PELICAN FGR, a large multicentre, prospective observational study measuring PlGF in women with reduced symphysis fundal height (SFH), assessed the ability of PlGF and ultrasound parameters to predict delivery of an SGA infant.

592 women with singleton pregnancies and reduced SFH between 24–37 weeks' gestation across 11 sites in UK and Canada were analysed. Plasma PlGF was measured at enrolment and ultrasound data recorded. Plasma PlGF concentration <5th centile, estimated fetal weight <10th centile (EFW10), umbilical artery Doppler pulsatility index > 95th centile and oligohydramnios were compared as predictors for an SGA infant <3rd (SGA3) and <10th (SGA10) customised birthweight centiles. Test performance statistics were calculated for all parameters in isolation and combination.

Sensitivity and negative predictive value (NPV) of EFW10 for SGA3 (n = 78) were 61% and 93% respectively; for SGA10 (n = 192) they were 49% and 77% respectively. PlGF had sensitivity of 37% and NPV of 90% for SGA3. In combination, PlGF and EFW10 had sensitivity of 69% and NPV of 93% for SGA3.

In women presenting with reduced SFH, EFW10 and other ultrasound parameters have modest test performance for prediction of a subsequent SGA infant. PlGF performed no better than EFW10 in determining delivery of an SGA infant. Incorporating PlGF with ultrasound parameters provided modest improvements in test performance.

8.4 SERUM BETA DEFENSIN CONCENTRATION IN THE FIRST TRIMESTER IS RELATED TO GENOTYPE, AND IS HIGHER IN WOMEN WHO DEVELOP PPROM AND DELIVER BEFORE 34 WEEKS

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Background Previously we showed that the DEFB1 SNP rs1799946 is associated with PPROM and a four-fold increase in spontaneous preterm birth risk (PTB); rs1047031 may reduce the risk of PTB. This study describes the relationship between DEFB1 genotype, its constituent human beta defensin 1 (hBD1) protein expression and clinical phenotype, and the expression of inducible human beta defensin 2 (hBD2).

Methods Blood was collected at 11–13/40 (n = 400, King's College Hospital 2006–2010) and genotyped for rs1799946 and rs1047031 using KASP (Kompetitive Allele Specific PCR). Serum hBD1 and hBD2 concentrations were determined by ELISA (n = 292). Analyses were by Kruskal-Wallis and Mann-Whitney-U tests.

Results rs1047031 is associated with lower serum hBD1 concentration (p = 0.0200), and rs1799946 with a trend to increased hBD1 concentration (p = 0.0264). Of 292 women with serum samples, 59 delivered <34/40 (28 PPROM, 31 spontaneous). Women with PPROM and PTB <34/40 had higher hBD1 concentrations than those delivering at term (1.15MoM, IQR 0.753–2.12 vs 0.995MoM, IQR 0.739–1.34). Serum hBD1 concentration was negatively correlated with mid-gestation cervical length (r = –0.170, 95%CI –0.326–0.00532, p = 0.0433). Similarly, serum hBD2 concentration is higher in pregnancies with PPROM and PTB <34/40 compared to term birth (1.51MoM, IQR 0.75–3.47, vs 0.94MoM, IQR 0.511–1.55, p = 0.0116).

Conclusion DEFB1 genotype is related to serum hBD1 expression in the first trimester and clinical phenotype. Serum hBD2 expression is higher in women who have PPROM and PTB. Women with PPROM and PTB have a distinct innate immune profile evident in their serum in the first trimester, which may provide the basis for a predictive test.

8.5 COMBINED FETAL FIBRONECTIN AND SALIVA PROGESTERONE MEASUREMENT FOR PREDICTION OF SPONTANEOUS PRETERM BIRTH

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Introduction Low saliva progesterone concentrations are associated with spontaneous preterm birth (SPTB) in high risk women.[1] This study further evaluated the combined use of fetal fibronectin (fFN) and saliva progesterone for SPTB prediction.

Methods A predefined secondary analysis undertaken on a subgroup of women from a prospective cohort (n = 1216) of asymptomatic women at high risk of SPTB. Participants provided at least one saliva sample between 20^{+0} and 28^{+6} weeks' and some underwent a qualitative fFN test (Hologic™; positive test results ≥50 ng/ml). Saliva progesterone concentrations were measured by ELISA (Salimetrics™). Primary end point was SPTB or rupture of membranes with delivery before 34 weeks'. Exclusions: women with iatrogenic PTB before 34 weeks' and women on progesterone supplementation or in the OPPTIMUM trial.

Results Overall, 638 women with paired saliva progesterone and fFN results (22^{+0} and 25^{+6} weeks') were identified with a SPTB rate <34 weeks' of 4.5%. A saliva progesterone concentration of <280 ng/l was associated with an odds ratio for delivery <34 weeks' of 3.81 (95% CI: 1.34 to 10.83); for fFN, the receiver operating characteristic curve (ROC) area for SPTB <34 weeks' was 0.61 (0.53 to 0.70). Combination of tests improved the ROC area [0.67 (0.56 to 0.78)]. In fFN negative women (n = 583), low saliva progesterone concentrations were associated with greater risk of SPTB <34 weeks' [positive likelihood ratio 3.4 (1.34 to 8.71)].

Conclusions Saliva progesterone measurement may be useful for prediction of SPTB in high risk women as an adjunct to fFN testing.

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8.6 THE EVOLUTION OF THE VAGINAL MICROBIOME THROUGHOUT UNCOMPLICATED PREGNANCY IN A UK POPULATION

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Introduction The vaginal microbiome plays an important role in maintaining reproductive health throughout pregnancy. Despite the presence of an 'abnormal' vaginal microbial community being associated with an increased risk of preterm birth, interventional trials of antibiotics have failed to demonstrate significant benefit, which is likely due to a poor understanding of the

8.4 Serum beta defensin concentration in the first trimester is related to genotype, and is higher in women who develop PPROM and deliver before 34 weeks

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