Chemokine Profiling of Vaginal Epithelial Cells Exposed to Gardnerella Vaginalis

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**Introduction**

*Gardnerella vaginalis* (GV) is associated with bacterial vaginosis (BV) and when present in abundance, causes a dysbiosis characterized by increased pH, presence of clue cells, malodorous discharge, and a diversity of bacterial species other than *Lactobacillus*. BV predisposes to preterm labor and increased susceptibility to sexually transmitted infections. The potential role of cytokines elaborated by the vaginal epithelium may impact BV symptoms and hence, is the topic of this research.

**Methods**

We hypothesized that host-derived chemokine expression will correlate with Nugent (Gram stain species diversity) severity scores obtained from women with GV colonization.

- VECs grown in KSF
- GV strains grown on V agar
- Both incubated @ 37 C in 5% CO2 & collected in culture overnight (24-48 hrs)

- VECs exposed to various clinically isolated strains
- 10 μL aliquots of GV inoculated into confluent cultures of VECs, uninfected VECs = control
- Incubated for 24 hrs → culture medium collected & centrifuged
- 100 μL aliquots of supernatant → applied to chemokine assay membrane
- Chemokine profiling 36 assays (Proteome Profiler Human Cytokine Array R&D Systems Minneapolis, MN)

- Performed via PCR → primers tested against each GV strain
- Qualitative & Quantitative result used to assign clade to strain

**Results**

Membrane profiling results showed that 23 cytokines and chemokines were variously upregulated following exposure of VECs to GV, while others are down-regulated relative to the control. Continued investigation will attempt to correlate Nugent scores and placement of strains into clades 1-4.

**Representative Images of Cytokine Arrays**

**Conclusions**

Our results indicate that co-culture with GV induces release of numerous chemokines from VECs. Future work will determine if these chemokines signal in an autocrine/paracrine manner and/or participate in the recruitment and activation of immune cells in response to GV colonization.

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