

Patient Name:	Health Status:	Account #:
Owner's Name:	Ordered by:	Sample ID: MI50039793
Breed:	Email:	Sample Type: Rear laceration
Age: 11	Hospital:	Received Date:
Species: African lion	Location:	Report Date: 05/21/25

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 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. Please consider that even commensals can become pathogenic in certain patients under certain circumstances. Further, novel or extremely rare pathogens may be found on page 3 for your consideration and clinical diagnosis.

1. Bacteria

Species Detected	AID*	Percentage (%)	Cells per Sample
Bergeyella zoohelcum [1]	[Link]	4.23	500
Micrococcus aloeverae-luteus [2][3][4]	[Link]	3.37	400
Pasteurella sp. [2][3][5]	--	1.75	210
Fusobacterium russii [6]	--	1.70	200
Staphylococcus sciuri [7]	--	1.05	120

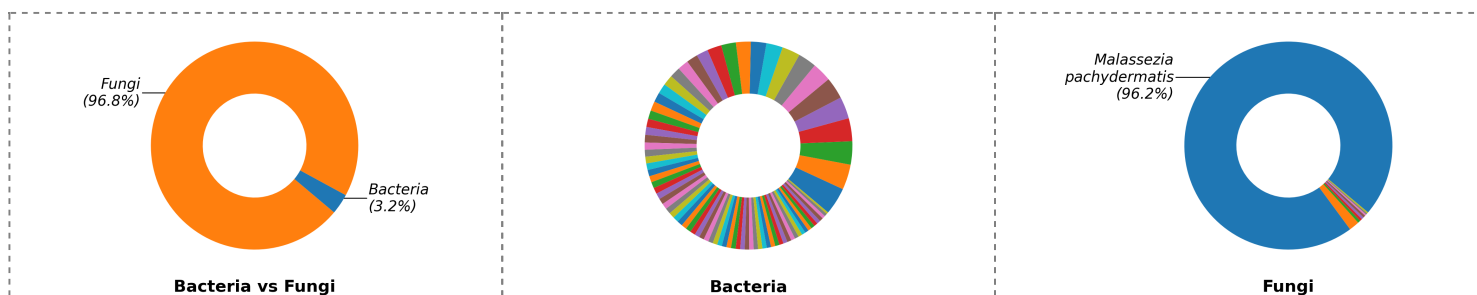
2. Fungi

Species Detected	AID*	Percentage (%)	Cells per Sample
Malassezia pachydermatis [8]	[Link]	96.22	5,600
Exophiala sp. [9]	--	0.41	24
Aspergillus capensis-flavipes-izukae [2][3][5]	[Link]	0.24	14

The number of cells per sample is subject to variations based on sampling technique applied to collect the sample. Following the sampling protocol closely is highly recommended. Less than 1000 cells of Bacteria or less than 10 cells of Fungi are often not clinically relevant unless poor sampling technique was applied, or lower sample volume was submitted.

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

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.

Please find a tutorial about how to interpret a MiDOG report at: <https://www.youtube.com/watch?v=yKjry0VYJD4&t=28s>

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>Bergeyella zoohelcum</i> (4.2 %)	<i>Micrococcus aloeverae-luteus</i> (3.4 %)	<i>Pasteurella sp.</i> (1.8 %)	<i>Fusobacterium russii</i> (1.7 %)	<i>Staphylococcus sciuri</i> (1.1 %)
1st	Cefazolin	-	-	-	-	F
	Cephalothin	-	-	-	-	-
	Cephalexin	-	-	-	-	F
	Cefadroxil	-	-	G	-	-
	Cefoxitin	-	-	-	G	G
	Penicillin	-	-	G	G	G
	Penicillin G	-	-	G	G	G
	Oxacillin	-	-	-	-	G
	Ampicillin	-	-	G	G	-
	Amoxicillin	-	-	G	G	-
	Clavamox	-	-	-	G	-
	Gentamicin	-	-	-	-	G
	Tobramycin	-	-	-	-	-
	Neomycin	-	-	-	-	-
	Clindamycin	-	-	-	G	G
	Lincomycin	-	-	-	-	G
	Doxycycline	-	-	-	-	F
	Minocycline	-	-	-	-	G
	Tetracycline	-	-	-	G	G
	Sulfonamide	-	R	-	-	-
2nd	Trimethoprim-sulfamethoxazole	-	-	-	-	G
	Metronidazole	-	-	-	-	-
	Cefovecin	-	-	-	-	-
	Cefpodoxime	-	-	-	-	-
	Ceftiofur	-	-	-	-	-
	Timentin	-	-	-	-	-
3rd	Azithromycin	-	-	-	-	G
	Orbifloxacin	-	-	-	-	-
	Chloramphenicol	-	-	-	-	-
	Florfenicol	-	-	-	-	-
	Amikacin	-	-	-	-	F
	Rifampin	-	-	-	-	F
	Imipenem	-	-	-	G	-
	Levofloxacin	-	-	-	-	G
	Marbofloxacin	-	-	-	-	-
	Pradofloxacin [§]	-	-	-	-	-
	Enrofloxacin	-	-	-	-	-
	Ciprofloxacin [¶]	-	-	-	-	G
	Ceftazidime	-	-	-	-	-
	Mupirocin	-	-	-	-	-
	Nitrofurantoin	-	-	-	-	F
	Colistin	-	-	-	-	-
	Ticarcillin	-	-	-	-	-
	Piperacillin-Tazobactam	-	-	-	-	-

Drug Class	Antifungals	<i>Malassezia pachydermatis</i> (96.2 %)	<i>Exophiala sp.</i> (0.4 %)	<i>Aspergillus capensis-flavipes-iizukae</i> (0.2 %)
Triazole	Fluconazole	-	-	-
	Itraconazole	-	-	-
	Voriconazole	-	-	-
Polyene	Amphotericin B	-	-	-
	Caspofungin	R	-	-
	Micafungin	R	-	-
Echinocandin	Anidulafungin	-	-	-
Fluoropyrimidine	Flucytosine	-	-	-
Allylamine	Terbinafine	-	-	-

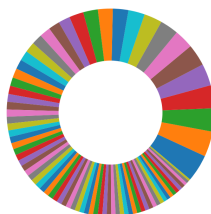
Abbreviation Keys and Symbols:

R	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)
-	No Antibiotic Resistance Detected Based on the MiDOG Analysis

*	Antibiotic Drug Tiers for Companion Animals, Antimicrobial Resistance and Stewardship Initiative, University of Minnesota
§	Contraindicated in animal patients
¶	Variable bioavailability in animal patients

Supplemental Data

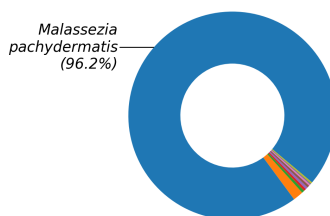
Total Bacteria Composition



Your Sample

Species Detected	AID*	Percentage (%)	Cells per Sample
<i>Bergeyella zoohecum</i> [1]	[Link]	4.23	500
<i>Macrococcus canis-caseolyticus</i>	--	3.93	470
<i>Porphyromonas sp.</i>	--	3.63	430
<i>Macrococcus canis</i>	--	3.57	420
<i>Kocuria sp.</i>	--	3.40	400
<i>Micrococcus aloeverae-luteus</i> [2][3][4]	[Link]	3.37	400
<i>Nocardioides sp.</i>	--	2.99	350
<i>(o)Solirubrobacterales sp.</i>	--	2.86	340

Total Fungal Composition



Your Sample

Species Detected	AID*	Percentage (%)	Cells per Sample
<i>Malassezia pachydermatis</i> [8]	[Link]	96.22	5,600
<i>Penicillium sp.</i>	--	1.60	93
<i>Exophiala sp.</i> [9]	--	0.41	24
<i>Cladosporium sp.</i>	--	0.38	22
<i>Leucosporidium intermedium</i>	--	0.36	21
<i>(o)Pleosporales sp.</i>	--	0.36	21
<i>Aspergillus capensis-flavipes-izukae</i> [2][3][5]	[Link]	0.24	14
<i>(f)Teichosporaceae sp.</i>	--	0.22	13

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.

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

Antimicrobial Resistance Genes Detected

The table below lists antimicrobial resistance genes that are detected in this sample. For antibiotics usage guidance, please first refer to the "Antibiotic Resistance" table shown in Page 2. Use this table only as an additioanl resource when needed. Inferring antibiomicrobial resistance from the resistance genes detected should be cautious, espeically in a mixed microbial population.

AMR_Gene_Detected	Resistance_Against	Function
<i>APH(3')-IIIa</i>	aminoglycoside	aminoglycoside phosphotransferase
<i>APH(3'')-Ib</i>	aminoglycoside	aminoglycoside phosphotransferase
<i>APH(6)-Id</i>	aminoglycoside	aminoglycoside phosphotransferase
<i>lnuA</i>	lincosamide	lincosamide nucleotidyltransferase
<i>cmx</i>	phenicol	chloramphenicol exporter
<i>sul1</i>	sulfonamide	dihydropteroate synthase
<i>sul2</i>	sulfonamide	dihydropteroate synthase

References

1. Chen, Yili et al. "Bacteremia caused by *Bergeyella zoohelcum* in an infective endocarditis patient: case report and review of literature." *BMC infectious diseases* vol. 17,1 271. 12 Apr. 2017, doi:10.1186/s12879-017-2391-z
2. Carpenter, James W., and Chris Marion. *Exotic Animal Formulary-E-Book*. Elsevier Health Sciences, 2017.
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4. Ballard, Bonnie, and Ryan Cheek, eds. *Exotic animal medicine for the veterinary technician*. John Wiley & Sons, 2016.
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7. Chen, S., Wang, Y., Chen, F., Yang, H., Gan, M., & Zheng, S. J. (2007). A Highly Pathogenic Strain of *Staphylococcus sciuri* Caused Fatal Exudative Epidermitis in Piglets. *PLoS ONE*, 2
8. Meason-Smith, C., Diesel, A., Patterson, A. P., Older, C. E., Mansell, J. M., Suchodolski, J. S., & Rodrigues Hoffmann, A. What is living on your dog's skin Characterization of the canine cutaneous mycobiota and fungal dysbiosis in canine allergic dermatitis. (2015) *FEMS Microbiology Ecology*, 91(12):fiv139
9. Muller and Kirk's small animal Dermatology, 7th edition Elsevier

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.

Phylogenetic Rank Abbreviations

If the detected bacterial or fungal taxon could not be identified down to the genus level, the closest phylogenetic rank identified is provided. An abbreviation indicating the level of the rank is displayed aside. The meaning of the abbreviations is shown as:(p) Phylum level, (c) Class level, (o) Order level, and (f) Family level.

Disclaimer

The information contained in this MiDOG® report is intended only to be factor for use in a diagnosis and treatment regime for the animal patient. As with any diagnosis or treatment regime, you should use clinical discretion with each animal patient based on a complete evaluation of the animal 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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