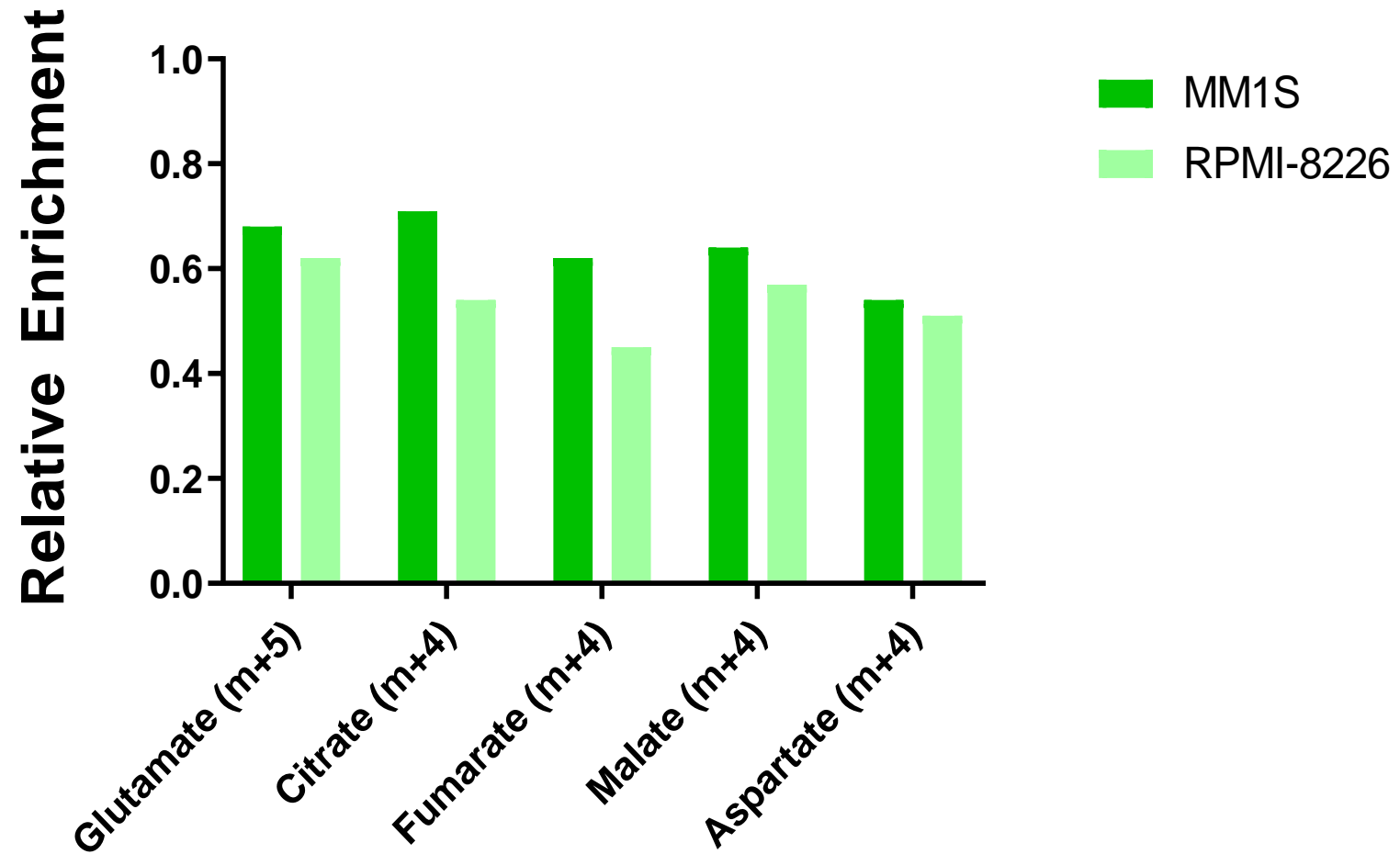
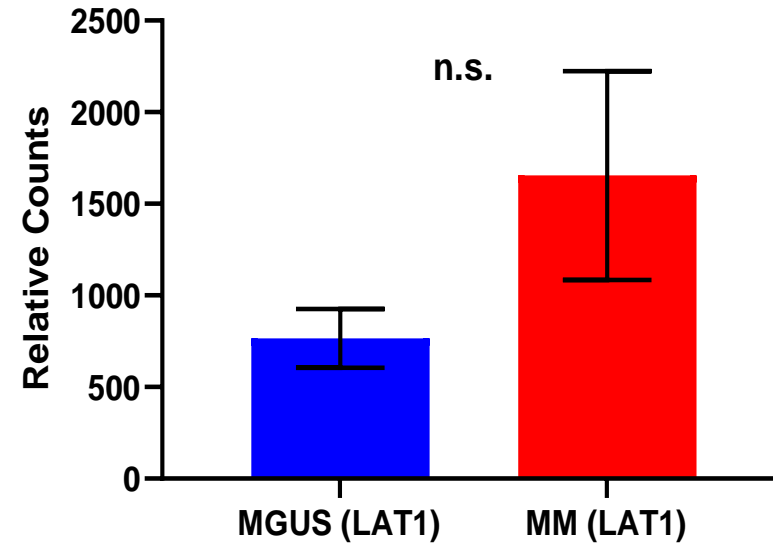
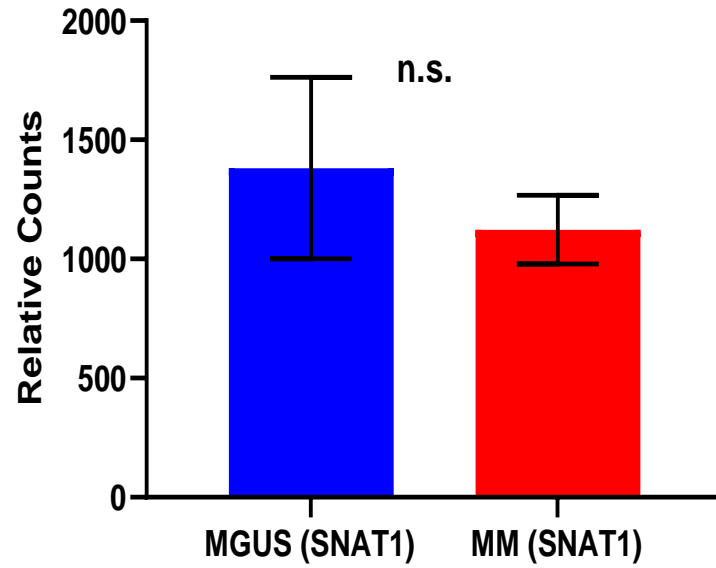


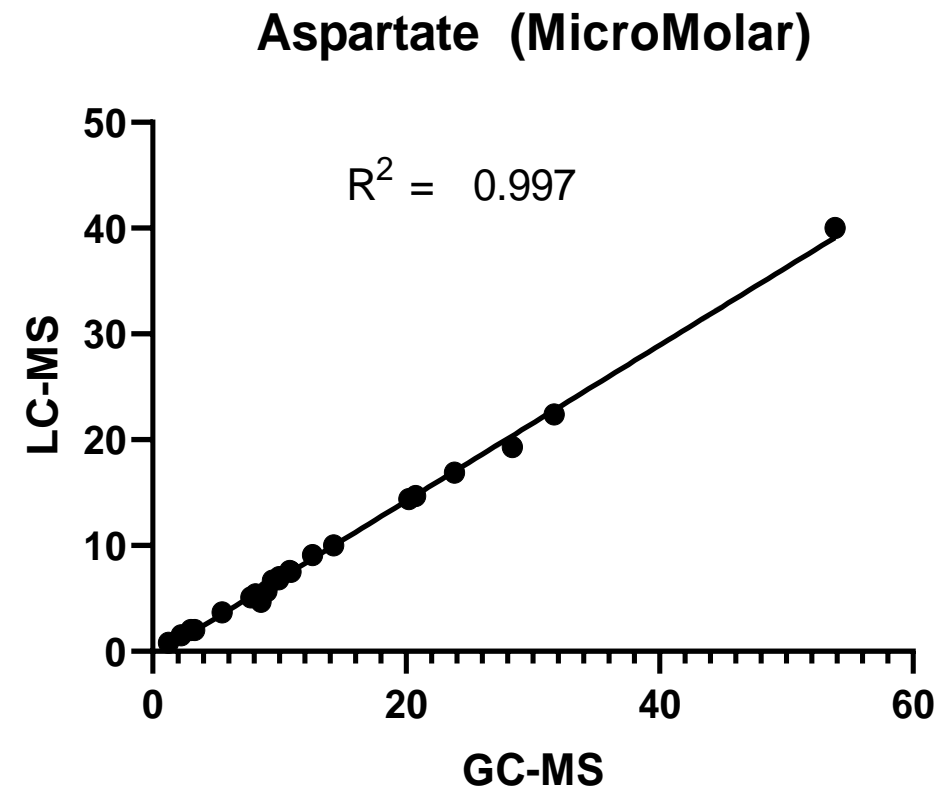
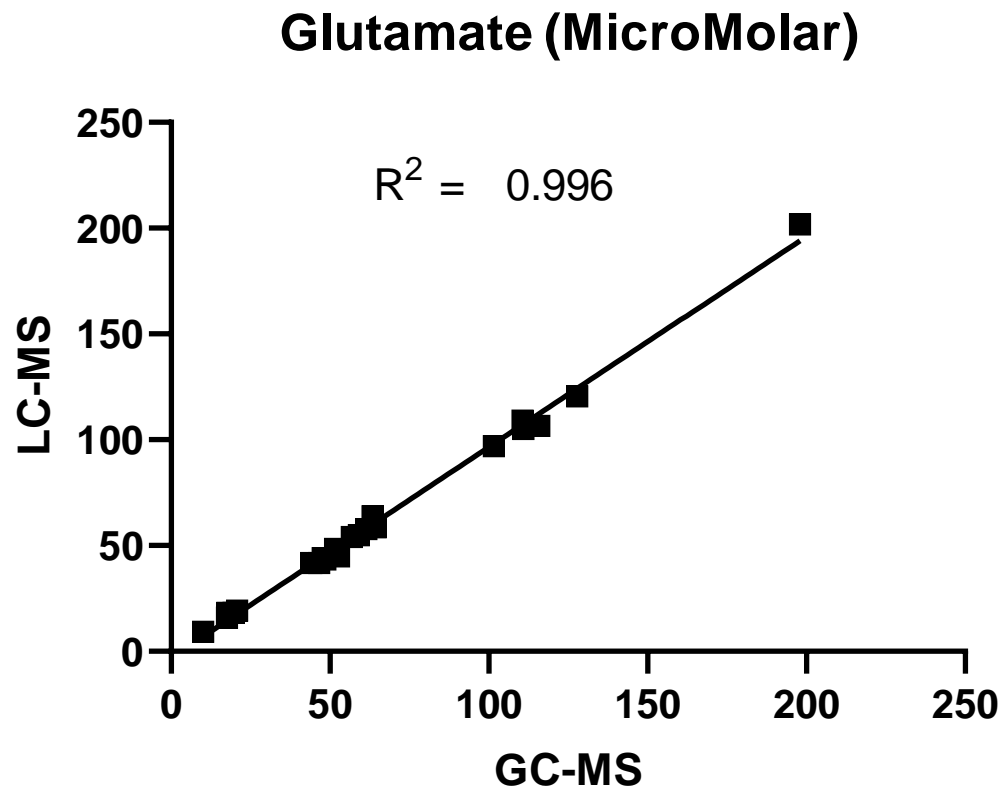
**Supplementary Figure 1:** Expected mass isotopomer distribution of the intermediates in the first turn of the TCA cycle as a result of glutamine anaplerosis of U-<sup>13</sup>C<sub>5</sub>-Glutamine. Each intermediate is represented by the number of carbon atoms in their molecular structure with green circle representing <sup>13</sup>C and black circles representing <sup>12</sup>C.



**Supplementary Figure 2:** The percent intracellular isotopomer distribution of metabolites from the first turn of the TCA cycle in RPMI-8226 and MM1S human myeloma cell lines relative to the U-<sup>13</sup>C-glutamine enrichment in the cell culture media.



**Supplementary Figure 3:** Relative differences in mRNA expression of SNAT1 and LAT1 between CD138 + cells from MGUS (N = 6) and MM (N = 10) patients in context of their effect on glutamine transport into the cell.



**Supplementary Figure 4:** XY correlations of the absolute concentrations of glutamate and aspartate in the bone marrow plasma of patients with MGUS (N = 11) and MM (N = 12) utilizing GC-MS vs. LC-MS.