



PRESS RELEASE

U.S. Army funds TNO, and to-BBB to investigate protecting soldier's brains from nerve agents

Leiden, May 12th 2009

TNO and to-BBB, the Dutch brain drug delivery company, join their forces to investigate “Enrichment of the blood-brain barrier (BBB) and brain with the nerve agent bioscavenger HuBuChE to improve its antidotal efficacy”. The research project is funded by the U.S. Army Medical Research Institute of Chemical Defense (USAMRICD) with a \$470k contract to the TNO.

USAMRICD funds the TNO for its expertise in medical countermeasures and unique capacity of producing radioactively labeled nerve agents in a secured facility in the Netherlands and its subcontractor to-BBB for its leadership in the safe delivery of different compounds of choice across the blood-brain barrier into the brain. The two organizations will evaluate if the brain-targeted formulation of the existing nerve agent bioscavenger “Human ButyrylCholinesterase (HuBuChE)” can prevent the lethal effects of a nerve gas attack.

To do so it is crucial that the nerve agent scavenger is enabled to cross the human blood-brain barrier and penetrate into all parts of the brain since the toxic mechanism of action of chemical nerve agents occurs within the central nervous system (CNS).

Director Gerben Klein Baltink of TNO Defence, Security and Safety states: “This important contract stipulates the excellence of TNO’s expertise and facilities in this research area. The valuable cooperation between to-BBB and TNO, both having complementary capabilities, is essential to perform this contract. It is an example of TNO’s strategy to carry out these projects with partnering Dutch companies.”

“If successful our strategy could provide better protection against nerve agent toxicity and will likely prolong the retention of the bioscavenger in the body” says dr Herman van Helden, projectleader of TNO. “We want to approach this research effort by merging the state-of-the-art technologies of to-BBB and TNO to support USAMRICD’s experts in bioscavengers.”

“It is rewarding to support TNO and USAMRICD with our brain drug delivery expertise in this exciting collaboration” says Pieter Gaillard, CSO of to-BBB. “This proof-of-concept study in a biosafety setting will also further strengthen our platform technology. Expanding the U.S. Army collaboration into the directions of after-attack treatments and clinical assessments could become our next steps in the biosafety area.”

About TNO

TNO is a prominent, independent knowledge company whose expertise and research contributes significantly to the competitiveness of businesses and organizations, to the economy and to the quality of life as a whole. Versatility and capacity to integrate this knowledge makes TNO unique. TNO employs some 4500 professionals.

TNO operates in five core areas: TNO Quality of Life, TNO Defence, Security and Safety, TNO Science and Industry, TNO Built Environment and Geosciences and TNO Information and Communication Technology.

About to-BBB

to-BBB is a Dutch biotechnology company in the field of drug delivery to the brain which uses its platform technologies to synergize with established and marketed drugs. to-BBB's vision is that the treatment of currently unserved brain diseases will be best achieved by targeting to endogenous blood-to-brain uptake systems for the delivery of drugs. The company will be flexible, open-minded and collaborative in developing treatments for devastating brain disorders by combining existing drugs with proprietary drug targeting technologies.

to-BBB is headquartered in The Netherlands at the Leiden Bio Science Park and established a fully owned subsidiary, to-BBB Taiwan Ltd., in Taipei, Taiwan.

Contact

Dr Herman PM van Helden
Projectleader
CBRN Protection

Phone: +31 15 284 3240
E-mail: herman.vanhelden@tno.nl

Pieter Gaillard, PhD
Chief Scientific Officer

Phone: +31 71 3322251
Mobile: +31 621 525000
E-mail: gaillard@toBBB.com

TNO
Lange Kleiweg 137
Postbus 45
2280 AA Rijswijk
The Netherlands
www.tno.nl

to-BBB technologies BV
Niels Bohrweg 11, 2333 CA Leiden
BioScience Park Leiden
Bio Partner Center II
The Netherlands
www.toBBB.com

Note: The U.S. Army Medical Research Acquisition Activity, 820 Chandler Street, Fort Detrick MD 21702-5014 is the awarding and administering acquisition office for this contract W81XWH-08-0251. The content of this press release does not necessarily reflect the position or the policy of the U.S. Government, and no official endorsement should be inferred.