Pip's GutDiscovery® Microbiome Profile

Part 1: Overview and Recommendations

Sample date: 31/10/2023 Analysis date: 10/01/2024



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For Pip's Detailed Microbiome Analysis - See Report Part 2

Section 1

Pip's **GutDiscovery®** Results

GutDiscovery® Microbiome Profile Test was the first step you made into the amazing science of Pip's gut microbiome and total body health. The insights it unlocked will help you give her a happier, healthier and longer

Your sample has been sequenced and analysed using our proprietary Invisible Health Al algorithms to generate the scorecards and breakdowns presented in this section.



How will this report help Pip?

In creating this report, we've analysed millions of data points from her gut microbiome to pinpoint specific digestion and underlying health issues. We've used this along with the information you've given us, to create targeted recommendations in Pip's BiomeVitality® Care Plan (Section 2), to benefit her over the months and years to come.



Introduction to the Microbiome

The gut microbiome is an extremely sensitive and diverse ecosystem of microorganisms. Its composition includes many species of bacteria, fungi and archaea, that live in harmony within your pet's gastrointestinal tract.

These microorganisms work with the host and one another, impacting many aspects of your pet's health, including digestion, cognitive function, immune response and even cardiovascular support, as well as many other aspects of their wellbeing.

Due to the vast species diversity that exists, even a minor shift in populations - strongly linked to diet - can cause unexpected detrimental effects. Therefore, an understanding of the gut microbiome population can prove extremely insightful, and indicate some simple nutritional changes and supplementation support to help improve your pet's digestive and total health.

Pip's InvisibleHealth® Score

Microbiome Population Scoreboard

See detail on Page 6

Shows the abundance, diversity, balance, and resilience of gut bacteria found in Pip's sample.

Health Indicators

See detail on Page 7

Shows how well the bacterial composition analysed in Pip's sample is able to support various aspects of her health.

Invisible Health Score

This proprietary score integrates the Microbiome Population Scoreboard with the Health Indicator Analysis allowing you to benchmark and monitor Pip's overall gut health, by quickly assessing its impact on her current and future wellbeing.



Poor

Healthy

Pip's score is Average. We can help improve her gut health score and associated health outcomes through a tailored program of precision dietary supplements and dietary interventions.

BiomeVitality® Care Plan

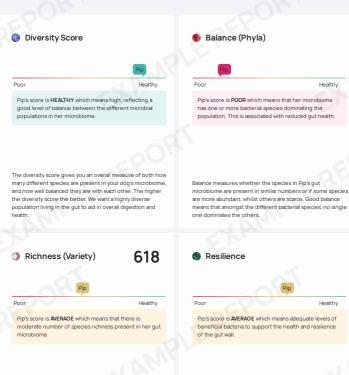
See plan on Page 9

From the detailed analysis of Pip's gut microbiome, we've created a tailor-made roadmap designed to improve her digestive health and overall wellbeing This journey includes the following key components:

- ✓ Nutritional tips
- ✓ Precision supplement plan
- Tracking and measurement (retest)



Pip's Microbiome Population Scoreboard



The other component of Diversity is Species Richness. This refers to the number of different bacteria species present in Pip's gut microbiome. High species richness is positively associated with benefits to overall health.

This score takes into account the bacteria within Pip's qut wall that help protect against harmful toxins or pathogens, contribute to nutrient absorption, and help build a protective army on the gut wall. When working properly, these bacteria can communicate with each other and help to neutralise threats. However, the presence of certain bad bacteria can form biofilms, leading to inflammation of the gut and contribute to what is often called "Leaky Gut Syndrome".

Pip's Health Indicators

When it is in optimal condition. Pip's gut microbiome can support other health functions in her body. Through advanced 16s rRNA sequencing, we've charted the bacterial landscape of her gut, using Al pattern recognition to benchmark her unique, complex bioinformatic profile against our proprietary dataset.

The table below presents indicators of how effectively Pip's gut microbiome is supporting various health functions, offering a snapshot of her digestive wellbeing and its broader impact on her overall health, but also holds the potential to reveal patterns that may suggest underlying or hidden health issues*.

*You can find the recommendations based on this analysis in Section 2

Health Area	Level of Support
Digestive function	
Ability to digest protein	 Below Avg
Ability to digest fibre	Below Avg
Ability to digest carbohydrates	 Moderate
Vitamin and mineral absorption	 Moderate
Ability to digest lipids (fats)	 Moderate
Immunity and inflammation	
Immunological function	 Moderate
Gut inflammation	 Moderate
Joints and mobility	• Good
Supportive health indicators	
Coat and skin	 Moderate
Breath odour	 Moderate
Neurological (behaviour)	 Moderate
Cardiovascular	 Moderate

Note: The indicators here show how well the microbiome is supporting the various health functions in the table, not the state of the health functions themselves - and therefore should not be taken as diagnosis of any medical conditions. If anything concerns you, a chat wth your yet may be of benefit.

Pathogen Analysis

Bacteria	Result
Campylobacter jejuni	 Not Detected
Clostridium difficile	 Not Detected
Clostridiumperfringens	• Not Detected
Salmonella enterica	• Not Detected
Helicobacter pylori	• Not Detected

True pathogens refer to microorganisms that have the potential to cause disease. While many bacteria in the gut are beneficial and contribute to overall wellbeing, certain pathogenic bacteria can disrupt the delicate balance of the microbiome, leading to inflammation. Maintaining a diverse and balanced gut microbiome through lifestyle and diet is crucial for preventing the overgrowth of pathogens and promoting better overall gut health.

If a number is shown, this indicates the amount of individual bacterium of this pathogen species that were detected in Fenton's sample. If the number is shown in yellow, this is generally considered a low level, if red, you may consider discussing the result with your vet.

Disclaimer: Microbiome research is a pioneering field of science and our InvisibleHealth® Al continues to get more targeted and precise with every new sample we analyse. As such, the healthy ranges we measure your dog against today are based on the most up to date scientific understanding, our proprietary research, and bioscientific innovation. Through these advances and the use of your data our technology will become more precise and targeted over time

Section 2

Pip's **BiomeVitality®** Care Plan

Here you can find our simple-to-follow bespoke recommendations to help rebalance Pip's gut microbiome and improve her overall health and wellbeing

These have been created specifically to target the findings in Section 1 of



You can't easily change your dog's genes, but you can quickly alter their microbiome"

Amazing bit of science

I've been interested in the science around gut health for years and have a Zoe patch myself, I would really recommend it if you want to learn more about your dog's health and general wellbeing and how to make positive changes... good gut health is so important.



Michelle (& Rambo)

Quick and really easy!

The kit arrived at my door quickly and the test was straightforward to carry out and return. The results were prompt and gave a good insight into Peggy's gut health and the simple things we can now do to help!



Adam (& Peggy)

Creating Pip's BiomeVitality® Care Plan

Pip's InvisibleHealth® score is slightly below the level associated with optimal health and wellbeing. The good news is that any imbalances pinpointed by her GutDiscovery® can be addressed through improvements in diet and targeted supplementation.

53

InvisibleHealth® Score

Based on Pip's unique microbiome profile we have identified a few key areas which could do with additional support. Focusing on these, we have designed a programme of dietary improvements and precision supplementation to help improve her overall microbiome balance. Pip's detailed bacteria readings can be found in Part 2 of your report and can be used to track improvements over time



Addressing these findings has been prioritised in Pip's BiomeVitality® Care Plan:

- 1. Ability to digest protein
- 2. Ability to digest fibre
- 3. Coat and skin
- 4. Immunological function



Pip's Precision Supplement **Programme**

Pip's initial programme focuses on balancing her gut microbiome through a tailored 3-phase approach. After 6 months, we recommend a follow up GutDiscovery® test to assess progress and to allow us to fine-tune her ongoing personalised programme for maximum long-term health and vitality.

*All the bioactives in our supplements typically take 6-8 weeks to achieve the maximum beneficial effect. The programme has been designed in two-month frequencies to take advantage of this.

1. Restore

Combat symptoms Stabilise dysbiosis Prime gut wall

0-2 months

2. Repopulate

Boost vital bacteria Improve biotic diversity Establish inner balance

2-4 months

3. Optimise

Sustain microbiome symbiosis **Build resilience** Target functional vitality

4 months onwards

Recommended Retest

We recommend a new GutDiscovery® Microbiome Profile Test to track progress and to adjust Pip's personalised programme if necessary.

after 6 months



Restore

This is the first step in the programme. It will focus on restoring gut health and gut wall integrity, whilst priming it to allow for supplements to be properly absorbed.



GMB07

Microflora Prebiotic Nutrient Complex







Formulated for dogs with poor digestive function, biotic diversity and gut wall resistance, as well as improving the efficacy of complementary probiotics. Or as an everyday vital nutrient base for sustained gut health.

Dose: 1 chew per day More info 7



GMB02

Concentrated Bioactive Gut Detoxifier







A powerful detoxifier and gut cleanse supplement, targeting inflammation, gut wall biofilm resilience and symptoms including loose or irregular motions, constipation, and excessive flatulence.

Dose: 1 chew per day More info 7

Repopulate

Once the gut has been detoxified and is stabilised, we recommend giving beneficial bacteria a boost and supplementing to enhance full microbial diversity and balance.



GMB05

Adaptogenic Immuno-Probiotic



Microbiom
Diversity

K ≯ AdaptogenicL ↘ Response



Immune Boost

Formulated for dogs with health issues related to a weakened immune system, or as a healthy everyday immune support supplement.

Dose: 1 chew per day More info ₹



GMB07

Microflora Prebiotic Nutrient Complex









Nutrient

Formulated for dogs with poor digestive function, biotic diversity and gut wall resistance, as well as improving the efficacy of complementary probiotics. Or as an everyday vital nutrient base for sustained gut health.

Dose: 1 chew per day More info ₹

Optimise

By now, the gut microbiome should be in better condition for optimal nutrient absorption and metabolism.

Given Pip's age, overall health condition, and veterinary history we recommend the following supplements as an ongoing plan to promote better digestive health and targeted improvements in her functional condition.



GMB08

Humic-Enriched Vitamin & Mineral Concentrate







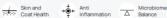
Ideal for dogs at risk of nutritional deficiencies related to gut health issues or chronic disease, or as a daily supplement for sustained overall health.

Dose: 1 chew per day More info 7



GMB09

Synbiotic Skin-Guard Polyphenol Complex



Developed for dogs with skin itching, food allergies, skin rashes or recurring skin irritations, reactions and infections and to help support a healthier coat.

Dose: 1 chew per day More info 7

Pip's Dietary Recommendations

As well as fuelling their everyday activities, a dog's diet also plays a key role in the health of their gut microbiome. So it's important to consider what Pip is eating every day alongside her precision supplement programme.

These tips from our Head Vet and nutritional expert, Dr Joe Inglis, will help ensure that Pip's diet is perfectly optimised to support her microbiome:

Everyday feeding:

You've told us that Pip is mainly on a home-cooked/fresh diet, so based on her GutDiscovery® Report findings, we recommend you consider the following changes to her everyday diet:



The data from your dog's microbiome means that a diet relatively high in protein is advisable to help improve their digestive functions and overall health. Feed homemade recipes with plenty of fresh protein, ideally from easily digestible sources such as fish or chicken, and you can also add in additional protein with meaty treats, eggs (raw or boiled), or even a teaspoon of cooked guinoa.

Treat tips

As well as her everyday meals, it's also important to consider the impact of any treats and snacks you give Pip, as these can also affect her microbiome. Here are some suggestions for treats that will help to optimise Pip's microbiome health:



Eggs are a great source of protein and work well served raw or boiled. Try 1 or 2 a week for a tiny dog, 2-3 for a small dog, 3-4 for a medium dog, 4-6 for a large dog.

Pip's superfoods

Based on Pip's test results, we've identified several specific foods that will help to improve the health and diversity of her out microbiome, so try to include these in her diet where possible. You can find out more about the science behind these recommendations at www.biome9.com/feeding



Fish, Chicken, Quinoa, Eggs

Foods to avoid

These foods will further exacerbate the bacterial imbalances found in Pip's digestive microbiome, so they are best avoided where possible.



Dairy products (cheese, milk, butter), sugary foods, rice, pasta



More Information on BIOME9 BiomeBites® Supplements



Soft treats, delivered every 2 months

Our range of BiomeBites® Supplements are designed as delicious soft treats, to make it easier and more rewarding for Pip to get exactly what she needs. They are delivered every 2 months, direct to your door with free delivery.



High bioavailability and sustainable

They are produced in the UK through a cold-extrusion process for maximum bioavailability and to preserve the integrity of our high-quality, fully-traceable ingredients.

BIOME9 BiomeBites® Supplements are GMO and glyphosate-free, as well as free of meat and animal products. All our packaging is fully recyclable.











Vet formulated and expert approved

Easy and rewarding

GMO and Glyphosate-Free Recyclable packaging

Fully sustainable UK production

Pip's **Detailed Microbiome Analysis**

In these pages we show a detailed analysis of Pip's gut microbiome; which species of bacteria make up this delicate ecosystem, their abundance, their key roles and what this means for her digestive function and overall health



A dog's gut microbiome is more diverse than a human's. Dogs can have up to 10 times as many species of bacteria in their gut microbiome than humans."

- Dr. Joe Inglis, Head of Veterinary Science, BIOME9

Phylum and Genus Breakdown

Phyla Score

The bacteria in your dog's microbiome can be classified into to 5 major groups called phyla, and furthermore into 12 subgroups called genera. When we analyse the gut microbiome we can see the abundance of bacteria belonging to each phylum and genus, and easily compare it to what a healthy gut microbiome population should look like. This is the basis for the 'Balance' score given in Part 1 of this report.

17% _{Poor}

Classification of Living Things



Pip's Phyla Composition

This chart represents each different microbial phylum identified in Pip's gut microbiome and compares that to a healthy average. Ideally you want her phyla composition to be as close as possible to that of a healthy comparative dog. This reduces the likelihood of digestive upsets and unwanted inflammatory responses, and it promotes a healthier gut environment needed for optimal overall health functions.

- Actinobacteria
- Bacteroidota
- Proteobacteria
- Firmicutes
- Fusobacteria

Other (minor phyla, not needed for analysis)

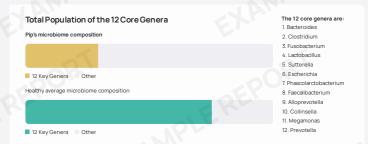


Example of a healthy phyla breakdown

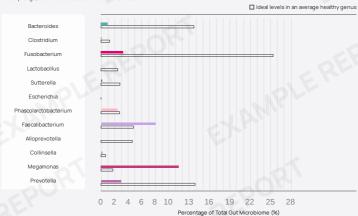
Phylum and Genus Breakdown

The core bacteria genus broken down in this report have been shown through research to influence multiple aspects within the canine body through something called the "gut axes" - the interconnection between the gut and other health functions.

We have focused on the 12 most important genus of bacteria and compared Pip's microbiome composition to that of a healthy average canine composition. This has allowed us to identify any potentially problematic areas and make recommendations to help improve her health. A microbiome comprised of a low proportion of these 12 core genus may suggest an imbalance in your dog's gut microfrora. The 12 key genus make up a significant part of the overall bacteria in the microbiome. Here you can see how Pip's proportions compare to a healthy standard.



In the chart below you can see a closer look of the ideal balance of each of these 12 genus levels in a healthy dog microbiome population compared to Pips. These are each broken down in detail on the following pages, to highlight how near or far away her levels are to an ideal healthy range, and what that could mean for her health:



Understanding the Bacteria of the Gut Microbiome

0.98% Low High 6.21% 8.79% Healthy range

Bacteroides are involved in several functions including carbohydrate metabolism, immune system regulation and inflammation control.

If Bacteroides are too low, your dog's ability to ferment and digest fibre and carbohydrates may be impaired, as well as their ability to produce short chain fatty acids which are crucial sources of energy for your dog.





Clostridium has somewhat of a bad name as there are some disease-causing bacteria within this group, but they're not all bad. Some Clostridium bacteria make important contributions to your dog's health through gut functions and vitamin production.

The levels of Clostridium are within the target range. No action required.

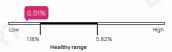
Fusobacterium



Fusobacterium play an important role in the digestion of protein to create amino acids; vital for your dog's health and wellbeing.

Low levels of Fusobacterium may predispose your dog to multicentric lymphoma, as well as acute diarrhoea. To increase levels of Fusobacterium, look to increase protein in your dog's diet.

Lactobacillus



Lactobacillus are key fibre degraders and many of these bacteria have beneficial probiotic capabilities. They have been reported to reduce the production of, or to be able to inactivate toxins produced by the likes of Salmonella, pathogenic Escherichia coli, and Clostridium perfringens.

If Lactobacillus are too low, your dog may not be able to adequately utilise nutrients from fibrous foods. Defence against disease causing bacteria and toxins may also be impaired if these bacteria are not maintained within the healthy range. Provide your dog with highly fibrous foods.

Understanding the Bacteria of the Gut Microbiome



Sutterella help with the day-to-day functioning of the immune system, protecting your dog from potentially harmful diseases, microbes, and general inflammation.

Low levels of Sutterella could be hindering your dog's immune response, putting them at risk of inflammation and serious infections.

Escherichia



Some strains of Escherichia coli (E. coli) are beneficial to dogs and are involved in vitamin production, carbohydrate fermentation, and the maintenance of gut homeostasis. However, other strains of E. coli can be pathogenic and cause gastrointestinal disease.

Low levels of E. coli may result in impaired digestion, fermentative capacity, and homeostatic control in the qut.

Phascolarctobacterium



Phascolarctobacterium are important bacteria which contribute to your dog's energy levels and health, helping with water and mineral absorption.

High levels have been linked to canine obesity; consider reducing your dog's caloric intake, either by restricting access to food or by avoiding provision of additional snacks or treats throughout the day, this should help bring levels of Phascolarctobacterium down toward the healthy target range.

Faecalibacterium



Faecalibacterium bacteria ferment carbohydrates, contribute to the regulation of the immune system, and promote overall gut health. They help fortify the gut wall barrier and protect against pathogens. They also help reduce inflammation and produce vital energy for the gut through production of a compound known as butyrate and antiinflammatory peptides.

Dogs with higher levels of Faecalibacterium may increase their risk of infection by the likes of Salmonella and pathogenic E. coli, due to abnormally high levels of short chain fatty acids (e.g., butyrate).

Understanding the Bacteria of the Gut Microbiome

Alloprevotella



Alloprevotella help to digest complex carbohydrates and proteins. They have also been linked to improvements in obesity.

Low levels may lead to impaired energy metabolism and predispose your dog to low and unhealthy body weight and amounts of fat.

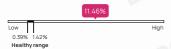
Collinsella



Collinsella contribute to the maintenance of intestinal lining integrity and regulation of inflammation in the gut. Dogs experiencing issues such as diarrhoea often have elevated levels of Collinsella.

If levels of Collinsella are too low, consider feeding your dog a highly fibrous diet, and provide prebiotics. These may indirectly promote the growth of Collinsella.

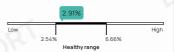
Megamonas



Megamonas bacteria play vital roles in supporting your dog's immune system, helping protect them against harmful bacteria.

High levels of Megamonas can lead to a shift in the energy sources produced in your dog's gut, which may lead to further dysbiosis.

Prevotella

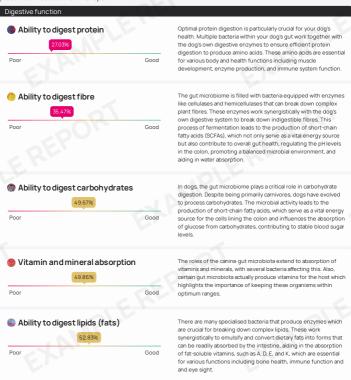


Prevotella play an important role in the defence against growth of harmful bacteria, help to keep inflammation in check, and they ferment fibre and carbohydrates that produce important energy sources.

Levels are in the healthy range, no action required.

Pip's Health Indicator Analysis

We have synthesised four decades of microbiome research to develop our proprietary InvisibleHealth® algorithms. These cutting-edge algorithms effectively analyse compound bioinformatic data taken in the sample screening process, providing valuable insights into Pip's underlying health conditions. The following charts detail the analysis presented in Section 1 of this report.





microbiome are being considered as an effective route.

Supportive health indicators Coat and skin Research has established connections between the gut microbiome and the skin. Therefore maintaining a healthy gut 4617% microbiome is important for the health of your dog's skin, as the skin and coat may be affected by disease and diet. Poor Good Breath odour An imbalance caused by improper diet can lead to a shift in the microbiome population in the qut. As a result, this may cause bad breath by producing excess smelly gas from too many bacteria in the small intestines, which can be absorbed into the bloodstream Poor Good and eventually exhaled. Therefore, it is critical we look to aid in the microbiome to re-balance the population. The causes are not completely understood. But heavily processed diets, chemical exposure, and stress are likely major contributing factors. Neurological (behaviour) Research and clinical studies have established that the gut microbiome affects neurological functions and visa versa. The gut-59.44% brain axis is a complex, interconnected and two-way communication channel, and studies are uncovering more and Good more insights relating to it. Canine studies have shown that changes or disturbances in the gut microbiome co-relate to anxious, aggressive, or phobic behaviours, suggesting that microbiome rebalancing could help provide behavioural support. Cardiovascular The health of your dog's heart and circulatory system is paramount to their longevity and life-quality. There is evidence that your dog's 63.8% gut microbiome can negatively affect this vital organ system. It is,

Good

Poo

therefore, important to ensure that your dog's gut microbiome is

in optimal condition to support heart health and the circulatory

Pip's Microbiome Profile: Recap



Priority Areas

Ability to digest protein Ability to digest fibre Coat and skin Immunological function		
Precision supplement plan: Phase 1: 0-2 months Restore	Phase 2: 2-4 months Repopulate	Phase 3: 4 months onwards Optimise
GMB02 2 chews per day Concentrated Bioactive Gut Detoxifier	GMB051 chewper day Adaptogenic Immuno- Probiotic	GMB08 1 chew per day Humic-Enriched Vitamin & Mineral Concentrate
GMB072 chews per day Microflora Prebiotic Nutrient Complex	Microflora Prebiotic Nutrient Complex	GMB09 1 chew per day Synbiotic Skin-Guard Polyphenol Complex

Dietary Recommendations:



Fish, Chicken, Quinoa, Eggs

Foods to avoid

Dairy products (cheese, milk, butter), sugary foods, rice, pasta

Our team is here to help. For any further help or questions, please get in touch with us via web chat or email report@biome9.com



Je Mus

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Disclaimer:

This report is not intended to diagnose, treat, cure or prevent any disease or condition, it is intended to provide overview information and recommendations. Specific statements contained herein have not been evaluated by any veterinarian association, and you should refer to your local vet if you require further medical advice.

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