Tetracycline	NR	NR	NRD	NR	NR	20 mg/kg, q 12 hrs	PO
	Sulfonamide	NR	NRD	NRD	NRD	NR	30 mg/kg, q 12 hrs	PO
	Trimethoprim-Sulfamethoxazole	NR	F	NRD	F	NR	15-30 mg/kg, q 24 hrs	PO
	Metronidazole	NR	NR	NRD	NR	NR	10 mg/kg, q 8 hrs	IV
	Cefovecin	NR	F	NRD	NR	G	8 mg/kg, once	SC
2nd	Cefpodoxime	NR	F	NRD	NR	G	5 mg/kg, q 24 hrs	PO
	Ceftiofur	NR	F	NRD	NR	G	2.2 mg/kg, q 24 hrs	SC
	Timentin	F	F	NRD	NR	G	--	Topical Use
	Azithromycin	NR	NRD	NRD	F	NR	5 mg/kg q 12 hrs	PO
	Orbifloxacin	NR	NRD	NRD	NR	G	2.5-7.5 mg/kg, q 24 hrs	PO
	Chloramphenicol	NR	G	NRD	G	G	35 mg/kg q 8 hrs	PO
	Florfenicol	NR	NRD	NRD	F	NR	20 mg/kg, q 12 hrs	PO
3rd	Amikacin	NR	NR	NRD	NR	NR	15 mg/kg, q 24 hrs	IV, SC
	Rifampin	NR	NRD	NRD	G	NR	5-10 mg/kg, q 12 hrs	PO
	Imipenem	G	NRD	NRD	NR	F	10 or 20 mg/kg, q 8 hrs	--
	Levofloxacin	NR	NRD	NRD	NR	G	10-30 mg/kg, q 24 hrs	IV/PO
	Marbofloxacin	NR	NRD	NRD	NR	G	2.75-5.5 mg/kg, q 24 hrs	PO
	Pradofloxacin§	NR	NRD	NRD	NR	F	3.0 mg/kg, q 24 hrs	PO
	Enrofloxacin	NR	G	NRD	NR	G	5 mg/kg, q 24 hrs	PO
	Ciprofloxacin¶	NR	NRD	NRD	NR	G	--	Topical Use
	Ceftazidime	G	NR	NRD	NR	G	3-30 mg/kg, q 6-8 hrs	IV
	Mupirocin	NR	NRD	NRD	F	NR	--	Topical Use
	Nitrofurantoin	NR	NRD	NRD	G	NR	4.4-5mg/kg, q 24 hrs	PO
	Colistin	F	NRD	NRD	NR	F	8-9g/kg, q 24 hrs	PO
	Ticarcillin	F	NRD	NRD	NR	G	3.1 g, q 4-6 hrs	IV
	Piperacillin-Tazobactam	G	F	NRD	NR	G	90 mg/kg, 30min q 8 hrs	IV

This table lists antibiotic sensitivities/resistances for the indicated bacteria based on detection of specific antibiotic resistance genes and naturally occurring, or intrinsic, resistance to specific antibiotics previously identified for that organism.

Abbreviation Keys:

NR	Not Recommended (Due to either Resistance Genes Detected, Intrinsic Resistance, or < 10% Effectiveness in Antibiogram Studies)
P	Poor Performance (< 50% Effectiveness in Antibiogram Studies)
F	Fair Performance (< 75% Effectiveness in Antibiogram Studies)
G	Good Performance (> 75% Effectiveness in Antibiogram Studies)
NRD	No Antibiotic Resistance Detected Based on the MiDOG Antibiotic Target Panel

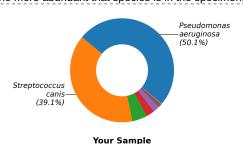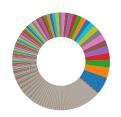|	
PO	Oral, by mouth
IV	Intravenous Injection
SC	Subcutaneous Injection
TU	Topical Use
--	No Info

Symbols:

*	Reference: Antimicrobial Resistance and Stewardship Initiative University of Minnesota, Antibiotic Drug Tiers and Selection List for Companion Animals.
†	Dosis may vary based on patient species and/or type of infection. Reference at: www.midogtest.com/antibiotics.
§	Variable bioavailability in canine patients.
¶	Contraindicated in canine patients.

Supplemental Data

Total Bacteria Composition

Charts below depict the relative abundance of all detected bacterial species. Each color represents a different bacterial species. The larger the colored segment is, the more abundant that species is in the specimen.
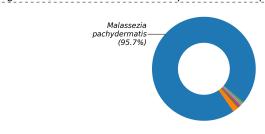

Pseudomonas aeruginosa (50.1%)

Streptococcus canis (39.1%)

Your Sample
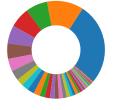
Clinically Healthy Reference

The table below lists top 8 bacterial species detected within the limit of detection. The absolute and relative abundances of each species is shown.

Species Detected	Percentage	Cells per Sample	Normal Range	Significance
Pseudomonas aeruginosa [1][2][3]	50.1 %	140,000,000	0-249	🔴 High
Streptococcus canis [4]	39.1 %	110,000,000	0-1329	🔴 High
Corynebacterium mastitidis [5]	4.7 %	13,000,000	0-1158	⚪ Intermediate
Staphylococcus pseudintermedius [6]	2.6 %	7,200,000	0-60627	🔴 High
Corynebacterium lactis	2.0 %	5,500,000	0-7104	⚪ Intermediate
Proteus mirabilis [7]	1.2 %	3,300,000	0-0	🔴 High
Corynebacterium auriscanis [12]	0.2 %	520,000	0-6969	🔴 High

Total Fungal Composition

Charts below depict the relative abundance of all detected fungal species. Each color represents a different fungal species. The larger the colored segment is, the more abundant that species is in the specimen.

Malassezia pachydermatis (95.7%)

Your Sample

Clinically Healthy Reference

The table below lists top 8 bacterial species detected within the limit of detection. The absolute and relative abundances of each species is shown.

Species Detected	Percentage	Cells per Sample	Normal Range	Significance
Malassezia pachydermatis [8]	95.7 %	19,000	0-2887	🔴 High
Cladosporium sp.	1.8 %	350	0-3984	🟢 Normal
(o)Hypocreales sp.	0.3 %	65	0-407	🟢 Normal
Penicillium steckii	0.3 %	65	0-47	⚪ Intermediate
Neoascochyta sp.	0.3 %	60	0-151	🟢 Normal
Dioszegia rishiriensis	0.3 %	52	NA	NA
Didymosphaeria futilis	0.2 %	50	0-74	🟢 Normal
Blumeria graminis	0.2 %	35	0-264	🟢 Normal

Abbreviation Key:

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⚪ **Intermediate.** Species detected outside the reference range of clinically healthy dogs.

🔴 **High.** Species detected significantly higher than the reference range of clinically healthy dogs.

References

1. Bennett, John E., Raphael Dolin, and Martin J. Blaser.? Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases E-Book. Elsevier health sciences, 2019.
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Methods

The MiDOG® All-in-One Microbial Test is a targeted, Next-generation DNA sequencing testing service able to identify molecular signatures unique to the identity and character of a specific microorganism. This test relies on safeguarded preservation and transport of collected samples, thorough extraction of DNA from all microbes present in the specimen, select amplification of microbial DNA followed by Next-generation DNA sequencing using the latest technologies from Illumina (Illumina, Inc., San Diego, CA). Data handling is done via curated microbial databases to accurately align DNA sequences to ensure precise and accurate (species-level) identification of all bacteria and fungi present in the specimen.

When no Bacterial or Fungal Species are Detected:

When no bacterial or fungal species are detected in this test, this result may be due to a very low microbial load and/or low concentration of microbial DNA in the sample provided. In this case, we recommend re-sampling the area of interest and re-submitting specimen for analysis.

Disclaimer

The information contained in this MiDOG® report is intended only to be factor for use in a diagnosis and treatment regime for the canine patient. As with any diagnosis or treatment regime, you should use clinical discretion with each canine patient based on a complete evaluation of the canine patient, including history, physical presentation and complete laboratory data, including confirmatory tests. All test results should be evaluated in the context of the patients individual clinical presentation. The information in the MiDOG ® report has not been evaluated by the FDA.

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