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# microBYTES™

A Hardy Diagnostics eNewsletter

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

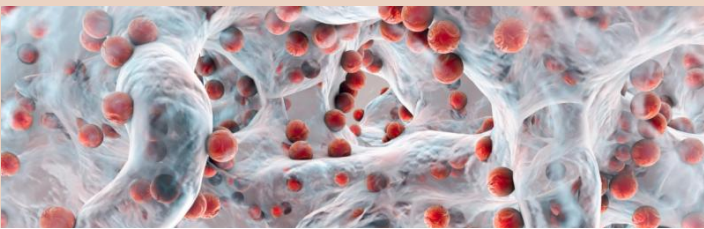
July, 2018

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*Can cinnamon help?*

## Winning the War on Biofilms

Just as we humans band together into communities for greater communication and protection from our enemies, some bacteria have the propensity to form biofilms-communal aggregates of colonized bacteria-that are encapsulated in a complex three-dimensional gelatinous, extracellular polymeric substance comprised of polysaccharides, DNA, and proteins.



### Micro Musings...

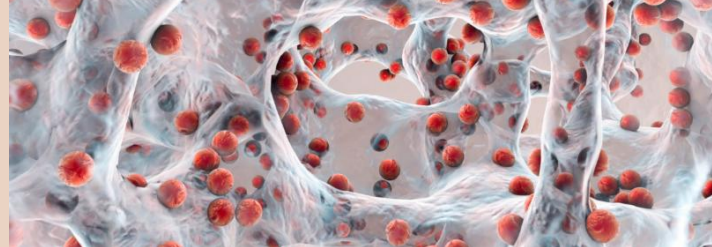


*"Some genetic engineers we turned out to be!"*

*Stool cultures with no  
interference from Proteus!*

## HardyCHROM SS NoPRO

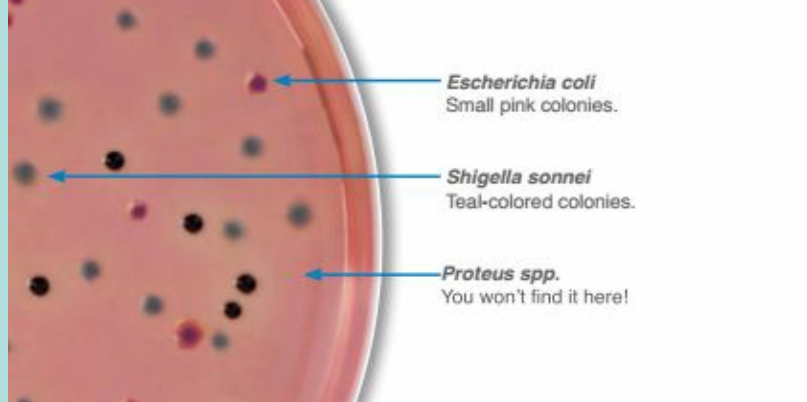




Biofilm formation is a highly orchestrated process that requires extensive communication and coordination between cells within the commune. There is a division of labor amongst the cells, too; some specialize in the production of surfactants, structural components, and enzymes for group motility, matrix production, and nutrient degradation respectively. This mode of intricate organization increases the survival chances of a bacterial population exponentially. Without the biofilm commune, each individual bacterium on its own would be susceptible to most clinically available antibiotics; however, biofilms add a level of protection for these bacteria, making their ability to sustain disease significantly greater and thus presents greater challenges for clinicians to treat. Biofilms are often impermeable matrices that drugs have difficulty penetrating due to the inherent hydrophobic character and extensive layers of the film.

Additionally, biofilms commonly have electrical charges associated with them, which can complicate matters more through electrostatic repulsions that can work against antibiotic treatment, rendering them ineffective. Additionally, bacterial cells localized deep within a biofilm are typically deprived of essential nutrients and oxygen, which allow them to divide at a very slow rate. Since antibiotics chiefly target rapidly-dividing cells, this is just another means for a bacterial commune to persevere. While a significant amount of resources are invested in the discovery of new antibiotics, research is now beginning to focus on targeting biofilms, specifically the prevention of biofilms.

Most all antibiotics, both existing and current candidates, are natural products; these molecules are produced naturally and exhibit some level of bioactivity against a particular pathogenic bacterium or a wide breadth of bacteria.



**NOTE: New study shows 50% less in colony work-ups, for an overall cost saving of 80% !**  
[Find out how you can save also...](#)

- 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*

**Learn more about HardyCHROM SS NoPRO**

**Place your order now**

**Try out some free samples**

\* \* \* \* \*



*Cinnamaldehyde, from the spice, cinnamon, has been shown to be active in the disruption of persistent biofilms.*

In a recent study conducted by Dr. Sanjida Topa of Swinburne University of Technology, Australia, the natural product Cinnamaldehyde-a constituent of cinnamon essential oils-has been observed to exhibit a level of bioactivity against *Pseudomonas aeruginosa*. Cinnamaldehyde, in a concentration dependent study, successfully inhibited surface colonization and elicited biofilm degradation to a staggering degree. A biochemical analysis revealed significantly reduced levels of a pivotal secondary messenger in biofilm genesis, a dimeric guanosine monophosphate, attributed to cinnamaldehyde's antimicrobial properties to the modulation of intracellular signaling cascades.

Cinnamaldehyde, the flavonoid that gives cinnamon its characteristic aroma, color, and distinctive taste, may pioneer the development of surface antimicrobial agents, most notably in the application of treating skin infections.

With the increasing emergence of antibiotic resistant bacteria, antibiotic candidacy has never been more important. The coupling of inappropriate prescriptions and extraneous applications, through improper diagnostics, has led to an unparalleled proliferation of multi-drug resistant bacteria that render many of the antibiotics ineffective in the treatment of such infections.

It is important that research is not only focused on the development of new, robust antibiotics but also in the development of preventive measures for biofilm formation.

*by Andrew Kravariotis  
Hardy Diagnostics*

[Reference 1](#)  
[Reference 2](#)  
[Reference 3](#)

\* \* \*

*Gram Staining made easy...*



**No Mess!**

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.

\* \* \* \* \*

## *Trio Bas Air Samplers*



*Two heads are better than one!*



# No Stress! No Inconsistencies!



Hardy's GramPRO is the world's most consistent, repeatable, and reliable way to perform a Gram stain. Find out why...

[Watch](#) a brief video about how easy it is to set up the GramPRO in your lab.

[Learn more](#) about the GramPRO 1.

[Please contact me](#) to discuss automated slide stainers.

For the detection  
of Group B Strep...

## Carrot Broth One-Step



## 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.

- [Watch a short video](#) that will explain why the Trio Bas is the best choice for your clean room.
- [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."*

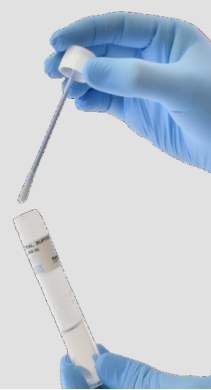
\* \* \*

*For easy sample collection...*



An effective and efficient way to collect environmental samples for culture. Now with a longer swab shaft!

[Find out more.](#)





- 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...](#)

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\* \* \*

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Also available with [Saline](#), [Letheen](#),  
[DE Neutralizing Broth](#), [Neutralizing Buffer](#),  
or [Sodium Thiosulfate](#)

\* \* \* \* \*

## Can Ebola be Stopped with Merck's New Vaccine?

*The latest outbreak may come under control through "ring" vaccination*



There is no doubt that Edward Jenner's smallpox vaccine in 1796 revolutionized the world of infectious disease. Since then, vaccinations have been successfully implemented against diseases like pertussis, *Haemophilus influenza*, smallpox, and polio, saving billions of lives worldwide.

With the 2014 outbreak of Ebola in Guinea, biologists have been scrambling to find a vaccine and treatment for the deadly virus that killed more than 11,000 people from March 2014 to May 2016. Yet again, researchers face a dire need for an effective vaccine since another outbreak of Ebola was confirmed in the Democratic Republic of Congo (DRC) on May 8, 2018.

## Strange ads from the past...



Mom says  
I'm so fresh  
and so clean  
(sometimes)—  
she ought to  
wrap me in  
Cellophane  
to keep me  
that way.

**Everything's at its best in Cellophane**

• Cellophane keeps things clean

DU PONT



- Cellophane keeps things fresh
- Cellophane lets you see what you buy

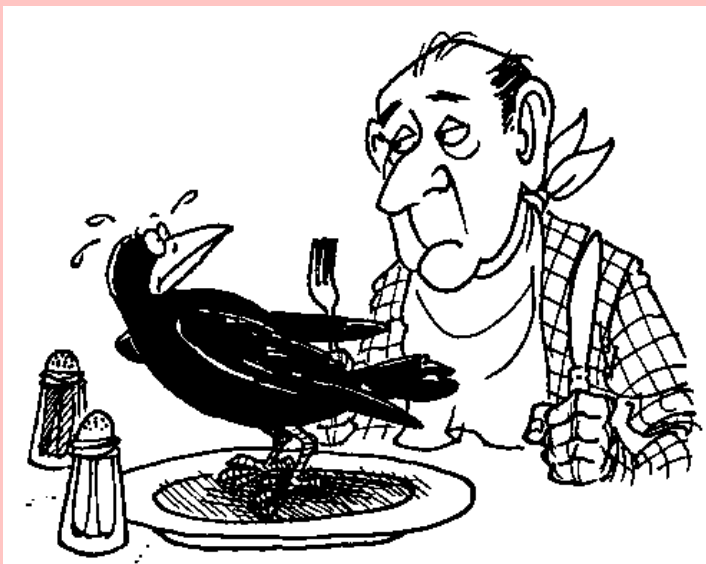
**Cellophane**  
 BETTER THINGS FOR BETTER LIVING  
 ...THROUGH CHEMISTRY  
 Watch "The Post Cardboard Theater" on Television

\* \* \* \* \*

Phraseology...

## "Eat Crow"

Eating crow is what happens when we admit we are wrong. One theory as to the origin of this American saying maintains that it originated towards the end of the war of 1812. An American soldier crossed enemy lines to hunt. He accidentally shot a crow. He was caught by a British soldier and forced to take a bite of the crow. Upon regaining possession of his gun, he then forced the British soldier to take a bite too.



Another version of it's origin first appeared in *San Francisco's Daily Evening Picayune* (Dec. 3, 1851) which tells a story about a farmer who is tricked into eating crow by his boarders. They complained about the quality of his food and the farmer said that he can eat anything. The crow that they give him was spiked with something unsavory and the farmer eats it but claims, "I kin eat a crow, but I be darned if I hanker after it."

\* \* \* \* \*



Ebola Hemorrhagic Fever (EHF) is a viral disease marked by fever, muscle pain, gastrointestinal symptoms, and hemorrhaging. It is spread through bodily fluids including urine, saliva, and sweat, with a fatality rate of up to 90%.

Bats are believed to be the primary host, but EHF can infect primates such as gorillas and monkeys. There are several strains of Ebola, named after the source of the outbreak, such as Zaire, Bundibugyo, and Reston virus.

As of July 24, 2018, there have been 53 confirmed and probable cases of Ebola in the Democratic Republic of Congo, with 33 deaths. However, there is hope for an end to this horrible, life threatening disease. Researchers at the American pharmaceutical company, Merck, have created a trial vaccine called rVSVΔG-ZEBOV. Also known as V920, this vaccine is comprised of a recombinant vesicular stomatitis virus, with an Ebola glycoprotein to induce immunity to its receivers. The live attenuated vaccine was shown to be effective based off of a "ring vaccination" trial in 2015.

The "ring vaccination" technique consists of immunizing people who come into contact with a patient. People in close contact with those exposed to a patient are also vaccinated. This isn't the first time a ring vaccination technique has controlled a deadly virus. The same strategy was used to eradicate smallpox. This method requires good communication, cooperation, and awareness to reach everyone at risk of contracting the disease.

The V920 trial in 2015 consisted of 11,000 people in 117 rings, or clusters, that had come into contact or secondary contact with Ebola patients such as healthcare employees, laboratory technicians, burial workers, and surveillance crews. Over 5,800 were vaccinated. Adverse effects of V920 included soreness, headache, and fever. However, no new

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What is Hardy all about?

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\* \* \*

## Brain teasers



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Hardy products  
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cases of Ebola occurred in vaccinated individuals after ten days.

Merck received the Breakthrough Therapy Designation from the Food and Drug Administration as well as the PRiority Medicines (PRIME) designation from the European Medicines Agency in 2016. Together, these grants hasten the review of V920 as a treatment for an "unmet medical need" of a life-threatening disease based on early clinical trials conducted in 2015. As of May 18, 2018 Merck has sent 7,500 doses to the DRC to begin ring vaccinations in hope of quenching the ongoing outbreak. One of the few hurdles to

the vaccine program includes the delicate nature of V920, which must be stored at -60 to -80°C, making transportation to medical facilities difficult. Ultra-low freezers must be set up at these facilities, which is not always plausible. In addition, all participants must give consent to receive the vaccination. Some people opt out because it is a trial conducted by a foreign country, which creates hesitation and distrust among the population. During a pandemic, relations with the healthcare system and even foreign aid can become tense.

While there are not enough vaccinations to immunize the whole population, the ring vaccination approach has proved effective in past epidemics. The World Health Organization (WHO), Médecins Sans Frontières (MSF), Ministry of Health (MoH) of the DRC, International Federation of the Red Cross, United Nations Children's Fund (UNICEF), and the UN Humanitarian Air Service are collaborating to provide aid for the affected regions of the Congo. Constant vigilance is required to execute this program and track down those most at risk of contracting the disease. Although Ebola has caused devastation in the past, V920 may be a key tool for prevention in the future.

*By Sarah Hepler  
R&D Microbiologist, Hardy Diagnostics*

Reference [1](#), [2](#), [3](#), [4](#), [5](#), [6](#), [7](#), [8](#).

\* \* \* \* \*

## Optical oddities...

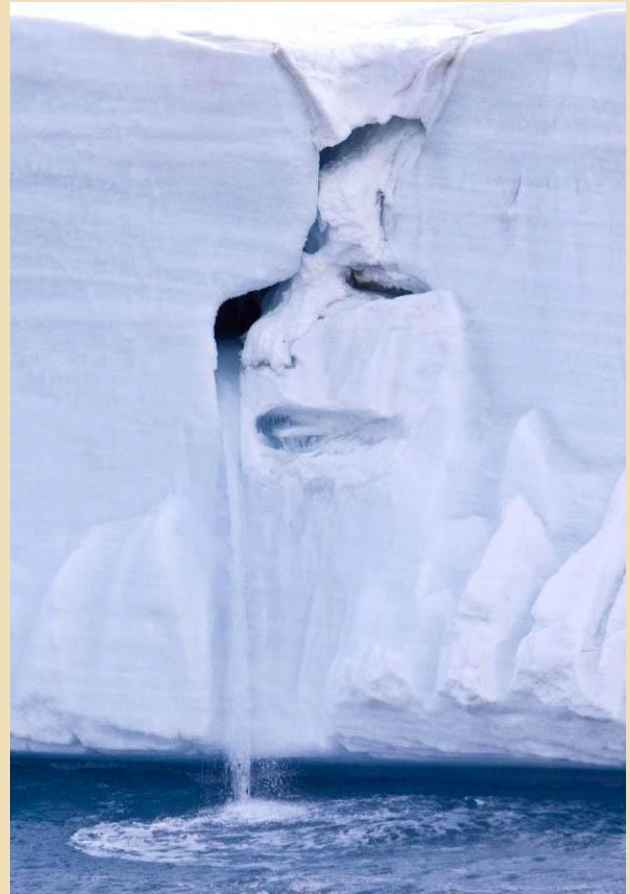
# StrepPRO

Rapid ID of Strep Grouping  
by Latex Agglutination.  
Includes Group D!



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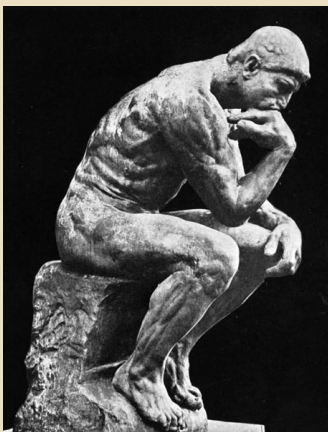
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Tears from a melting ice berg.

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

## RUBES



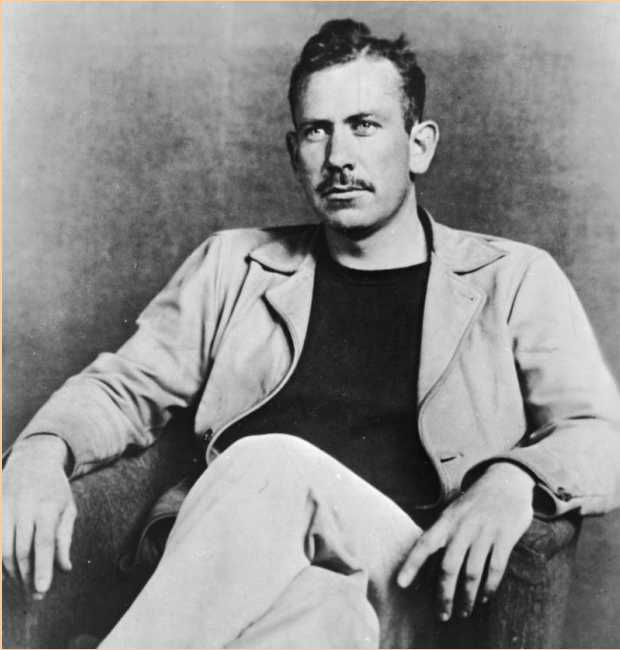
- I heard this rumor about margarine...but I was told not to spread it.
- How can you tell when you are running out of invisible ink?



- If you are traveling at the speed of light in your car, would your headlights work?
- If everything is coming your way, you are probably driving in the wrong lane.

\* \* \*

*Wisdom to Ponder...*



## John Steinbeck

1902 ~ 1968

*Nobel and Pulitzer prize winning American author who wrote such beloved novels as, The Grapes of Wrath, The Red Pony, Of Mice and Men, Tortilla Flat, Cannery Row, and East of Eden.*

"A sad soul can kill quicker than a germ."

"Ideas are like rabbits. You get a couple and learn how to handle them, and pretty soon you have a dozen."

"I am impelled, not to squeak like a grateful and apologetic mouse, but to roar like a lion out of pride in my profession."

"In utter loneliness a writer tries to explain the



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## Desperate Marketing



\* \* \*



In utter loneliness a writer tries to explain the inexplicable."

"No man really knows about other human beings. The best he can do is to suppose that they are like himself."

"Writers are a little below clowns and a little above trained seals."

"Men do change, and change comes like a little wind that ruffles the curtains at dawn, and it comes like the stealthy perfume of wildflowers hidden in the grass."

"No one wants advice - only corroboration."

\* \* \*



"Nah - I'm on a glutton-free diet."

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## Online Ordering Made Easy!



Watch a short video to learn how easy it is to order from Hardy on-line!

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

\* \* \*

## Did you know?



## Warning: PUN ZONE AHEAD



\* I thought I saw an eye doctor on an Alaskan island, but he turned out to be an optical Aleutian.

\* She was only a whiskey maker, but he loved her still.

\* A rubber band pistol was confiscated from





\* A rubber band pistol was confiscated from algebra class because it was a weapon of math disruption.

\* The butcher backed into the meat grinder and got a little behind in his work.

\* No matter how much you push the envelope, it'll still be stationery.

# # #

## Hardy Diagnostics...

- Manufactures over 2,700 microbiology products for you to choose from.
- Stocks over 13,000 laboratory products for your "one stop shop" experience.
- Is celebrating its 38th year of serving microbiologists.
- Manufactures from two ISO certified factories; one in California and one in Ohio.
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- Is ISO 13485 certified for the manufacture of medical devices to give you confidence in our products.
- Services over 10,000 labs and maintains a worldwide network of over 80 distributors.
- Is a 100% Employee-Owned company. *"If we act like we own the place...it's because we do!"*



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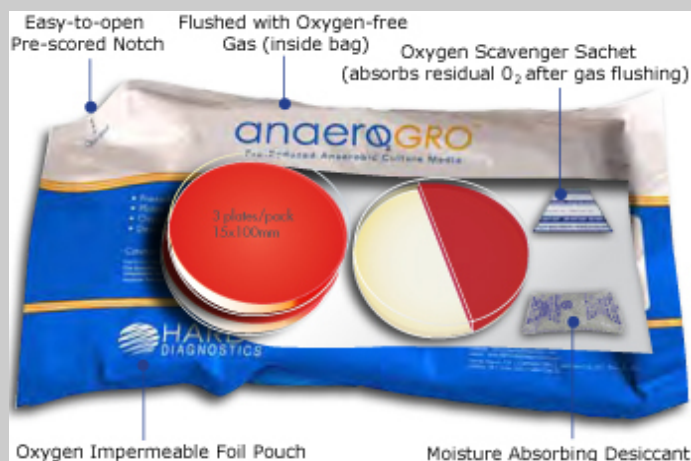
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# # #



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*To succeed in life,  
you need three things:  
a wishbone,  
a backbone  
and a funny bone.*

Reba McEntire

"As Hardy Diagnostics enters its 38th year of serving microbiologists in the laboratory, I would like to thank each of our customers for their support and loyalty. It truly has been a pleasure to serve you!

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

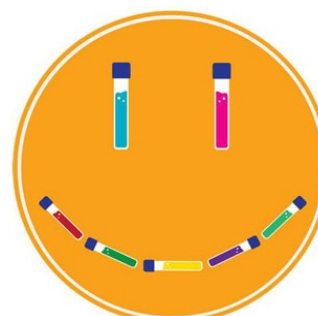
Jay Hardy, CLS, SM(NRCM)  
President  
HARDY DIAGNOSTICS

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With self driving vehicles becoming popular, it's only a matter of time before there is a country music song lamenting about a guy's truck leaving him.

# # #

