## **Description of Additional Supplementary Files**

File Name: Supplementary Data 1

Description: Summary of pGpp, ppGpp and pppGpp binding targets. Fractions of different radiolabel binding under different conditions are listed. Z-score is calculated by the formula that Z-score =  $(\log it(x)-\log it(median))/SD(\log it(x))$ , where  $\log it(x) = \log_{10}(x/1-x)$ , "x" is the fraction of radiolabel binding, "median" is the median of "x" on one plate, " $SD(\log it(x))$ " is the standard deviation of " $\log it(x)$ " on one plate. Calculation of Z-scores ignores "x" that is below or equals zero.\* The differences in the fraction of pppGpp binding of some proteins in different libraries might be due to the differential expression levels from His-tagged and HisMBP-tagged vectors. Different solubility of His-tagged and HisMBP-tagged proteins (MBP tends to increase the solubility of tagged protein) may also contributes to this difference. NT: not tested; NA: not available due to 0% radiolabel binding.

File Name: Supplementary Data 2

Description: Normalized ion counts of metabolites measured by LC-MS (Raw data of Figure 4a).