



Additional file 4. Strong positive correlations among viral loads in fetal compartments and associated tissues. Spearman correlation matrix of viral loads (\log_{10} genome copies / $200\mu\text{L}$) measured in individual fetal tissues, including the brain, thymus, lung, heart, liver, spleen, kidney, as well as amniotic fluid, umbilical cord blood, umbilical cord, and the associated endometrium. Viral loads across these compartments demonstrated strong positive correlations, supporting the integration of individual tissue viral loads into a single composite metric, referred to as summation of fetal viral load (Fetal VL SUM). This aggregated measure was used to represent the overall viral burden for each fetus in subsequent analyses.