

Department of Biomedical Sciences  
presents a departmental seminar



# “Efficacy and Safety of an Aerosolized Recombinant Butyrylcholinesterase Pretreatment against Inhaled Organophosphate Toxicity”

**Date :** 23 March 2017

**Time:** 3pm to 4:30pm

**Venue:** 1B-G04, G/F, Block 1, To Yuen Building, City University of Hong Kong

**Dr Yvonne J. Rosenberg**  
**Founder/CEO/CSO**  
**PlantVax Inc.**

## Abstract

Recent sarin use in Syria, pesticide use by terrorist in Afghanistan and the >5 billion lbs of pesticides for agricultural purposes used annually highlight the urgent need for an antidote to protect against organophosphate (OP) toxicity. Although the efficacy of plasma-derived BChE prophylaxis in animals against multiple LD50s of nerve agents is well established, limited availability and high cost of the large doses required for protection, have led to a focus on a rHuBChE countermeasure. However, delivery of rHuBChE by parenteral (i.v., i.m., s.c.) injection results in less than optimal pharmacokinetics. PlantVax has thus taken an alternate approach by developing an aerosolized aer-rHuBChE pretreatment to prevent neurotoxicity associated with inhaled nerve agent and pesticide (OP) exposure. This takes advantage of the fact that aer-rBChE molecules are too large to exit the lung and instead form a “pulmonary bioshield” that can scavenge incoming (inhaled) OPs in situ preventing their entry into the systemic circulation and inhibition of cholinesterases in blood and brain and ensuing neuro- and respiratory toxicity. To date, protection by aer-rHuBChE delivered using a nebulizer has been demonstrated in macaques against 330ug of inhaled paraoxon in macaques given four days after the pretreatment. In addition, a post-exposure IM treatment with the oxime RS194B was able to effect reversal of severe clinical symptoms and survival in macaques which received substoichiometric doses of aer-rHuBChE 24 hr prior to exposure with 50ug/kg sarin vapor.

## About the speaker

Dr Rosenberg graduated with B.Sc. Hons from the University of Queensland in Parasitology and received her PH.D from Australian National University in immunology. She performed postdoctoral research at the National Institutes of Health in MD, USA and the National Institute for Medical Research, London. She co-founded ProCell Inc and is currently Founder/CEO/CSO of PlantVax Inc. Her field of research is the development of recombinant therapeutic and vaccine candidates using plant and CHO-expression systems for protection against nerve agents and to prevent/control HIV transmission from mother to child. Plant production of recombinant protein for use in devices for the detection of nerve agents and pesticides

Contact

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**All are welcome!**