

## **Immunological Changes in the Choriodecidua, Placenta and Amnion in Preterm Deliveries Secondary to Chorioamnionitis**

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### **Background:**

The choriodecidua (CD) is a highly immunologically active, yet largely overlooked gestational tissue of research<sup>1</sup>. Previous studies have demonstrated a significant increase in macrophage infiltration in CD in days prior to labour<sup>2</sup>, which precedes changes in the myometrium. Better understanding of the immunological changes of the CD in context of the surrounding tissues' immunology, may help identify a potential target for therapy.

### **Methods:**

Matched samples (CD, amnion, placenta) were collected from patients who underwent non-labouring preterm caesarean deliveries (n=14) and labouring preterm caesarean deliveries due to chorioamnionitis (CA) (n=11). Samples were stored at -80°C. Protein lysates were generated and Bio-Plex cytokine assays (19-plex) were undertaken on 3 separate plates. Data was analysed using GraphPad prism, normality was assessed via D'Agostino & Pearson omnibus testing. Unpaired t-test and Mann-Whitney test were used for parametric and non-parametric data respectively.

### **Results:**

Inflammation indicated by high levels of cytokines/chemokines was globally raised across all 3 tissues in CA (figure 1), but on whole less significantly in placenta. Comparing CD to amnion, the level of inflammation was most pronounced in CD. IL-1 $\beta$  (p<0.05), CCL20 (p<0.0001) and IL-8 (p=0.0001) were the most significantly raised cytokines in amnion, CD and placenta respectively.

### **Conclusion:**

Our data concur with findings that preterm labour (PTL) due to infection is characterised by an influx of neutrophils<sup>3</sup>, as CCL20, a chemoattractant of dendritic cells may contribute to a neutrophilia via recruitment of T helper cells such as Th17. Furthermore, IL-8 which is also a potent chemoattractant of neutrophils may play an additional role and both may be useful biomarkers of PTL. Immunological changes in CA peak in the CD, followed by those observed in amnion, indicating that changes in the CD may be the trigger in PTL.