

# PROJECT SNAPSHOT

## 4D: Identification Of Novel Group B Streptococcal Proteins Associated With Virulence

Pillar: Prevention of Transmission

Theme: Innovation and Commercialization

Keywords: Group B Streptococcus; Virulence; Antibiotic Resistance



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### AIM

- 1 Identify and characterize novel GBS proteins involved in virulence. Identification of novel GBS proteins will be explored as potential GBS vaccine candidates.
- 2 Understand GBS macrolide resistance in Alberta and the mechanisms associated with this resistance.

### WHY IS THIS IMPORTANT?

GBS causes invasive disease in both adults and neonates; however, it is in the neonate that the invasive disease is the most devastating. Understanding the mechanisms involved in GBS pathogenesis will allow for novel targeted therapies to be developed.

### OUTCOMES

- 1 Identification of novel GBS proteins associated with virulence (two proteins have already been identified).
- 2 Determination if identified proteins are protective in an animal model of disease.
- 3 Publication of GBS antibiotic resistance rates for Alberta with updated recommendations for antibiotic prophylaxis for pregnant women.

### RESEARCH QUESTIONS

- 1 Are there novel GBS proteins associated with virulence that have the potential to be protective vaccine candidates in animal models?
- 2 What are the current rates of antibiotic resistance in GBS, most notably erythromycin and clindamycin resistance rates, and do these rates warrant recommendation changes in Alberta?

### OUR APPROACH

Our approach will be three-fold:

- 1 Mutagenesis and mass spectroscopy
- 2 In vitro and in vivo virulence assays
- 3 Antimicrobial susceptibility assays and PCR for detection of genes associated with resistance

### ALIGNMENT WITH THE AMR - ONE HEALTH CONSORTIUM

### LEVERAGED SOURCES OF SUPPORT

Alberta Precision Laboratories-Public Health (ProvLab) • Canada Foundation for Innovation • Tyrrell - General Research Funds

### KNOWLEDGE & TECHNOLOGY EXCHANGE AND EXPLOITATION

- Input of funds will help in identifying potential new targets for preventing invasive GBS disease.
- In addition, funds will help in identifying whether GBS antibiotic prophylaxis recommendations need to be adjusted in Alberta.

### TRAINING OF HIGHLY QUALIFIED PERSONNEL

- 1 Postdoc Fellow
- PhD

### AFFILIATIONS:

