Comparative genomics highlights the unique biology of Methanomassiliicoccales, a Thermoplasmatales-related seventh order of methanogenic archaea that encodes pyrrolysine

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http://hdl.handle.net/10468/2211
**Pyrimidine Metabolism**
- UMP-UDP-UTP
- CDP-CTP
dCMP-dCTP
dUMP-dUDP-dUTP
dTMP-dTDP-dTTP

**Purine Metabolism**
- IMP
- AMP-ADP-ATP
dADP-dATP
- XMP
- GMP-GTP
dGDP-dGTP

**Incomplete Urea Cycle**
- L-Proline
- Ornithine
- L-Arginine
- L-Glutamate
- L-Proline

**Incomplete TCA Cycle**
- Oxaloacetate
- Malate
- Fumarate
- Succinate
- Succinyl-CoA
- Citrate
- 2-oxoglutarate

**Gluconeogenesis**
- Glucose-1-phosphate
- Glucose-6-phosphate
- Fructose-6-phosphate
- Fructose-1,6-bisphosphate
- Glyceraldehyde-3-phosphate
- Dihydroxyacetone-phosphate
- Ribulose-5P
- Ribose-5P
- PRPP
- Xylulose-5P
- 1,3-bisphosphoglycerate
- 3-phosphoglycerate
- 2-phosphoglycerate
- Phosphoenolpyruvate
- Pyruvate
- Acetyl-CoA
- Acetate

**N-Glycan Biosynthesis ?**
- Mannose-6-phosphate
- Mannose-1-phosphate
- GDP-Mannose

**Additional File 9**