MiDOG
Animal Diagnostics

MiDOG RESEARCH PROJECTS INFORMATION

Overview

Our mindset at MiDOG Animal Diagnostics is research and discovery driven. The answers we can uncover by studying and understanding the animal microbiome in health and disease are fascinating and can, quite literally, help veterinarians save lives.

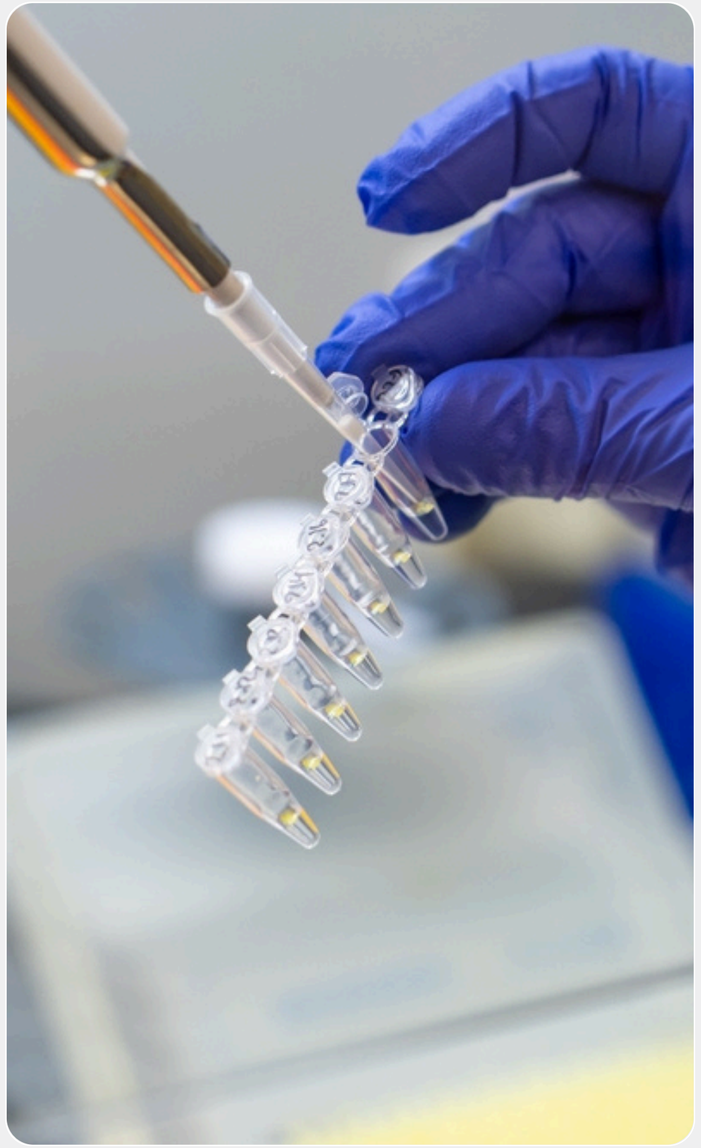
Our research services are tailored to scientific research projects. We work with investigators to ensure each study is methodologically sound and well-positioned to uncover meaningful outcomes.

With over 40 peer-reviewed publications and collaborations spanning veterinary schools, universities, specialty hospitals, zoological institutions, and industry partners, our team is well-equipped to support projects from concept to publication.

Whether you are at a university, a DVM resident, a graduate student, work in industry, a non-profit looking into doing a study on known or novel infectious diseases, the general microbiome composition, or would like to test an intervention in animals, we would be happy to work with you and provide guidance along the way to ensure the project will be a success.

Our Services Include:

1. **Guidance on study design and sample size**
   - The scientists at MiDOG provide guidance on the sample collection process, timelines, collection timepoints and locations, sample size, suggestions to avoid pitfalls, and more through the initial consultation included in our research service.
2. **Letter of support:** If you are applying for funding, we can provide you with letters of support to enhance your application
3. **Sample processing**
   - Sequencing data generation and analysis: This is no trivial task, and we will provide full-service sample processing including:
   - DNA extraction from various sample types for bacterial and fungal organisms as well as parasites
   - Library preparation, pooling and post-library quality control
   - Sequencing on various platforms with flexible sequencing depth depending on project needs
   - Positive and negative controls for all steps
   - Processed under standardized SOPs with rigorous QA/QC across all steps.
4. **Data analysis**
   - Relative and absolute cell counts for bacteria and fungi
   - Data analysis
   - Relative and absolute cell counts for bacteria and fungi
   - Microbial composition analysis at taxonomic levels from phylum to species based on a well-curated MiDOG microbial reference database
   - Abundance tables, bar plots and heatmaps of most dominant organisms in the dataset organized to address your study needs
   - Alpha diversity analysis
   - Beta diversity analysis
   - Association or differential abundance of microbes to treatment groups, populations, time points etc. (e.g., LefSe analysis, Co-occurance matrix, Regression models)
5. **Writing process**
   - The MiDOG team provides guidance for the writing and publication process if needed



MIDOG SERVICES: WHAT PATHWAY FITS YOUR OBJECTIVE?

WHAT IS YOUR PRIMARY GOAL?

MiDOG Animal Diagnostics

All-in-One Diagnostic Test for Clinicians

- All-in-one detection of pathogens
- Fast turnaround for patient-care decisions
- Advice from MiDOG veterinary experts on report interpretation
- Flexible add-on reporting to enable time-series monitoring of infection and compare across tests

Raw sequencing data (fastq files) not included

Results in 48 Hours

Conduct a Research Study

- Exploratory or hypothesis-driven and publication-ready studies
- 2-3 week turnaround time after all samples are received

Raw sequencing data (fastq files) included

Results in 2 Weeks

Targeted 16S / ITS Amplicon Sequencing

WHICH bacteria and fungi are present in the sample?

- Broad overview of bacterial and fungal communities
- Compare composition across groups or timepoints
- Identify microbes associated with specific conditions

Whole Genome Sequencing and Assembly

WHO is this novel pathogen and WHAT can it do?

- Ideal for high pathogen load or cultured in one or two isolate samples
- Deep characterization of one organism
- Genome assembly, gene content comparison, and evolutionary origin analysis

Whole Genome Sequencing Metagenomics

WHO are present and WHAT can they do?

- Ideal for mixed and complex otitis disease samples
- Capture bacteria, fungi, parasites, some viruses, and more
- Compare composition across groups or timepoints
- Functional insight: AMR genes, virulence factors, metabolic pathways

Full service including sample processing, data collection and analyses listed on our website included. Custom analysis and additional consultations with MiDOG scientists available at an hourly consultation fee.

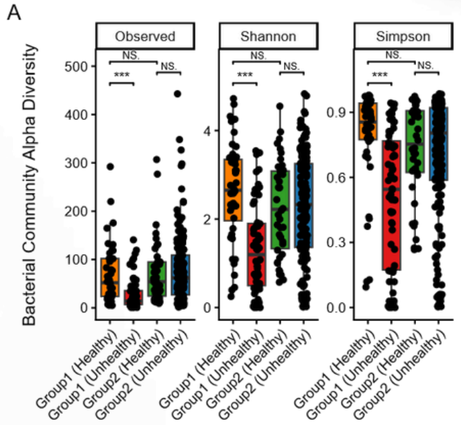
Ready to Get Started or Need help choosing? – Contact our Team

Our MiDOG scientists provide an intial research consultation (included) and advice based on your study goal, sample type, estimated sample number, timeline, and funding context.

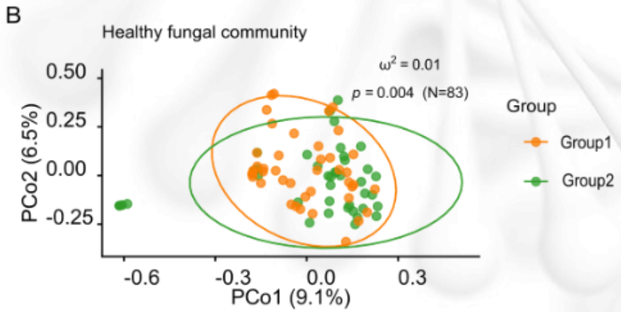
Example Graphs

MiDOG Animal Diagnostics

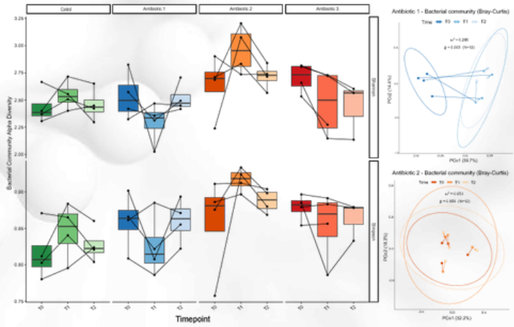
Alpha Diversity Measures



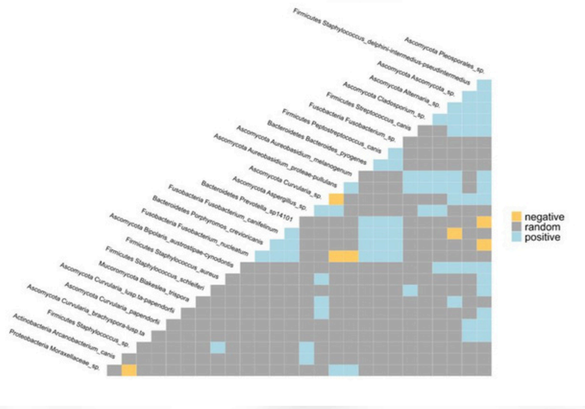
Beta Diversity Measures



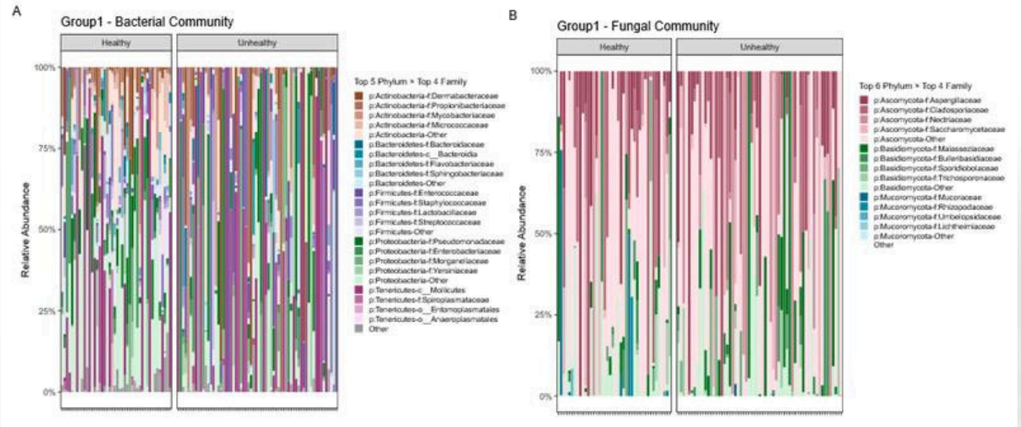
Time-course Comparisons



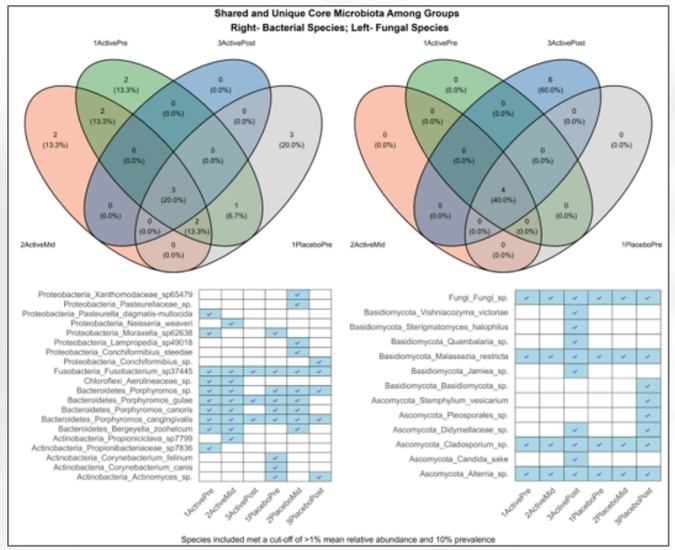
Co-Occurrence Network



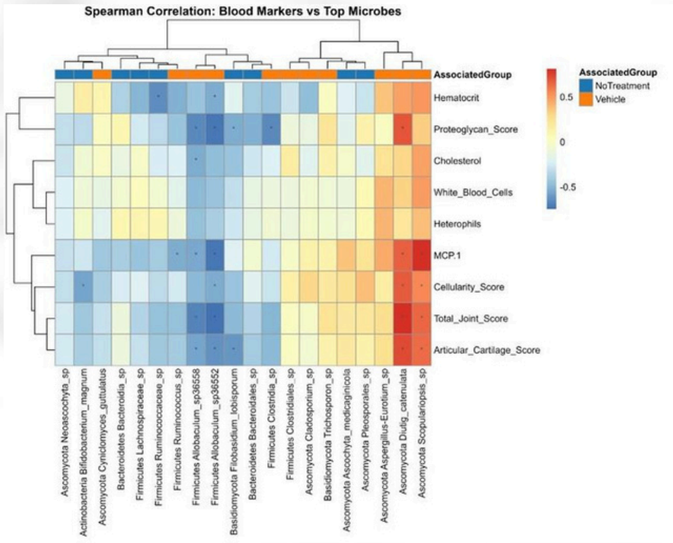
Microbiome Composition - Top Taxa



Core Microbiota Visualization



Regression of clinically relevant features (Heatmap)



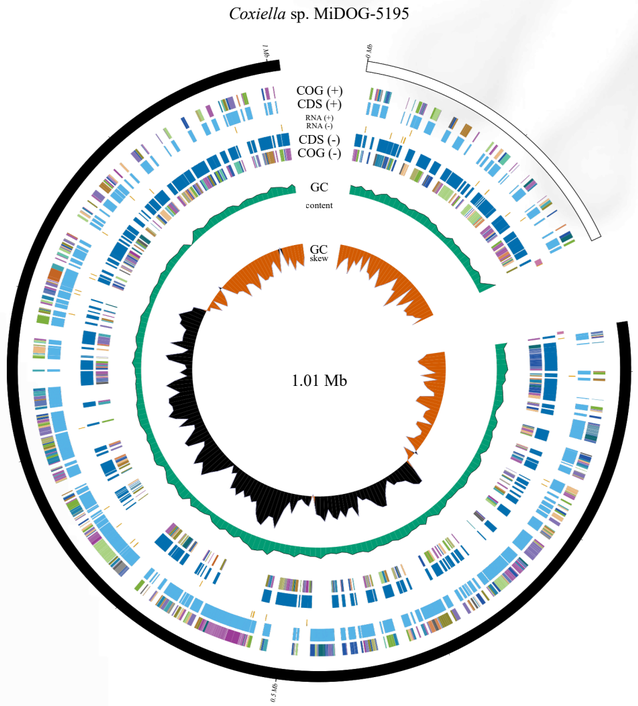
PUBLICATIONS

Scan Here to Access Our Publications

Whole Genome Sequencing Example Graphs

MiDOG Animal Diagnostics

Bacterial Genome Map



PUBLICATIONS

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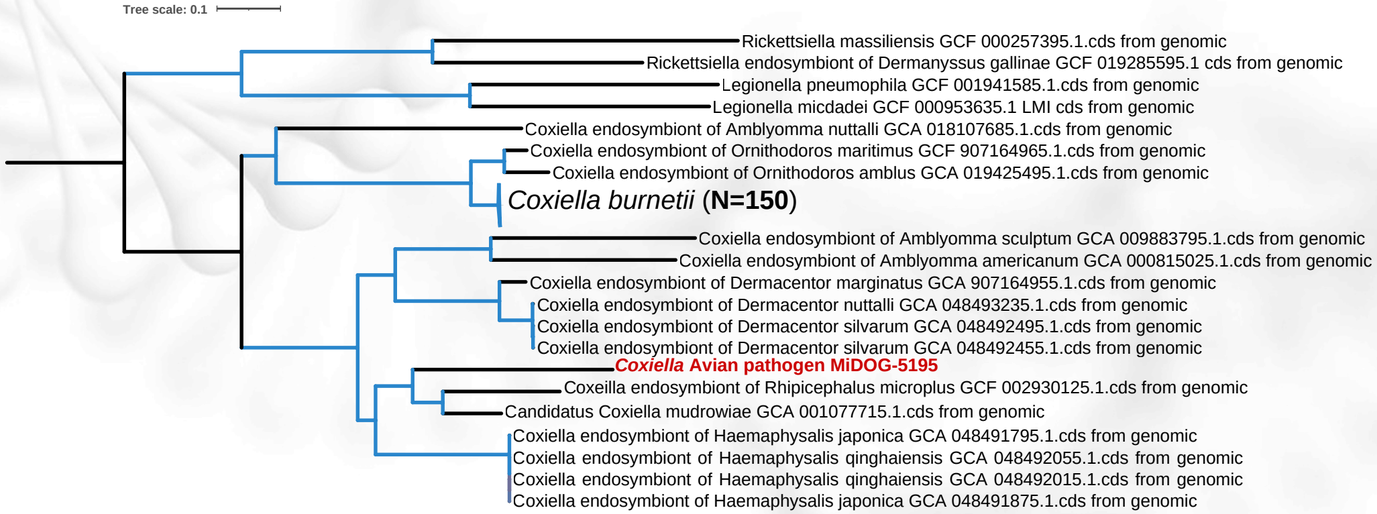
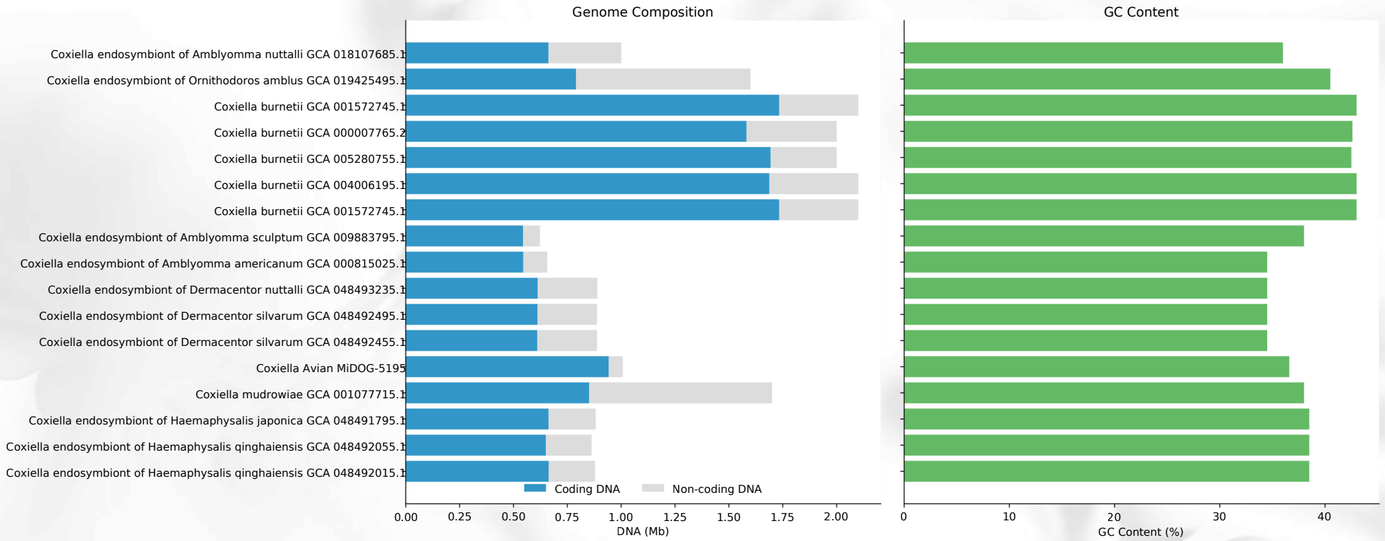
Phylogenetic Trees



Genome Composition Bar Plots



I’m not sure which sequencing method is right for my project. What should I do?

Our scientists provide tailored guidance based on:

- Study goals
- Sample type and quality
- Expected microbial complexity
- Sample size and budget considerations
- Desired depth of analysis

We will help you select the approach that best aligns with your research objectives.

How is this different from MiDOG’s regular diagnostic service?

Our regular diagnostic service is highly tailored and optimized for diagnostic application including a detailed report presenting findings to veterinarians in the clinic. With this service, raw data will not be available.

In contrast, our research services are specifically tailored to scientific research projects, where study design flexibility, experimental variables, and hypothesis-driven investigation and publication are central to the process.

If you are unsure which pathway is appropriate, our team is happy to discuss your goals and help determine the best fit.

How do I get started?

We will schedule a consultation to discuss next steps. To make the most of the consultation session please share with us a brief overview of your research question, sample type, an estimated number of samples, timeline and funding considerations (if applicable).

From there, our scientists will develop a tailored plan and recommendations that set your project up for success.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If you have any questions,
don't hesitate to contact us.
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