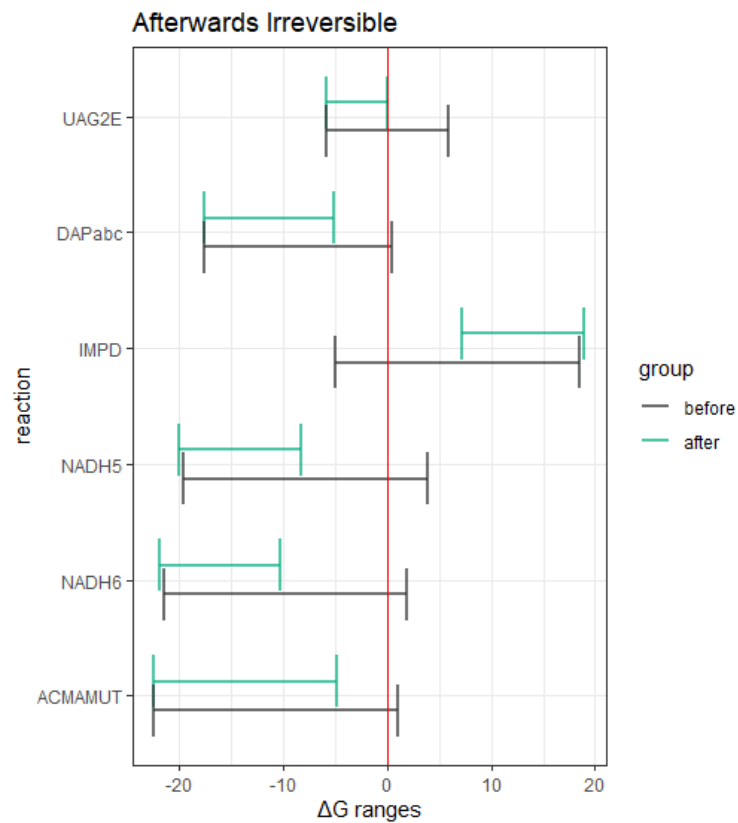
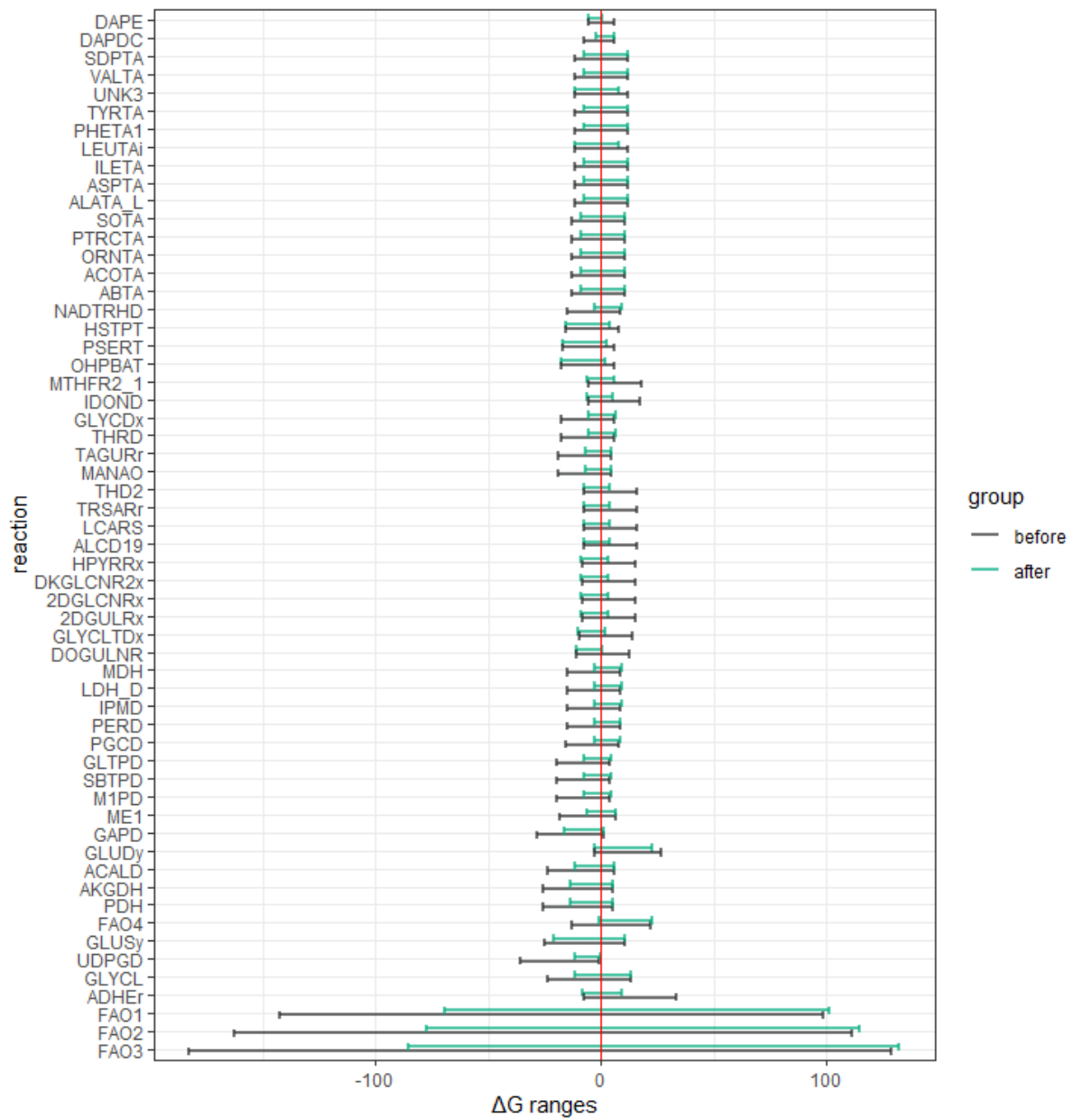


# Reaction lumping in metabolic networks for application with thermodynamic metabolic flux analysis- Supplementary

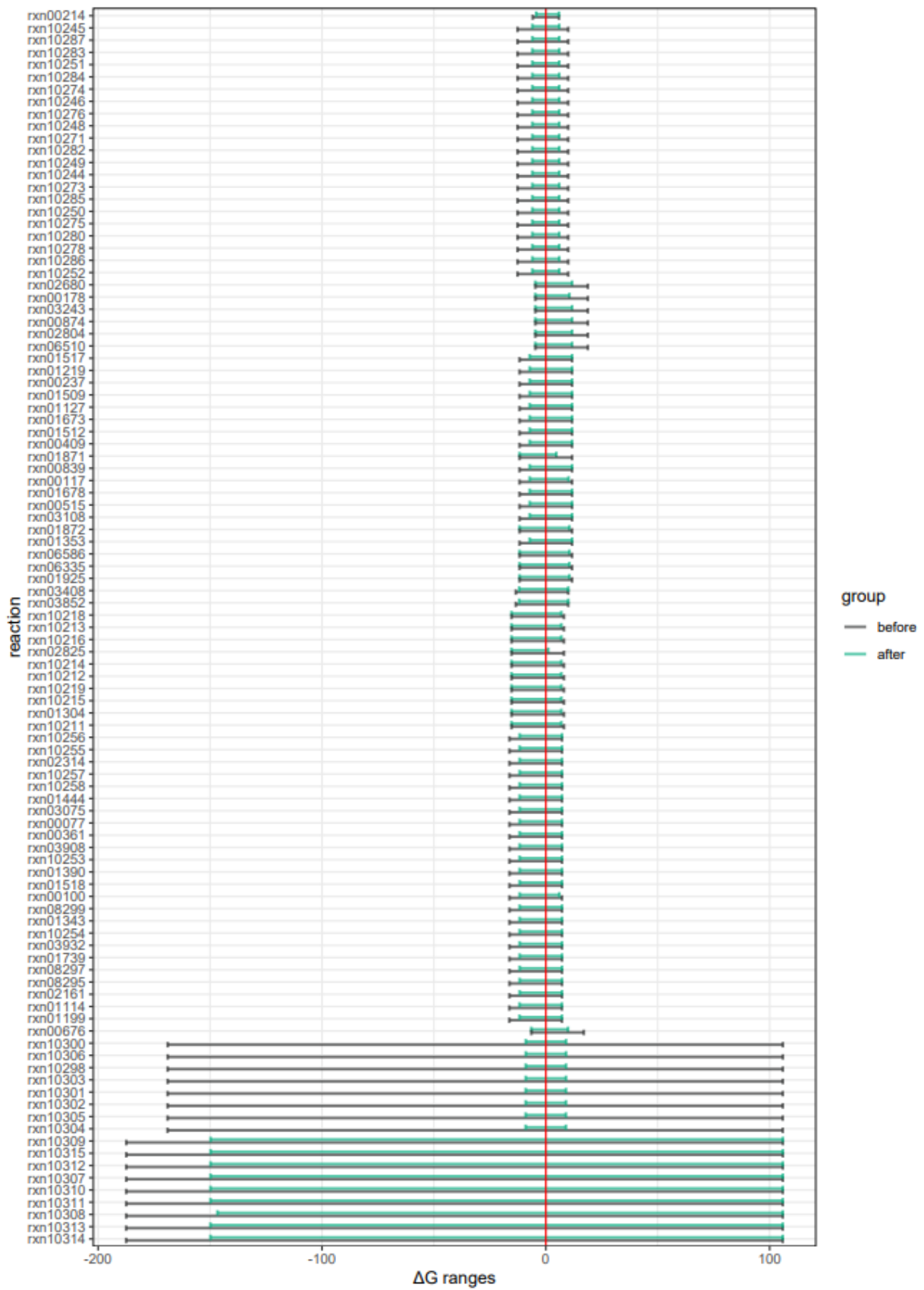
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**Figure S1 – Reactions deemed irreversible after lumping in *E. coli*.** The  $\Delta G$ -ranges of all reactions that can be only determined irreversible after lumping. Grey coloured bars show the range before, green coloured bars after lumping is applied.



**Figure S2 – Decreased  $\Delta G$ -ranges after lumping in *E. coli*.** All reactions that show a decrease regarding the variable space of  $\Delta G$  after lumping is applied. The grey bars indicate the range before, the green bars after lumping was applied.



**Figure S3. Different  $\Delta G$ -ranges after lumping in *B. subtilis*.** All reactions that exhibit either a change or a shift of respective  $\Delta G$ -range after lumping is applied. Grey coloured bars show the range before, green coloured bars after lumping is applied.