

**The expression of virulence genes in Group B Streptococcus isolated from symptomatic pregnant women with term and preterm delivery.**

Ayesha Bahez<sup>1</sup>, Hanan H. Wahid<sup>1\*</sup>, Fatin N. Anahar<sup>1</sup>, Puteri F. D. Mustapha R.<sup>1</sup>, Mohammed I.A. Mustafa M.<sup>1</sup>, Hamizah Ismail<sup>2</sup>,

<sup>1</sup>Department of Basic Medical Science, Kulliyyah of Medicine, International Islamic University Malaysia, (IIUM), Jalan Sultan Ahmad Shah, Kuantan, Pahang, 25200

Author<sup>1</sup> e-mail: [ayeshabahez@iium.edu.my](mailto:ayeshabahez@iium.edu.my)

<sup>1</sup>Department of Basic Medical Science, Kulliyyah of Medicine, International Islamic University Malaysia, (IIUM), Jalan Sultan Ahmad Shah, Kuantan, Pahang, 25200

Author<sup>2</sup> e-mail: [hananwahid@iium.edu.my](mailto:hananwahid@iium.edu.my)

<sup>1</sup>Department of Basic Medical Science, Kulliyyah of Medicine, International Islamic University Malaysia, (IIUM), Jalan Sultan Ahmad Shah, Kuantan, Pahang, 25200

Author<sup>3</sup> e-mail: [fatinanahar@gmail.com](mailto:fatinanahar@gmail.com)

<sup>1</sup>Department of Basic Medical Science, Kulliyyah of Medicine, International Islamic University Malaysia, (IIUM), Jalan Sultan Ahmad Shah, Kuantan, Pahang, 25200

Author<sup>4</sup> e-mail: [puterifaradiba91@hotmail.com](mailto:puterifaradiba91@hotmail.com)

<sup>1</sup>Department of Basic Medical Science, Kulliyyah of Medicine, International Islamic University Malaysia, (IIUM), Jalan Sultan Ahmad Shah, Kuantan, Pahang, 25200

Author<sup>5</sup> e-mail: [imad@iium.edu.my](mailto:imad@iium.edu.my)

<sup>2</sup>Department of Obstetrics & Gynaecology, Kulliyyah of Medicine, International Islamic University Malaysia, (IIUM), Jalan Sultan Ahmad Shah, Kuantan, Pahang, 25200

Author<sup>6</sup> e-mail: [ihamizah@iium.edu.my](mailto:ihamizah@iium.edu.my)

\*Corresponding author: [hananwahid@iium.edu.my](mailto:hananwahid@iium.edu.my)

During pregnancy, group B streptococcus (GBS) colonization is one of the risk factors for preterm delivery and neonatal infections. Previous studies have revealed the crucial roles of GBS virulence factors including hemolytic pigment (*CylE*), hyaluronidase (*HylB*), serine rich protein (*Srr*) and bacterial surface adhesion of GBS (*BsaB*) in mediating GBS colonization and intrauterine ascending infection, that triggers preterm delivery. The aim of this study is to investigate the association between mRNA expression of virulence genes in GBS isolates obtained from symptomatic pregnant women and preterm delivery.

GBS isolates were obtained from high vaginal swabs of pregnant women (n=40) with gestational age less than 37 weeks and symptoms including preterm labour, preterm premature rupture of membrane (pPROM), vaginal discharge and vaginal bleeding. RNA was extracted from these GBS isolates and RT-qPCR was performed to determine the relative mRNA expression of GBS virulence genes including *CylE*, *HylB*, *Srr* and *BsaB*.

Women with preterm labour and pPROM who delivered prematurely were demonstrated with higher expression of *CylE* gene and a trend towards an increased expression of *HylB* gene, in comparison to women with term delivery. The expression of *Srr* and *BsaB* genes were both similar between symptomatic pregnant women who delivered at term and prematurely.

These results suggest that following vaginal colonization, both *CylE* and *HylB* genes possibly contribute to intrauterine ascending infection and inflammation, causing preterm delivery in humans. These virulence factors may be targeted for the pre-clinical stages of vaccine development or therapeutic intervention.