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microBYTES™

A Hardy Diagnostics eNewsletter

 **HARDY**
DIAGNOSTICS
a culture of service...

September, 2018

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Micro Musings...



Of course this flu that you and everyone else have caught is completely harmless, Mr. Bell.

New Antibiotics

Disks Now Available from Hardy



Hardy **CHROM**™





- Plazomicin, "Zemdri" (Z9331)
- Ceftazidime/Avibactam, "Avycaz" (Z9351, Z9355)
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- Meropenem/Vaborbactam, "Vabomere" (Z9321, Z9325)

HardyDisks:

- Are compatible with all BD Disk dispensers.
- Feature "last disk recognition" so you know when a refill is needed.
- Include all traditional and newer antibiotics.

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Did you know that Hardy was the first company to introduce Chromogenic media to America in 1996? Hardy has been the leader in the field of easy identification by color ever since.



HardyCHROM MRSA, Cat no. G307

See our complete Chromogenic product offering.

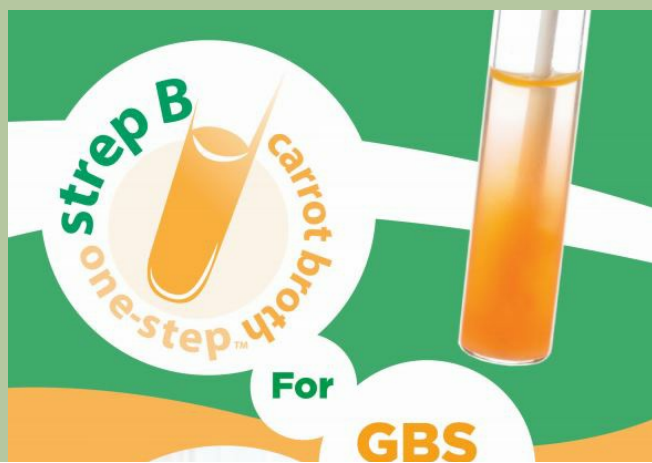
View the online catalog.

Request a paper catalog.

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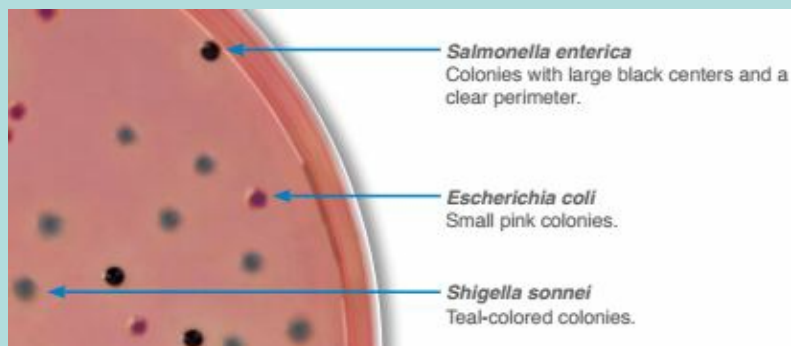
For the detection
of Group B Strep...

Carrot Broth One-Step



*Stool cultures with no
interference from Proteus!*

HardyCHROM SS NoPRO





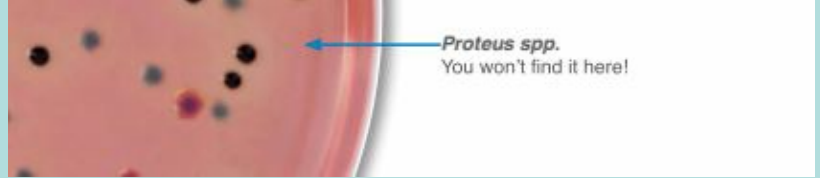
- Improved...No tile addition needed!
- Detects hemolytic Group B Strep from the initial broth culture
- Provides results in as little as sixteen hours
- Found to be 100% sensitive and up to 100% specific in a recent study

[Learn more...](#)

[Request samples.](#)

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* * *



NOTE: New study shows **50% less in colony work-ups**, for an overall **cost saving of 80%!**
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- Reduces costly false-positive work-ups, due to *Proteus* spp.!
- Less colony picking, subculturing, and identifications
- No need for TSI, LIA, or KIA tubes
- Reduces use of expensive ID cards
- Reduces the number of plates for primary stool setup
- Increased specificity
- Easy Identification by patented chromogenic reaction
- The only chromogenic media that will detect both *Salmonella* and *Shigella*

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* * * * *

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Genital Mycoplasmas

Why testing is needed...

Seeing the doctor about concerns of sexually transmitted infections (STIs) or urinary tract infections (UTIs) can be very uncomfortable for most people. However, it's something that millions of Americans are compelled to do every year. According to the CDC, nearly 2.3 million cases of chlamydia, gonorrhea, and syphilis (the most common STIs) were reported in the US in 2017. This number shows a 31% increase from the 1.8 million reported cases in 2013.

The majority of STI screens primarily detect *Chlamydia trachomatis* (chlamydia), *Neisseria gonorrhoeae* (gonorrhea), *Treponema pallidum* subsp. *pallidum* (syphilis), *Trichomonas vaginalis* (trichomoniasis), hepatitis B virus, and human immunodeficiency virus (HIV). However, another group of bacteria (Mollicutes) that can cause STIs and UTIs and are often

Two heads are better than one!

Now with Bluetooth capability!

Trio Bas from Orum International has a robust impact air sampler for every type of use. Single, double, or triple heads are available from Hardy Diagnostics.

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- [See the complete Trio Bas catalog.](#)
- [Please have a sales rep contact me about air samplers.](#)

Testimonial from a Pharmaceutical Lab worker...

"The two heads of TRIO BAS DUO air sampler was one of the best investments during the last two years. The laboratory staff responsible of the bacteriological sampling is able to double the number of environmental microbial cycles per day. This means more efficiency and lower cost, together with the possibility to increase in the future the number of sampling in other areas of the premises."

For the reliable recovery of anaerobes...



bacteria (Mollicutes) that can cause STIs and UTIs and are often overlooked and not getting the attention they deserve.

The genital Mollicutes of concern consist of the bacterial genera *Mycoplasma* and *Ureaplasma*, which are unique bacteria in that they lack a bacterial cell wall. They are some of the smallest free-living organisms and can either be pathogenic or commensal in humans. They have complex nutritional and cultivation requirements that demand special and laborious techniques for laboratory detection and characterization, which can discourage clinical microbiology laboratories from performing regular cultures in-house.

The reference method for the detection of *M. hominis* and *U. urealyticum* is the culture-based method, typically with A8 Agar for both species. SP4 Broth supplemented with arginine, glucose, or urea is used for the identification of *M. hominis*, *M. genitalium*, and *U. urealyticum* respectively. *M. hominis* and *U. urealyticum* typically require a few days to a couple of weeks for mature colonies, whereas *M. genitalium* can take months to cultivate; hence, the optimal detection method of this species is a PCR-based method. Microscopically (100X) on A8 agar, *M. hominis* colonies appear as "fried-eggs" as seen below.



For microbiology labs that offer tests for genital *Mycoplasma* or *Ureaplasma* in the US, PCR-based detection methods are likely the fastest and most accurate method. However, culture methods are much more cost-effective and sufficient for *M. hominis* and *U. urealyticum* detection.

Historically, these organisms have not been studied closely due to their fastidious nature and small size. Traditionally, they are not considered nor screened for in the initial STI or UTI battery of tests. However, mycoplasmas can cause some serious infections and conditions if misidentified.

M. hominis has been isolated from the upper urinary tract in patients with acute pyelonephritis, a kidney infection that causes pain and inflammation. *M. hominis* infection during pregnancy can cause ectopic pregnancy, early delivery, or miscarriage, and can induce fever among newborns. *M. genitalium* can also cause non-gonococcal urethritis (NGU) in men and possibly pelvic inflammatory disease (PID) in both men and women. *U. urealyticum* causes non-chlamydial, non-gonococcal urethritis (NGU) as well. In newborns, an *U. urealyticum* infection during pregnancy can cause low birth weight, pneumonia, and septicemia.

[Learn more](#) about anaerobic media.

[View](#) the anaerobic bacteriology catalog.

[Request](#) samples of anaeroGRO.

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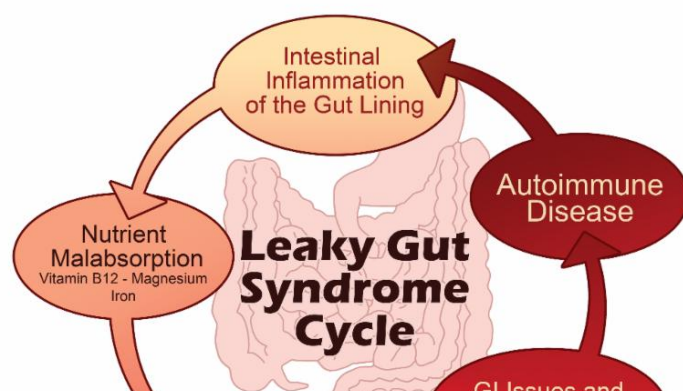
E. coli Nissle 1917

Specific Probiotics

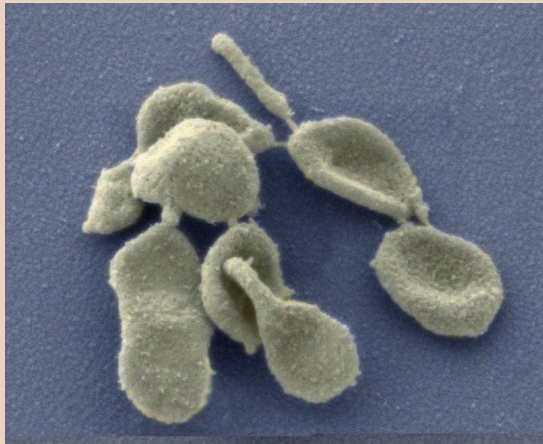
Plugging the Leak Gut

Intestinal health and the gastrointestinal (GI) tract microflora play a largely unnoticed role in our quality of life when all is in balance. There are many intrinsic and extrinsic factors that affect microbiome composition in the GI tract that lead to significant variations of microflora among individuals. As a result, there is also a wide variety of approaches to maintaining proper gut health.

Some aspects of daily life that one should consider when attempting to resolve any GI issues may be exercise, stress management, water intake (purity and source of water is also important here), diet, elimination of allergens (pets/plants/food/dust) and medications (yes, even aspirin and NSAIDS). However, if making general improvements in lifestyle are not enough and one has a genetic predisposition for digestive disorders such as Leaky Gut Syndrome, Crohn's disease, ulcerative colitis, or irritable bowel syndrome, it may be worth considering a clinically tested probiotic treatment.



These microorganisms are typically transmitted via sexual contact or vertical transmission (mother to child) and may go seemingly unnoticed depending on the patient's immune system health. Although *M. hominis* and *U. urealyticum* can be present in the commensal flora of many humans, when they exceed concentrations of 10^4 and 10^3 CCU/mL, respectively, these bacteria can often lead to urogenital tract infections. In contrast to these two species, *M. genitalium* is rarely isolated from asymptomatic individuals.



"Flask shaped" cells of *M. genitalium*.

Although these bacteria can exist in the commensal flora of many humans, their unmonitored proliferation can prove pathogenic. It is quite common that when one is suffering from STI or UTI-related symptoms, the Mycoplasma test is often the last test ordered by the clinician, only after all other pathogen possibilities have been exhausted and all laboratory results return negative. Beta-lactams (including penicillins and cephalosporins) are ineffective against these organisms since they lack a cell wall. Doxycycline, macrolides (eg, azithromycin), and fluoroquinolones are often used to treat these infections.

This emphasizes the importance of educating clinicians about these pathogens to encourage the inclusion of Mycoplasma and Ureaplasma in the initial battery of medical tests. The downside of misdiagnosis could certainly lead to the selection of an inappropriate treatment regimen and delay assessment of the efficacy of the treatment strategy, leading to uncertainty in the clinical outcome. Therefore, these pathogens demand our attention and initial consideration as potential etiologic agents in symptomatic patients, especially in pregnant women, immunocompromised patients, or in instances of chronic or recurrent STI or UTI.

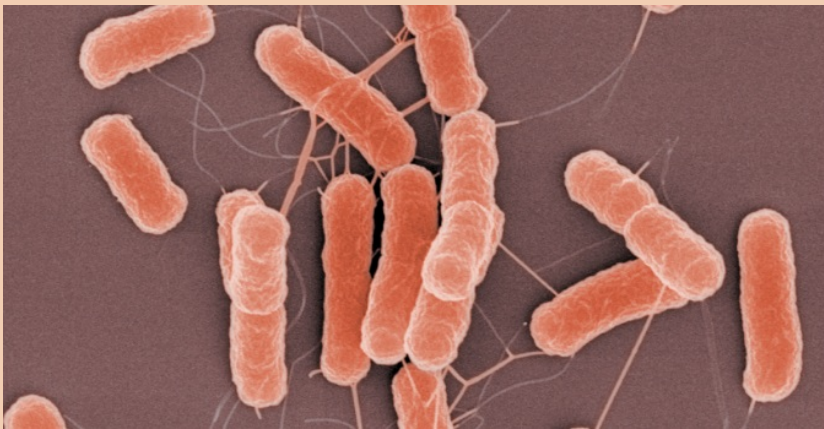
by Dylan Campbell and Andre Hsiung
Technical Services
HARRY DIAGNOSTICS



Increased inflammation in the GI tract can present symptoms such as diarrhea, severe or chronic cramping, loss of appetite, fever, joint pain, and skin problems. Additionally, one may feel fatigued more frequently or show deficiencies in certain nutrients, such as iron. Symptoms range in severity and sometimes leave patients feeling confused about what is going on in their gut as these symptoms may go away for months to years (remission) before reappearing (flare-ups).

The good news is that for patients suffering from these symptoms, a new treatment claims to ease symptoms of constipation by introducing a specific *Escherichia coli* strain into the GI tract. This *E. coli* strain is called Nissle 1917. It was first isolated from human intestinal flora by the German doctor Alfred Nissle during the first World War and was identified as being a key member of a healthy microbiome. This particular *E. coli* strain is one of the most thoroughly studied bacterial strains to help with chronic inflammatory conditions of the GI tract. The treatment comes in the form of a capsule that is ingested orally. Each capsule contains at least 250 million bacteria cells of Nissle 1917. The outer enteric capsule resists stomach acid and remains intact until it reaches the large intestine, where the bacteria flourishes.

The amazing part about this probiotic treatment is that it has been evaluated clinically and uses a thoroughly researched bacterial strain that has been identified as a normal inhabitant of the healthy human gut. Nissle 1917 has been identified as a key microorganism in gut health due to some unusual characteristics it possesses: it is highly motile and has many organelles for attachment that are used to adhere to the GI tract lining.



Its flagella (as seen above) attaches to the mucin layer of the gut and forms a resilient biofilm. By adhering to the GI tract lining, Nissle 1917 may help prevent a "leaky gut" syndrome

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Strange ads from the past...



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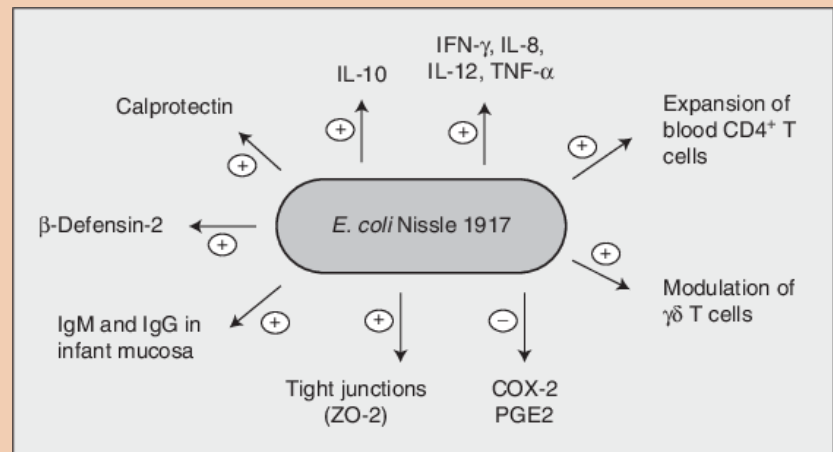


Phraseology...

"Bury the Hatchet"

The figurative expression 'burying the hatchet' is originated from a Native American tradition that initiates a peace treaty. Hatchets were buried by the

and aids in the absorption and retention of important nutrients in the body. When this *E. coli* interacts with the GI tract lining, it enhances the mucosal barrier and function while exhibiting multiple anti-inflammatory effects.



This new probiotic therapy, called Mutaflor, is manufactured by ArdeyPharm in Germany, and has been cleared for human use in Australia.

The main purpose of this probiotic strain is to optimize the colon/bowel barrier function and prevent constipation, so one can take this even if they have not been identified as having a condition such as Crohn's disease, ulcerative colitis, or irritable bowel syndrome. This treatment may offer more hope to those experiencing inflammatory bowel diseases which have not responded to prescription medication or other treatment methods.

References: [1](#), [2](#), [3](#), [4](#), [5](#), [6](#), [7](#)

by Anna Klavins
R&D Microbiologist
HARDY DIAGNOSTICS

* * * * *

Optical oddities...

initiates a peace treaty. Hatchets were buried by the chiefs of tribes when they came to a peace agreement. Not just a B-movie plot device - hatchets really did get buried.

The phrase is recorded from the 17th century in English but the practice it refers to is much earlier, possibly pre-dating the European settlement of America. A translation of Thwaites' monumental work *Jesuit Relations*, 1644, suggests the practice:

"Proclaim that they wish to unite all the nations of the earth and to hurl the hatchet so far into the depths of the earth that it shall never again be seen in the future."

The *New England Historical & Genealogical Register* for 1870 has a record that Samuel Sewall made in 1680, where he recounts the burying of hatchets by Native American tribes:

"Meeting wth ye Sachem [the tribal leaders] the[y] came to an agreemt and buried two Axes in ye Ground; which ceremony to them is more significant & binding than all Articles of Peace the Hatchet being a principal weapon wth ym."

* * * * *

What is Hardy all about?

[View a short video to find out...](#)



* * *

Brainteasers



Do you see a man?
Or a man sitting by a tree stump looking at two houses?

"Believe half of what you see
and none of what you hear."
~ Benjamin Franklin ~

RUBES



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Think about it...

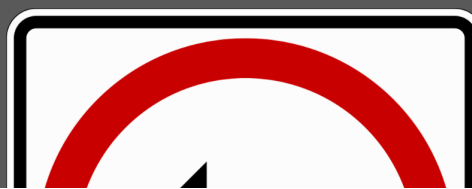


Max Planck -- brilliant physicist, lousy
pick up artist.

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Want to [book Leigh](#) as a speaker at your next event?

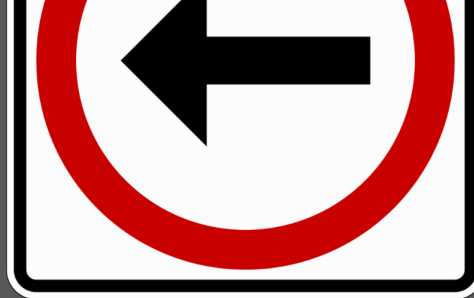
Two wrongs don't make a right...





- Shouldn't the sun be re-named as a Space Heater?
- Why did Cinderella's glass slipper fall off if it fit her perfectly?
- In libraries....Shhhhh happens.
- If the grass is greener on the other side, you can bet the water bill is higher.

* * *



but three left turns do.

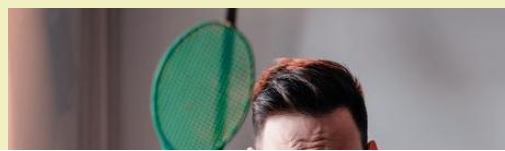
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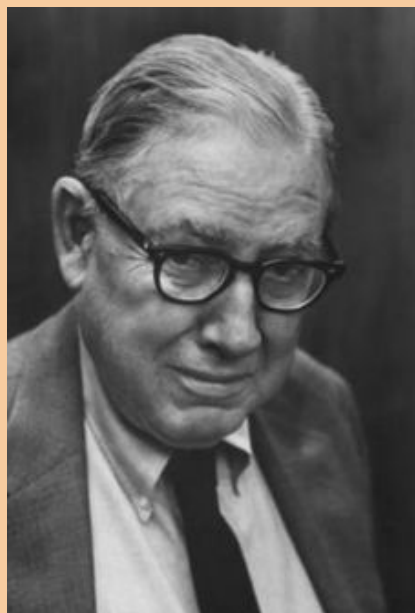
She'll kiss the dog, but she won't drink out of my coffee cup.

Warning:

**PUN ZONE
AHEAD**



Wisdom to Ponder...



Ogden Nash
1902 ~ 1971

American writer, best known for his light verse and humorous poetry

"The cow is of the bovine ilk; one end is moo, the other milk."

"A door is what a dog is perpetually on the wrong side of."

"Middle age is when you've met so many people that every new person you meet reminds you of someone else."

"Children aren't happy with nothing to ignore, and that's what parents were created for."

"The trouble with a kitten is that eventually it becomes a cat."

"Certainly there are things in life that money can't buy, but it's very funny - Did you ever try buying them without money?"

"Indeed, everybody wants to be a wow, but not everybody knows exactly how."

"Some tortures are physical And some are mental, But the one that is both Is dental."

"Marriage is the alliance of two people, one of whom never remembers birthdays and the other who never forgets them."

"How easy for those who do not bulge to not overindulge!"

* * *

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*Pick... Click...
And your order is on its way!*

* * *



- * Should a flyswatter be called a splatula?
- * A support group for compulsive talkers should be called "On Anon Anon."
- * Did you hear about the crook that stole a calendar? He got 12 months.
- * Hear about the small arms dealer? They called him T rex.

#



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but the second mouse gets the cheese.

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If there is any way we can improve or expand upon our service, would you please let me know?"

Jay Hardy, CLS, SM(NRCM)
President
HARDY DIAGNOSTICS

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"I will be there in 5 minutes...."

if not, then read this again."

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to last me the rest of my life..."**



Provided I die in the next hour or so."

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