

[COVID Information Commons \(CIC\) Research Lightning Talk](#)

Transcript of a Presentation by Kollbe Ahn (ACATECHOL, INC.), April 14, 2021



Title: [SBIR Phase I: Virucidal surface coatings for prevention of COVID-19 transmission](#)

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Transcript

Kollbe Ahn:

*Slide 1*

So, my name is Kollbe Ahn. I'm a CEO of ACetachol and we are- I'm going to present what we- our research area, the project that we have funded by NSF SBIR [National Science Foundation Small Business Innovation Research].

*Slide 2*

Next please. Yeah and the- my company started in 2016 when I was a faculty at UC Santa Barbara, based on the surface treatment technology inspired by marine bio organisms and when pandemic started, next-

*Slide 3*

We thought we can help to address the pandemic by introducing our- by applying our surface treatment technology for many surfaces, because we can make anti-microbial surface to kill the viruses and bacteria on content continuously. And we know that CDC [Centers for Disease Control and Prevention] wasn't very helpful because they are also some, sort of, in the confusion, that they said we don't need mask in the beginning, but it's common sense that covering your face when you're coughing or when you're sick is absolutely common sense, but they were confusing. And they also said, we have to wash our hand more and they also we- they gave us a direction that we need to hand at least 20 seconds, but

they did not give us how to sanitize your hand with sanitizer. Because our core sanitizer are 80 percent in the U.S. and in the world used in this pandemic, but it's only effective when you keep your hands wet in our [core?] for 15 seconds. But most of the people use our core hand sanitizer and they apply it. After two seconds, they try to dry up because they don't want this right. Then your hand is not sanitized so - And contact transmission was one of the major route of this pandemic and infection, because you touch the surface after you touch in your face or eyes and it's just- but I think so- We, instead, try to, you know, explain to government officials or CDC, rather we decide to provide better product that people can use on their hand or as a disinfectant on the surface that the coating can kill virus and bacteria continuously, so that they don't need to worry about those instructions so. And also, before pandemic we have the pandemic, there were like more than hundreds and thousands of people died by secondary infection from hospital or from infected from friends and family. It was there. It wasn't- it's not new. It was there already and then, and we need to address these issues you know continuous. So next.

#### *Slide 4*

So, but current approach is for, you know, treat- those patients especially in ICU [intensive care unit] was using you know biocide releasing coating. There's potentially genotoxic and cytotoxic and also it takes longer time to kill germs. Another approach that people taking is cationic polymer coating that the people use right now and all the 24-hour protection disinfectant and sanitizers in the market uses this single charged cationic polymer coating, but I will show you the result layer is not very effective. So, our approach here was to provide much more effective and inexpensive surface coating, that is two charges: Gemini charges ammonium compound that is like orders of magnitude stronger higher surface activities than the state of the art. Next, please.

#### *Slide 5*

So, this is kind of cartoon image of how this surface coating- nano, like it's gonna be like, two to five nanometer thick coating, can break the membranes of cell membranes of virus, and envelopes of virus and cell membranes of viruses. Next.

#### *Slide 6*

So, we did some proof of concept studies that it shows that our coating can continue to kill the viruses and bacterias on the surface, and it makes the surface very hydrophilic. And next.

#### *Slide 7*

So, this is also other tests that we based on the AST [Antibiotic Susceptibility Testing] method Time-Kill Determination. You see that in 15 seconds, the Gemini coating can kill it completely in 15 seconds but 70 percent alcohol still leaves some bacteria on the surface. Next.

*Slide 8*

And 24-hour tests, alcohol you know once it evaporates, this is like porous textile products so it could still- some residue of alcohol remains on the surface for five minutes, so it's still effective. But once it evaporates completely, it then can't kill anything on the surface, but whereas I was saying that coating can kill for 24 hours. Next.

*Slide 9*

And you know it's even porous surface you see that it's multiplies. Next.

*Slide 10*

And this is non-porous surface such as glass, and plastic, and metals that they use for door handles, and surface countertop, and our coat evaporates in you know five to ten seconds and it loses its effectiveness. And in next.

*Slide 11*

And the comparison between ours and state of the art which is single charged ammonium coating that uses in airport and airplane, they- these days we use this coating, so you are safe for 24 hours. But the problem is, yeah, it is there was coating that can kill the germs and bacteria and viruses for 24 hours, but how long does it take to kill it? In five minute tests, it can't kill anything. Coronavirus- it only kills seventy percent of coronavirus for five minutes. So, yeah, if you wait for an hours, it will kill the virus but in those hours how many people will touch the surface? Like hundreds and thousands. Then you get all contact transmission occurs. So, compared to our new Gemini ammonium coated surface, it kills everything in five- 100 percent in five seconds. We need this kind of technology unless CDC provides much better you know instructions and interaction with how people will stop this transmission contact transmission. So next.

*Slide 12*

So, currently we are on working with some large distributor to distribute this technology and license out to some companies, but we're still looking for other strategic partners, also university, then we can do more- dive deep into you know into more test more viruses and bacteria to see if there's any other area that we can help with this coating technology, and next please, Helen.

*Slide 13*

So, the markets are huge and antimicrobial catheters alone is 40-billion-dollar market and disinfectant is like 10 billion, 5 billion, but it only goes up. So, there are lots of market- a huge market opportunity here. And next.

*Slide 14*

But more importantly, we can save lives with this and it's not just about SARS-CoV-2. It's more about upcoming dangerous and contagious diseases- infectious diseases. We can prevent those pandemics with this. Next.

*Slide 15*

This is our members of our team and there are actually one- the two people from Columbia University working with us so thank you, and I'll take any questions.