MiDOG
Animal Diagnostics

All-in-One Microbial Test
Exotic Animal Report

Patient Name:		**Health Status:**		**Account #:**	
Owner's Name:		**Ordered by:**		**Sample ID:**	MI50000539
Breed:	Bearded dragon	**Email:**		**Sample Type:**	Skin
Age:		**Hospital:**		**Received Date:**	
Species:	Reptile	**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 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 outside the expected range for the average clinically healthy animals. 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	Normal Range	Significance
Staphylococcus aureus (MRSA) [1]	[Link]	68.0 %	27,000,000	0-93	🔴 High
Staphylococcus pasteuri-warneri [2][3][4]	--	9.2 %	3,700,000	0-51	🔴 High
Enterobacter cloacae [5]	[Link]	7.8 %	3,200,000	0-770	🔴 High
Staphylococcus sciuri [6]	--	3.3 %	1,300,000	0-110	🔴 High
Staphylococcus simulans [2][3][4]	--	2.4 %	970,000	NA	NA

2.Fungi

Species Detected	AID*	Percentage	Cells per Sample	Normal Range	Significance
Nannizziopsis sp. [7][8][9]	[Link]	99.5 %	250,000	0-0	🔴 High
Rhizopus delemar [8][9][10]	--	0.1 %	260	NA	NA
Mucor circinelloides [8][9][10]	--	0.1 %	170	0-130	⚫ Intermediate

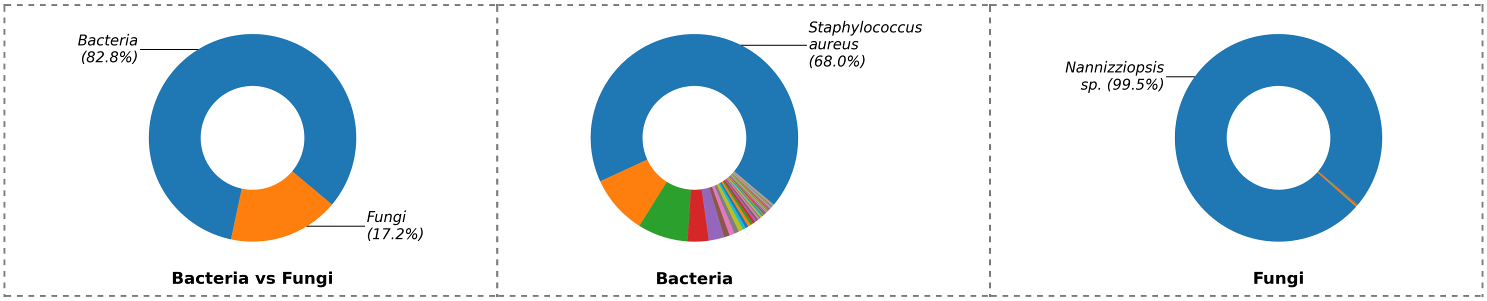
Abbreviation Key:

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

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 **Bacteria** **Fungi**

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	*Staphylococcus aureus* (68.0 %)	*Staphylococcus pasteuri-warneri* (9.2 %)	*Enterobacter cloacae* (7.8 %)	*Staphylococcus sciuri* (3.3 %)	*Staphylococcus simulans* (2.4 %)
1st	Cefazolin	R	F	R	F	F
	Cephalothin	R	-	-	-	-
	Cephalexin	R	F	R	F	F
	Cefadroxil	R	-	R	-	-
	Cefoxitin	R	G	R	G	G
	Penicillin	R	R	R	G	R
	Penicillin G	R	R	R	G	R
	Oxacillin	R	R	R	G	R
	Ampicillin	R	R	R	-	R
	Amoxicillin	R	R	R	-	R
	Clavamox	R	-	R	-	-
	Gentamicin	R	R	R	G	G
	Tobramycin	R	R	R	-	-
	Neomycin	R	R	R	-	-
	Clindamycin	R	R	R	G	R
	Lincomycin	R	R	G	G	R
	Doxycycline	R	R	R	F	R
	Minocycline	R	R	R	G	R
	Tetracycline	R	R	R	G	R
	Sulfonamide	-	-	R	-	-
	Trimethoprim-sulfamethoxazole	G	G	G	G	G
	Metronidazole	R	-	R	-	-
	Cefovecin	R	-	-	-	-
2nd	Cefpodoxime	R	-	-	-	-
	Ceftiofur	R	-	-	-	-
	Timentin	R	-	-	-	-
	Azithromycin	R	R	R	G	R
	Orbifloxacin	F	-	-	-	-
	Chloramphenicol	R	R	-	-	-
	Florfenicol	R	R	-	-	-
3rd	Amikacin	R	R	R	F	F
	Rifampin	G	F	-	F	F
	Imipenem	R	-	G	-	-
	Levofloxacin	F	G	G	G	G
	Marbofloxacin	G	-	-	-	-
	Pradofloxacin§	F	-	-	-	-
	Enrofloxacin	G	-	-	-	-
	Ciprofloxacin§¶	F	G	G	G	G
	Ceftazidime	R	-	R	-	-
	Mupirocin	R	-	-	-	-
	Nitrofurantoin	F	F	-	F	F
	Colistin	R	-	-	-	-
	Ticarcillin	R	R	-	-	R
	Piperacillin-Tazobactam	R	-	-	-	-

Drug Class	Antifungals	*Nannizziopsis sp.* (99.5 %)	*Rhizopus delemar* (0.1 %)	*Mucor circinelloides* (0.1 %)
Triazole	Fluconazole	-	-	R
	Itraconazole	-	-	-
	Voriconazole	-	-	-
Polyene	Amphotericin B	-	-	-
	Caspofungin	-	-	R
	Micafungin	-	-	R
Echinocandin	Anidualfungin	-	-	-
Fluoropyrimidine	Flucytosine	-	-	R
Allylamine	Terbinafine	-	-	-

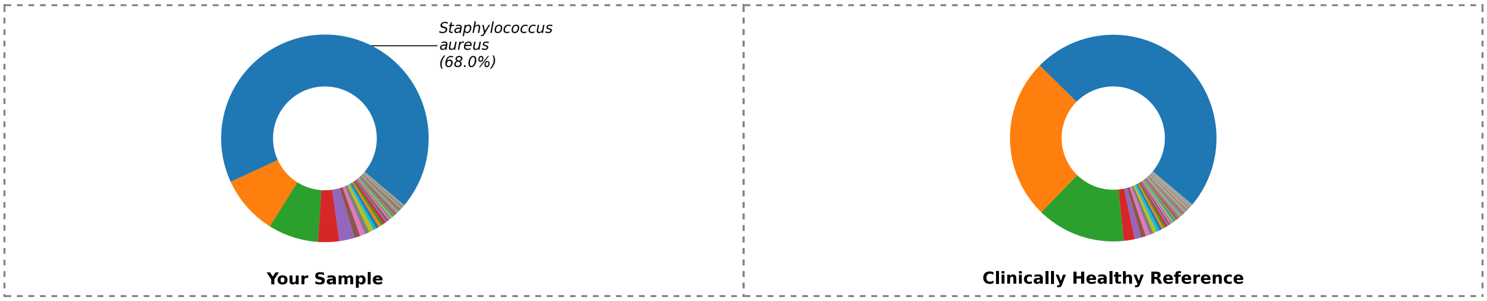
Abbreviation Keys and Symbols:

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

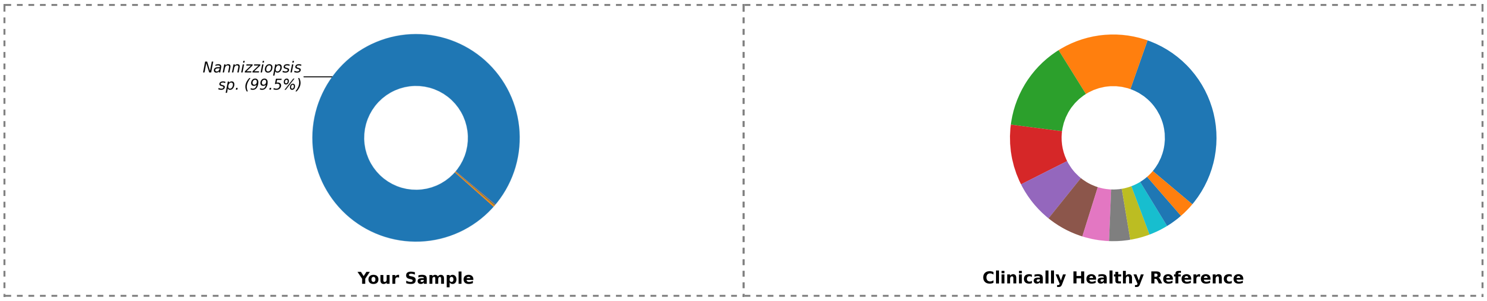


Your Sample

Clinically Healthy Reference

Species Detected	AID*	Percentage	Cells per Sample	Normal Range	Significance
Staphylococcus aureus (MRSA) [1]	[Link]	68.0 %	27,000,000	0-93	● High
Staphylococcus pasteuri-warneri [2][3][4]	--	9.2 %	3,700,000	0-51	● High
Enterobacter cloacae [5]	[Link]	7.8 %	3,200,000	0-770	● High
Staphylococcus sciuri [6]	--	3.3 %	1,300,000	0-110	● High
Staphylococcus simulans [2][3][4]	--	2.4 %	970,000	NA	NA
Staphylococcus simiae [1][11]	--	0.9 %	370,000	NA	NA
Moraxella osloensis	--	0.8 %	320,000	0-160	● High
Serratia marcescens [8][9][12]	[Link]	0.7 %	300,000	0-0	● High

Total Fungal Composition



Your Sample

Clinically Healthy Reference

Species Detected	AID*	Percentage	Cells per Sample	Normal Range	Significance
Nannizziopsis sp. [7][8][9]	[Link]	99.5 %	250,000	0-0	● High
(f)Aspergillaceae sp.	--	0.2 %	590	0-440	● Intermediate
Rhizopus delemar [8][9][10]	--	0.1 %	260	NA	NA
Mucor circinelloides [8][9][10]	--	0.1 %	170	0-130	● Intermediate
Penicillium sp.	--	0.0 %	57	0-1,000	● Normal
(k)Fungi sp.	--	0.0 %	45	0-200,000	● Normal

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.

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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
APH(3")-Ib	aminoglycoside	aminoglycoside phosphotransferase
APH(6)-Id	aminoglycoside	aminoglycoside phosphotransferase
APH(3')-Ia	aminoglycoside	aminoglycoside phosphotransferase
ANT(4')-Ib	aminoglycoside	Kanamycin nucleotidyltransferase
ANT(6)-Ia	aminoglycoside	aminoglycoside nucleotidyltransferase
SHV	carbapenem, cephalosporin, penam	class A beta-lactamase
lnuA	lincosamide	lincosamide nucleotidyltransferase
ermA	lincosamide, macrolide, streptogramin	23S rRNA methyltransferase
mphC	macrolide	macrolide phosphotransferase
mphD	macrolide	macrolide phosphotransferase
mecA	monobactam, carbapenem, cephalosporin, cephamycin, penam, penem	penicillin-binding protein 2a
mupA	mupirocin	alternative isoleucyl-tRNA synthetase
blaZ	penam	class A beta-lactamase
ermB	streptogramin, macrolide, lincosamide	ribosomal methylase
msrA	streptogramin, tetracycline,phenicol, macrolide, lincosamide	ABC-F ribosomal protection protein
sul2	sulfonamide	dihydropteroate synthase
tetC	tetracycline	tetracycline efflux pump
tetK	tetracycline	tetracycline efflux pump

References

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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.

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.

Customer Support

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Need help understanding your report? We offer free consultations!

You can request a veterinary consultation through your MiDOG portal account, by email, or by phone.

Have technical questions? Just give us a call to talk to our support team.