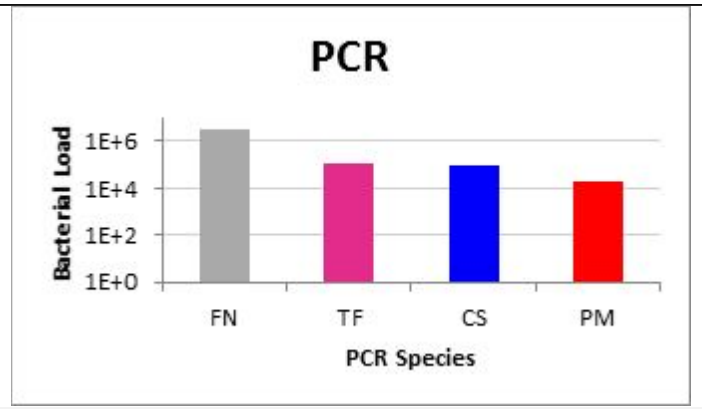


PATIENT		SPECIMEN	SALIVA	PHYSICIAN	
DOB		RECEIVED	10/21/2019 12:38 PM	PHONE	
PATIENT ID		COMPLETED	10/23/2019 08:16 AM	FAX	
GENDER		ACCESSION	308681	COLLECTED	

RESISTANCE GENES DETECTED
Beta-lactam, Macrolide, Tetracycline

PCR RESULTS		DNA copies per mL	Gram Stain	Respiration
BACTERIAL LOAD	High	> 10 ⁷		
Aerobic				
None				
Anaerobic				
Fusobacterium nucleatum		3.45 x 10 ⁶	-	An
Tannerella forsythia		1.14 x 10 ⁵	-	An
Peptostreptococcus micros		1.89 x 10 ⁴	+	An
Facultative Anaerobic				
None				
Unknown				
Capnocytophaga sp		9.84 x 10 ⁴	-	Unk
FUNGI DETECTED		%		
None				



16 organisms tested using PCR

Microbe	Description
Fusobacterium nucleatum(FN)	Gram-negative bacterium associated with periodontal disease and commonly found in the plaque of humans. It has an ability to co-aggregate with other species in the oral cavity resulting on serious oral cavity infections.
Tannerella forsythia(TF)	Gram-negative bacterium implicated in periodontal diseases. It has been previously associated with an increased risk of esophageal cancer.
Capnocytophaga species(CS)	Gram-negative bacteria usually located on the oropharyngeal tract and commonly involved in animal bite wounds and periodontal disease.
Peptostreptococcus micros(PM)	Gram-positive bacteria linked to progressive periodontitis. They have been shown to cause brain, liver, breast, and lung abscesses, as well as generalized necrotizing soft tissue infections.

Description of Microbes from Panel

LAB REPORT KEY		
DNA copies per g: [NGS] = Detected by Next-Gen Seq. Only Bacterial Load: < 10 ⁵ = LOW 10 ⁵ to 10 ⁷ = MED > 10 ⁷ = HIGH	Gram Stain: [+] = Positive [-] = Negative [V] = Variable [N] = Not Applicable [U] = Unknown	Respiration: [Ae] = Aerobic [An] = Anaerobic [Fan] = Facultative anaerobic [Unk] = Unknown

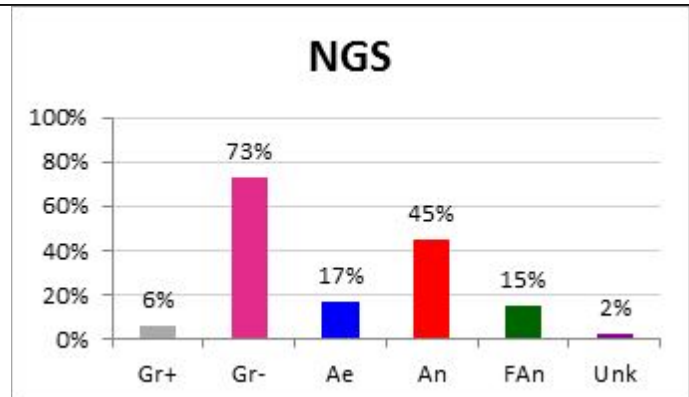
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RESISTANCE GENES DETECTED

Beta-lactam, Macrolide, Tetracycline

Next Generation Sequencing REPORT

COMPLETE (NGS & PCR RESULTS)		DNA copies per mL	NGS %	Gram Stain	Respiration
BACTERIAL LOAD	High	> 10 ⁷			
Aerobic					
Neisseria subflava	NGS	12%	-	Ae	
Neisseria flava	NGS	5%	-	Ae	
Anaerobic					
Porphyromonas pasteri	NGS	13%	-	An	
Prevotella nanceiensis	NGS	8%	-	An	
Prevotella melaninogenica	NGS	6%	-	An	
Veillonella dispar	NGS	5%	-	An	
Porphyromonas catoniae	NGS	4%	-	An	
Fusobacterium periodonticum	NGS	4%	-	An	
Prevotella sp	NGS	3%	-	An	
Prevotella pallens	NGS	2%	-	An	
Fusobacterium nucleatum		3.45 x 10 ⁶	-	An	
Tannerella forsythia		1.14 x 10 ⁵	-	An	
Peptostreptococcus micros		1.89 x 10 ⁴	+	An	
Facultative Anaerobic					
Haemophilus parainfluenzae	NGS	9%	-	FAn	
Corynebacterium argentoratense	NGS	4%	+	FAn	
Streptococcus mitis	NGS	2%	+	FAn	
Unknown					
Aggregatibacter aphrophilus	NGS	2%	-	Unk	

**NEXT GENERATION SEQUENCING COMPREHENSIVE REPORT**

Microbes arranged by Gram stain and respiration

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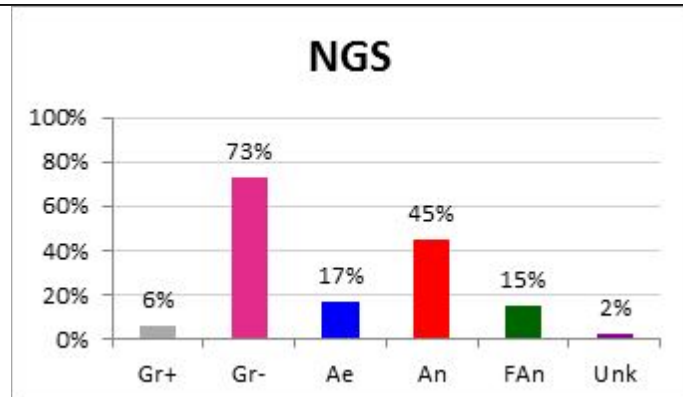
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RESISTANCE GENES DETECTED

Beta-lactam, Macrolide, Tetracycline

Next Generation Sequencing REPORT

COMPLETE (NGS & PCR RESULTS)		DNA copies per mL	NGS %	Gram Stain	Respiration
BACTERIAL LOAD	High	> 10 ⁷			
Unknown					
Capnocytophaga sp		9.84 x 10 ⁴		-	Unk
FUNGI DETECTED					
None					



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qPCR TESTS FOR BACTERIA		FUNGI	RESISTANCE GENES	
Streptococcus pyogenes	Aggregatibacter	Candida albicans	Vancomycin	Methicillin
Campylobacter rectus	actinomycetemcomitans		Extended-Spectrum Beta-Lactamase	Beta-lactam
Eikenella corrodens	Capnocytophaga sp		Aminoglycoside	Tetracycline
Fusobacterium nucleatum	Eubacterium nodatum		Carbapenem	Macrolide
Peptostreptococcus micros	Neisseria meningitidis		Quinolone	Bactrim
Prevotella intermedia	Porphyromonas gingivalis			
Streptococcus mutans	Selenomonas noxia			
Treponema denticola	Tannerella forsythia			

Next Generation Sequencing Results

MicroGen Diagnostics' comprehensive testing (patent pending) is a relative quantitative universal test for bacteria/fungi. DNA sequencing methods are used to identify the microorganisms' genetic signatures and the estimated percentage of organisms present in the specimen. Virtually all bacteria/fungi are screened for and the most predominant populations are reported.

Testing Explanations and Interpreting Results

Oral pathogen testing provides an analysis of the bacteria and fungi present in the oral sample. Research is beginning to discover what constitutes healthy bacterial populations. Over 1000 bacterial species have been identified in human mouths, and samples vary significantly.

This report lists the individual bacterial species present in a sample (over a 2% concentration) as a percentage of the whole, from the most populous to the least.

Knowing the types of bacteria as gram positive (gram +) or gram negative (gram -) and categories such as anaerobes, facultative anaerobes, and aerobes helps clinicians monitor health and improvements with treatment.

Healthy gum tissue has a higher concentration of gram + bacteria and facultative anaerobes and aerobes. Infected or diseased tissue has a higher concentration of gram - bacteria and anaerobes. The combination of bacteria is more important than the presence of an individual species, so you may never totally eliminate anaerobes from your mouth. In fact, some are present in patients with healthy gums.

TREATMENT CONSIDERATIONS

Treatment is important. Bacteria associated with gum disease are also associated with systemic disease, such as atherosclerosis, type 2 diabetes, dementia, cancers and some pregnancy complications.

Prescription Perio Tray® therapy delivers and maintains medication, including hydrogen peroxide provide oxygen deep into periodontal pockets, so that the medication can fight infections. This should be used in conjunction with scaling, lasers or surgery.

The goal of Perio Protect therapy is to shift the microbial ecology away from gram - species and from obligate anaerobes toward a preponderance of gram + bacteria with larger concentrations of aerobic and facultative anaerobes.

Mechanical debridement known as scaling and root planning, helps remove plaque, disrupt the biofilm and allow the tissues to heal. Research shows bacteria can regrow in a matter of days after removal.

Systemic antibiotics may be warranted in cases when the patient's health is severely compromised. Commonly used oral antibiotics with demonstrated efficacy against anaerobes include Clindamycin, Metronidazole, and Amoxicillin / Clavulanate.

Periodontal surgery is reserved for advanced periodontal disease with severe infections and when bone support is significantly compromised.



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Systemic Antibiotics

Drug Substance	Admin. Route	DOSING	Side Effects
Amoxicillin	PO	500 mg/8 hrs 1000 mg/12 hrs	Diarrhea, nausea, hypersensitivity reactions
Amoxicillin – Clavulanic acid	PO or IV	500-875 mg/8 hrs 2000 mg/12 hrs 1000-2000 mg/8 hrs	Diarrhea, nausea, candidiasis, hypersensitivity reactions
Clindamycin	PO or IV	300 mg/8 hrs 600 mg/8 hrs	Pseudomembranous colitis
Azithromycin	PO	500 mg/24 hrs (3 consecutive days)	Gastrointestinal disorders
Ciprofloxacin	PO	500 mg/12 hrs	Gastrointestinal disorders
Metronidazole	PO	500-750 mg/8 hrs	Seizures, anesthesia or paresthesia of the limbs, incompatible with alcohol ingestion
Gentamycin	IM or IV	240 mg/24 hrs	Ototoxicity, nephrotoxicity
Penicillin	IM or IV	1.2-2.4 million IU/24 hrs Up to 24 million IU/24 Hours	Hypersensitivity reactions, gastric alterations

PO: Oral route IV: Intravenous route IM: Intramuscular route

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