

# Serotyping, Invasiveness and Proteomic Analysis of Group B Streptococcus

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## Abstract:

*Streptococcus agalactiae*, or GBS, is important opportunistic neonatal pathogen worldwide and is causative agent of postpartum infection and as the most common cause of neonatal sepsis. To evaluate the prevalence of GBS colonization in a developing country, a prospective study was performed in India. We have found serotype Ia and III as the prevalent serotypes followed by serotype II. In addition, serotype VII and V was also identified. The present study also focused towards invasiveness and adherence of the most prevalent and less prevalent GBS in India. The purpose of this study was to examine the interactions between Indian GBS serotypes and human epithelial cell lines. The interactions of GBS with A549 and ME-180 cells were explored. Data from interaction studies revealed that type Ia is most invasive as well adhered to A549 cells while type V has shown to be less invasive and adhered for A549 cells. Interestingly for ME-180 cells type V was found to be more adhered while type VII was more invasive. Minimum adherence and invasion was shown by type VII and Ia. Pili protein expression study was carried to check the regulation of pili expression in GBS. In the whole cell blot screening method for detection of pili on bacterial cell surface it was found that out of three (PI-1; PI-2a and PI-2b) at least one pili protein is present in each serotypes. Another aim of the present study to figure out any differences in the expression pattern of pili protein in geographical different GBS isolates as well as at genetic level (using two component mutants) and no difference was found at this level. To prove their role in invasion, inhibition assay was performed. We have found that GBS invasion was inhibited by pili protein specific antisera and a maximum inhibition was found in case of type V was 63 % by GBS67 pili protein antisera. We proposed that these identified pili proteins in the present study can be used as a vaccine candidate against GBS of Indian origin thus in turn present work supports the idea of making a more effective pili protein based vaccine against GBS which can be used universally.