All-in-One Microbial Test

Patient Name	Nick	**Health Status**	Acute infection, blood in urine	**Sample ID**	MI1U9040
Owner's Name	NA	**Ordered By**	NA	**Sample Type**	Cysto(urine collection tube)
Gender	M, Neutered	**Email**	NA	**Received Date**	8/19/2021
Breed	Labrador Retriever	**Hospital**	NA	**Report Date**	9/2/2021
Age	11 yrs	**Location**	NA		
Species	Canine	**Account Number**	NA		

Potential Clinically Relevant Microbes Detected:

Listed are those bacteria and fungi detected in the specimen that are of potential clinically relevance. Results from this report should be considered together with additional 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.

1. Bacteria

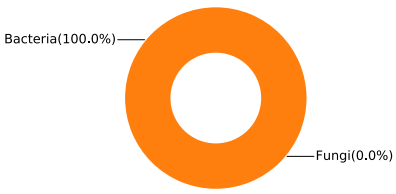
Species Detected	Relative Abundance (%)	Cells per sample
Klebsiella aerogenes/granulomatis/pneumoniae [6]	46.16	76000
Klebsiella aerogenes/pneumoniae [6]	41.60	68000
Klebsiella pneumoniae [6]	5.41	8900
Klebsiella aerogenes [6]	5.26	8600

2. Fungi

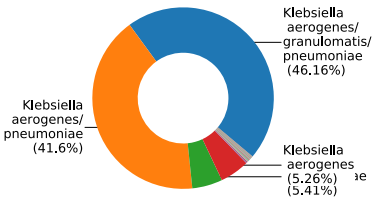
None Detected

Microbial Overview:

Charts below depict *Bacteria vs Fungi:* an overview of the microbiome, *Bacteria:* the relative abundance of all clinically relevant species detected relative to the rest of the microbiome for bacteria, and *Fungi:* the relative abundance of all clinically relevant species detected relative to the rest of the microbiome for fungi. Each color represents a different species. The larger the size of the colored segment, the more abundant that specific species is in the specimen. The purpose of these graphs is to highlight if any clinically relevant organism is overgrown in the sample.



Bacteria vs Fungi



Bacteria

Antibiotic Resistance Panel 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.

Antibiotics	Drug Tiers Follow Guidelines*	Klebsiella aerogenes (45.97%)	Klebsiella pneumoniae (8.61%)	Suggested Dose for All Pathogens**	Drug Delivery
Cefazolin	**1st Line** Antibiotics for Common Infections.	NR	NR	15 mg/kg, q 12 hrs	IV, SC
Cephalothin		G	F	4-20 mg/kg, q 8 hrs	PO
Cephalexin		NR	NR	22 mg/kg, q 12 hrs	PO
Cefadroxil		NR	NR	22 mg/kg, q 12 hrs	PO
Cefoxitin		G	G	15 mg/kg, q 12 hrs	IV, SC
Penicillin		G	G	8–10 mg/kg, q 8 hrs	PO
Penicillin G		G	G	--	--
Oxacillin		NR	NR	22 mg/kg, q 8 hrs	IV
Ampicillin		NR	NR	22 mg/kg, q 8 hrs	IV, SC
Amoxicillin		NR	NR	22 mg/kg, q 8 hrs	PO
Clavamox		G	G	13.75 mg/kg, q 12 hrs	PO
Gentamicin		G	G	6 mg/kg, q 24 hrs	IV, SC
Tobramycin		G	F	--	IV/Topical Use
Neomycin		G	F	--	Topical Use
Clindamycin		G	G	5.5 mg/kg, q 12 hrs	PO
Lincomycin		G	F	15–25 mg/kg, q 24hrs	PO
Doxycycline		F	F	5 mg/kg, q 12 hrs	PO
Minocycline		G	G	10 mg/kg, q 12 hrs	PO
Tetracycline		P	P	20 mg/kg, q 12 hrs	PO
Sulfonamide		G	G	30 mg/kg, q 12 hrs	PO
Trimethoprim		G	F	15-30 mg/kg, q 24 hrs	PO
Metronidazole		G	G	10 mg/kg, q 8 hrs	IV
Cefovecin		NR	NR	8 mg/kg, once	SC
Cefpodoxime	**2nd Line** Use Caution to Avoid Resistance.	NR	NR	5 mg/kg, q 24 hrs	PO
Ceftiofur		G	F	2.2 mg/kg, q 24 hrs	SC
Timentin		G	F	--	Topical Use
Azithromycin		NR	NR	5 mg/kg q 12 hrs	PO
Orbifloxacin		G	F	2.5-7.5 mg/kg, q 24 hrs	PO
Chloramphenicol		NR	NR	35 mg/kg q 8 hrs	PO
Florfenicol		G	F	20 mg/kg, q 12 hrs	PO
Amikacin	**3rd Line** Last Resort Options.	G	G	15 mg/kg, q 24 hrs	IV, SC
Rifampin		NR	NR	5-10 mg/kg, q 12 hrs	PO
Imipenem		G	G	10 or 20 mg/kg, q 8 hrs	--
Levofloxacin**		G	F	10-30 mg/kg, q 24 hrs	IV/PO
Marbofloxacin		G	G	2.75-5.5 mg/kg, q 24 hrs	PO
Pradofloxacin****		F	G	3.0 mg/kg, q 24 hrs	PO
Enrofloxacin		P	G	5 mg/kg, q 24 hrs	PO
Ciprofloxacin***		F	F	--	Topical Use
Nitrofurantoin		F	G	4.4-5mg/kg, q 24 hrs	PO
Colistin**		F	F	8-9g/kg, q 24 hrs	PO
Ceftazidime		NR	NR	3-30 mg/kg, q 6-8 hrs	IV
Mupirocin		F	F	--	Topical Use
Piperacillin		F	G	80-100 mg/kg, 30min q 8 hrs	IV
Ticarcillin		F	F	3.1 g, q4-6 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. To receive a list of the antibiotic resistance genes detected as well as intrinsic resistances for additional organisms not listed here, please contact MiDOG® customer support.

Abbreviation Key:

NR	Not Recommended (Due to either Intrinsic Resistance, or Resistance Gene Detection, 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)
	No Literature Information Available

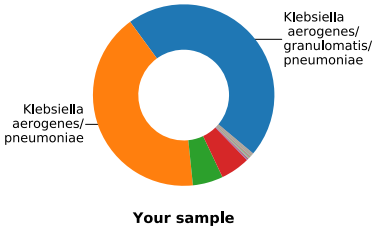
PO = Oral, By Mouth.
IV = Intravenous Injection. Injections involving direct injection into the vein.
SC = Subcutaneous Injection. The medication delivered to the tissues between the skin and the muscle.
TU = Topical Use

*	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 on Microbial Composition

Bacterial Analysis

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



Your sample

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

Species Detected	Relative Abundance (%)	Cells per sample
Klebsiella aerogenes/granulomatis/pneumoniae	46.16	76000
Klebsiella aerogenes/pneumoniae	41.60	68000
Klebsiella pneumoniae	5.41	8900
Klebsiella aerogenes	5.26	8600

Fungal Analysis

No fungal species detected. Please Note: It is common to see no fungal load in healthy urine samples. For more information see the Methods Section under: 'When no Bacterial or Fungal Species are Detected'

References

1. Pierezan, F., Olivry, T., Paps, J. S., Lawhon, S. D., Wu, J., Steiner, J. M., et al. The skin microbiome in allergen-induced canine atopic dermatitis. (2016) Veterinary Dermatology, 27(5):332-e82
2. Sack, J., Peaper, D. R., Mistry, P., & Malinis, M. (2017). Clinical implications of Paracoccus yeeii bacteremia in a patient with decompensated cirrhosis.IDCases,7, 9-10.
3. Ehrlich G. D., Hu F. Z., Sotereanos N., Sewicke J., Parvizi J., Nara P.L., Arciola, C. R. What role do periodontal pathogens play in osteoarthritis and periprosthetic joint infections of the knee. (2014) J Appl Biomater Funct Mater12(1): 13-20
4. Cusc, A., Belanger, J. M., Gershony, L., Islas-Trejo, A., Levy, K., Medrano, J. F., et al. Individual signatures and environmental factors shape skin microbiota in healthy dogs. (2017) Microbiome, 5(1), 139
5. Saridomichelakis M.N., Olivry T. An update on the treatment of canine atopic dermatitis.(2016) The Veterinary Journal,207: 29-37
6. Morrissey I., Moyaert H., de Jong A., El Garch F., Klein U., Ludwig C., Thiry J., Youala, M. Antimicrobial susceptibility monitoring of bacterial pathogens isolated from reiratory tract infections in dogs and cats across Europe: ComPath results.(2016) Veterinary microbiology,191:44-51
7. Rodrigues Hoffmann A, Patterson AP, Diesel A et al. The skin microbiome in healthy and allergic dogs. (2014) PLoS One, 9: e8197

Method

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.

Customer Support

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