WashU

Office of Technology Management

# IP-10 AS A BLOOD BIOMARKER OF RESPIRATORY FAILURE

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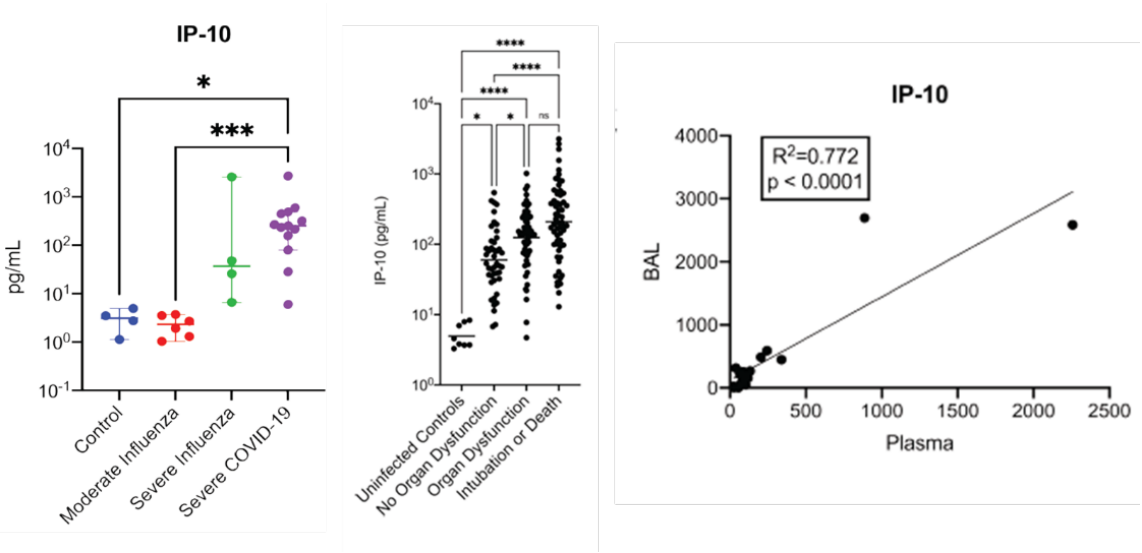
**Technology Description**

Researchers in Philip Mudd's lab at Washington University have developed a blood biomarker test that detects impending respiratory failure before existing diagnostics. High levels of the biomarker IP-10 in the blood are correlated with the subsequent development of acute respiratory disease syndrome (ARDS) in patients with severe viral pneumonia.

Current clinical tools can detect ARDS as it is occurring but not early enough to intervene with preventative measures. Other cytokines have been correlated with ARDS, but their measurement requires a bronchoalveolar lavage (BAL) instead of a blood test.




*(Left) IP-10 levels in patient BAL samples correlated with more severe viral pneumonia. (Middle) IP-10 levels in plasma within 48 hours of hospital admission correlated with organ dysfunction and death. (Right) IP-10 levels in plasma and BAL were correlated.*

**Stage of Research**

The researchers identified IP-10 levels in the blood as a potential biomarker for ARDS in a cohort of 17 patients with severe viral pneumonia. The biomarker was then validated in a separate cohort of 168 patients with COVID-19, where it predicted organ dysfunction, intubation and death.

**Publications**

- Reynolds D, Vazquez Guillamet C, Day A, ... Mudd PA. (2021). Comprehensive immunologic evaluation of bronchoalveolar lavage samples from human patients with moderate and severe seasonal influenza and severe COVID-19. *Journal of Immunology*, 207: 1229-1238.

**Applications**

- Viral pneumonia
  - Influenza
  - COVID-19

**Key Advantages**

- Detects acute respiratory disease syndrome (ARDS) earlier than current diagnostics
- Requires only blood test instead of bronchoalveolar lavage (BAL)

**Related Web Links:** Mudd Profile