**Supplemental Figure 1.** Flow of participants: repeated measurements are shown by dashed lines between models; 48 participants had repeated epigenetic measurements at all 3 time points



**Supplemental Figure 2.** Scatter plots show the relationship between first trimester B12 intake and %5hmC in cord blood, early and mid-childhood.

Chart, scatter chart

Description automatically generated

**Supplemental Table 1.** Unadjusted models between include sociodemographic variables, cell-type composition, and cord blood epigenetic biomarkers.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | %5hmC | | %5mC | |
| **Demographics** | Coefficient | Confidence Interval | Coefficient | Confidence Interval |
| Maternal age (years) | -0.001 | (-0.003, 0.001) | -0.023 | (-0.058, 0.011) |
| Maternal Education Status  (reference=no-college) | **-0.030** | **(-0.058, -0.003)** | -0.393 | (-0.787, 0.001) |
| Marital Status  (reference=married/ cohabitating) | **0.053** | **(0.008, 0.097)** | 0.643 | (-0.002, 1.288) |
| Maternal Race  (reference=white) |  |  |  |  |
| Black | -0.006 | (-0.046, 0.034) | -0.319 | (-0.903, 0.264) |
| Hispanic | 0.032 | (-0.019, 0.084) | 0.596 | (-0.147, 1.339) |
| Other/Asian | -0.015 | (-0.060, 0.029) | -0.323 | (-0.970, 0.323) |
| Sex  (reference=Male) | 0.008 | (-0.017 0.034) | 0.146 | (-0.228, 0.520) |
| Fish Intake | -0.090 | (-0.163, -0.016) | -0.347 | (-1.403, 0.709) |
| Maternal Smoking Status during pregnancy | 0.006 | (-0.036, 0.048) | 0.072 | (-0.534, 0.679) |
| **Cell Type Composition** |  | |  | |
| B Cells | 0.044 | (-0.413, 0.500) | -2.261 | (-8.810, 4.289) |
| CD4+ T-Cells | 0.156 | (-0.099, 0.411) | 0.887 | (-2.774, 4.549) |
| CD8+ T-Cells | **0.426** | **(0.097, 0.755)** | 1.824 | (-2.925, 6.574) |
| Granulocytes | **0.010** | **(-0.118, 0.138)** | **2.036** | **(0.209, 3.864)** |
| Monocytes | -0.211 | (-0.736, 0.314) | **-11.720** | **(-19.180, -4.261)** |
| Natural Killer Cells | **-0.704** | **(-1.359, -0.049)** | -6.917 | (-16.337, 2.504) |

**Supplemental Table 2.** Unadjusted associations of trimester specific nutrient intake with global cord blood DNA methylation (%5mC) and 5-hydroxymethylation (%5hmC).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Coefficient | 95% Confidence Interval | Coefficient | 95% Confidence Interval |
| First Trimester  n=434 | %5hmC | | %5mC | |
| Riboflavin | -0.002 | (-0.005, 0.002) | -0.027 | (-0.081, 0.027) |
| B6 | -0.001 | (-0.003, 0.003) | -0.014 | (-0.047, 0.020) |
| B12 | **-0.002** | **(-0.004, -0.00001)** | -0.019 | (-0.049, 0.012) |
| Folate | 0.008 | (-0.028, 0.043) | 0.086 | (-0.410, 0.582) |
| Betaine | -0.090 | (-0.222, 0.042) | 0.105 | (-1.762, 1.973) |
| Choline | -0.190 | (-0.397, 0.017) | -1.915 | (-4.842, 1.011) |
| Methionine | **-0.035** | **(-0.0679, -0.002)** | -0.380 | (-0.843, 0.084) |
| Iron | 0.001 | (-0.0003, 0.001) | 0.005 | (-0.006, 0.017) |
| Zinc | 0.000 | (-0.001, 0.001) | 0.002 | (-0.016, 0.021) |
| Second Trimester  n=391 | %5hmC | | %5mC | |
| Riboflavin | -0.008 | (-0.018, 0.003) | -0.129 | (-0.271, 0.014) |
| B6 | -0.001 | (-0.003, 0.0012) | -0.024 | (-0.056, 0.007) |
| B12 | -0.001 | (-0.004, 0.002) | -0.014 | (-0.059, 0.031) |
| Folate | -0.005 | (-0.041, 0.031) | -0.176 | (-0.675, 0.324) |
| Betaine | -0.050 | (-0.190, 0.091) | 0.981 | (-0.985, 2.948) |
| Choline | -0.016 | (-0.227, 0.194) | 0.936 | (-2.022, 3.894) |
| Methionine | -0.019 | (-0.056, 0.018) | -0.049 | (-0.565, 0.467) |
| Iron | 0.000 | (-0.001, 0.0003) | -0.005 | (-0.013, 0.003) |
| Zinc | -0.001 | (-0.002, 0.001) | -0.014 | (-0.033, 0.004) |