

Bio-Botanical Research, Inc.

Botanical Solutions for Microbial Imbalances

Jocelyn Strand, N.D.

www.biocidin.com

800.775.4140



Disclaimer: The FDA has not evaluated the statements made in this presentation. We make no health claims regarding our product line. This is not intended to diagnose, treat, or prevent any disease and does not replace an evaluation by a qualified medical professional. This presentation is for educational purposes only.

Disclaimers

- The FDA has not evaluated the statements or claims made in this presentation. This is not intended to diagnose, treat, or prevent any disease and does not replace an evaluation by a qualified medical professional. This is educational only.
- Any perceived claims made during this presentation about Bio-Botanical Research Inc. products are based on my professional clinical experience and not on behalf of the company.

Bio-Botanical Research, Inc.

- Biocidin®
 - Flagship product, utilized by health professionals for 30+ years
- 10 Total products in the Bio-Botanical Research line:
 - 6 Biocidin® delivery systems:
 - Biocidin Liquid
 - Liquid Filled Capsules
 - Biocidin LSF (Liposomal)
 - Biocidin Throat Spray
 - Dentalcidin Toothpaste
 - Dentalcidin LS Oral Solution
 - 4 Support products:
 - G.I Detox+
 - Olivirex
 - Proflora 4R
 - Biotonic
- 3rd Party tested ingredients



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Biocidin® Testing

- 250,000+ CDSAs performed
- Biocidin® was the most HIGHLY SENSITIVE substance

“Biocidin has been the most broadly acting and powerful agent evaluated.”

*-Martin Lee, PhD,
Former Director, Genova Diagnostics*



Biocidin®



- Potent broad-spectrum, synergistic botanical combination. Selectively supports simultaneous clearance of multiple classes of harmful organisms
- Disrupts and dismantles biofilm formations
- Ingredients have immunomodulatory, antimicrobial, anti-inflammatory, and adaptogenic properties



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Biocidin[®]



Biocidin[®] Liquid (1oz)

- Preferred delivery system for GI-local concerns
- Easy titration
- Used for all ages

Biocidin[®] Capsules (90 count)

- 1 capsule = 5 drops of Biocidin[®] Liquid
- Preferred delivery system during travel, as a suppository, or later in a protocol (once titrated up to 5+ drops at a time)
- 20 minutes prior to meals is preferred



Biocidin[®]LSF

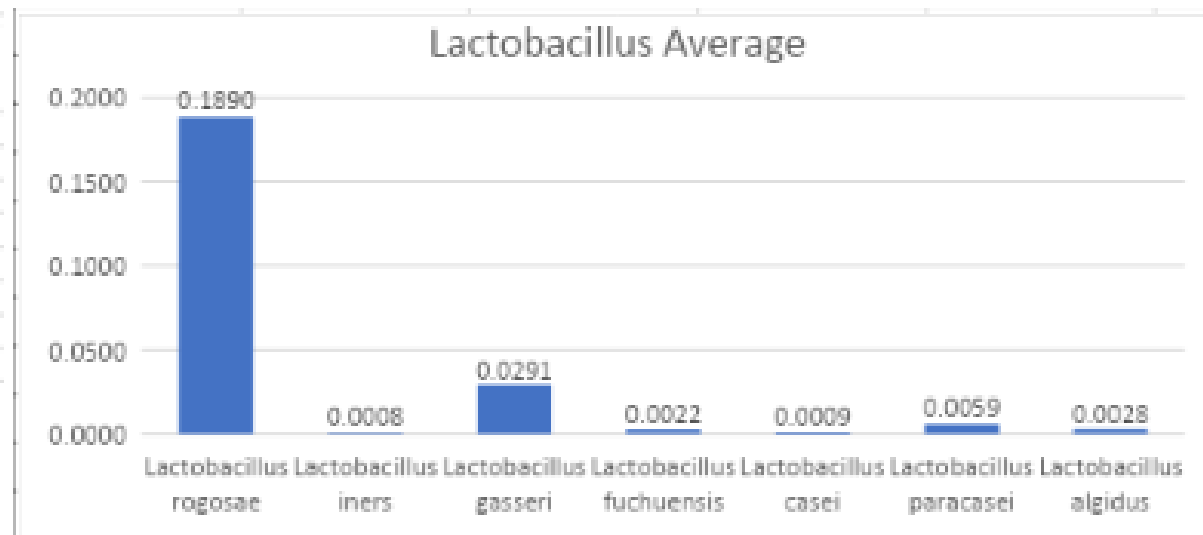
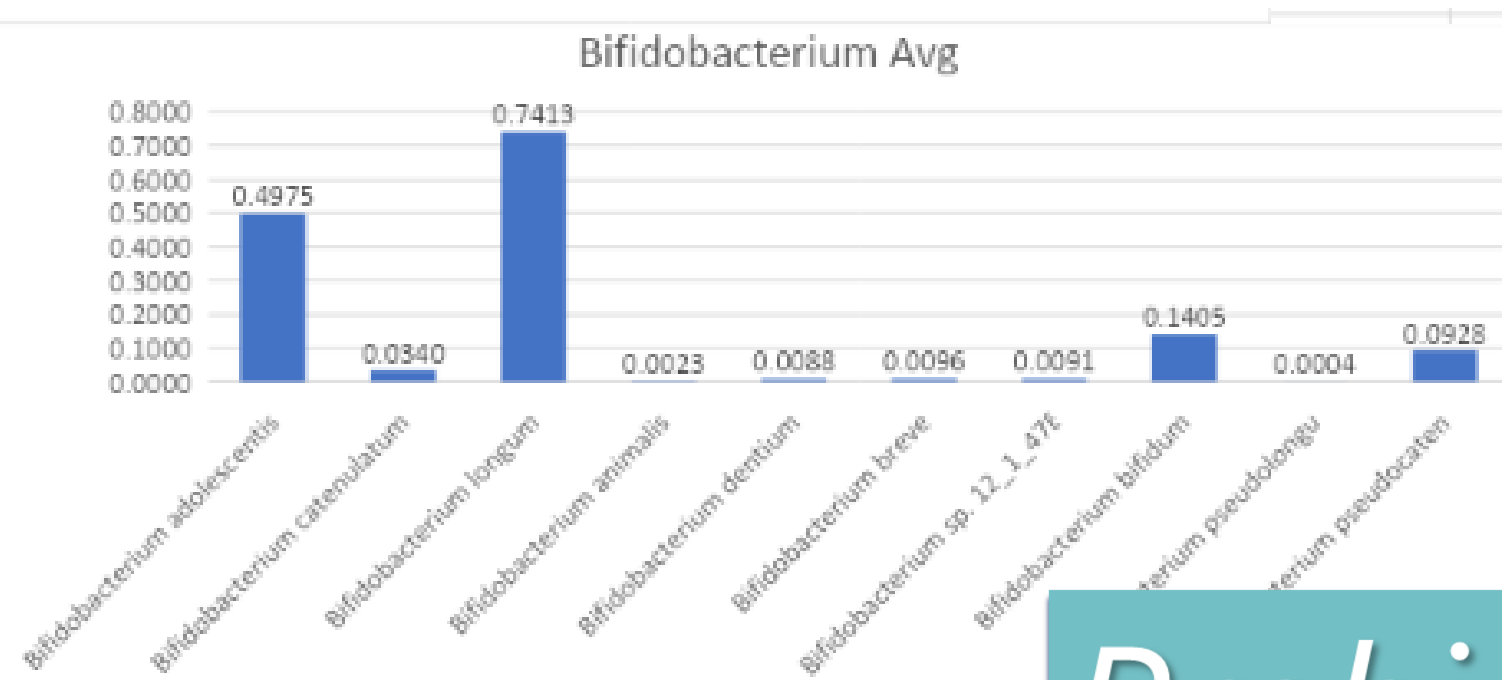


- ❧ Biocidin[®] in liposomal form
 - Unique sunflower phospholipid coating delivery
 - 75% quicker intracellular uptake
- ❧ Preferred delivery for bloodstream/lymph circulation
- ❧ Preliminary data shows intracellular penetration
- ❧ Preferred delivery for topical use
- ❧ 1 pump LSF = 5 drops Biocidin[®] Liquid
- ❧ 10-20 minutes prior to meals is ideal



Biocidin® and the Microbiome

Probiotic Organisms Abundance(%)	23000064	23000099	23000065	23000096	23000070	23000078	23000061	23000068	23000057	23000090	23000101	23000060	23000084	23000085	23000055	23000051	23000052	23000054
Akkermansia muciniphila	0%	0.33%	0.05%	0.19%	0%	0%	0.94%	11.26%	0.06%	1.31%	0.03%	1.36%	0.28%	2.13%	0%		0.45%	1.38%
Oxalobacter formigenes	0.03%	0.10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.02%	0%	0%
Bifidobacterium pseudocatenulatum	0.09%	0.04%	0.08%	0.09%	0.01%	0.03%	0%	0%	0.16%	0.35%	0%	0%	0%	0%	0%		0.02%	0%
Bifidobacterium longum	0.27%	0.04%	0%	0%	0.33%	0.32%	0.20%	0.13%	0.67%	3.45%	0%	0%	0.94%	0.75%	0%		0.07%	0.06%
Lactococcus lactis	0.00%	0.01%	0.01%	0.02%	0.01%	0%	0.14%	0.11%	0.02%	0.07%	0.08%	0.25%	0.14%	0.02%	0.03%	0.13%	0.02%	0.05%
Bifidobacterium pseudolongum	0.01%	0.00%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	0%
Lactobacillus plantarum	0%	0%	0%	0.01%	0%	0%	0%	0%	0%	0%	0%	0.02%	0%	0%	0%		0%	0%
Bifidobacterium bifidum	0%	0%	0%	0%	0.26%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	0%
Streptococcus thermophilus	0%	0%	0%	0%	0.01%	0%	0.04%	0.01%	0%	0.06%	0.73%	0.08%	0.07%	0%	0.03%	0.04%	0.03%	0%
Bifidobacterium adolescentis	0%	0%	0%	0%	0%	0.08%	2.05%	1.51%	0%	0%	0%	0%	0%	0%	0%		5.30%	2.84%
Lactobacillus reuteri	0%	0%	0%	0%	0%	0%	0%	0.01%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bifidobacterium sp.12_1_47BFAA	0%	0%	0%	0%	0%	0%	0%	0%	0.02%	0.17%	0%	0%	0.03%	0.02%	0%	0%	0%	0%
Saccharomyces cerevisiae	0%	0%	0%	0%	0%	0%	0%	0%	0.04%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bifidobacterium breve	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.04%	0%	0%	0%	0.02%	0%	0%	0%	0%
Lactobacillus paracasei	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.11%	0.03%	0%	0%	0%	0%	0%	0%
Lactobacillus casei	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.01%	0%	0%	0%	0%	0%	0%
Lactobacillus rhamnosus	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.44%	0%	0%	0%	0%	0%	0%
Bifidobacterium animalis	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.00%	0.00%	0%	0%	0%	0%	0.06%	0%
Total Abundance	0.40%	0.52%	0.14%	0.31%	0.62%	0.43%	3.37%	13.03%	0.97%	5.45%	0.95%	2.19%	1.46%	2.94%	0.06%	0.19%	5.95%	4.33%



Probiotic Abundance

Akkermansia Muciniphila

Akkermansia muciniphila and its role in regulating host functions



Muriel Derrien ^{a,*}, Clara Belzer ^b, Willem M. de Vos ^{b,c,**}

^a Danone Nutricia Research, Avenue de la Vauve, 91767 Palaiseau, France

^b Laboratory of Microbiology, Wageningen University, Wageningen, The Netherlands

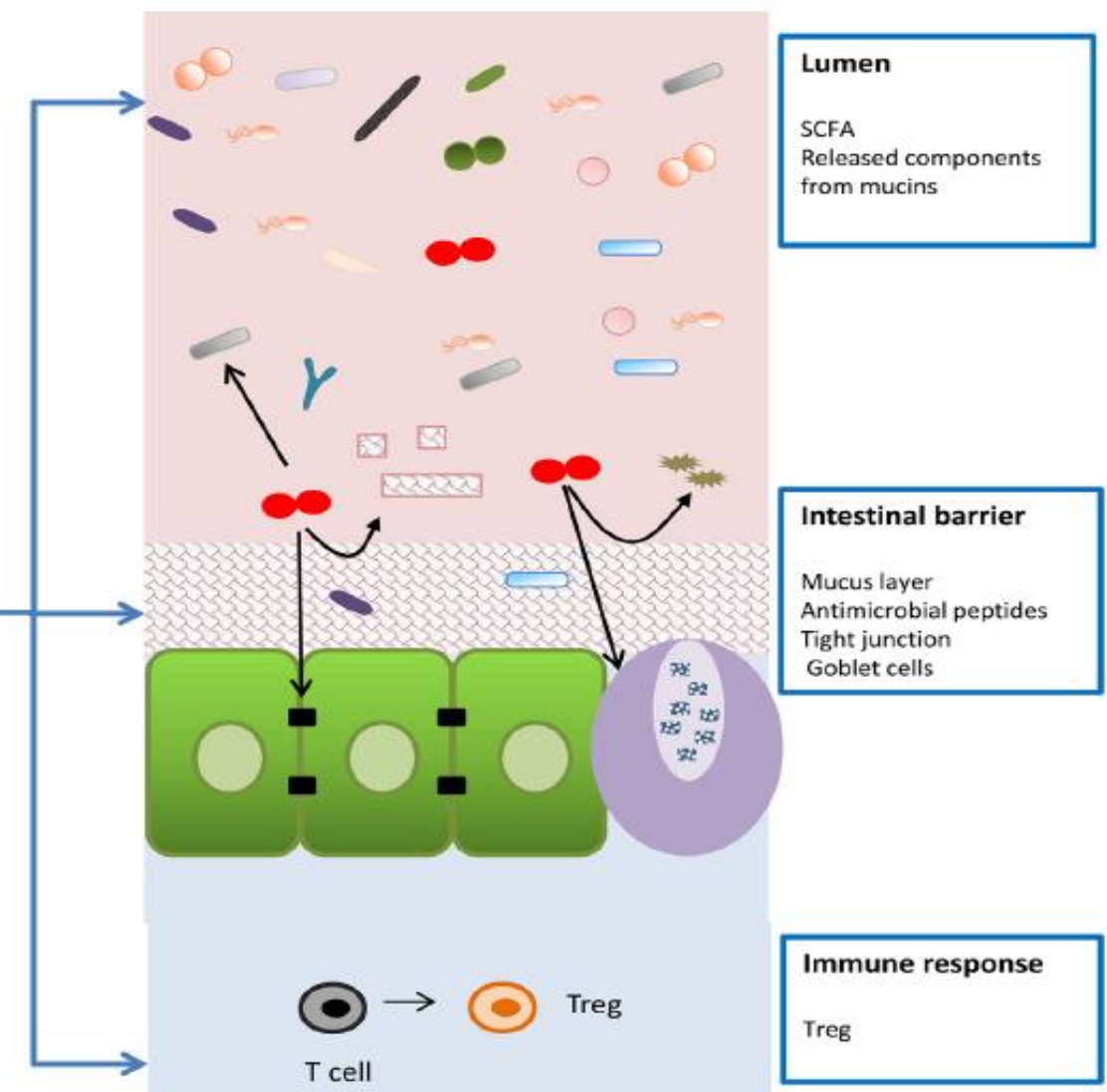
^c Immunobiology Research Program, Department of Bacteriology and Immunology, Haartman Institute, University of Helsinki, Helsinki, Finland

In clinical research, *Akkermansia* has shown benefit in

- Obesity
- Fasting Glucose
- Waist to Hip Ratio
- Insulin Sensitivity
- Total and LDL Cholesterol
- Metagenomic Richness

“*A. muciniphila* may impact the resident microbiota by suppling growth factors released from mucin degradation. *A. muciniphila* interacts with its host by strengthening the intestinal barrier, or by modulating mucin turnover and immune responses.”

Direct inoculation
of *Akkermansia*



SIBO

Most common organisms implicated in SIBO:

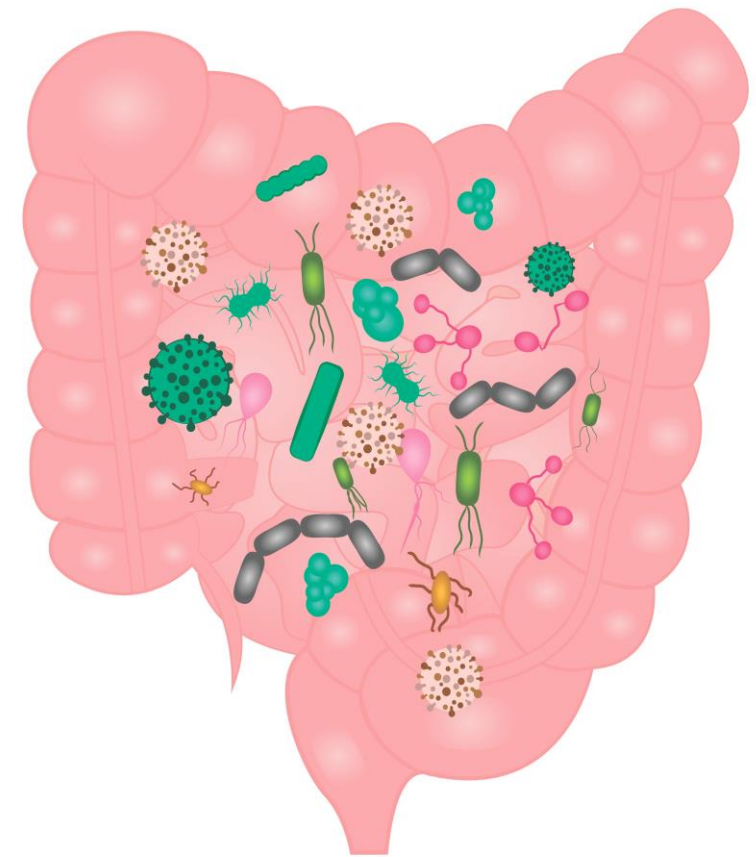
- ***Pseudomonas aeruginosa***
- ***Escherichia coli***
- *Campylobacter jejuni*
- *Acinetobacter woffii*
- ***Staphylococcus species***
- ***Klebsiella pneumoniae***
- ***Streptococcus species***
- *Acinetobacter baumannii*
- *Enterococcus faecalis*
- *Enterococcus faecium*
- ***E. Coli***
- **Gram negative bacilli** and Enterobacter were most common on culture of jejunal aspirates among patients with IBS

*Organisms in bold
are sensitive to
Biocidin® in vitro*

SIBO Clinical Trial



- 50%+ reduction in hydrogen breath test in 8 weeks
- Patients symptoms greatly reduced or 100% eliminated
- No dietary changes or other treatments used
- Olivirex formulation improve test results for methane producing bacteria to 75% in subsequent research



“The use of herbal therapies can be just as effective as conventional treatments. The Biocidin[®] combination of antibacterial agents and the use of G.I. Detox were just as effective.”

-Danielle Lewis, ND



Subjective Averages Compared

Symptom	Average FIRST	Average LAST	% Improvement
Bloating/burping/abdominal gas	2	0.875	56.25%
Abdominal pain/cramps	0.875	0.375	57.14%
Constipation	0.5	0.5	0.00%
Diarrhea	0.625	0	100.00%
Heartburn/reflux/GERD	0.5	0.625	-25.00%
Nausea or nausea with belching	0.75	0	100.00%
Undigested food in stool/floating stool	0.875	0.125	85.71%
Joint pain	0.875	0.25	71.43%
Skin issues: eczema, atopic dermatitis, psoriasis	0.625	0	100.00%
Rosacea or acne rosacea	0.5	0	100.00%
Breathing issues, problems or difficulties	0.625	0	100.00%
Headaches	0.9375	0.5	46.67%
Brain symptoms: brain fog, memory problems	1.5	0.25	83.33%
Additional Measures	Average FIRST	Average LAST	Change
Energy (out of 10)	5.35	6.975	30.37%
Stress(out of 10)	4.1125	3.7875	-8.58%
BM/ day	2.1125	1.8125	-16.55%

Biocidin® – Committed to Research



- **Question** – *What affect does Biocidin have on rosacea symptoms, SIBO markers, GI permeability markers and inflammation?*
- **Answer** – *Pending*
- Research will be conducted by Dr. Raja Sivamani of Pacific Skin Institute and Quintron Labs.
- Protocol includes Biocidin liquid and GI Detox + for 8 weeks, non-responders will graduate to Biocidin and Olivirex for an additional 8 weeks.

Biofilm Study



- In pilot studies, biocidal combinations show potential effectiveness in addressing biofilms of all yeast and bacteria species
- Published literature show an affect on planktonic and biofilm communities

Subsequently, biofilms were exposed to a fixed concentration of Biocidin® for a period of 24 hours and cell viability was monitored.

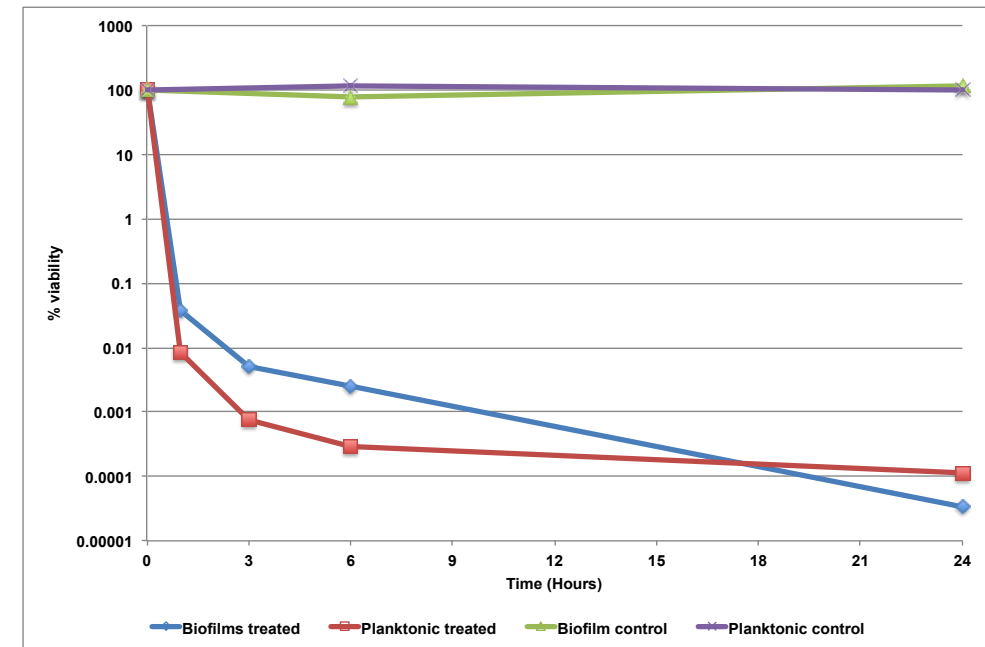


Figure 1. *P. aeruginosa* biofilms exposed to 50% Biocidin® for a period of 24 hours. At 24 hrs, most of the biofilm and planktonic populations were eradicated.

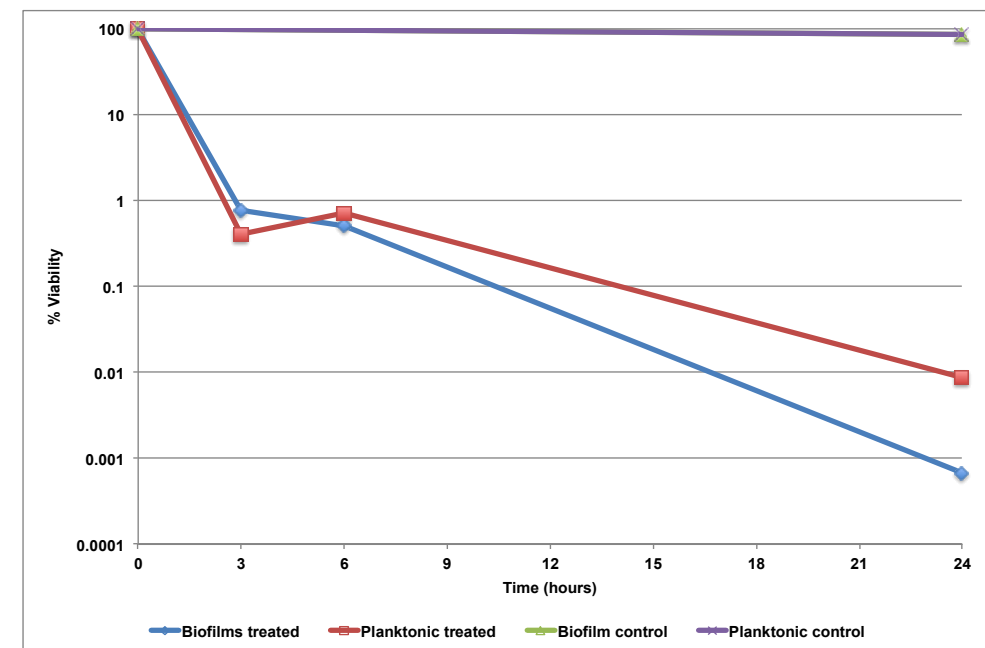
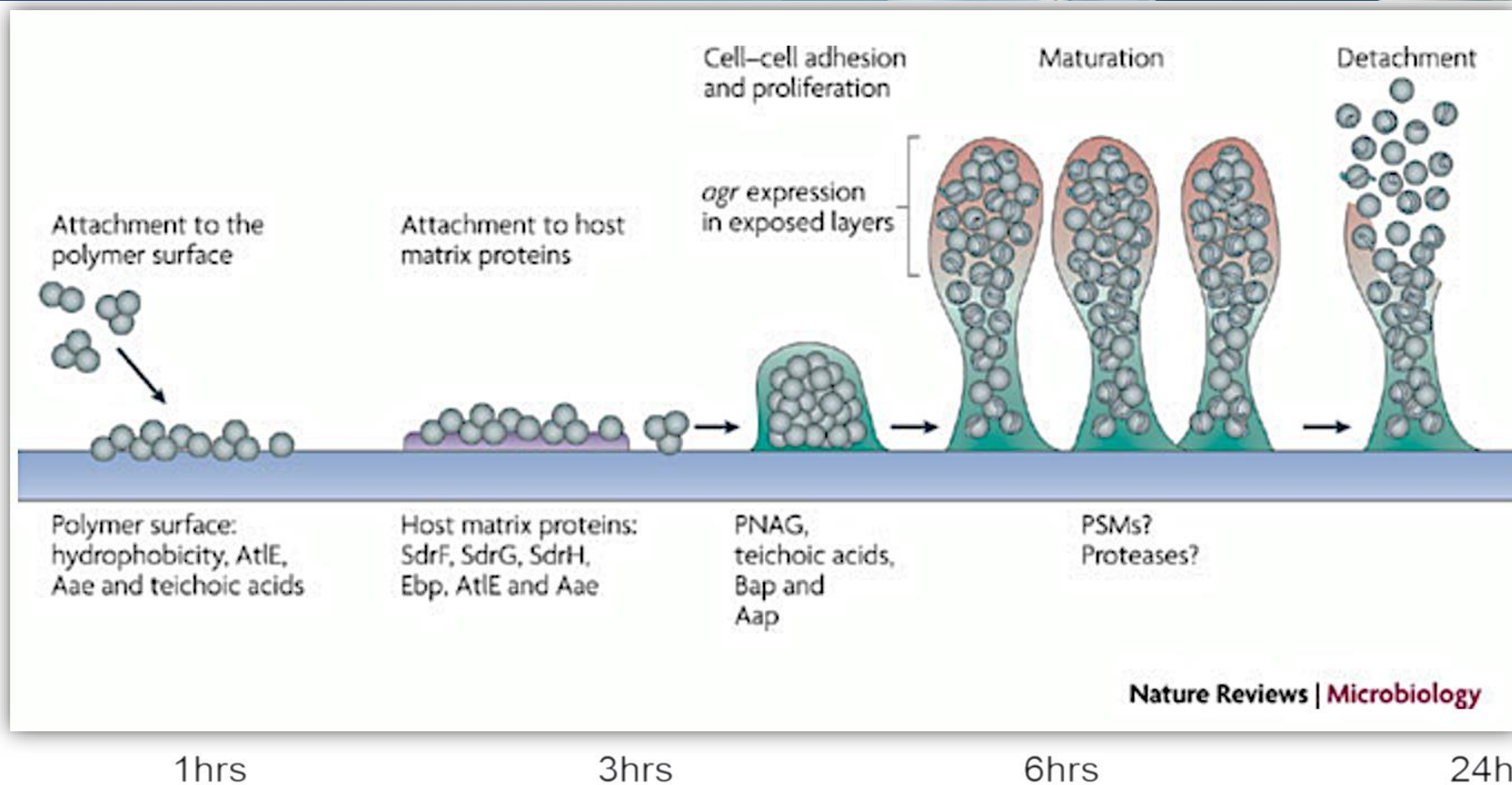


Figure 2. *E. coli* biofilms exposed to 50% Biocidin® for a period of 24 hours. At 24 hrs, most of the biofilm and planktonic populations were eradicated.

Marques, C. (2013). Preliminary Report on Activity of Biocidin against Multiple Species of Biofilms (Rep.). Binghamton University Biological Sciences Dept.

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Biofilm Control with Botanicals



0hrs

1hrs

3hrs

6hrs

24hrs

24 hour Exposure to Biocidal Botanical Combination

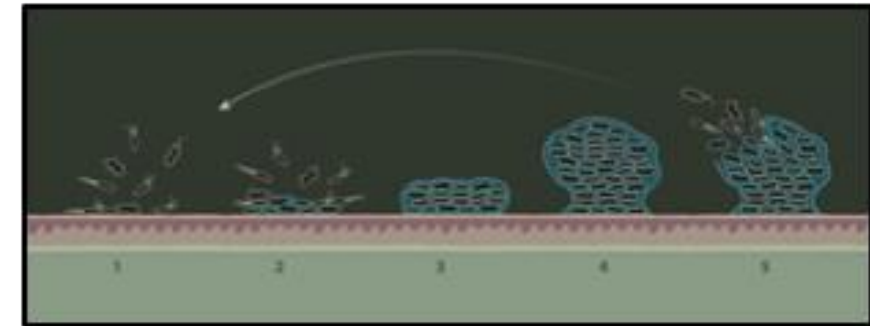
Figure 4. *C. albicans* biofilms exposed to 25% Biocidin® for a period of 24 hours

Marques, C. (2013). Preliminary Report on Activity of Biocidin against Multiple Species of Biofilms (Rep.). Binghamton University Biological Sciences Dept.

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Biofilms

- 80%+ of all microbial infections develop biofilms beginning in as little as two weeks from the onset of infection.
- Why am I still sick - The silent role of Biofilms in chronic Diseases www.whyamistillsick.com
- Communities of microbial cells surrounded by a secreted polymer, called the extracellular polymeric substance (EPS,) which is an endotoxin.
- Composed of multiple organisms, including both aerobic and anaerobic bacteria and/or fungal species.
- Not all biofilms are disease promoting
- Biofilms in the GI tract often contain LPS endotoxin from gram negative bacteria.



Biofilms



Published research has shown the efficacy of botanicals to affect the following:

1. Quorum Sensing
2. Initial Attachment
3. Swarming Motility
4. Microbes
5. Efflux Pump

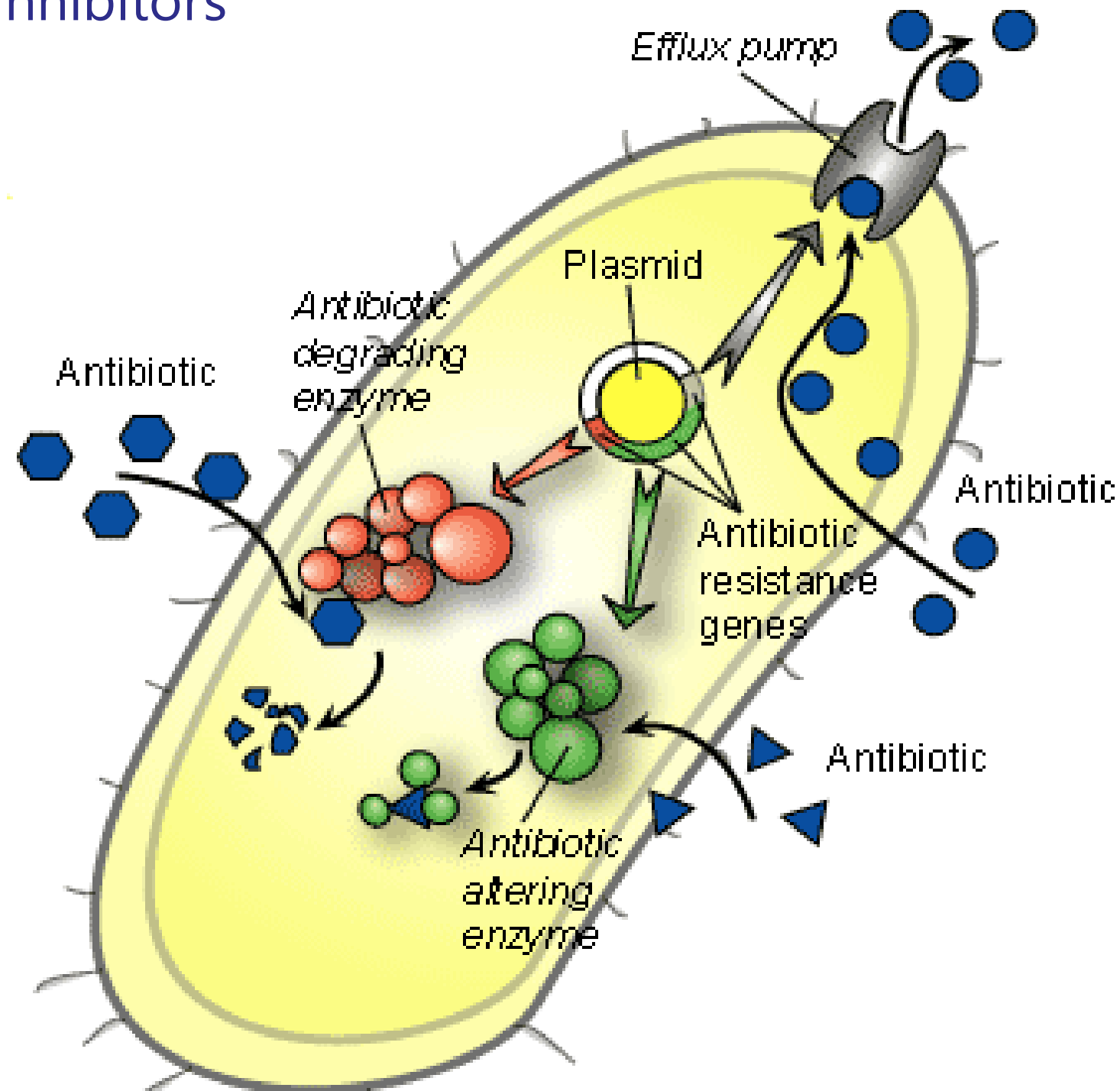


Marques, C. (2013). Preliminary Report on Activity of Biocidin against Multiple Species of Biofilms (Rep.). Binghamton University Biological Sciences Dept.

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Efflux Pump Inhibitor

- Tannins, berberine, and certain phenolics have useful effects as efflux pump inhibitors



Borrelia Research Study

- 1-year Borrelia Research on Biocidin® at the University of Jyväskylä, Finland Conducted by ILADS Research Director Leona Gilbert PhD
- All North American and European Strains of Borrelia were tested
- All life cycle stages including Spirochetes, Blebs, Round Bodies, and Biofilms of Borrelia were tested
- Research included experiments to determine: Minimum Inhibitory Concentration, Minimum Bactericidal Concentration, Efflux Pump Inhibition, Intracellular uptake, Antibiotic Synergy, and Biofilm degradation



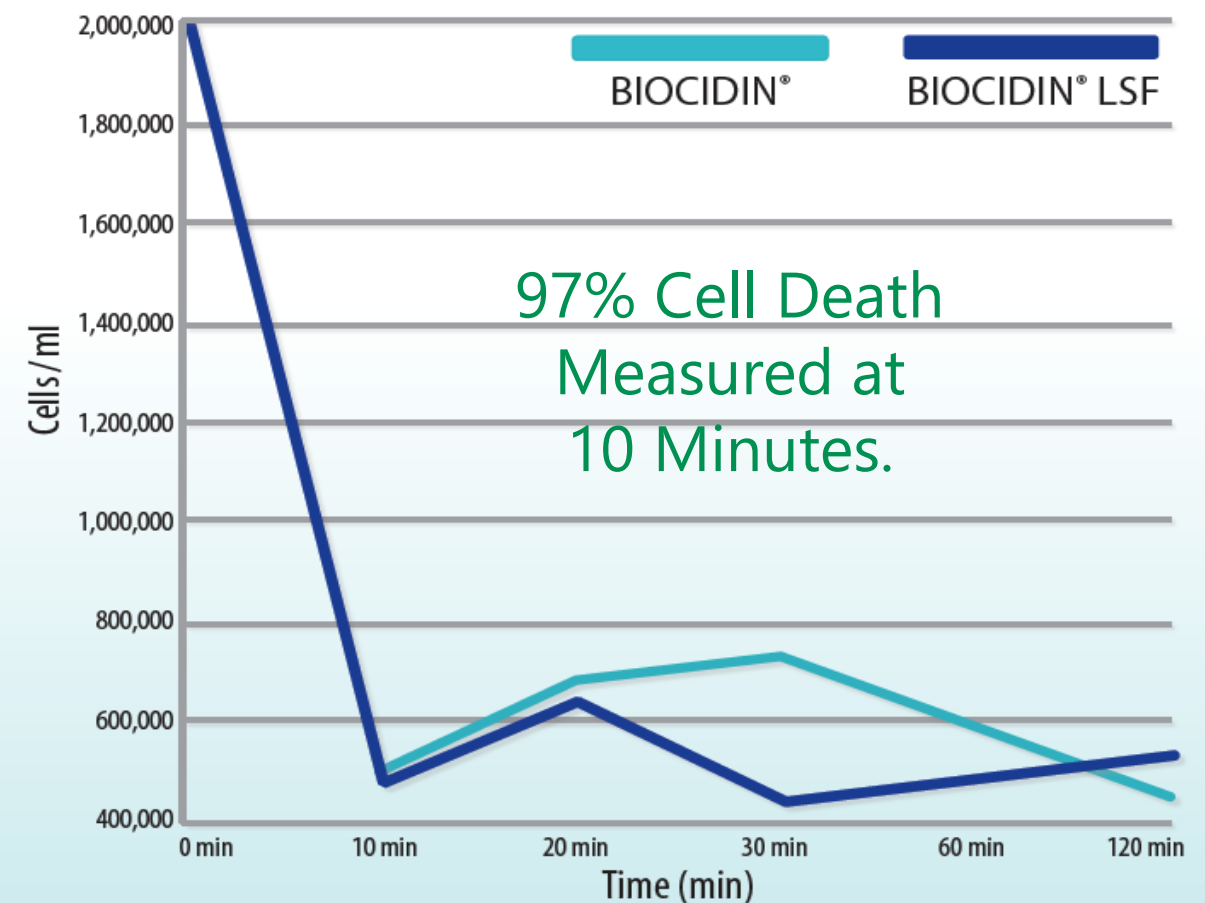
Gilbert, L. (2016). Preliminary Report on Activity of Biocidin against Borrelia Species (Rep.). University of Jyväskylä, Biological and Environmental Science Dept.

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Borrelia In Vitro Research Study

- No apparent induction of pleomorphic or persister forms
- Biocidin® (liquid and LSF) formulations are equally effective at inhibiting and eliminating all forms of Borrelia, including biofilm

Rate of Borrelia Cell Death After Application



"We have studied many possible nutritional support approaches to addressing Borrelia at our research facility in Europe, and Biocidin is a most promising candidate."

Gilbert, L. (2016). Preliminary Report on Activity of Biocidin against Borrelia Species (Rept.). University of Jyväskylä, Biological and Environmental Science Dept.

— Dr. Leona Gilbert

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sIgA and Immune Modulation

Bellar et al., J Athl Enhanc 2018, 7:5
DOI: [10.4172/2324-9080.1000304](https://doi.org/10.4172/2324-9080.1000304)



**Journal of Athletic
Enhancement**

Research Article

A SCITECHNOL JOURNAL

The Effects of a Botanical Blend on Post-Exercise Mucosal Antimicrobial Proteins

Bellar D^{1*}, Aldret RA¹ and Judge LW²

Abstract

Exercise is a stressor that is known to in s antimicrobial protein levels, particularly secret type A (IgA). Athletes in the midst of in demonstrate declining levels of sIgA as well ailments such as upper respiratory tract in is important to investigate natural supplement post exercise mucosal immune function. Tw aged males volunteered to participate in the repeated measures study. Three treatment (botanical spray, botanical drops, placebo) at 80% VO₂ max cycle ergometer exercise. Sec Alpha Defensin were quantified in saliva samp post exercise. Analysis via repeated measu significant treatment effect at 30 min (p=0.030 revealing a difference between the botanic (p=0.027), but by 90 Min there was no diff (p=0.758). There was no difference by treatm 30 or 90 Min for human alpha defensin conce these preliminary data, it appears that a sing botanical blend delivered via mouth spray ca of the primary anti-microbial proteins in the oral cavity, for a short time post exercise.

Keywords

Secretory IgA; Human alpha defensin; Aerobic training

if rest and recovery are allowed for athletic populations. However, with the demands placed upon athletes, reduced mucosal immunity and risk for URTI are likely to remain an issue into the future.

It has also been determined by previous research that certain forms of acute athletic performance and exercise have the ability to

Single blind placebo controlled study showed 66% increase in sIgA immune response in 60 minutes using a botanical blend post-exercise in athletes

evidence currently exists to examine changes in oral anti-microbial protein levels post exercise [12]. Therefore, the purpose of this initial investigation was to examine the effects of a botanical supplement on secretory immunoglobulin A and alpha defensin levels post-exercise.

Chart

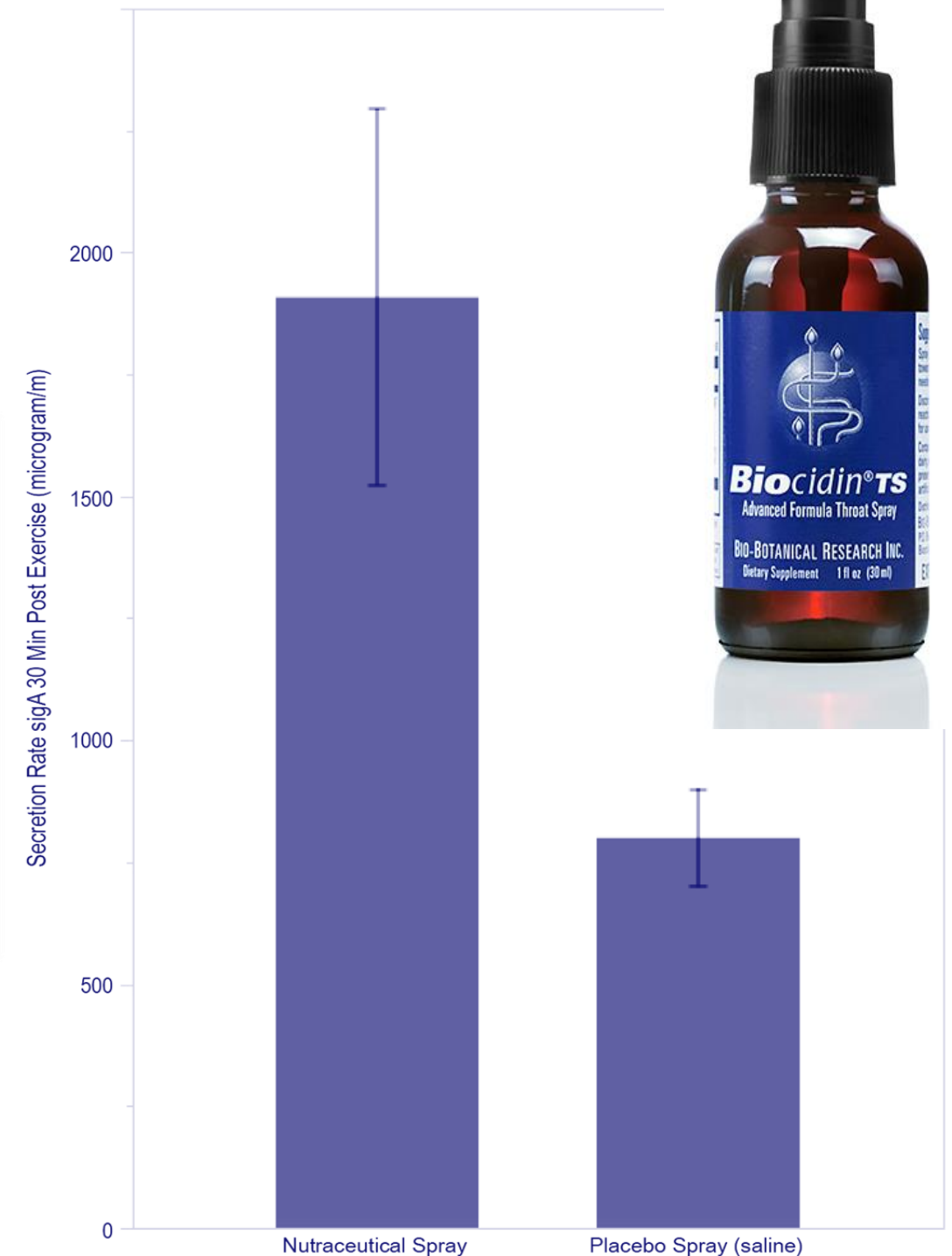


Figure 1: Log of Secretory IgA sse by treatment.

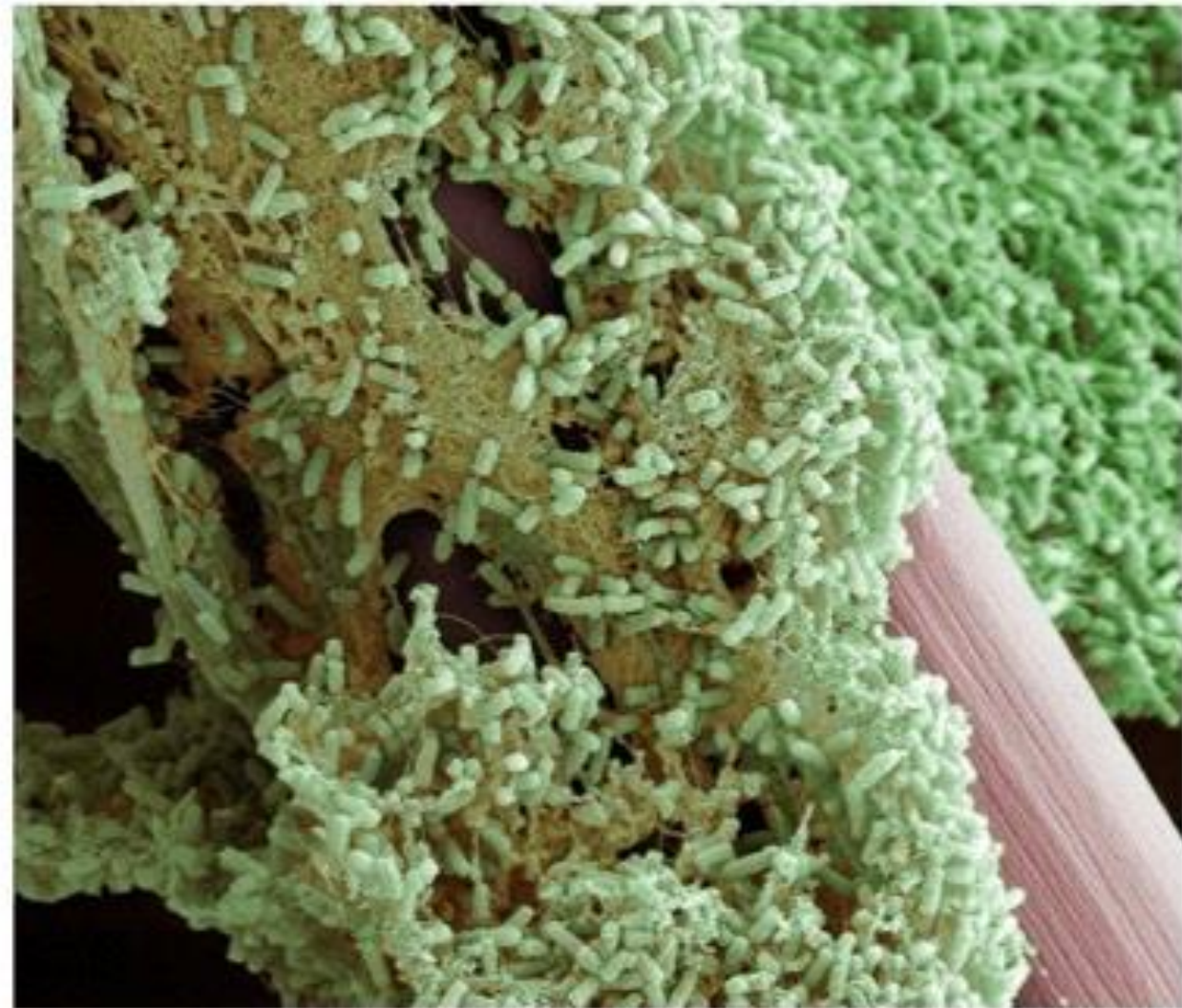


- 🌿 Highest potency USP Olive Leaf extract available
- 🌿 Additional herbs support lymph and kidney drainage and seasonal wellness
- 🌿 May be used in conjunction with Biocidin[®] for additional support
- 🌿 20 minutes prior to meals OR with meals if digestive upset occurs, 60 capsules per bottle

Oral Biofilms



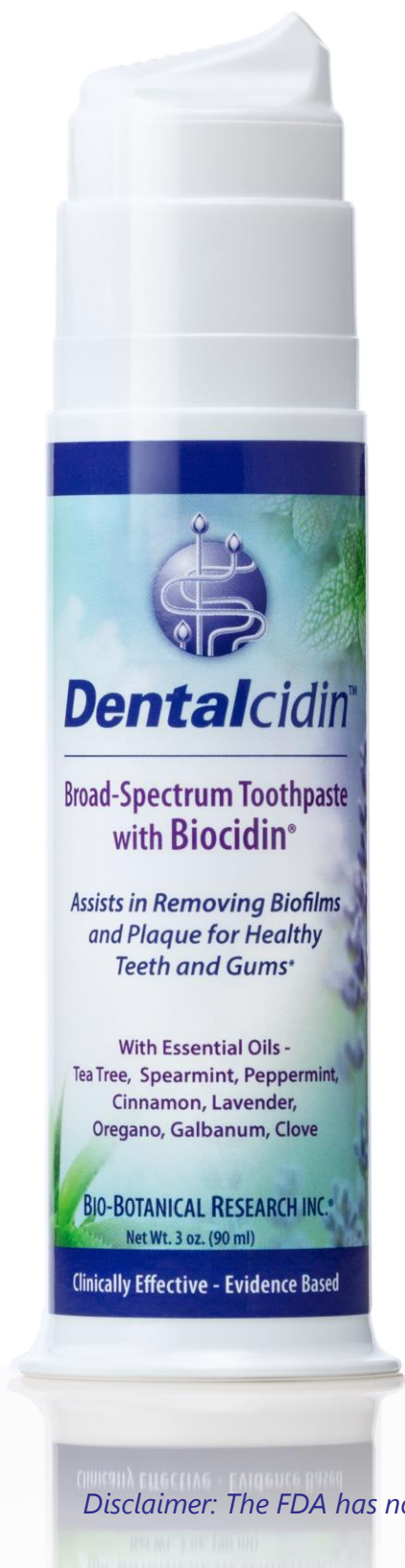
Biofilm on a toothbrush bristle



Biofilm on a toothbrush bristle (higher magnification)

- **The teeth, dental implants and prosthetics provide a non-shedding surface where pathogens can manufacture biofilm.**
- **Oral microbiome has systemic implications**
 - **Translocation**
 - **Microbial Shift Disease**
 - **LPS**

Dentalcidin™

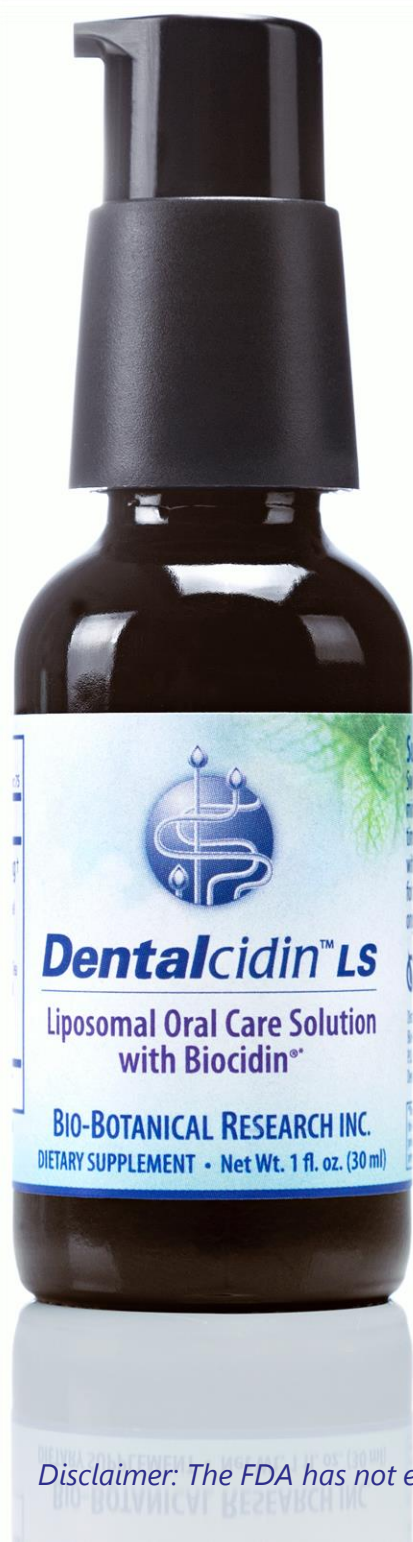


- Broad-spectrum toothpaste, 3oz travel-friendly pump
- 20% Biocidin® Liquid - excellent support for biofilms and plaque
- Zeodent® silica assists in gentle cleansing and promotes whitening
- Freshens breath, tastes great, and perfect for children and adults
- Free of sugar, gluten, fluoride, and artificial flavorings and colors
- For additional support for healthy gums, use with Dentalcidin™ LS
- Perfect for daily or intermittent use, pea sized amount

Disclaimers - FAIRQUEST 09250

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Dentalcidin™ LS



- ❧ Liposomal Biocidin® in 1oz pump
- ❧ Concentrated solution for additional oral support
- ❧ CoQ10 and quercetin have been shown to support healthy oral tissue
- ❧ Clove and myrrh add additional support
- ❧ Pleasant taste - great for children and adults
- ❧ Pilot studies indicates results in as little as 4-8 weeks of use*
- ❧ 1-2 pumps (add water if needed), swish 1-2 minutes, spit out after use

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Oral Health Pilot Study

Before and after lab results after 4 weeks use of Dentalcidin™ Liposomal Oral Care Solution

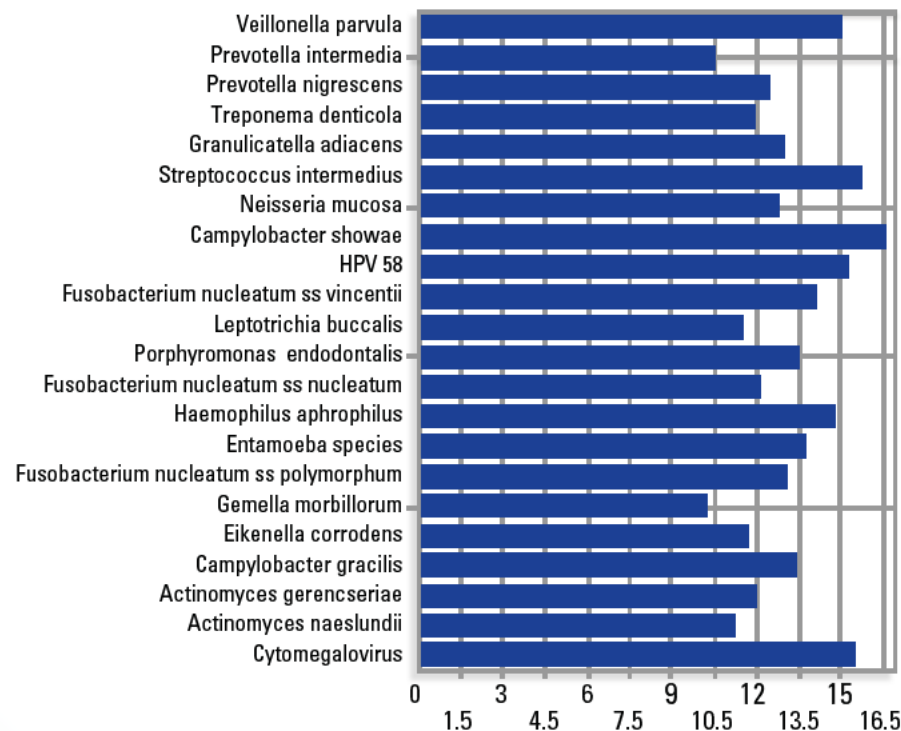
The following microbes were detected in samples tested by DNA Connexions Labs taken from root canal cavitations:



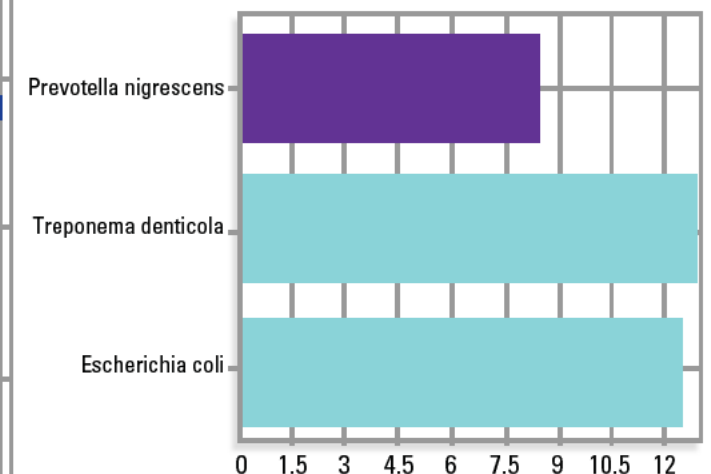
Dentalcidin™LS Periodontal Study



BEFORE



AFTER



"After 4 weeks the number of pathogens found in our pilot study decreased from an average of 35 down to 3 species, many of which were normal oral bacteria. Based on these outcomes we are recommending the use of Dentalcidin™ Liposomal Oral Care Solution as an adjunct to cavitation surgery for it's effect on healing and infection control." –Dr. John Rothchild, DDS



Video Credit: Barbara Tritz, Queen of
Dental Hygiene

The Respiratory Microbiome



HHS Public Access

Author manuscript

Annu Rev Physiol. Author manuscript; available in PMC 2017 February 10.

Published in final edited form as:

Annu Rev Physiol. 2016 February 10; 78: 481–504. doi:10.1146/annurev-physiol-021115-105238.

The most abundant phyla are Bacteroidetes and Firmicutes; prominent genera uniformly include Prevotella, Veillonella, and Streptococcus (27, 30, 70). Microbiota of the lung more closely resemble those of the mouth (its primary source community) than those of other body sites

²Department of Internal Medicine, Weill Cornell Medical College, New York, NY 10065

³Department of Microbiology and Immunology, University of Michigan Medical School, Ann Arbor, Michigan 48109

Abstract

Although

is virtually

communities of microbes from the oropharynx and other sources, and over the past decade, novel culture-independent techniques of microbial identification have revealed that the lungs, previously

It is plausible but unproven that the bulk of physiological microaspiration occurs during sleep, when subjects are supine and protective laryngeal and cough reflexes are depressed.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4751994/pdf/nihms756902.pdf>

G.I. Detox™+

- Helps cleanse and supports microbiome balance
- Recommended for use with Biocidin®
- US sourced ingredients
 - Scrupulous quality control
 - Designed to protect motility
- Flavorless can be opened if needed- into water, juice, or applesauce
- Empty stomach, 1-2 hours away from food and supplementation, 60 capsules per bottle



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Proflora[®]4R



- ❧ Pharmaceutically manufactured, spore-producing bacterial strains
 - Survives the intestines without enteric coating or refrigeration required
 - Can survive up to 450F outside of its capsule
- ❧ 100 mg/capsule of patented quercetin:
 - Supports a healthy inflammatory response
 - Antioxidant and antihistamine
 - 170% more bioavailable than standard quercetin
 - 100mg Shown to assist in intestinal permeability repair
- ❧ Marshmallow root and Aloe Vera to soothe mucosal tissue
- ❧ 1 capsule at bedtime, 30 capsules per bottle

Biotonic™



- Adaptogenic botanicals have been shown to support
 - Nutrient absorption
 - Energy level
 - Digestion and nausea relief
 - Liver and kidney
 - Immune modulation
- Artemisia is an important cleansing botanical
- Organically grown, rigorously tested for any impurities
- 20 minutes prior to meals or as needed for support

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LSF Biocidin

Day 1



LSF Biocidin

Day 9 – Oral and Topical LSF Biocidin



“Last Friday our little 14 month old came and he looked a lot better – 50 percent improved on his abdomen, 25 percent improved on his back – looking forward to seeing him this week to see the progress.”

LSF Biocidin

Day 16 – Oral and Topical LSF Biocidin



“what a success – parents are ecstatic – I will let them now they need to continue the LSF until all lesions are gone... thanks for providing the product so this little guy could get better.”

LSF Biocidin

Day 31 – Oral and Topical LSF Biocidin



Topical LSF



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Topical LSF



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Giardia Case Study

Protocol Summary:

- 34 YO Female:
- 5 drops TID Biocidin
- 10 drops BID Biotonic
- 3 month protocol but retested at ~6 months- clearance



Giardia Case Study

- 34 YO Female:

Pre test: Jan

Ova&Parasite -Giard/Crypto Ag W/Crypto Conf (Inhouse)

NAME

VALUE

F Giardia Ag by EIA, Qual,F	Positive H
------------------------------------	-------------------

- SMLL15

- Called to & read back by: ON CALL PHYSICIAN FOR HIBBING FAM

- [01/22/17 1435](#) TDCL01

- --- [01/22/17 1436](#) ---

- Giardia Scrn previously reported as:Positive H at [01/20/17 2300](#)

- SMLL15

- Test performed by: ST. LUKES HOSPITAL LABORATORY

- 915 EAST 1ST STREET DULUTH, MN 55805-2193

Post test: June

Ova&Parasite -Giard/Crypto Ag W/Crypto Conf (Inhouse)

NAME

VALUE

F Giardia Ag by EIA, Qual,F	Negative
------------------------------------	-----------------

- Test performed by: ST. LUKES HOSPITAL LABORATORY

- 915 EAST 1ST STREET DULUTH, MN 55805-2193

F Cryptosporidium Ag, Qual,F Negative

- Limitations: Results must be interpreted in conjunction with

- other clinical information. Multiple specimens collected

- over several days should be tested for patients who are

- suspect of being positive for Giardia or Cryptosporidium.

- Patient specimens will be retained for seven days. If

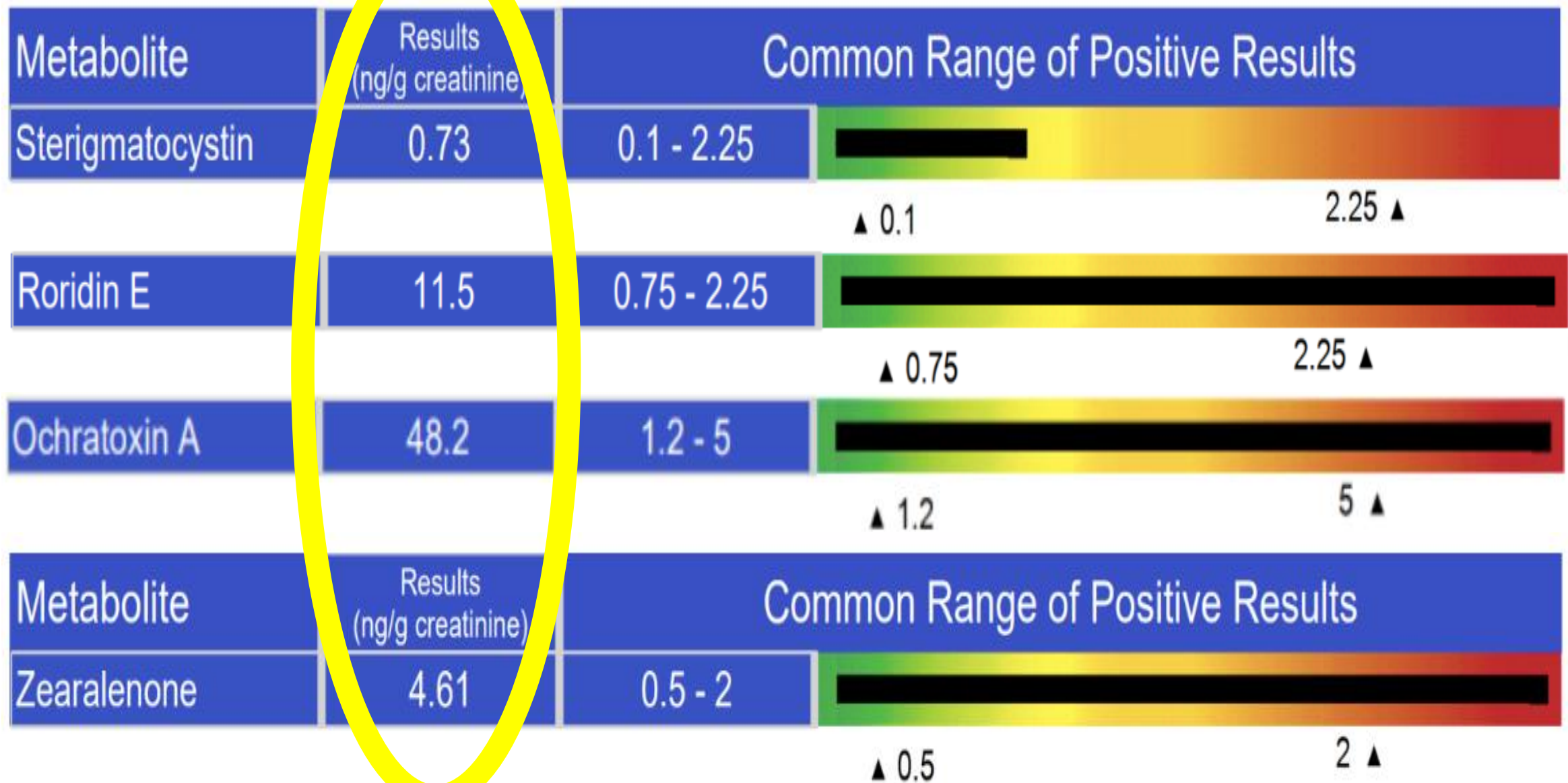
- examination for additional parasites is indicated, please

- notify the laboratory.

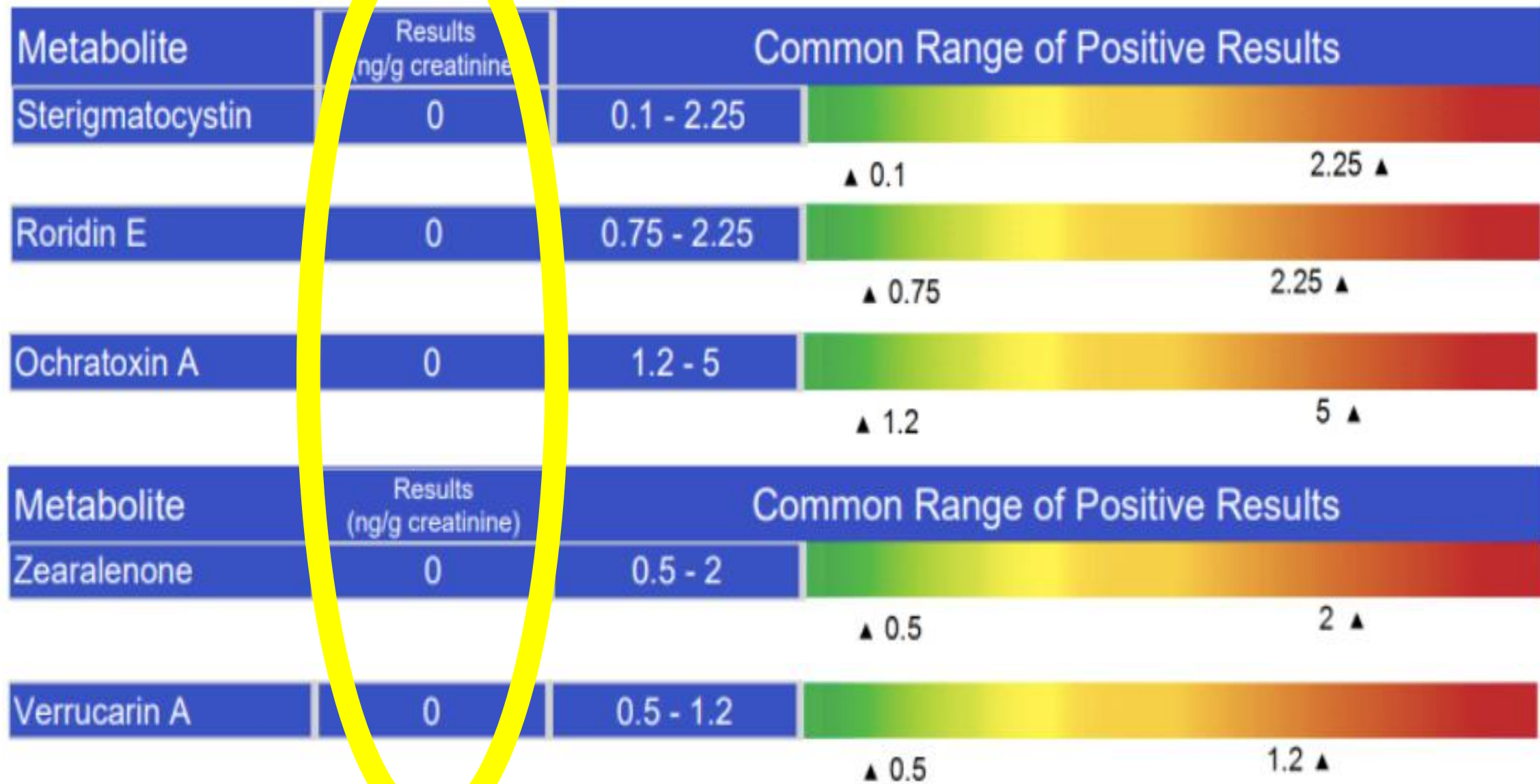
- Test performed by: ST. LUKES HOSPITAL LABORATORY

- 915 EAST 1ST STREET DULUTH, MN 55805-2193

Mold



Mold



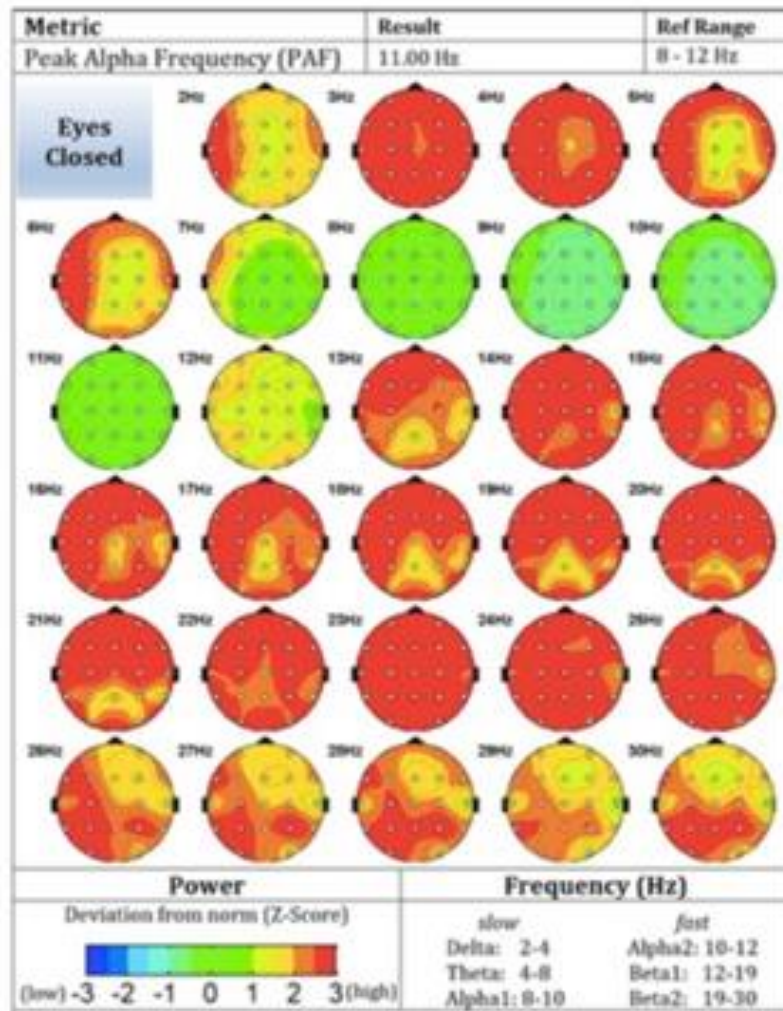
“After a 90-day protocol with Biocidin products, testing showed complete resolution. At 6-month post treatment, patient still demonstrated no symptoms.”

-Dr. Taylor, DC

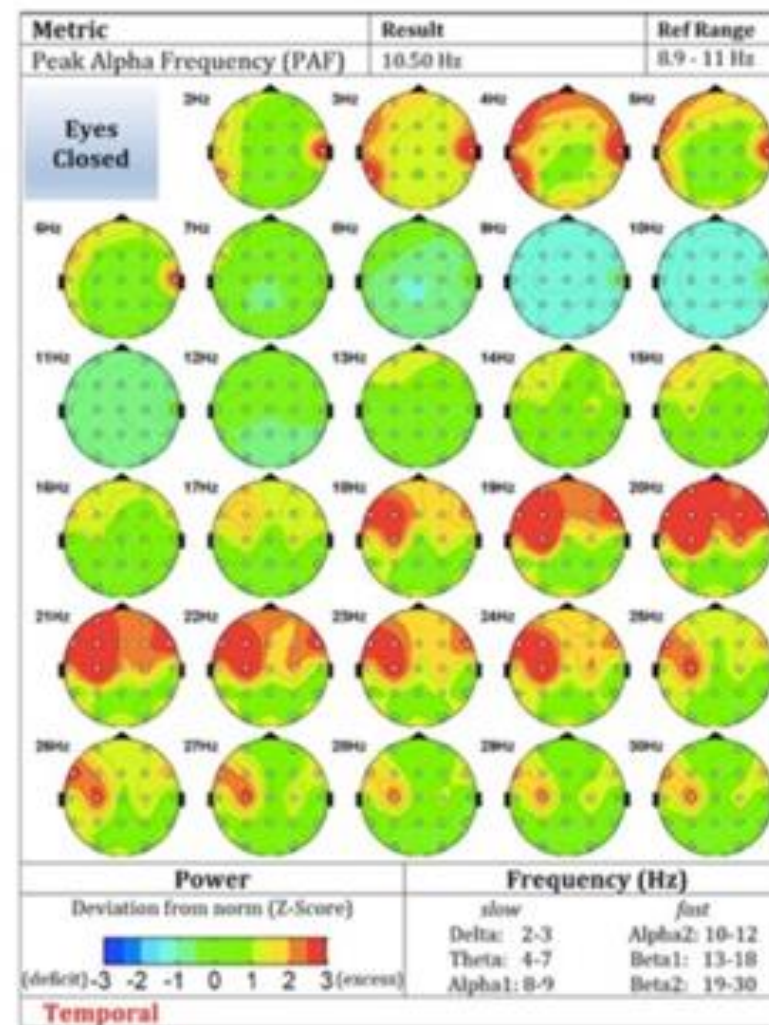
Neuroinflammation



11.21.18 Baseline



7.9.19 Post



Improved alpha peak

Much improved delta and theta power.

Much improved reduction in what is believed to be neuro-inflammation

Bio-Botanical Research, Inc.

Questions?



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