

TIMOTHY A. JOHNSON MEDICAL SCHOLAR LECTURE SERIES

Presented by the Fralin Biomedical Research Institute at VTC and the Virginia Tech Carilion School of Medicine



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Virulence (Harmfulness) – A Matchless Web of Dynamic Interactions Between Microbes and Host Cells

Virulence, or harmfulness to a host, is a property of neither the infecting pathogen nor the host but rather of their interaction. Postoperative infection-related complications (e.g., wound infections, pneumonia, bacteremia, anastomotic leak, and abscess formation), be they a result of an acute process requiring emergency surgery or a result of elective surgery, involve pre-operative anxiety; a period of inanition (e.g., no food after midnight and for the first few days after the initial injury); exposure to antibiotics, general anesthetics, and opioids; and confinement in a microbially hostile environment (e.g., a hospital). In the aggregate, these exposures not only deplete the body of its microbiota and the metabolites they produce that drive a recovery-directed immune response, but also allow epithelial surfaces (e.g., skin, lung, gut, etc.) to become colonized by harm-producing pathobiota. Both the loss of the colonization resistance of the microbiota needed to competitively exclude the pathobiota and the loss of the microbiota's metabolites that drive a recovery-directed immune response contribute to infection-related complications following acute injury. A view of the hologenome (i.e., all genomes, be they microbial or host-derived) that demonstrates how dense dynamic interactions form between the microbiota, the pathobiota and the host cells will be molecularly detailed.

TUESDAY, MAY 6, at 5:30 p.m.

Room M203, 2 Riverside Circle.
Watch via Zoom at <https://fralinbiomed.info/MedScholar-Join>.

