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| **Metabolites altered in hyper-glutamatergic patients** | **KEGG ID** | **Metabolites altered in hypoglutamatergic patients** | **KEGG ID** |
| Trigonelline | C01004 | Trigonelline | C01004 |
| Kynurenine | C00328 | Kynurenine | C00328 |
| 3-Hydroxyanthranilic acid | C00632 | 5-Hydroxyindole-3-acetic acid | C05635 |
| 5-Hydroxyindole-3-acetic acid | C05635 | Kynurenic acid | C01717 |
| Kynurenic acid | C01717 | Indole-3-propionic acid | NA |
| Indole-3-propionic acid | NA | Cortisol | C00735 |
| Cortisol | C00735 | 2-Hydroxyisobutyric acid | NA |
| 2-Hydroxyisobutyric acid | NA | 3-hydroxybutyric acid | C01089 |
| 3-hydroxybutyric acid | C01089 | Urea | C00086 |
| Leucine | C00123 | Glyceric acid | C00258 |
| Glycerol | C00116 | Malic acid | C00149 |
| 4-Hydroxyproline | C01157 | 4-Hydroxyproline | C01157 |
| a-ketoglutaric acid | C00026 | a-ketoglutaric acid | C00026 |
| Phenylalanine | C00079 | Phenylalanine | C00079 |
| d-Fructose | C02336 | Hypoxanthine | C00262 |
| Mannose | C00159 | Mannose | C00159 |
| Galactose | C00984 | d-Sorbitol | C00794 |
| d-Sorbitol | C00794 | d-Galactitol | C01697 |
| d-Galactitol | C01697 |  |  |
| d-Gluconic acid | C00257 |  |  |
| Saccharic acid | C00818 |  |  |
| myo-Inositol | C00137 |  |  |
| Sedoheptulose | C02076 |  |  |

Selected metabolites names and KEGG IDs. Note that indole-3-propionic acid and 2-Hydroxyisobutyric acid were not found in KEGG were not included in the pathway analysis, but they have both been reported as microbiota metabolites.