**This directory contains the processed data corresponding to the publication:**

Houser, John R., et al. "Controlled measurement and comparative analysis of cellular components in E. coli reveals broad regulatory changes in response to glucose starvation." PLoS computational biology 11.8 (2015): e1004400.

**The raw mass spectrometry files can be freely downloaded under:** http://proteomecentral.proteomexchange.org/cgi/GetDataset?ID=PXD002140

* Folder contents "peptide\_and\_protein\_intensity\_files":
  + We processed the raw MS files with the software MaxQuant v. 1.5.7.4 using standard settings and “Label Free Quantification” (LFQ) and “Match between runs” and searched it against the reviewed uniprot E. coli database (03/2019). The resulting output tables of MaxQuant (protein and peptide intensity tables) are stored here.
* Folder contents "sorted\_differential\_analysis\_files":
  + We used the MaxQuant output tables for differential expression analysis (DEA). In DEA, two experimental conditions are compared with each other and regulation of each protein (i.e. does this protein go up or down) is statistically assessed. For this we used the MS-EmpiRe package, which uses peptide intensities and replicate information for statistical assessment. The main result is a p-value (significance of regulation) and a fold change (approximate strength of regulation) for each protein. The DEA result files used for z-value calculation are stored in this folder. The direction of the comparison is always such that a positive fold change corresponds to increased survival.
* Folder contents "experimental\_design\_tables":
  + "sample\_to\_condition\_map.tsv":
    - For the DEA, we needed to know, which proteomics samples belong together to the same condition. This mapping is given here.
  + "condition\_to\_perturbation\_map.tsv":
    - As described in the paper, several conditions are grouped together to "types of perturbation", for example different growth rates in the chemostat, or stationary phase. The grouping of experimental condition to type of perturbation is given here.
  + "condition\_to\_growthrate\_map.tsv":
    - The growth rate, which is either proportional or inversly proportional to the death rate, was determined by Schmidt et al. We used the mapping shown here.