

Metabolite analysis IDs pathways associated with WTC-lung injury

September 7 2018



(HealthDay)—Machine learning approaches to metabolite analysis can

predict key pathways contributing to lung function loss associated with World Trade Center Lung Injury (WTC-LI), according to a small study published online Sept. 3 in *BMJ Open Respiratory Research*.

George Crowley, from New York University in New York City, and colleagues quantified the metabolome of serum for never-smoking, male, WTC-exposed firefighters with normal pre-9/11 lung function, drawn within six months after 9/11. Cases of WTC-LI (forced expiratory volume in 1s

The researchers found that 580 metabolites qualified for random forests analysis. A refined metabolite profile correctly classified subjects with a 93.3 percent success rate. Within the refined profile, five clusters of metabolites emerged with prominent subpathways, including known mediators of [lung](#) disease such as sphingolipids (elevated in cases of WTC-LI), and branched-chain amino acids (reduced in cases of WTC-LI). Two-thirds (68.3 percent) of the variance in the five components was explained with principal component analysis of the refined profile, demonstrating class separation.

"Since metabolites are proximal markers of disease processes, metabolites could capture the complexity of past exposures and better inform treatment," the authors write.

More information: [Abstract/Full Text](#)

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Citation: Metabolite analysis IDs pathways associated with WTC-lung injury (2018, September 7) retrieved 13 May 2024 from <https://medicalxpress.com/news/2018-09-metabolite-analysis-ids-pathways-wtc-lung.html>

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