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microBYTES™

A Hardy Diagnostics eNewsletter



May, 2013

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Google Honors Julius Petri

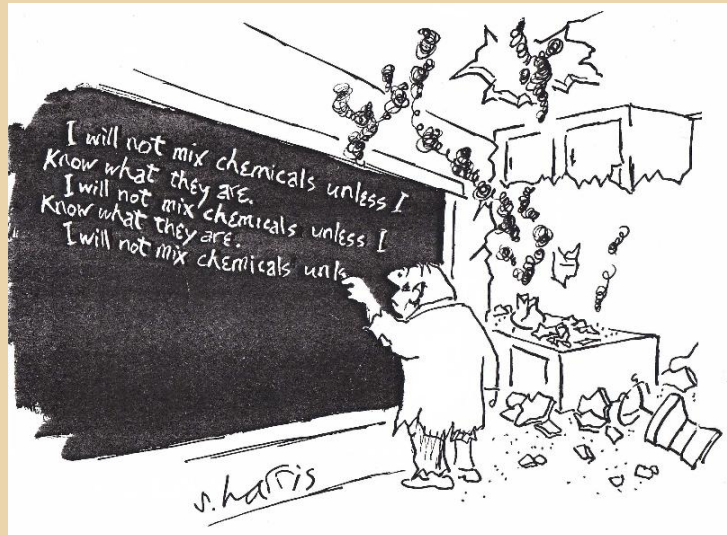


To commemorate the 161st birthday of Julius Petri, the inventor of the famous culture dish, Google designed a clever series of six Petri plates with animation on its search engine website.

In case you missed it, [click here](#) to see what Google did for Petri's May 31st birthday.

Julius Richard Petri was a German physician that joined

Micro Musings...



"I will not mix chemicals
unless I know what they are..."

* * *

Bacteria+Yeast+Tea =
Kombucha

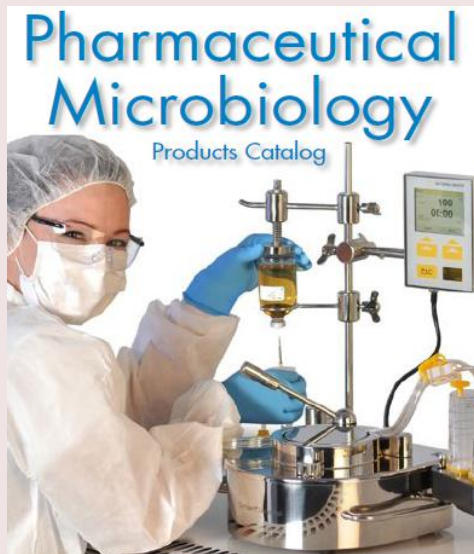
Robert Koch's bacteriology lab in Berlin in 1877. After co-worker, Fanny Angelina Hesse, suggested the use of agar from seaweed as a gelling agent, Petri designed the dish that microbiologists still use throughout the world to this day.



* * *



New Catalog...



If you work within the pharmaceutical industry, you will want to see our new catalog for sterility and environmental products for your clean rooms and QA procedures.

Request a paper catalog.

View the PDF catalog online.

* * *

A fermented tea for your health.

Kombucha, an effervescent beverage originating in Asia, has received much attention lately in the nutraceutical and alternative health industries as being an anti-carcinogenic, fermented tea. It is believed to help regulate the gut microbiome, aid in metabolism and cell proliferation, increase detoxification, and help protect the liver.

Kombucha originated in China over 2,000 years ago and made its way into Russia, where it was known as tea *kvass*. In the last century, Kombucha has increased in popularity in the Western world, however due to its recent introduction, there is very little scientific evidence to support its many health claims. Though further research is needed to support its claim as a true probiotic, it is similar to other microbial-based foods with documented health benefits.

Kombucha is a fermented tea consisting of a symbiotic culture of bacteria and yeast (SCOBY). The dominant bacterium is *Gluconacetobacter xylinus* (formerly *Acetobacter xylinum*), it can be paired with many genera of yeast: *Zygo-saccharomyces*, *Schizosaccharomyces*, *Saccharomyces*, and *Saccharomycodes*.

Kombucha is made by adding the SCOBY to sweetened tea and allowing it to ferment. *G. xylinus* ferments the alcohols produced by the yeast into acetic acid. The high acidity and low ethanol content give the culture intrinsic resistance to contamination by most airborne molds or bacterial spores. Within several weeks of adding a starter culture, the SCOBY will form a thick layer on top of the liquid (see photos).

Brain teasers



***Build your
mind muscle here..***

Check it out

A new antibiotic for MRSA and pneumococcus



***Ceftaroline is a new
parenteral cephalosporin
antibiotic with broad-
spectrum activity against
Gram-positive and Gram-
negative bacteria.***

Ceftaroline (brand name Teflaro®) is the first commercially available cephalosporin with activity against methicillin-resistant *Staphylococcus aureus*

The resulting liquid contains vinegar, B vitamins, and a number of other essential nutrients and chemical compounds.

The benefits of drinking a fermented tea are not well documented. Many epidemiologic studies were conducted in Russia in the early part of the 20th Century where doctors noticed a lower rate of cancer in regions where the tea *kvass* was popular compared to regions where it was not. Recent research shows that regular brewed teas contain a variety of antioxidant properties, and that probiotic foods can help promote the growth of favorable microorganisms in the human gut microbiome. Yet, is it beneficial to combine the two?

Epigallocatechin gallate (EGCG) is the main antioxidant found in green tea and in Kombucha fermented from green tea. EGCG may have some benefit in the treatment of AIDS and cancer as it has been shown to bind to the CD4 molecule on T cells and inhibit the anti-apoptotic protein Bcl-xl in vitro (Williamson et al. 2006). D-saccharic acid 1,4 lacton (DSL) and glucuronic acid are also found in Kombucha (Gunther 2003). DSL inhibits glucosidase activity, leaving glucuronic acid to neutralize carcinogens such as polycyclic aromatic hydrocarbons, some nitrosamines, aromatic amines, and fungal toxins (Dutton 1980, Levvy and Conchie 1965). However, recent research shows that it is more likely that glucaric acid is the active component in Kombucha. Glucaric acid inhibits beta-glucuronidase activity in normal gut bacteria, thereby reducing the potential for toxin recycling and increasing the liver's efficiency.

There is limited research on the effects of Kombucha consumption *in vivo*. In one study published in the *Journal of Food & Function*, researchers fed Kombucha brewed for four days from black tea to mice with stomach ulcers. They found no significant difference in the effectiveness of treating the ulcers between the control medication, omeprazole, and Kombucha (Banerjee et al. 2010).

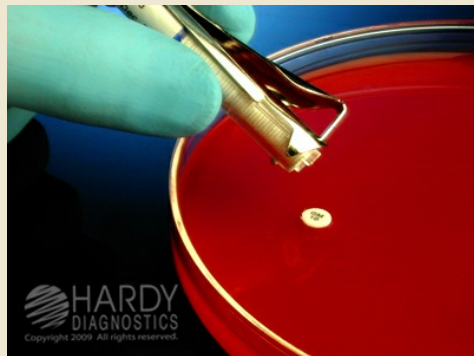


While many people who tried Kombucha have told tales of health transformation, some doctors caution against it without considering all the potential side effects. People with compromised immune systems should avoid interactions with live cultures, especially ones made in an amateur or home-brew environment.

However, if you are a healthy individual looking for a wholesome alternative to traditional nutrient-poor and

(MRSA) and penicillin-resistant *Streptococcus pneumoniae*. In addition, ceftaroline is active against most non-ESBL Enterobacteriaceae.

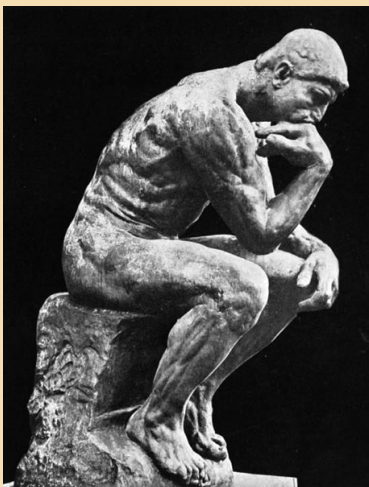
Broth dilution susceptibility tests are not yet available, but there is a Kirby-Bauer disk that is currently offered. Hardy Diagnostics is currently the only source for this AST disk.



Learn more about
Ceftaroline...

* * *

Think about it...



* Why does someone believe you when you say there are four billion stars, but always checks when you say the paint is wet?

* Why do they use sterilized needles for death by lethal injection?

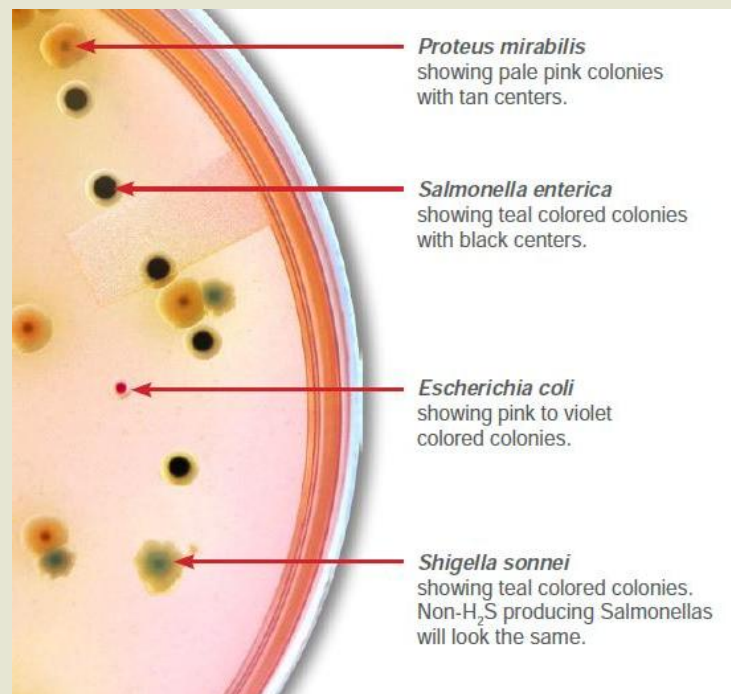
sugary soft drinks, Kombucha may be worth trying.

~ Rianna Malherbe

* * *

HardyCHROM SS

*Cut costs of stool culturing!
Eliminate MacConkey, HE, LIA and TSI!
Reduce turn-around time!*



HardyCHROM SS represents a revolutionary new way of detecting *Salmonella* and *Shigella* from stool cultures. This patented new chromogenic medium will eliminate many troublesome false positives and reduce the time and materials needed to workup the true positives.

A recent study showed that using HardyCHROM SS reduced the cost of a stool workup by 50% when used in conjunction with the MALDI-TOF. HardyCHROM SS recovered and detected 100% of all isolates tested. It also reduced turn-around time by two days!

Another recent study showed that a busy lab was able to completely eliminate the need for MacConkey, HE Agar, LIA, and TSI slants. HardyCHROM SS even detected several isolates that MacConkey and HE missed. It reduced the turn around time from 3 to 2 days when used with the Siemen's Microscan!

* Why doesn't Tarzan have a beard?

* Why does Superman stop bullets with his chest, but ducks when you throw a revolver at him?

* Why do Kamikaze pilots wear helmets?

* * *

Another recent study showed that HardyCHROM SS accurately detected 100% of 80 different strains of *Salmonella* and *Shigella*.

[Learn more.](#)

[View the testing algorithm.](#)

[Order some samples](#) today and see how HardyCHROM SS can save precious time and money in your lab!

* * *

Robots Zap *C. difficile*



In an effort to control Hospital Acquired Infections (HAI), a roving robotic UV light device has been summoned into the battle.

According to the CDC, HAI's cause over 100,000 deaths every year. One of every 20 patients will pick up a dangerous bug that they did not enter the hospital with. Over \$40 billion is spent on the 2 million infections caused every year by HAI's.

14,000 deaths have been attributed to *Clostridium difficile*. This anaerobic, diarrhea causing pathogen is especially difficult to kill due to its production of spores that are highly resistant to drying, alcohol, hand sanitizers, and many of the commonly used disinfectants.

APIC Releases New *C. diff* Guide



APIC has recently announced the publication of its new guide for the diagnosis and control of *Clostridium difficile* infections. This 100 page guide from APIC (Association of Professionals in Infection Control) thoroughly discusses methods of detection, pathogenesis, surveillance, patient isolation, disinfection, fecal transplants, and treatment of *C. difficile*. Download your copy from the [APIC website](#).

* * *

Optical oddities...

Consequently, bleach has become the most common spore killer of choice. However, bleach can damage and corrode metal and other materials and be irritating to the skin and lungs of the housekeeping crew.

According to one study, after cleaning, 71% of VRE occupied rooms and 78% of C. difficile occupied rooms still tested positive for VRE or C. diff. Even after four rounds of disinfection with bleach, 25% of rooms were still contaminated with MRSA and *Acinetobacter baumannii*.

Enter the Xenex UV light emitting robot: the \$125,000 machine from a Texas company that has helped solve the C. difficile problem for over 100 hospitals. Xenex claims that their robot is 20 times more effective than standard chemical cleaning.

A limited study at Cooley Dickinson Hospital in Massachusetts showed C-diff infection rates fell by half and C-diff deaths fell from 14 to 2 during the last two years, compared to the two years before the machines.

[More info...](#)

* * * * *

Meat tenderizing can increase E. coli incidence in steaks.



*There are five faces hidden in this bouquet.
Can you find them?*

*"Believe half of what you see
and none of what you hear."*

~ Marvin Gaye

Take the MicroBytes Survey...

Should office workers
have unlimited access
to the internet?



A newer technique of steak tenderizing, known as blading, involves driving cutting blades deep into the middle of the meat. The danger comes from contaminated blades that push toxigenic *E. coli* into the interior of the steak where the heat of cooking may not penetrate adequately to kill the bacteria.

Traditionally, the CDC recommends cooking hamburger at 160 deg. F and steaks at only 145 deg. F. However, according to the USDA, with the popularity of "blading," those guidelines will have to re-evaluated. The agency is also considering requiring all bladed meat to be labeled as such.

The CDC reports that from 2003 to 2009 there were 147 confirmed cases of illness and 4 deaths due to bladed steaks containing *E. coli* O157.

[More info...](#)

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Wisdom to ponder...



Every day at work, 64% of US workers said they visit websites not related to their job, according to a 2012 survey by Salary.com.

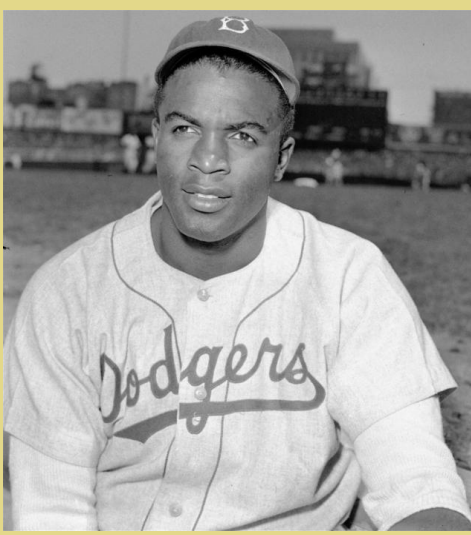
The number was higher for men (69%) than for women (62%), and markedly higher for younger vs older workers: 75% for those aged 26-35 years vs 55% for those aged 56 years or older.

Cyberloafing at work can use up a substantial amount of time. In the Salary.com survey, 21% said they do it for as many as 5 hours a week; 29% do it for up to 2 hours a week; and 39% said they do it for up to 1 hour a week.

What do you think?

View the results...

Should corporations and unions be allowed to contribute to political campaigns?



Jackie Robinson

1919 ~ 1972

The first athlete to break the color barrier in major league baseball in the modern era, his uniform number, 42, was universally retired across all major league teams. He was the first pro athlete in any sport to be so honored. Initiated on April 15, 2004, major league baseball adopted a new annual tradition, "Jackie Robinson Day," on which every player on every team wears the number 42. After retiring from baseball, he became an executive for a coffee company.

"I'm not concerned with your liking or disliking me... All I ask is that you respect me as a human being."

"Above anything else, I hate to lose."

"A life is not important except in the impact it has on other lives."

"Life is not a spectator sport. If you're going to spend your whole life in the grandstand just watching what goes on, in my opinion, you're wasting your



Due to a US Supreme Court ruling in 2010, corporations, non-profit organizations, and labor unions are now allowed to make unlimited contributions to political campaigns and "Super PACS" (Political Action Committees).

Over \$6 billion was spent from all sources on the election campaigns of 2012.

Does this represent an expression of freedom of speech or does it interfere with the democratic process?

Find out what our readers
said about this...

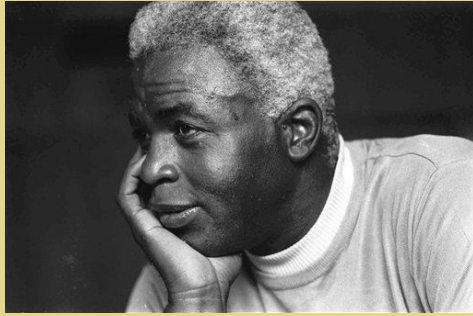
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RUBES

life."

"There's not an American in this country free until every one of us is free."

"The way I figured it, I was even with baseball and baseball with me. The game had done much for me, and I had done much for it."



* * * * *

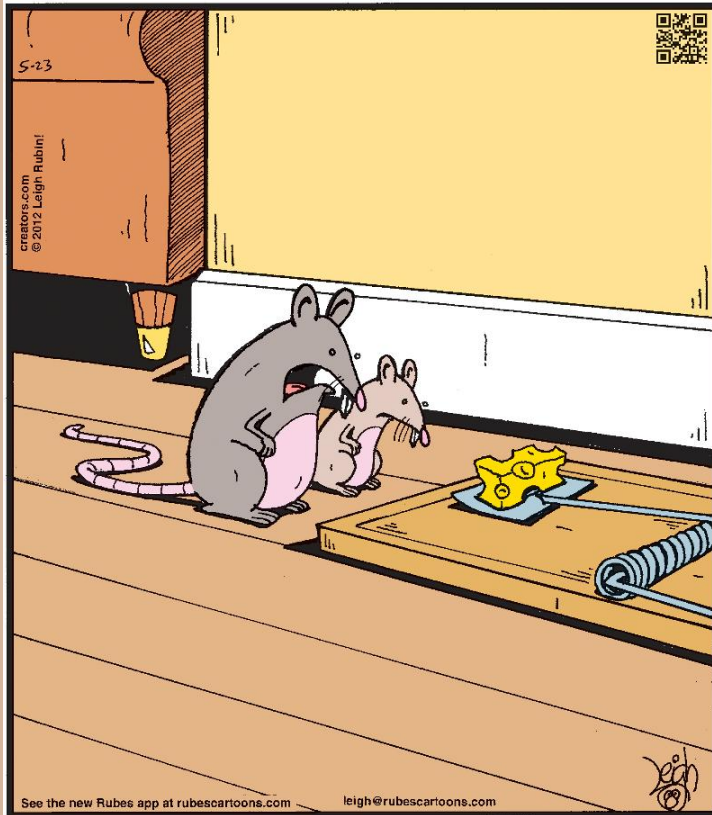
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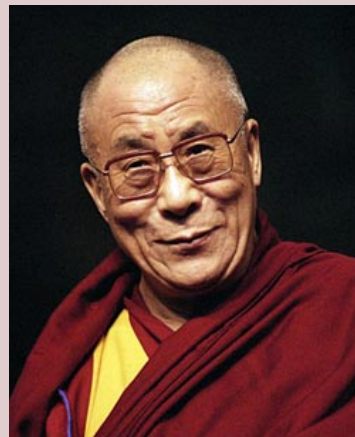
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of MicroBytes?
[CLICK HERE](#)

Did you know?



"Interestingly, son, they haven't changed the design in well over 100 years, and in a moment, I'll show you why."

[Find more](#)
of Leigh Rubin's cartoon humor.

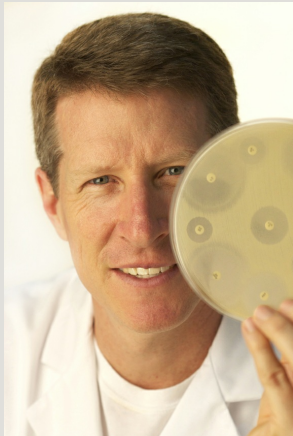


The Dalai Lama, when asked what surprised him most about humanity, said:

"Man.

Because he sacrifices his health in order to make money.

Then he sacrifices money to recuperate his health.



Hardy Diagnostics...

- Manufactures over 3,500 microbiology products for you to choose from.
- Stocks over 13,000 laboratory products to increase your selection.
- Is celebrating its 32nd year of serving microbiologists.
- Maintains eight distribution centers in the U.S. for faster turn around time to your lab.
- Is ISO 13485 certified for the manufacture of medical devices to give you confidence in our products.
- Offers you its technical manual, HUGO, which contains over 4,500 pages of information regarding microbiology.
- Maintains a worldwide network of over 40 distributors.

View a [Corporate Profile](#).

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And then he is so anxious about the future that he does not enjoy the present.

The result being that he does not live in the present or the future.

He lives as if he is never going to die, and then dies having never really lived."

* * *

Rodney Dangerfield Goes to the Shrink



I told my psychiatrist that everyone hates me. He said "Don't be ridiculous - everyone hasn't met you yet."

Last week I told my psychiatrist, "I keep thinking about suicide."

He told me from now on I have to pay in advance.

I went to the psychiatrist, and he says, "You're crazy."

I tell him I want a second opinion.

He says, "Okay, you're ugly too!"

* * *

Best of Breeds



What happens when you cross a....

Pointer x Setter = **Pointsetter**

A traditional Christmas pet.

Labrador Retriever x Curly Coated Retriever =
Lab Coat Retriever

The dog of choice for lazy microbiologists.

Blue Terrier x Skye Terrier = **Blue Skye**

A dog for visionaries.

Great Pyrenees x Dachshund = **Pyradachs**

A puzzling and often misunderstood breed.

Pekinese x Lhasa Apso = **Peekasso**

An abstract dog whose eyes are often misaligned.

Irish Water Spaniel x English Springer Spaniel =
Irish Springer

A nice smelling dog; fresh and clean as a whistle.

Newfoundland x Basset Hound = **Newfound Asset Hound**

A useful dog for financial advisers.

Terrier x Bulldog = **Terri bull**

A dog that makes awful mistakes.

Bloodhound x Labrador = **Blabrador**

A dog that barks incessantly.

Malamute x Pointer = **Moot Point**

Owned by... oh well, it really doesn't matter..

Collie x Malamute = **Commute**

A dog that travels to work.

Terrier x Shitzu = **Bullshitz**

A gregarious but unreliable breed.

Deerhound x Terrier = **Derriere**
A dog that's true to the end.

* * *