PROJECT SNAPSHOT

4E: Understanding the Epidemiology of Invasive StrepA in Alberta Leading to the Development of Novel Therapeutic and Prevention Strategies

Pillar: Prevention of Transmission

Theme: Innovation and Commercialization

Keywords: Invasive StrepA

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CO-INVESTIGATOR(S): Matthew Croxen, PhD

AIM

We will develop a clear understanding of the epidemiology of invasive Group A streptococcal disease in Alberta. We will understand the circulating strains, their antibiotic resistance, their toxin profiles, and the populations most severly affected. This information will aid in laying the ground work for a vaccine trail in 2020.

WHY IS THIS IMPORTANT?

This information is important in guiding a planned StrepA vaccine trail and in trailing new experimental therapies for invasive Group A streptococcal disease.

OUTCOMES

This work will provide the needed information to generate targeted tools such as specific antibodies against these StrepA proteins thereby potentially treating invasive StrepA disease.

RESEARCH QUESTIONS

1. Of the various StrepA emm types circulating in Alberta, how close of a match are they to current experimental vaccines?
2. What are the superantigen toxin profiles of circulating StrepA in Alberta?
3. In addition to the above, have the antibiotic resistance rates of StrepA changed significantly in the last 10 years, focusing on erythromycin and clindamycin resistance?

OUR APPROACH

1. Whole genome sequencing of circulating invasive StrepA isolates.
2. Bioinformatics analysis of genomic data for StrepA isolates.
3. Determination of erythromycin and clindamycin susceptibility rates in Alberta and identification of mechanisms utilizing bioinformatics data.
4. Clinical trail of an experimental StrepA vaccine in early 2020.

ALIGNMENT WITH THE AMR - ONE HEALTH CONSORTIUM

LEVERAGED SOURCES OF SUPPORT

Alberta Precision Laboratories-Public Health (ProvLab) • Li Ka Shing Institute •Tyrrell - General Research Funds

KNOWLEDGE & TECHNOLOGY EXCHANGE AND EXPLOITATION

- Will provide much needed data regarding the recent increase in the rates of iStrepA in Alberta..
- Will lead to new therapuetic stratgies for the treatment and prevention of iStrepA disease.

TRAINING OF HIGHLY QUALIFIED PERSONNEL

- Currently recruiting one PhD student.

AFFILIATIONS:

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