

Better Tests, Better Care

Improved Infection Diagnostics for Pets using Microbiome Science



All-in-One Test to Diagnose Bacteria, Fungi, and Antibiotic Resistance

Millions of animals suffer from infections every year.

For every antibiotic on the market, there is a pathogen resistant to it.

In 2050 the leading cause of death will result from antibiotic resistant infections.

99% of the world's 1 trillion germs are not culturable.

Conventional diagnostic tools like culturing are outdated!

It's time to act. . . **Now!**



All-in-One Microbial Test

Accurate Diagnosis Made Possible Through Next-Gen Technology.

Better Treatment Outcomes.

Good Antibiotic Stewardship.

Saving Lives with MiDOG:

Modern DNA technology for accurate pathogen identification and diagnosis of infections

The MiDOG All-in-One test picks up where conventional culturing methods leave off by detecting infectious bacteria and fungi based on their DNA. Since the DNA of all bacteria and fungal organisms is analyzed, the MiDOG test covers all organisms present at the time of collection at the infection site. This DNA evidence is guiding veterinarians to cure acute and chronic infections more efficiently than ever before.

Accurate diagnosis of microbial infections starts with MiDOG

- ✓ Identify all bacteria, fungi, and pathogens in the sample
- ✓ Detect and omit antibiotic resistance
- ✓ Comprehensive report with antibiotic treatment suggestions



Bacteria



Fungi



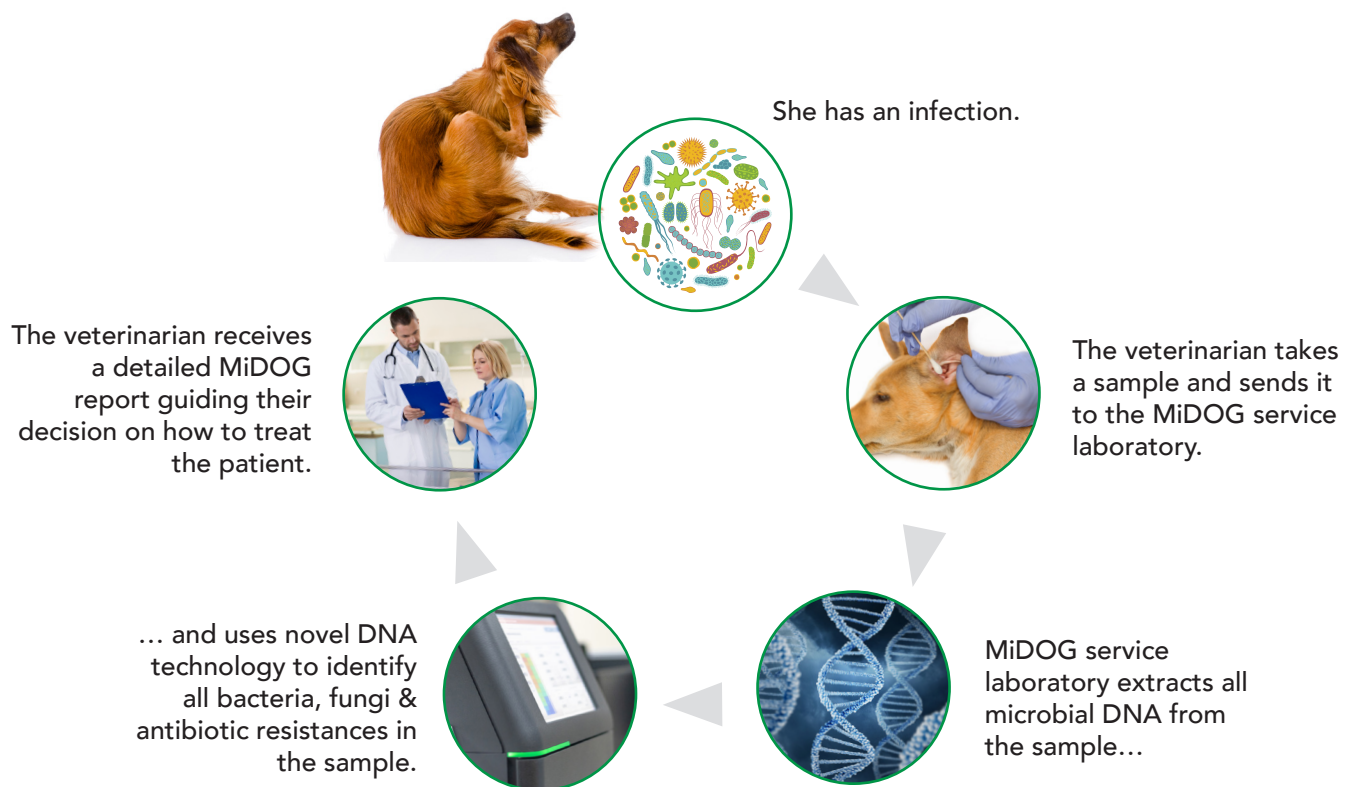
Antibiotic Resistance

"Clients expect their vets to stay up to date on all matters that affect the health and well being of their non-human family members. The current technique that we have used to determine the presence and antibiotic sensitivity of organisms causing disease in our pets is over a century old. With the emergence of dangerous antibacterial resistance, it is critical that veterinarians are able to offer laser focused diagnostics and treatment. MiDOG enables us to offer care that exceeds the typical standard of care."

Bernadine Cruz, DVM, Laguna Hills Animal Hospital, Laguna Woods, CA

How does the MiDOG All-in-One Test Work?

MiDOG uses DNA sequencing as a molecular diagnostic tool to detect and identify all culprits causing infections. Specifically, MiDOG uses microbial DNA from bacteria and fungi that bypasses culture testing along with its deficiencies. The 'no growth' result often associated with culturing is no longer an issue, as no clinical sample is truly sterile.



"The MiDOG All-in-One Test is amazing, I would use it instead of culture and sensitivity. Such rapid and detailed results, I will reach for MiDOG before culture next time! Thank you very much MiDOG, for sharing the opportunity to try your technology."

Martha Smith-Blackmore, DVM, President of Forensic Veterinary Investigations, LLC, Boston, MA

The MiDOG Report: Comprehensive and Precise



3 Parts:

- ✓ Bacterial and fungal pathogens present
- ✓ Comprehensive antibiotic resistance panel with treatment guidelines to aid good antibiotic stewardship
- ✓ Quantification of all germs, comparing the sample to a healthy canine microbiome (other species to follow)

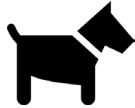
See example report
and tutorial online

Support at every step, including
interpretation of the report by a
licensed veterinarian.

Featured in:



MiDOG is Easy to Use and for All Types of Samples and Animals



Collect the Sample

1



Send Sample via FedEx

2



Receive Report via Email

3

With the power of DNA sequencing-based diagnostics, veterinarians now have a tool that both identifies and quantifies all microorganisms at the infection site in just 3 easy steps.

The MiDOG Test can be used to diagnose:



Urinary Tract Infections



Ear Infections



Skin Infections



GI Tract Infections

and more!



"The MiDOG All-in-One Microbial Test is our new gold standard of pathogen identification. The results are so accurate and valuable - especially with assessing both bacterial and fungal infections with the same sample."

Kathy Wentworth, DVM, Diplomate ABVP Canine and Feline Practice, PetPoint Medical Center, Irvine, CA

Benefits of MiDOG

vs. Conventional Culture Testing



	MiDOG All-in-One Microbial Test	Conventional Culture Testing
Identify all microorganisms	✓	✗ < 1% of all microbes
Identify aerobic microorganisms	✓	✓ Occasional identification of fungi
Identify anaerobic microorganisms	✓	✗ Only upon special request
Absolute quantitation of all bacteria and fungi	✓	✗ < 1% of all microbes
Antibiotic resistance profiling	✓	✓ Only culturable bacteria
Ambient temperature sample collection, transport, and storage	✓	✗ Samples need to be cultured ASAP to prevent growth/death of microbes in transit
Turnaround time 2-5 business days guaranteed	✓	✗ Up to 4 weeks for fungi
Compatible with biofilms	✓	✗ Biofilms are not culturable
Guaranteed results	✓	✗ High failure rate, additional specialty testing needed
All the above in one test	✓	✗ Multiple tests are required

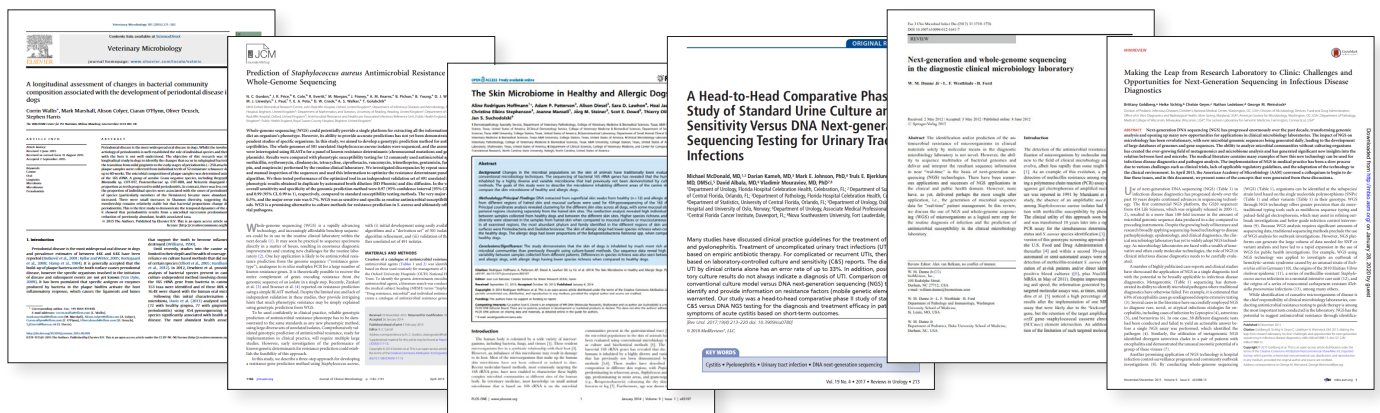
DNA Sequencing is Rapidly Becoming the New Standard of Care, Backed by Science

"Effective treatment of any disease requires accurate diagnosis of disease."

As we are faced with the ever-growing antimicrobial resistance and microbial induced diseases, our diagnostic approach to identifying infectious diseases must evolve.

DNA sequencing technology, as offered by MiDOG, as already been widely used in human and veterinary clinical diagnostics. More than 10,000 studies have been recorded, with more than 2,000 publications in just 2018!

The consensus: DNA sequencing has significant clinical advantages over traditional culture testing methods.



"At times culturing tests report some bacterial growth, or even no growth. The MiDOG All-in-One Test reports additional bacteria and yeast that were not detected by culturing, along with antibiotic resistances. This information from MiDOG has led to many successful treatments of chronic cases in my practice."

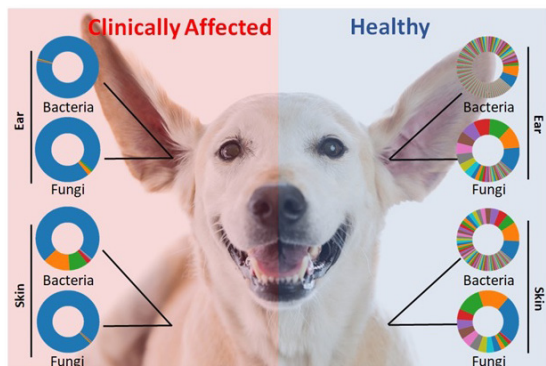
Mike Kavanagh, DVM, Saddleback Animal Hospital, Tustin, CA

With the power of DNA sequencing, clinicians have a tool that both identifies and quantifies all microorganisms at the lesion site. DNA sequencing affords the clinicians the ability to ascertain the microbes causing dysbiosis or microbial induced disease in a timely and efficacious manner and has the “potential to dramatically revolutionize the clinical microbiology laboratory by replacing current time-consuming and labor-intensive techniques with a single, all-inclusive test”

(Weinstock et al., 2016).



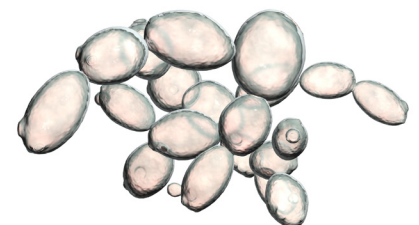
Next-Gen Sequencing using Illumina® Sequencing Technology as used at MiDOG facility.



MiDOG All-in-One Test highlights how both bacteria and fungi play a role in the characterization of both the canine skin and ear microbiota, and how they can change in a diseased environment.

Tang et al. 2020 (in Review)

Fungal species are often overlooked based on the inefficient culture and detection methods. However, NGS provides a technology that facilitates the simultaneous detection and quantification of fungi as well as aerobic and anaerobic bacteria. Get the complete picture of infections with MiDOG.



"I love the absolute abundance and comparing the fungal with bacterial infection. I do not worry as much about getting a false negative urinary infection reading as I do with traditional urine cultures. Several times the same urine would culture negative but MiDOG would detect pathogens."

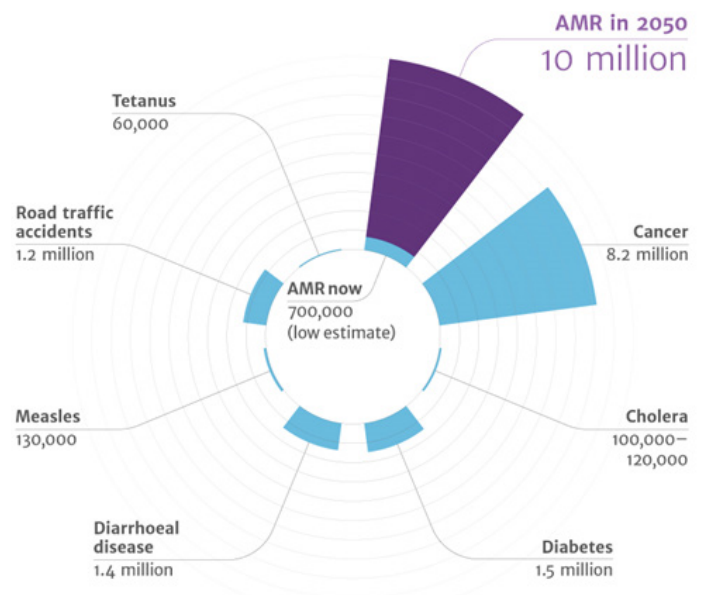
Michael Morgan, DVM, Quail Animal Hospital, Tustin, CA

Clinical Applications of DNA Sequencing

Guiding good antibiotic stewardship in fighting the spread of antibiotic resistance

Antibiotic resistance is an increasing global problem, both for public and animal health and welfare. The development and spread of antibiotic resistance is influenced by human and animal antibiotic use, as well as intrinsic resistance naturally present in some pathogenic microorganisms.

The MiDOG All-in-One Test can detect antibiotic resistance genes and utilizes a database to report intrinsic resistance of all microorganisms identified. By reporting both acquired and intrinsic antibiotic resistances, the MiDOG All-in-One Test helps guide veterinarians to choose the most appropriate antibiotic treatment.



Anticipated human deaths attributed to antibiotic resistance each year by 2050.

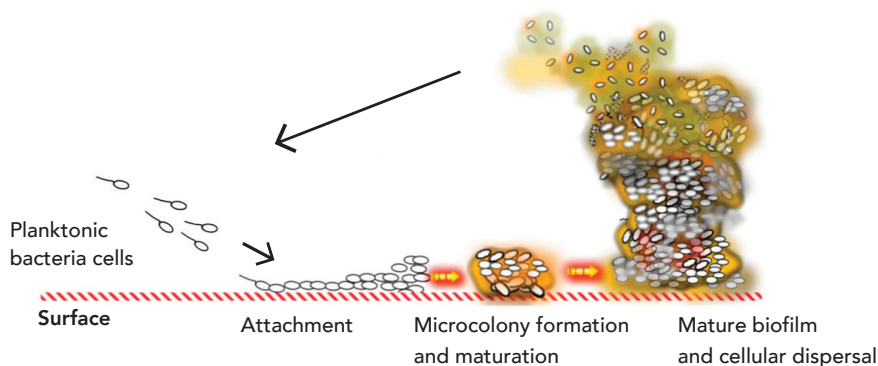
Intrinsic resistance refers to a natural resistance that, most or all, members of a species have to a particular antibiotic. This antibiotic will be ineffective for the treatment of naturally resistant microbes. For example, *Pseudomonas aeruginosa* is intrinsically resistant to a wide range of antibiotic drugs due to the activities of multi-drug efflux pumps and chromosomally encoded resistance genes. To see a sample report please go to www.midogtest.com.

Uncovering Multispecies Infections (Biofilms) and Novel Pathogens

Biofilms are living, three-dimensional structures formed by a multispecies community of microorganisms, which are encased in a self-secreted extracellular matrix. This matrix consists of polysaccharides, proteins, and DNA that protects the microbes from disturbances in their environment. Therefore, microorganisms within biofilms are generally more resistant to antibiotics.

According to NIH Research, biofilms are a huge health burden causing about 80% of all infections. Such biofilms remain completely undetected by most modern culture methods, as only <1% of microorganisms can be cultured in a lab.

The MiDOG All-in-One Microbial Test provides unique DNA preservation and extraction technologies that capture the DNA of all microorganisms present in biofilms. Mechanical forces break down the biofilms for extraction of the DNA from all microorganisms. Ultra-deep Next-Generation DNA Sequencing and bioinformatic analysis identify all organisms within these samples.



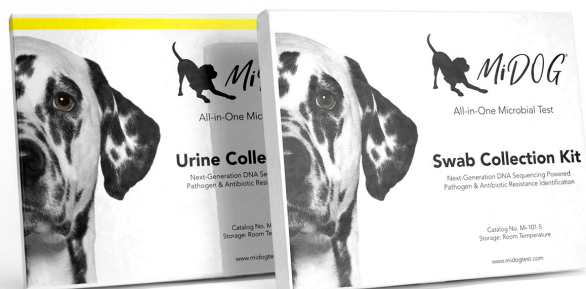
How biofilms grow: Free living planktonic bacterial cells adhere to a surface and start excreting an extracellular matrix, thus forming microcolonies. These microcolonies mature and harbor a great variety of different microbes. Only the planktonic cells are culturable in the lab, while the biofilm itself remains unculturable at this time.

Image: Adapted from Omar, et al. 2017 Microorganisms

Help your Patients with MiDOG!

Order your MiDOG All-in-One Microbial Test kit today!

Go to www.midogtest.com/order or contact us at info@midogtest.com





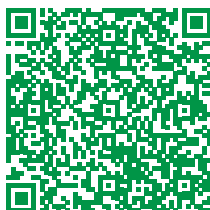
All-in-One Microbial Test

"Next-Generation DNA Sequencing has the potential to dramatically revolutionize the clinical microbiology laboratory by replacing current time-consuming and labor-intensive techniques with a single, all-inclusive diagnostic test."

American Society of Microbiology Report, 2015



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