

Collaboration Leads to Repurposing an Existing Drug to Treat VX Poisoning

Collaborations Pharmaceuticals and Battelle published a new paper which demonstrated that an FDA approved drug may help in VX poisoning.

RALEIGH, NORTH CAROLINA, USA, April 11, 2024 /EINPresswire.com/ -- VX is an organophosphate acetylcholinesterase (AChE) inhibitor that is one of the most toxic inhibitors known. The metabolism of VX in humans is also not currently well understood. A collaboration between researchers from Battelle Memorial Institute and Collaborations Pharmaceuticals, Inc (CPI) has recently led to a published paper entitled "In vitro Characterization and Rescue of VX Metabolism in Human Liver Microsomes". This has helped shed light on the metabolism of VX and led to the identification of a potential treatment.

"Using in vitro methods with human liver microsomes, our groups have now characterized the metabolism of VX and the formation of multiple metabolites. We have also identified an FDA-approved drug (EDTA) that enhances the metabolism of VX so it could be cleared quicker. This could point to a potential in vivo strategy to treat patients and rescue those poisoned by VX exposure which may also represent a drug to be used alongside existing treatments" said Dr. Sean Ekins, CEO [Collaborations Pharmaceuticals, Inc.](#)

"While there has been the previous description of the involvement of several different enzymes in the metabolism of VX, there has been lesser interest in Cytochrome P450s. We now show that multiple enzymes may be involved including P450s (as these were inhibited with a broad spectrum P450 inhibitor) and possibly hydrolases."

EDTA is a well-known chelating agent that is FDA approved to treat lead poisoning. While we are



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yet to test the effect of this drug in animal models, the availability of an already FDA approved agent may provide a valuable addition and another option to our current treatment regimen for VX exposure.”

About this work

Thomas R. Lane, David Koebel, Eric Lucas, Robert Moyer and Sean Ekins. In vitro Characterization and Rescue of VX Metabolism in Human Liver Microsomes, Drug Metabolism Disposition
<https://dmd.aspetjournals.org/content/early/2024/04/09/dmd.124.001695>

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A provisional patent has been filed on this work.

About Collaborations Pharmaceuticals, Inc.

Collaborations Pharmaceuticals, Inc.[®] (CPI) performs research and development on innovative therapeutics and has a preclinical pipeline of treatments for rare and neglected diseases. In addition, CPI has developed software for data curation and machine learning called Assay Central[®] (www.assaycentral.org) as well as curated model bundles in MegaTox[®], MegaTrans[®] and MegaPredict[®]. Most recently we have developed generative software called MegaSyn and UV-adVISor for predicting UV-Vis spectra for small molecules. CPI is located in laboratories in the NC State Incubator at the Centennial campus. We have considerable experience with preclinical and computational approaches to drug discovery and toxicity prediction. For more information, please visit <http://www.collaborationspharma.com/>

About Battelle

Every day, the people of Battelle apply science and technology to solving what matters most. At major technology centers and national laboratories around the world, Battelle conducts research and development, designs and manufactures products, and delivers critical services for government and commercial customers. Headquartered in Columbus, Ohio since its founding in 1929, Battelle serves the national security, health and life sciences, and energy and environmental industries. For more information, visit www.battelle.org.

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