22 January 2010

Chem-Bio News

1. GERMAN SCIENTISTS DEVELOP FAST-ACTING GERM KILLER: *"The German formula works against a wide range of germs, including some that survive ordinary disinfectants, such as Mycobacterium avium bacteria which can cause a tuberculosis-type illness and enteroviruses that may cause polio."*

2. LLAMA PROTEINS COULD PLAY A VITAL ROLE IN THE WAR ON TERROR: *"Scientists at the Southwest Foundation for Biomedical Research (SFBR) have for the first time developed a highly sensitive means of detecting the seven types of botulinum neurotoxins (BoNTs) simultaneously."*

3. BERKELEY LAB AWARDED $12.8 MILLION IN STIMULUS FUNDS FOR HEALTH RESEARCH: *"The largest individual award is $4.2 million for a two-year research project to develop treatments for contamination by radioactive actinide particles, such as those from fallout from a nuclear accident or a so-called "dirty bomb."*

Chem-Demil News

1. TOOELE CHEMICAL AGENT DISPOSAL FACILITY - CONTROLLED DETONATION SYSTEM SELECTED TO DEAL WITH DIFFICULT MUNITIONS: *"More than 300 mustard-agent filled munitions will be destroyed using an Explosive Detonation Technology (EDT) called the DA VINCH. The DA VINCH, or Detonation of Ammunition in Vacuum Integrated Chamber, is a controlled detonation system developed for chemical weapons destruction."*

CB Daily Report

Chem-Bio News

GERMAN SCIENTISTS DEVELOP FAST-ACTING GERM KILLER
By Kate Kelland
Reuters
January 19, 2010

"Researchers from the Robert Koch Institute in Berlin said they had developed a fast-acting, practical formula which would kill germs on surgical instruments without damaging them through corrosion."

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"The German formula works against a wide range of germs, including some that survive ordinary disinfectants, such as Mycobacterium avium bacteria which can cause a tuberculosis-type illness and enteroviruses that may cause polio."

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"In previous studies, the German team found a simple alkaline detergent that could eradicate prions -- disease-causing proteins that are particularly hard to get rid of because they can become fixed onto surfaces through the use of some conventional disinfectants.

In their new study, Michael Beekes and Martin Mielke from the Institute's hygiene department mixed the alkaline with varying amounts of alcohol and tested its ability to rid surgical instruments of bacteria, viruses and fungi and prions. They found that a mixture with 20 percent alcohol was best."

The full article can be found at: http://www.reuters.com/article/idUSTRE60J00U20100120
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LLAMA PROTEINS COULD PLAY A VITAL ROLE IN THE WAR ON TERROR
ScienceDaily
January 21, 2010

"Scientists at the Southwest Foundation for Biomedical Research (SFBR) have for the first time developed a highly sensitive means of detecting the seven types of botulinum neurotoxins (BoNTs) simultaneously."

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"The llama antibodies, called single domain antibodies (sdAb) or "nanobodies," are molecularly flexible, unlike conventional antibodies. "As such, sdAb may allow biosensors to be regenerable and used over and over without loss of activity. Also, for some types of BoNT, conventional antibodies are not generally available and we are filling this biosecurity gap," said Andrew Hayhurst, Ph.D., an SFBR virologist. Since some sdAb have been shown to have inhibitory activity and can block toxin function, they may play a role as part of a future anti-botulism treatment.

The new work, funded by the Defense Department's Defense Threat Reduction Agency Medical Diagnostics Program, is described in the Jan. 21 issue of the journal PLoS ONE."

The full article can be found at: http://www.sciencedaily.com/releases/2010/01/100120211009.htm
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BERKELEY LAB AWARDED $12.8 MILLION IN STIMULUS FUNDS FOR HEALTH RESEARCH
US DOE – Lawrence Berkeley National Lab Press Release
January 19, 2010

"The largest individual award is $4.2 million for a two-year research project to develop treatments for contamination by radioactive actinide particles, such as those from fallout from a nuclear accident or a so-called "dirty bomb." Berkeley Lab's Glenn T. Seaborg Center (GTSC) has been working for years on oral therapeutics to treat internal actinide contamination, and this work has taken on more urgency in recent years as threats of nuclear terrorism have become more plausible. Previously, the main at-risk population had been nuclear power plant and defense workers.

The only existing method of mitigating risks of actinide contamination is a treatment developed in the 1950s that must be given through an injection, which would not be viable in a situation where residents of an entire metropolitan area must be injected in a matter of hours. Further, this agent, known as DTPA, is effective only on a few actinides.

Two molecules that have been developed at Berkeley Lab to sequester actinides can target a much wider range of actinides, the most well-known of which are uranium and plutonium. Contamination can cause acute cellular and tissue damage leading to cancer. Berkeley Lab's compounds would help excrete up to 90 percent of the radioactive particles within 24 hours, and given doses over subsequent days, nearly complete excretion is possible, the researchers say.

"The ARRA funding will enable us to proceed with pre-clinical development of two compounds that have been designed and tested," says scientist Rebecca Abergel. "They are very promising. We have not observed major toxicity issues, and the efficacy is in the range we want it to be. What we want to accomplish in the next two years is to gather data to get approval from the Food and Drug Administration."

The Berkeley Lab research group, led by GTSC Director Kenneth Raymond, will partner with SRI International and the Lovelace Respiratory Research Institute to conduct testing, including toxicology and pharmacology tests, with the goal of filing an investigational new drug application with the FDA in two years."

The full article can be found at: http://newscenter.lbl.gov/news-releases/2010/01/19/berkeley-lab-awarded-12-8-million-in-stimulus-funds-for-health-research/
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Chem-Demil News

TOOELE CHEMICAL AGENT DISPOSAL FACILITY - CONTROLLED DETONATION SYSTEM SELECTED TO DEAL WITH DIFFICULT MUNITIONS
US Army Chemical Materials Agency Monthly Update
January 21, 2010

"More than 300 mustard-agent filled munitions will be destroyed using an Explosive Detonation Technology (EDT) called the DA VINCH. The DA VINCH, or Detonation of Ammunition in Vacuum Integrated Chamber, is a controlled detonation system developed for chemical weapons destruction.

The mustard agent-filled munitions that are slated for destruction in the explosive chamber include those that have previously leaked and now are safely stored in overpack containers and "reject" munitions – those munitions that are badly deteriorated and/or have stuck explosive components. The reject munitions could be processed at the TOCDF, but it would be time consuming and it would pose a greater safety risk for employees.

"Without this system, workers would be required to manually remove the overpacked munitions or cut away the stuck bursters. The DA VINCH provides a safer destruction option for these munitions," said Jim Grgich, EDT project manager.

Approximately 200 155mm reject projectiles and 130 4.2-inch leaking mortars will be destroyed using the DA VINCH; the majority of DCD's 155mm projectile stockpile—more than 54,000—was transported from the storage area to TOCDF and destroyed.

"Based on our experience, we also expect to find a handful of reject 4.2-inch mortars that will also need to be processed in the DA VINCH," said Grgich.

As TOCDF officials evaluated the various EDTs available, they concluded that the DA VINCH would be the best match for this project. The system has an established track record of safely destroying thousands of recovered chemical warfare munitions and has the most experience in destroying mustard agent-filled munitions.

The DA VINCH is currently in operation in Lake Kanda, Japan, where it is being used to destroy recovered yellow and red bombs, and in Poelkapelle, Belgium, where it is destroying approximately 3500 recovered World War II chemical agent-filled munitions.

Prior to destruction in the explosive detonation chamber, each munition at DCD will be x-rayed. An x-ray machine will be set up in two separate igloos where the reject and overpacked munitions are currently stored. Versar/Kobe Steel, owners and operators of the DA VINCH system, have requested the x-rays to help them gain a better understanding of each tricky munition.

"They're looking for heel content...they'll be looking at the packaging material...anything that can help them do their job better," said Grgich. The x-raying of each reject and overpacked munition is expected

to start late next month and should take approximately 11 weeks to complete.

The DA VINCH detonation chamber will also be located in DCD's Area 10. Site preparation will begin this summer and, following state approval, operations are expected to start in February 2011.

The full article can be found at: http://www.cma.army.mil/include/docrendition.asp?DocID=003682230
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