Supplementary Table 1 Statistical strategies for variables related to labor dystocia

Variable	Relationship to labor dystocia	Statistical strategy
Third trimester serum metabolomics profile	Predictor	Predictor
Labor dystocia	Outcome	Outcome
Maternal BMI at hospital admission	Predictor (alters metabolic pathways)	Within-group analysis Covariate in metabolomics analyses
Maternal age	Independent risk factor (alters metabolic pathways)	Case–control design with balanced groups and covariate in metabolomics analyses
Parity	Independent risk factor	Case–control design with balanced groups
Gestational age at labor onset	Independent risk factor	Case–control design with balanced groups
Gestational weight gain	Independent risk factor	Incorporated in BMI at hospital admission (covariate in analyses)
Gestational diabetes	Independent risk factor	Sample exclusion
Mode of labor onset	Independent risk factor	Case–control design with balanced groups
Fetus size	Independent risk factor	Case–control design with balanced groups
Chorioamnionitis	Intrapartum characteristic	Not controlled—within intrapartum causal pathway
Epidural anesthesia	Intrapartum characteristic	Not controlled—within intrapartum causal pathway
Malposition of fetal vertex	Intrapartum characteristic	Not controlled—within intrapartum causal pathway
Synthetic oxytocin augmentation of labor	Intrapartum characteristic	Not controlled—within intrapartum causal pathway

Abbreviation: BMI, body mass index.