Congenital heart defects and maternal biomarkers of oxidative stress

- The metabolic pathway from homocysteine to glutathione is called the transsulfuration pathway.

1. Homocysteine, Cystine
2. glutathione (GSH)
3. glutathione disulfide (GSSG)
4. plasma metabolites
5. Folate
6. cysteineylglycine (CysGly)
7. glutamylcysteine (GluCys)
8. Vitamin B-6 and Vitamin B-12

Biomarkers for isolated congenital heart disease based on maternal amniotic fluid metabolomics analysis

- **Metabolic biomarker screening ->** The random forest (RF) method was used to select the most influential markers. RF was implemented using the ‘randomForest’ function from the ‘randomForest’ package in R [25]

1. Aldosterone
2. Tissue angiotensin II (AngII)
3. nicotinamide adenine dinucleotide (NAD +)

Urine metabolomic biomarkers for prediction of isolated fetal congenital heart defect

1. Methionine,
2. sphingomyelin C16:0,
3. isobutyric acid,
4. 3-methylhistidine
5. Putrescine
6. Urine glutarate
7. Glucose,
8. Choline,
9. Methionine
10. Formate
11. Aminobutyrate
12. Folate
13. S-adenosylhomocysteine (SAH)
14. Glycerophospholipid
15. protein (SREBP)
16. PE biosynthesis
17. PC biosynthesis