

Toxic Metals in Soldiers' Lungs From Burn Pit Exposure



President Biden signed into law the Inflation Reduction Act on August 10, 2022 – bipartisan legislation to help veterans exposed to toxic burn pits in Iraq and Afghanistan (S. Silbiger, Washington Post).

T, Olsen, D. Caruana, K. Cheslack-Postava, A. Szema, J. Thieme, A. Kiss, M. Singh, G. Smith, S. McClain, T. Glotch, M. Esposito, R. Promisloff, D. Ng, X. He, M. Egeblad, R. Kew, A. Szema. Iraq/Afghanistan war lung injury reflects burn pits exposure. *Sci Rep* **12**, 14671.

Work was performed in part at NSLS-II at Brookhaven National Lab.

Scientific Achievement

Scientists showed that oxidized titanium and iron accumulated in the lungs of war veterans after exposure to burn pits in Iraq and Afghanistan, likely contributing to chronic lung injury.

Significance and Impact

As a result of this study and many others, legislation was passed in August 2022 that provides expanded benefits and services for these war veterans.

Research Details

- Radiologic imaging and non-invasive lung diagnostic testing showed constricted airways and lung fibrosis developed years after the exposure.
- Biopsies from these soldiers' lungs were examined with X-ray fluorescence microscopy at the NSLS-II SRX beamline.
- Raman spectroscopy also showed cancer-causing polycyclic aromatic hydrocarbons (PAHs) in the tissue.