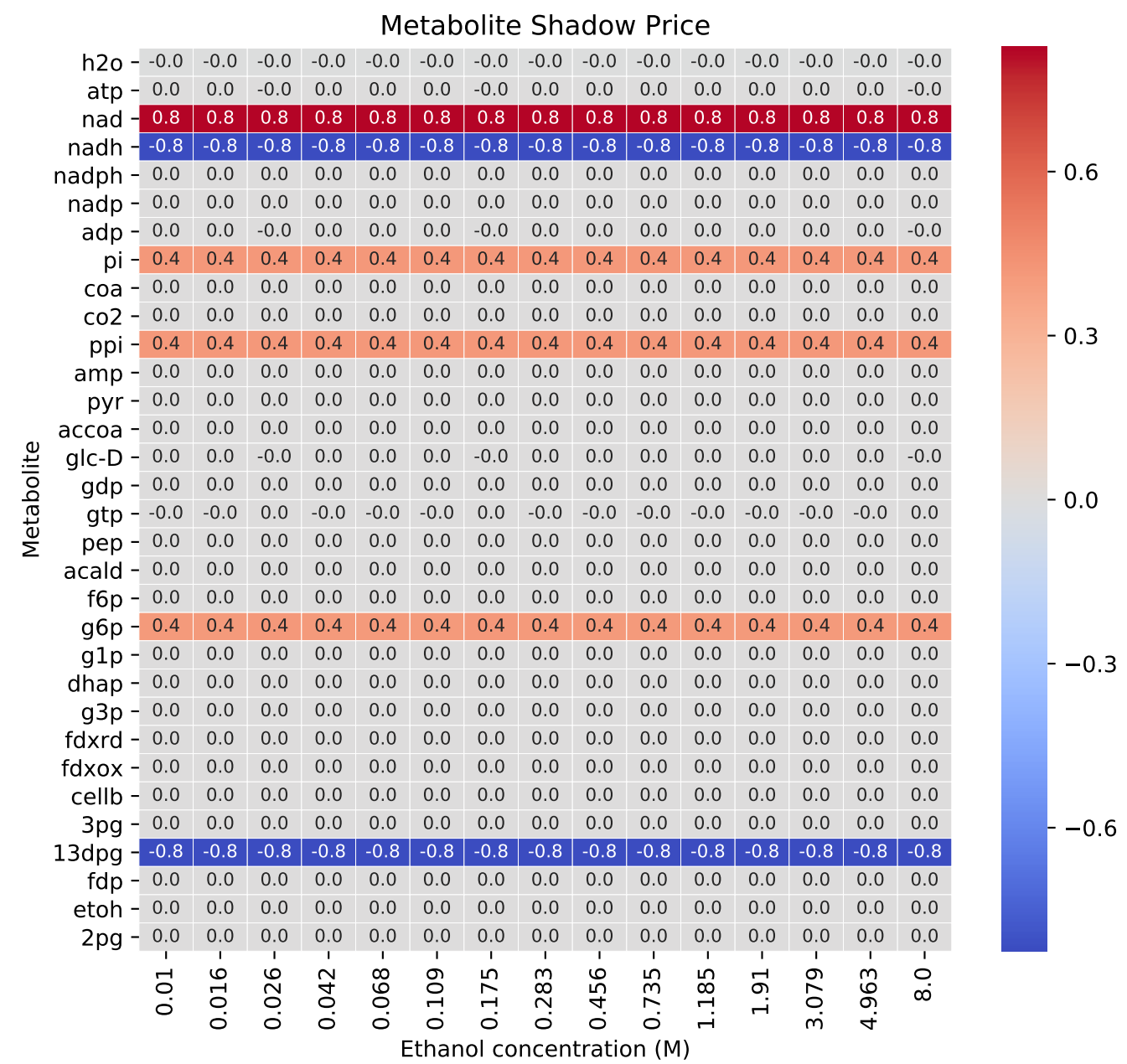
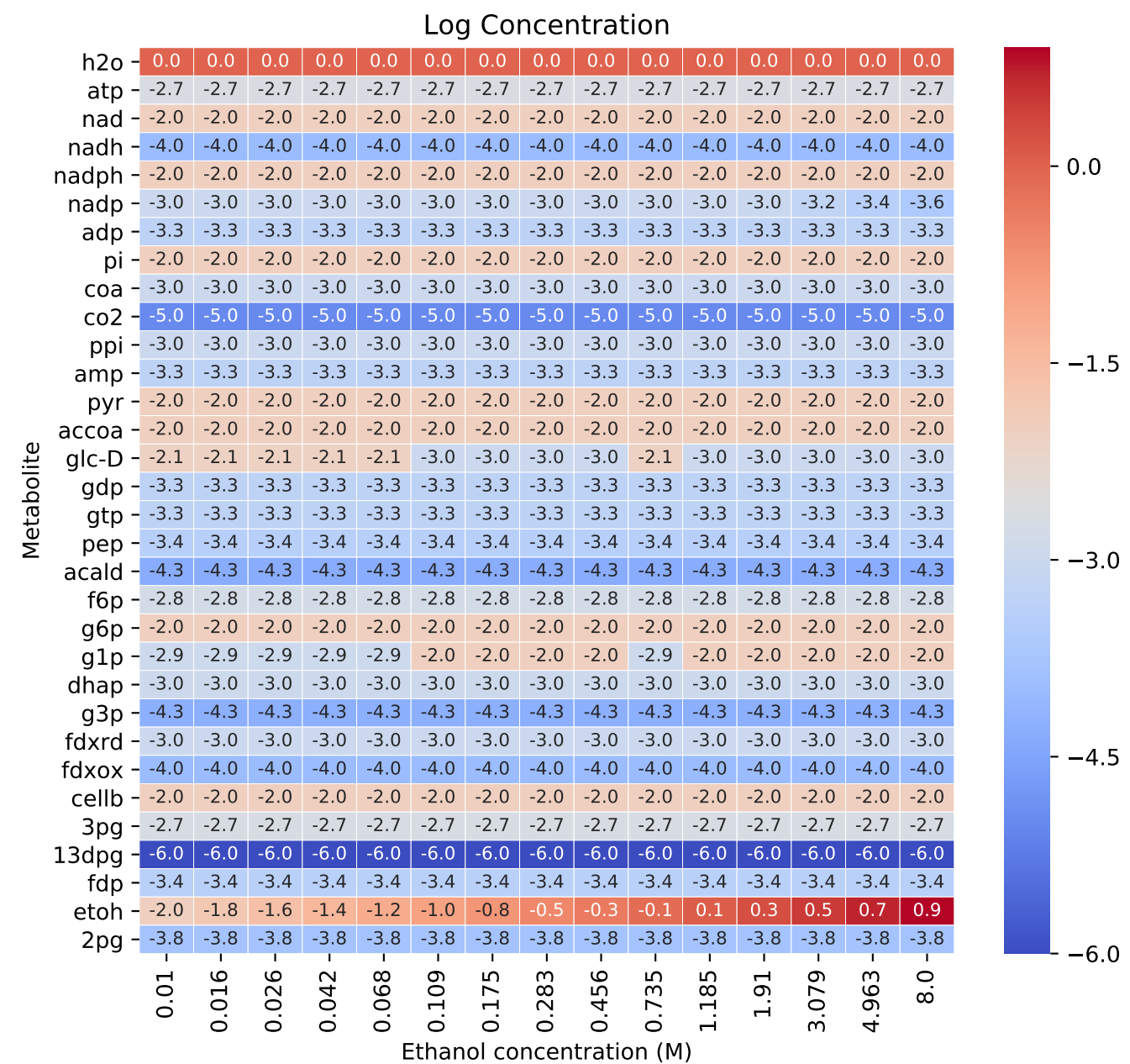
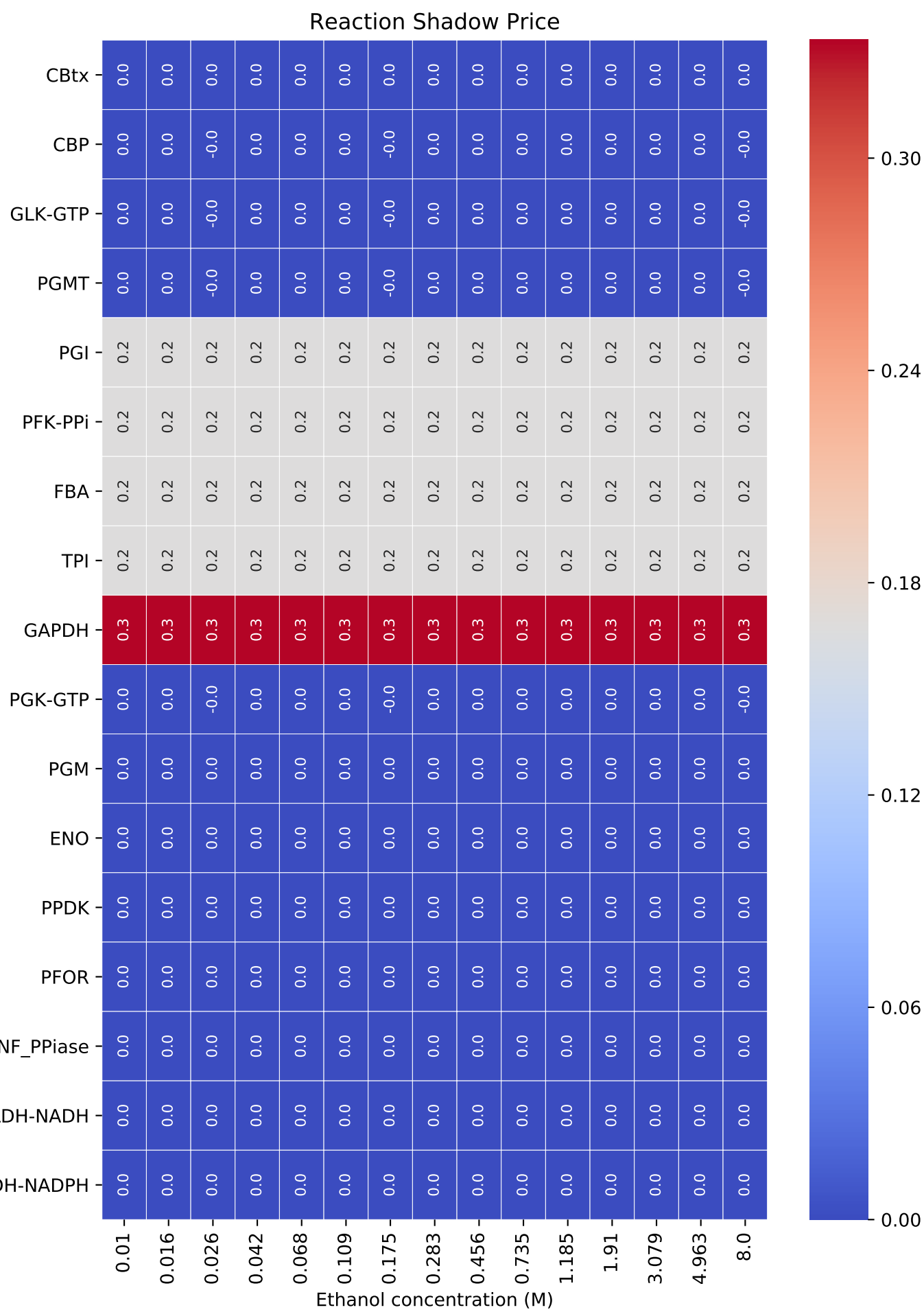
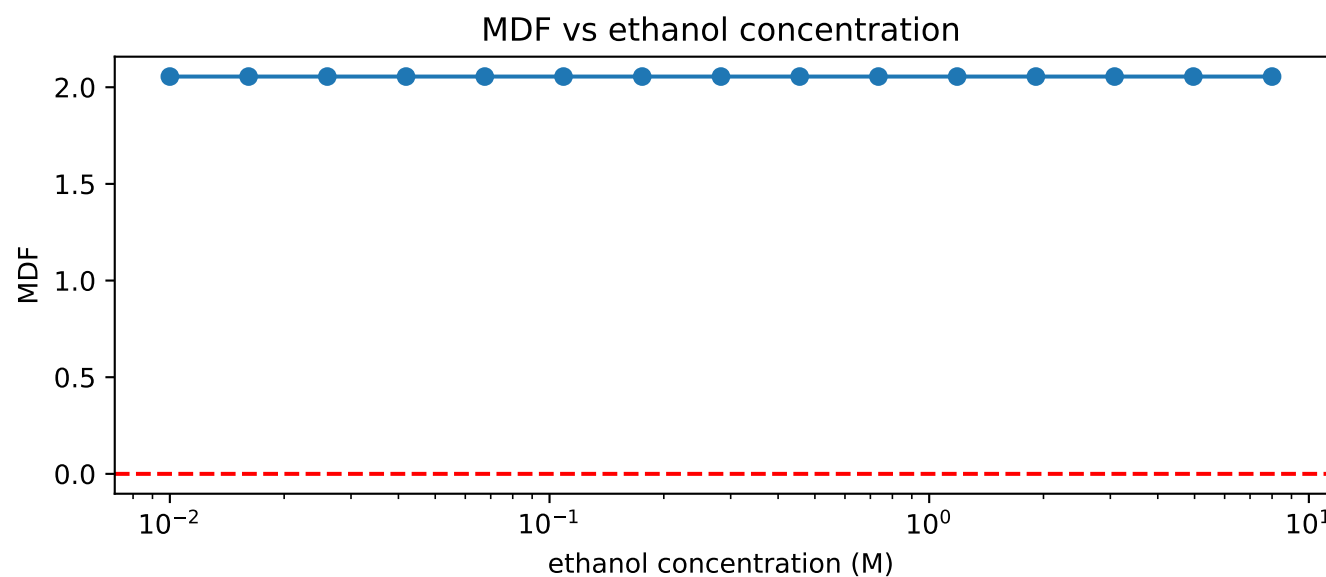
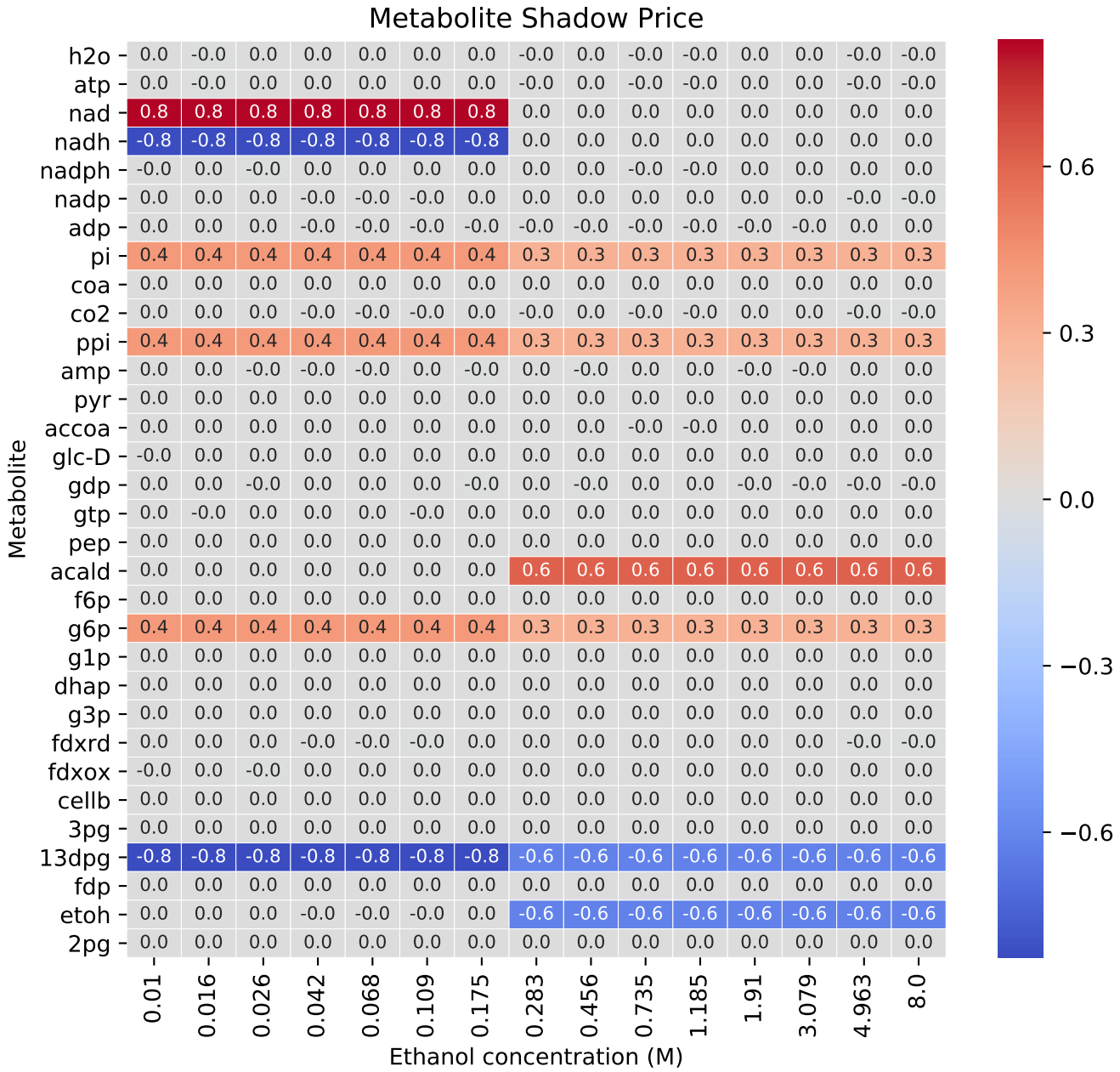
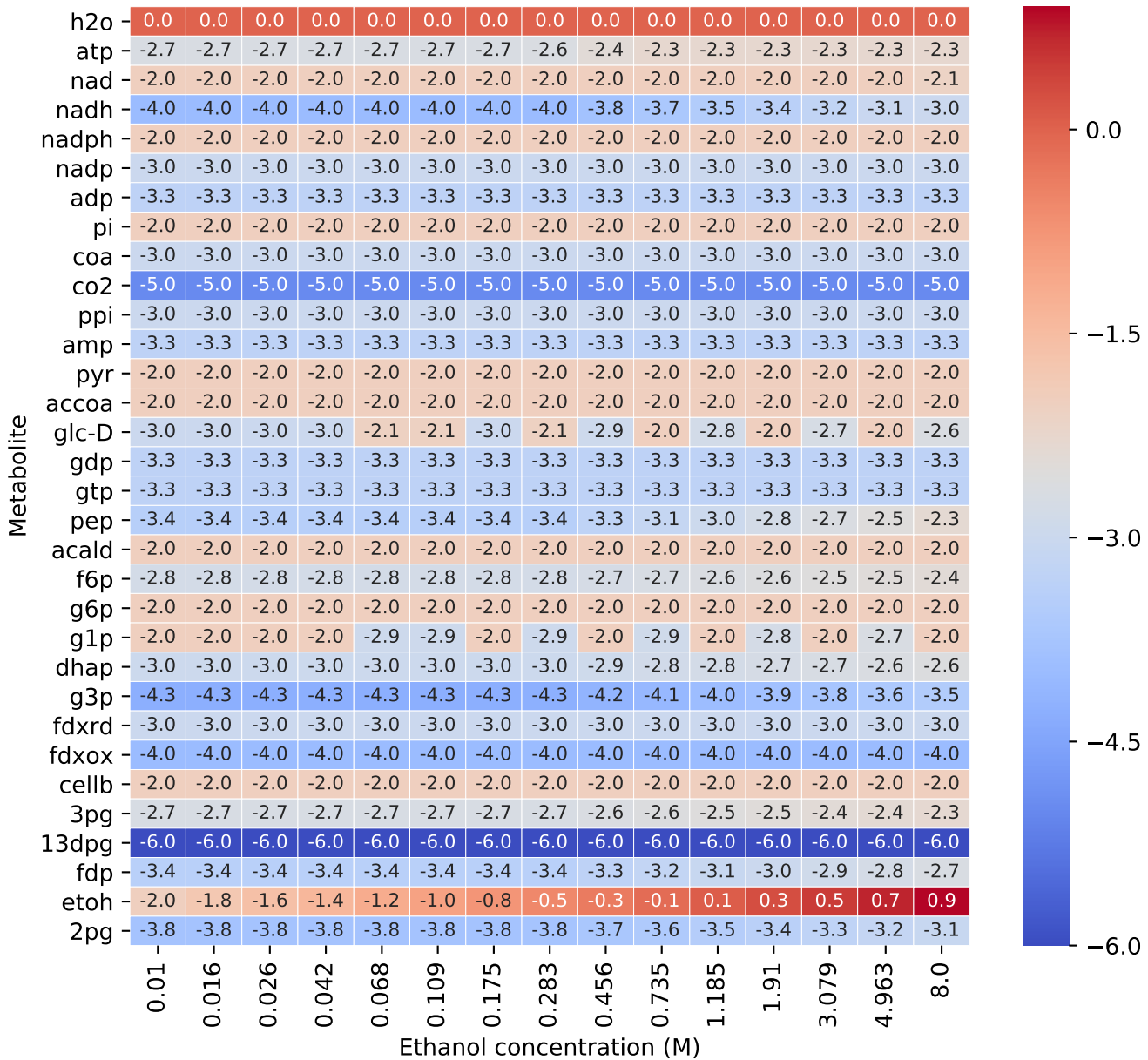


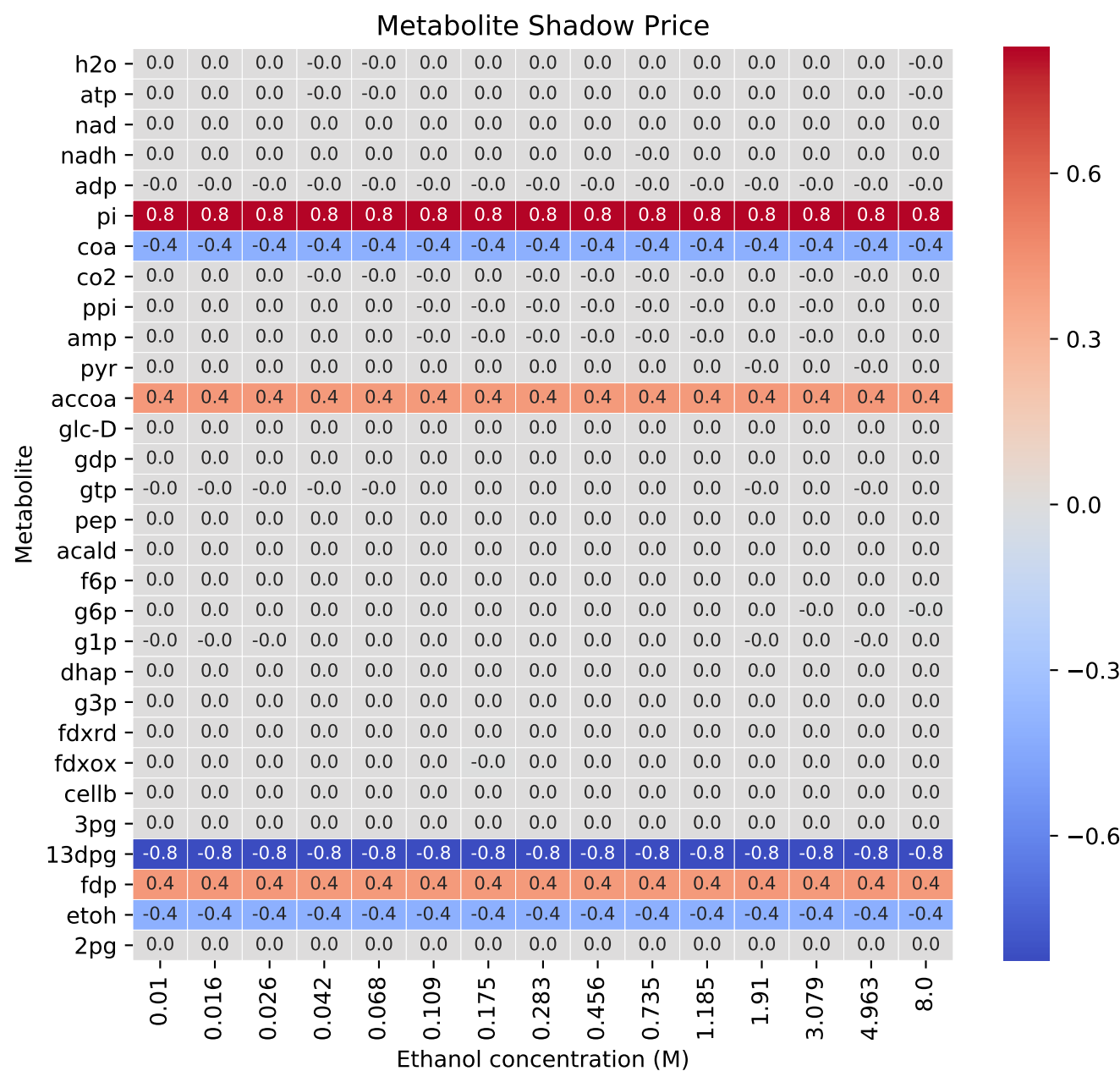
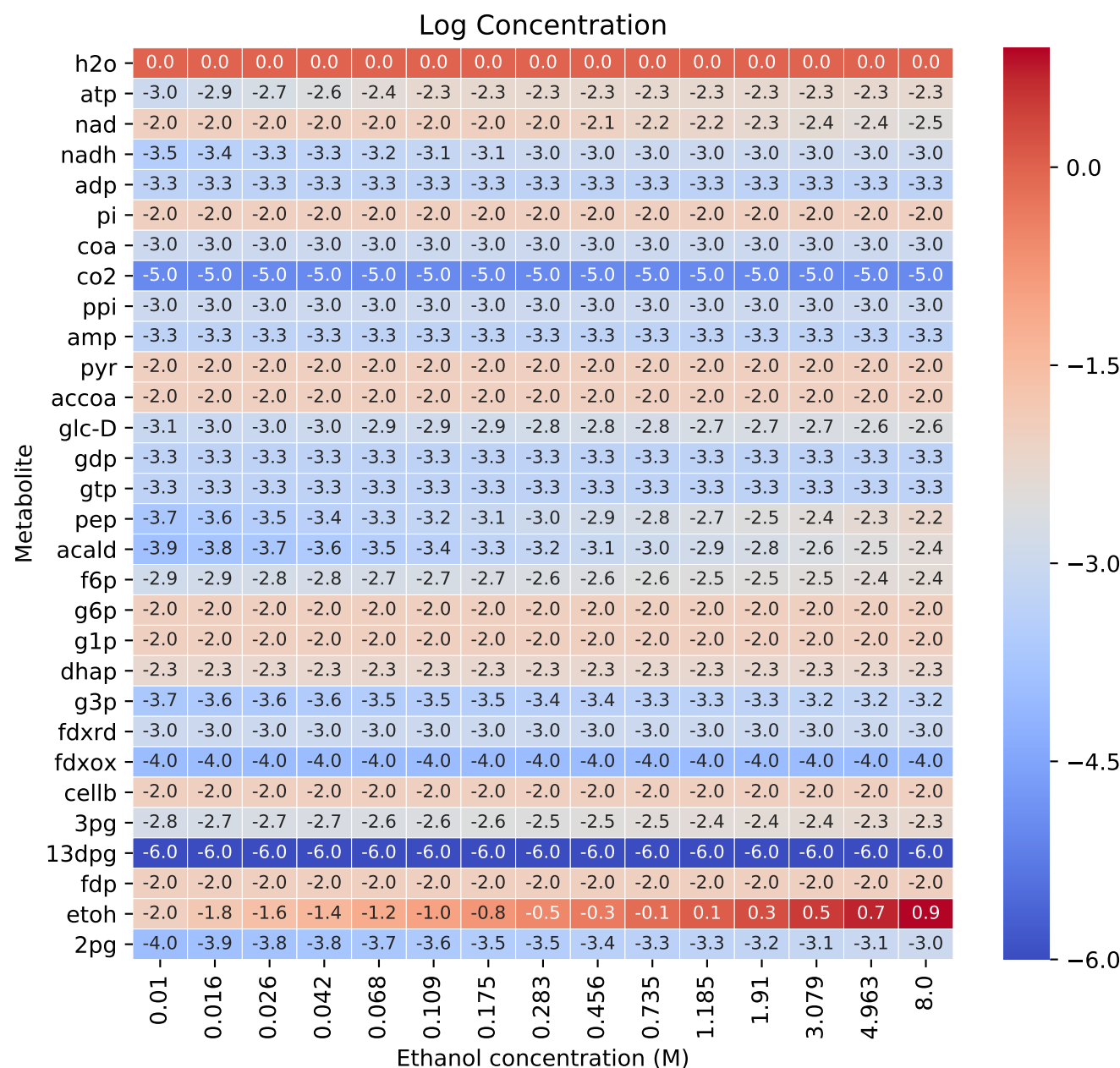
$$4 \text{ NAD}^+ + 4 \text{ NADPH} + 2 \text{ Orthophosphate} + 4 \text{ Diphosphate} + 4 \text{ AMP} + 3 \text{ GDP} + \text{Cellobiose} = 5 \text{ H}_2\text{O} + 3 \text{ ATP} + 4 \text{ NADH} + 4 \text{ NADP}^+ + \text{ADP} + 4 \text{ CO}_2 + 3 \text{ GTP} + 4 \text{ Ethanol}$$


Analysis of flux set: aldh-ndp

Log Concentration

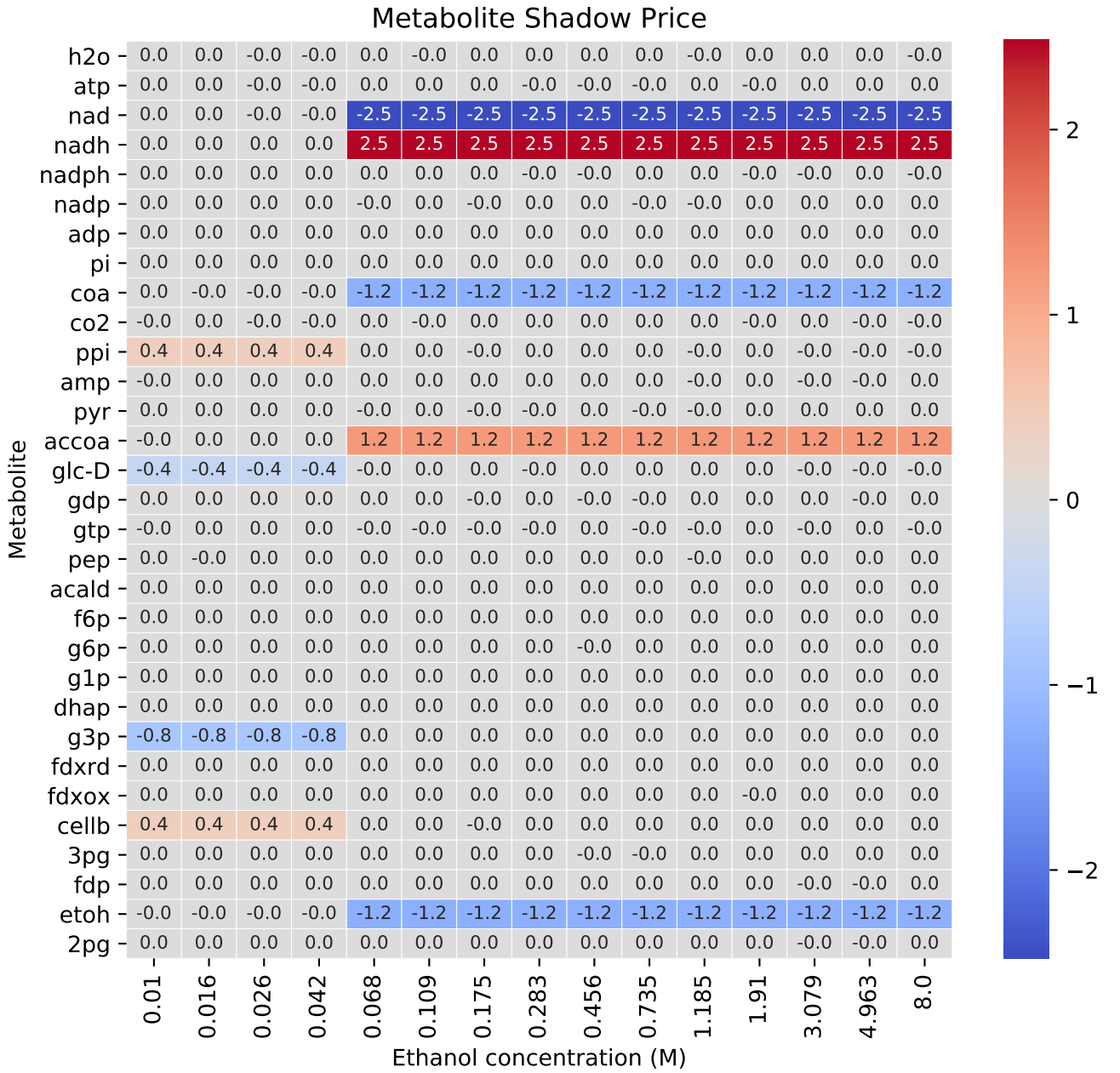
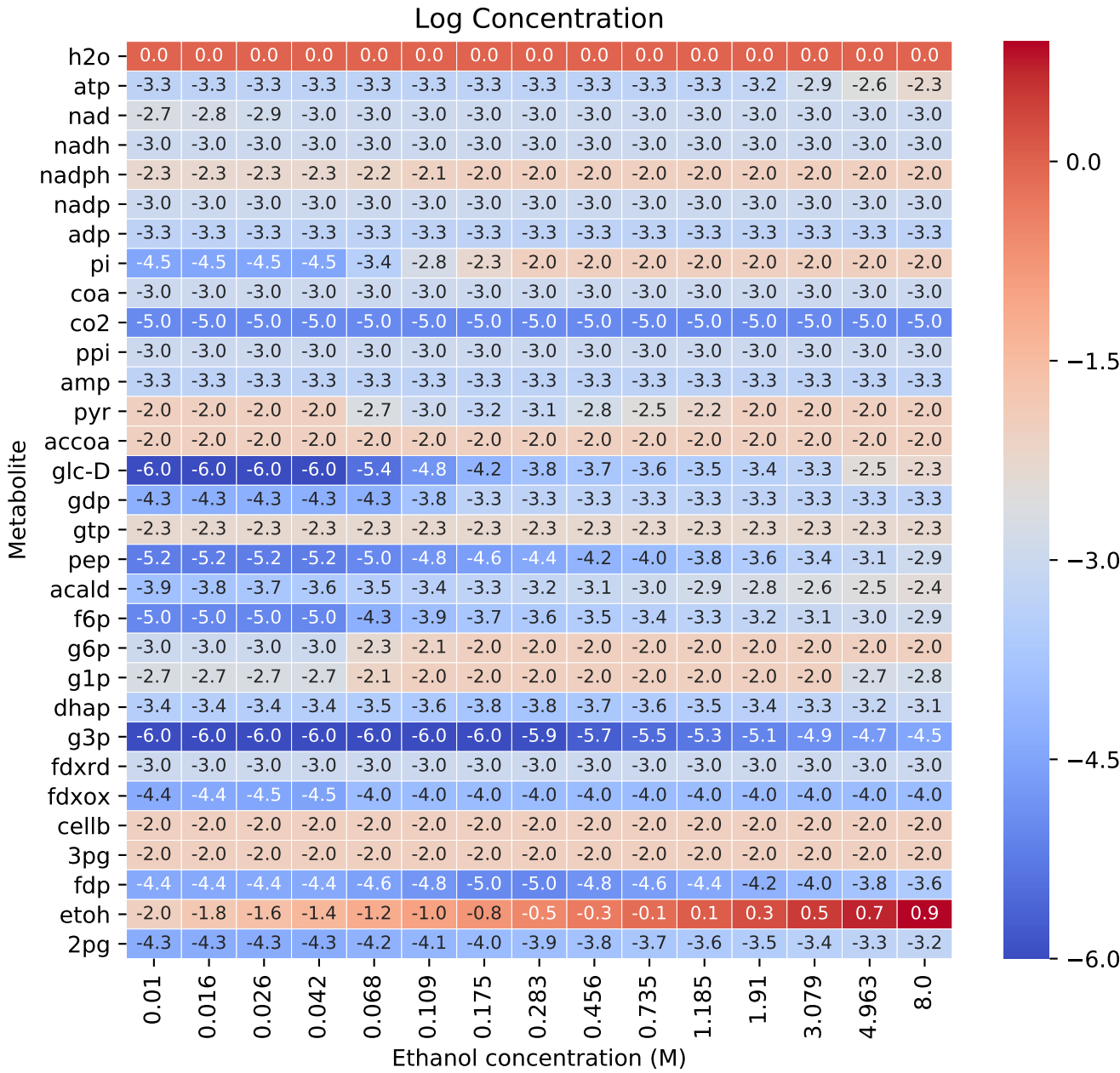
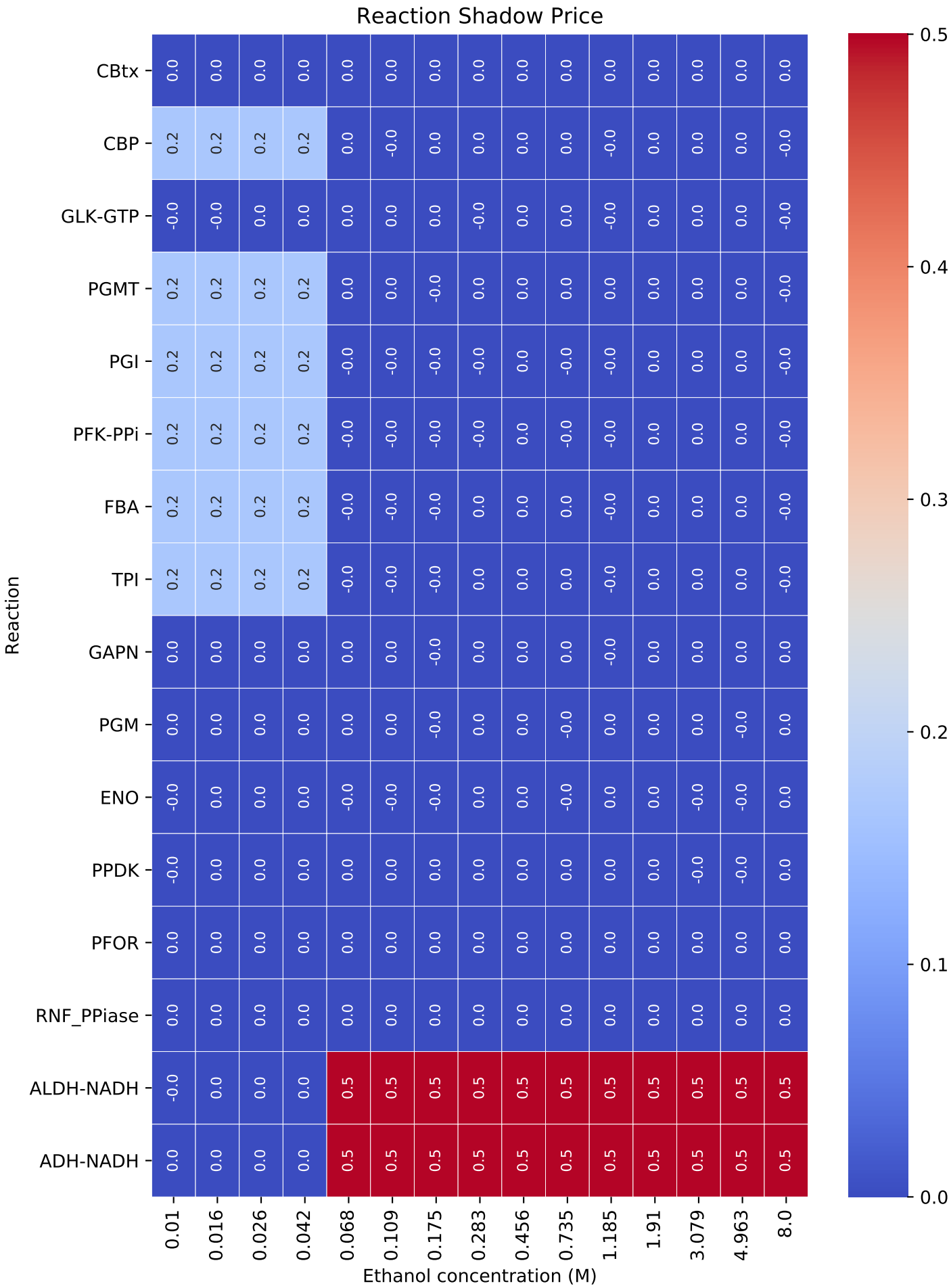
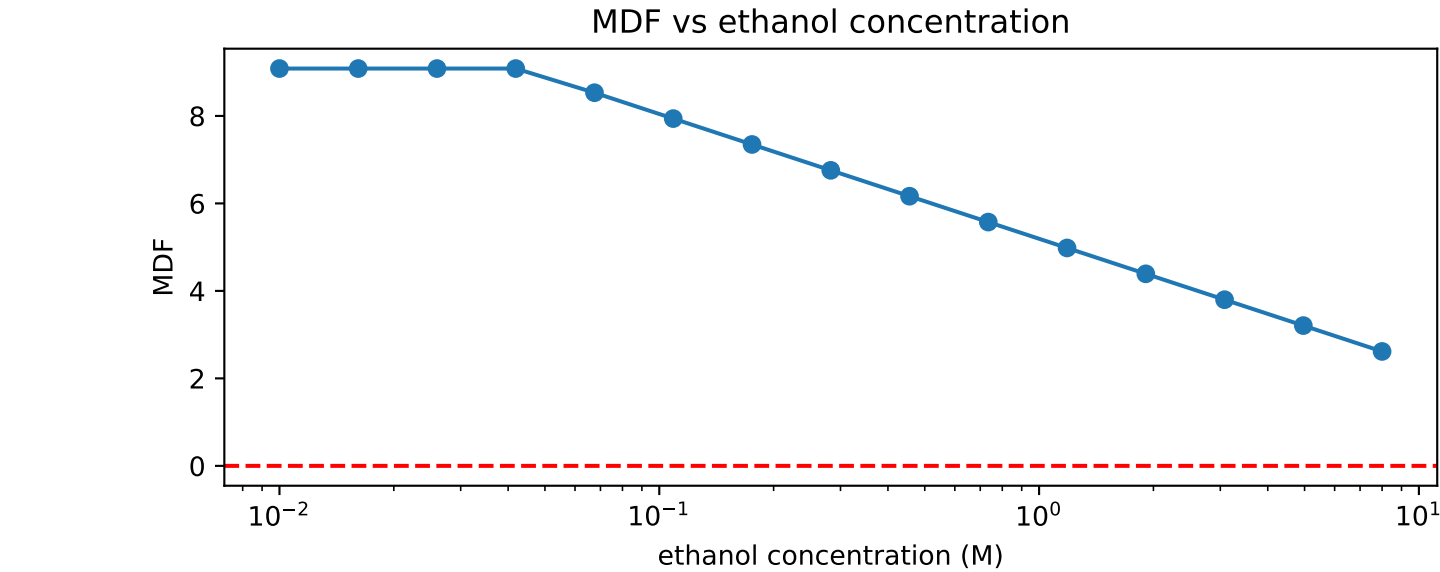


$\Delta G^0 = -283.40$
 Orthophosphate + 4 Diphosphate + 4 AMP + 3 GDP + Cellobiose = 4 H₂O + 2 ATP + 2 ADP + 4 CO₂ + 3 GTP + 4 Ethanol

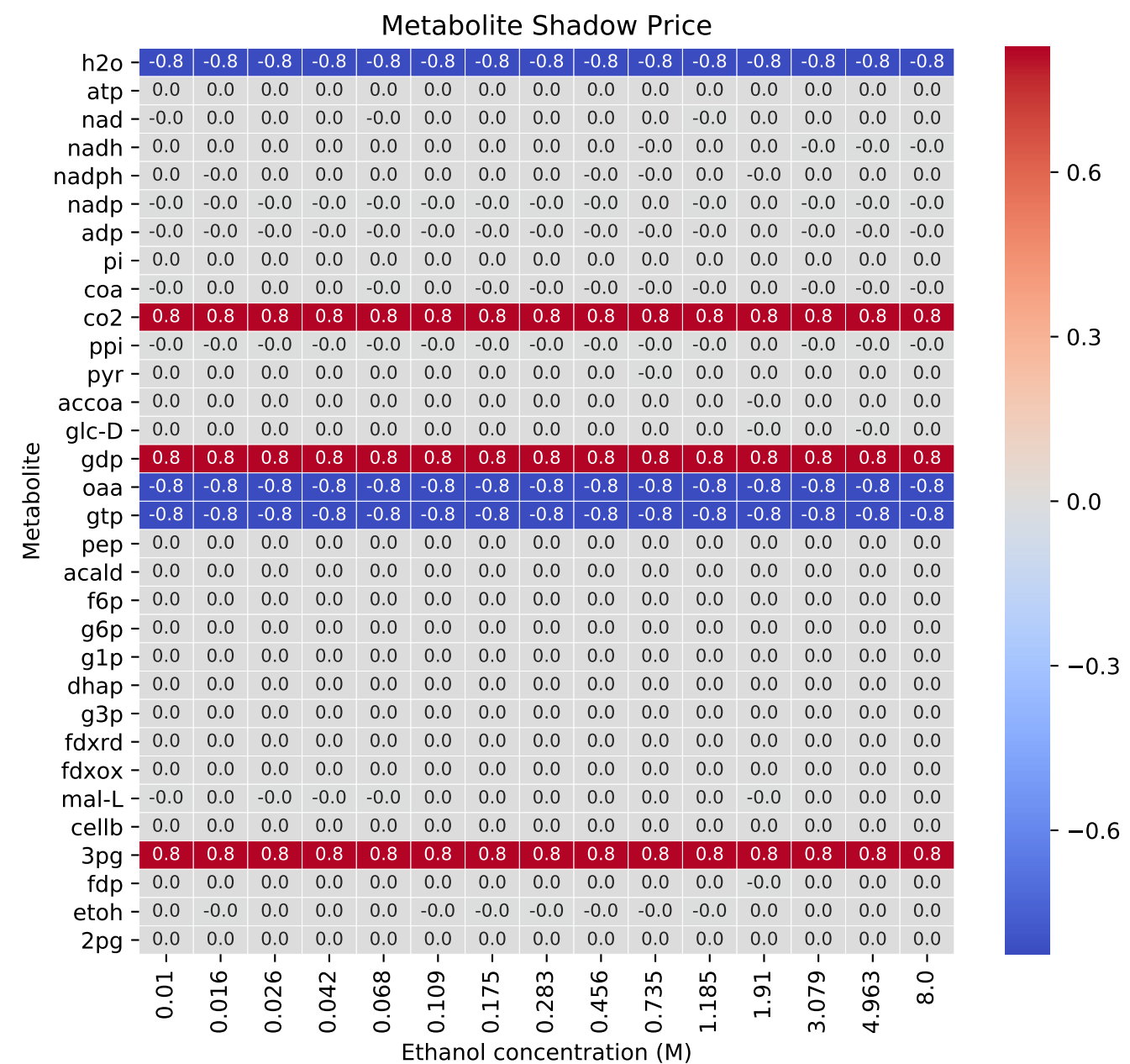
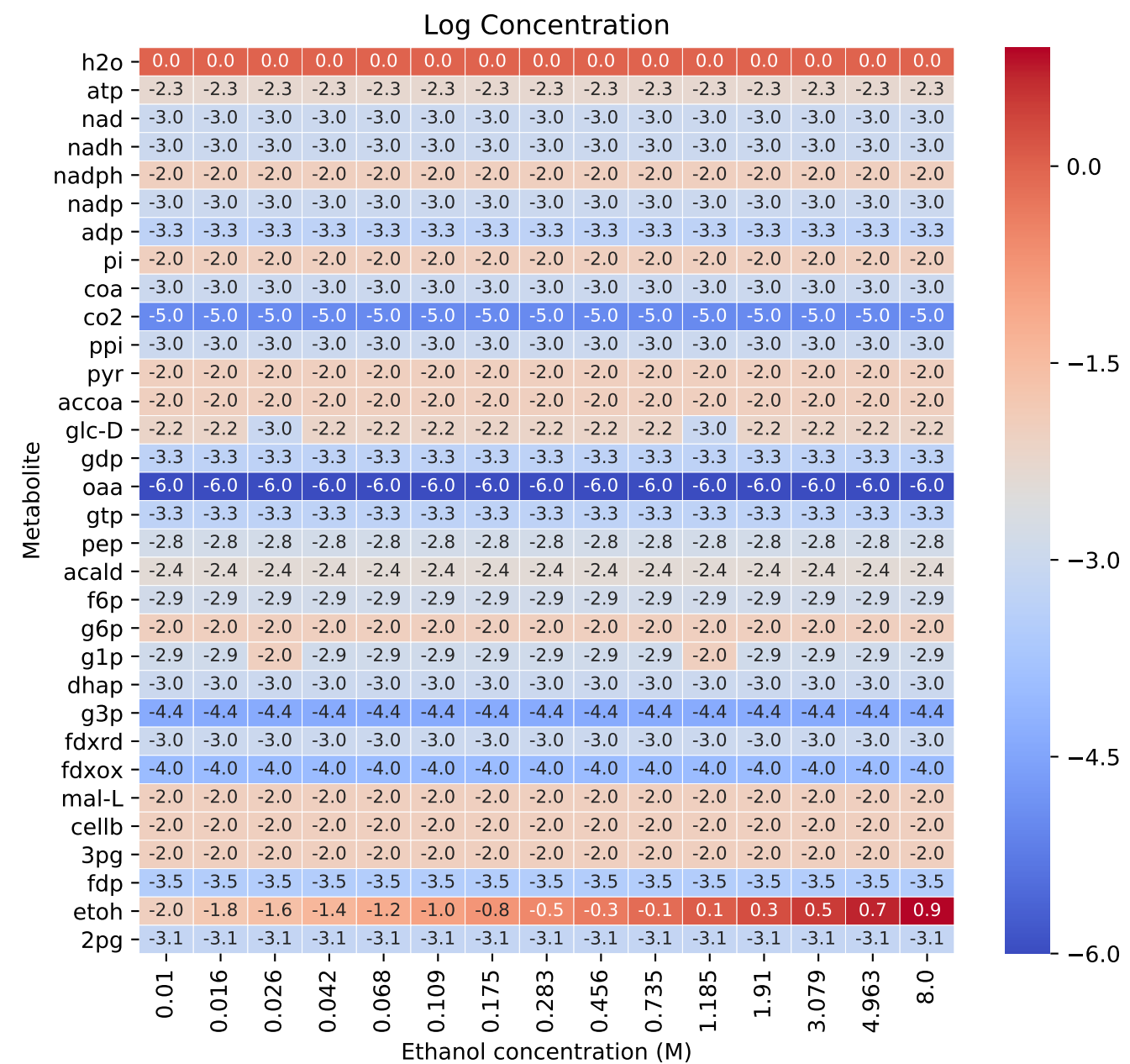
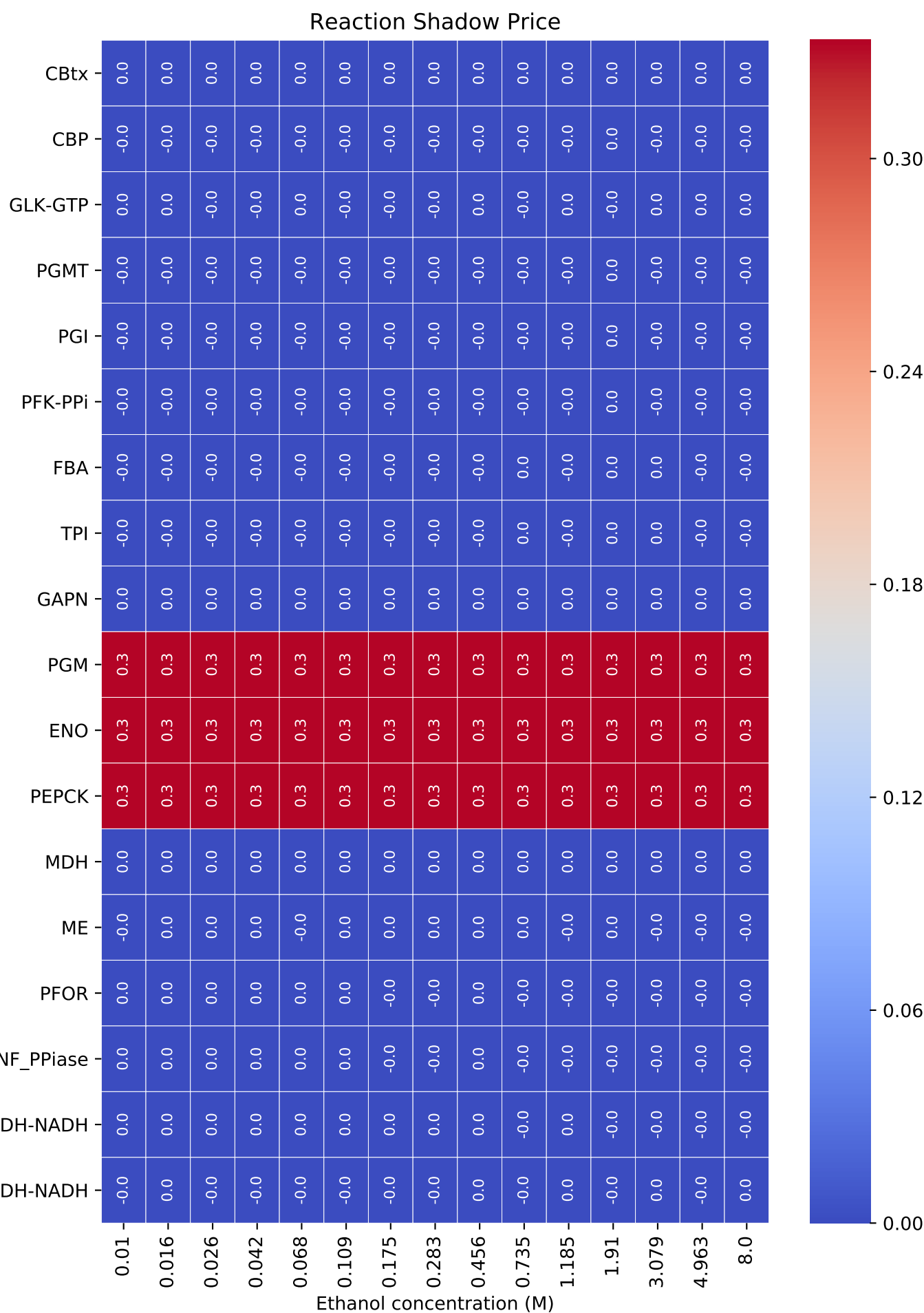
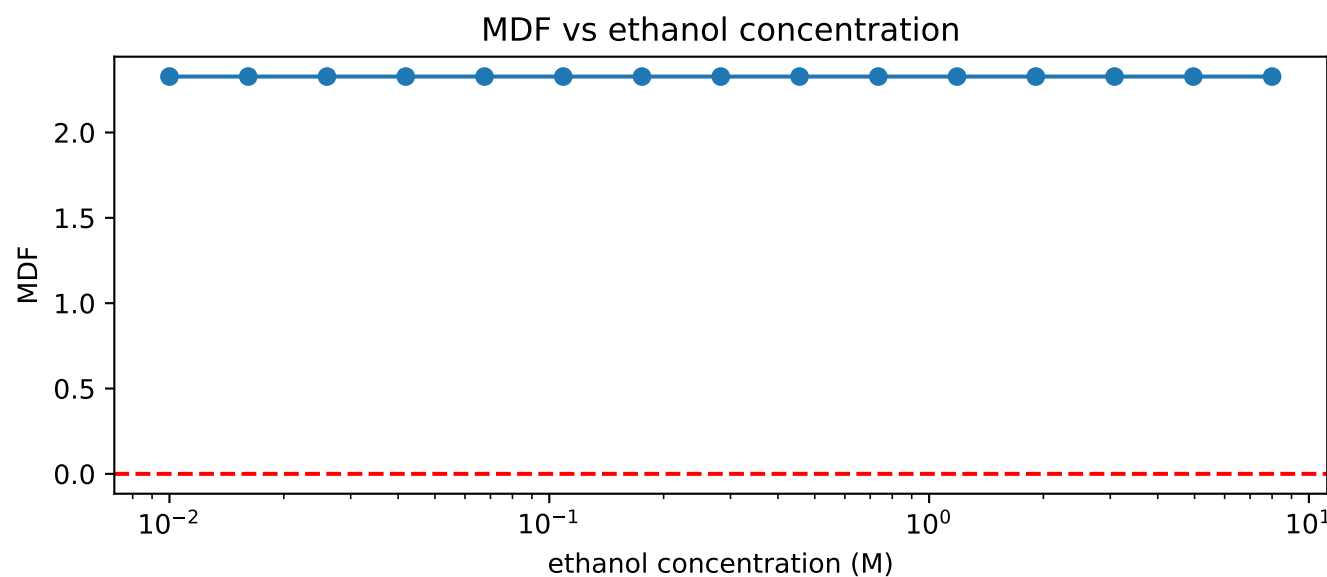


$\Delta G_0 = -348.74$
 $4 \text{ NADH} + 4 \text{ NADP}^+ + 4 \text{ Diphosphate} + 4 \text{ AMP} + \text{GTP} + \text{Cellobiose} = \text{H}_2\text{O} + 3 \text{ ATP} + 4 \text{ NAD}^+ + 4 \text{ NADPH} + \text{ADP} + 2 \text{ Orthophosphate} + 4 \text{ CO}_2 + \text{GDP} + 4 \text{ Ethanol}$

Analysis of flux set: gapn

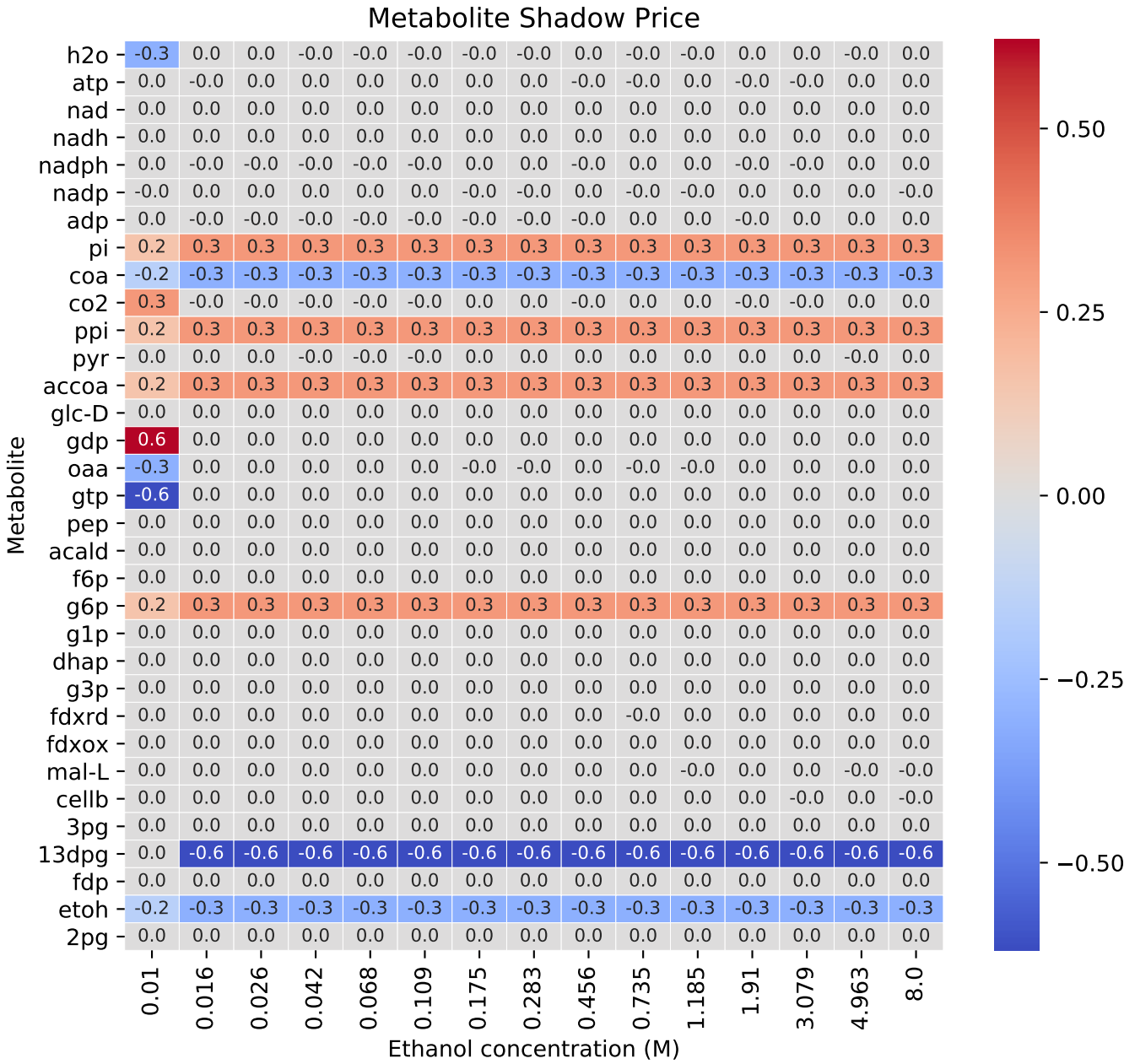
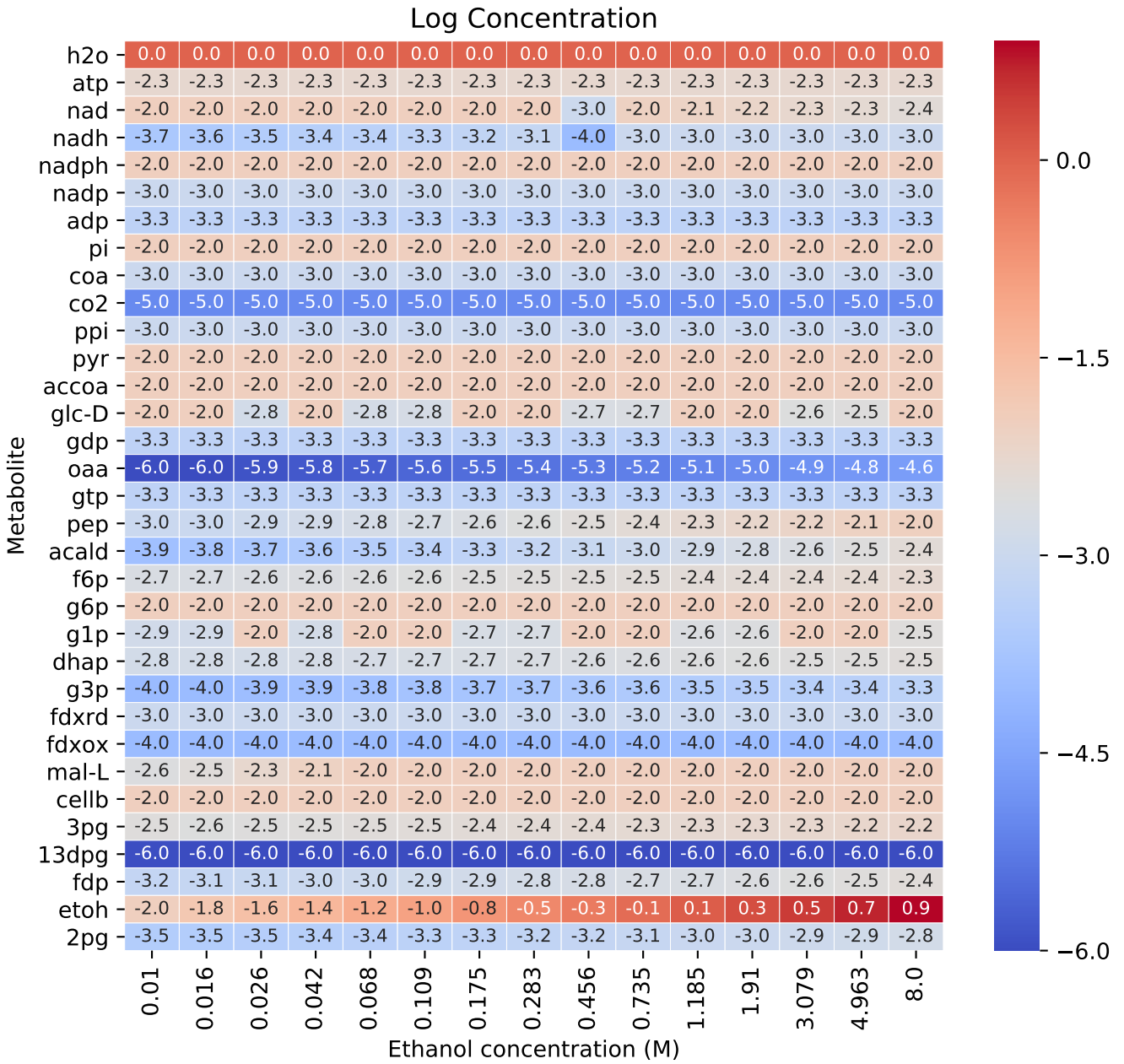
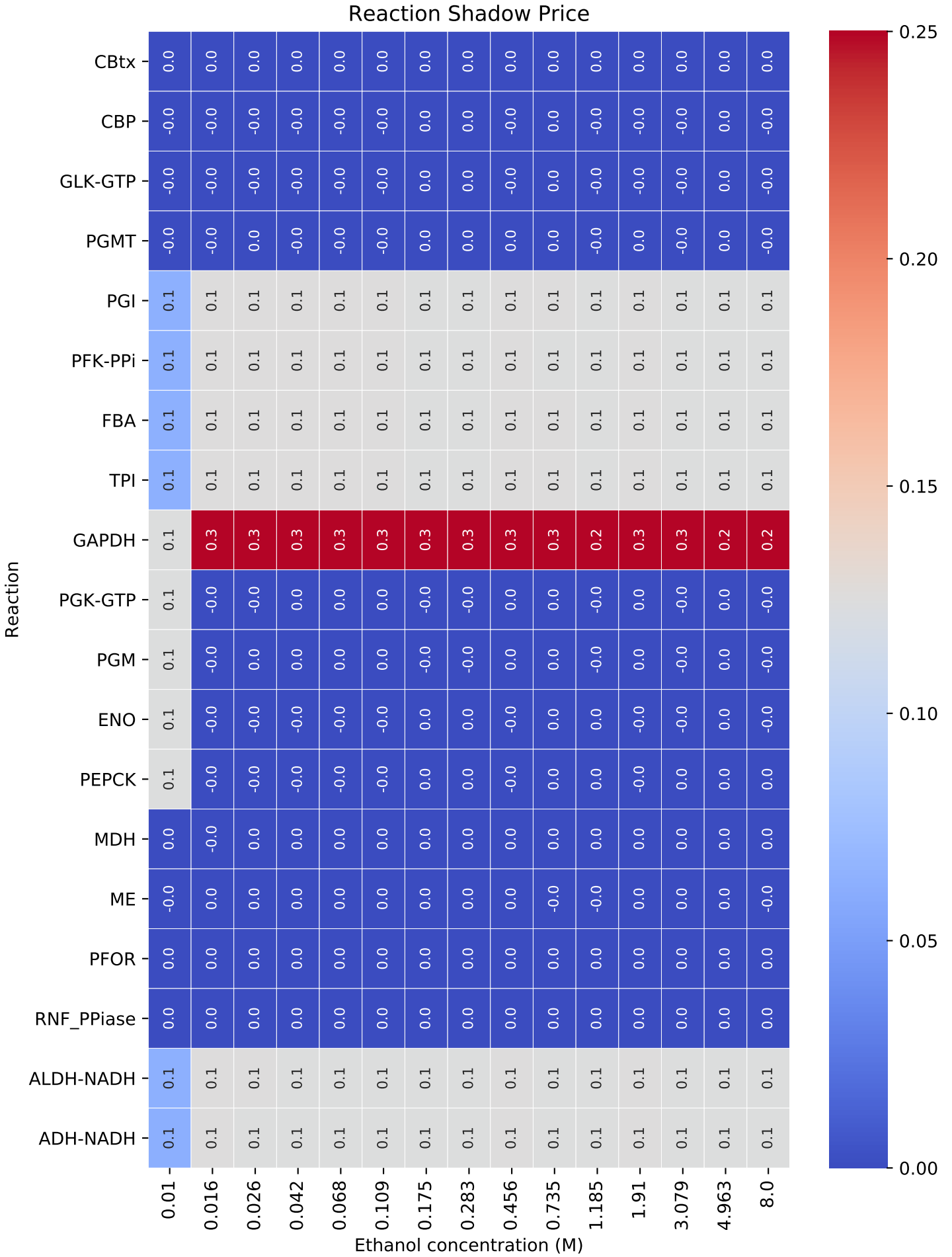
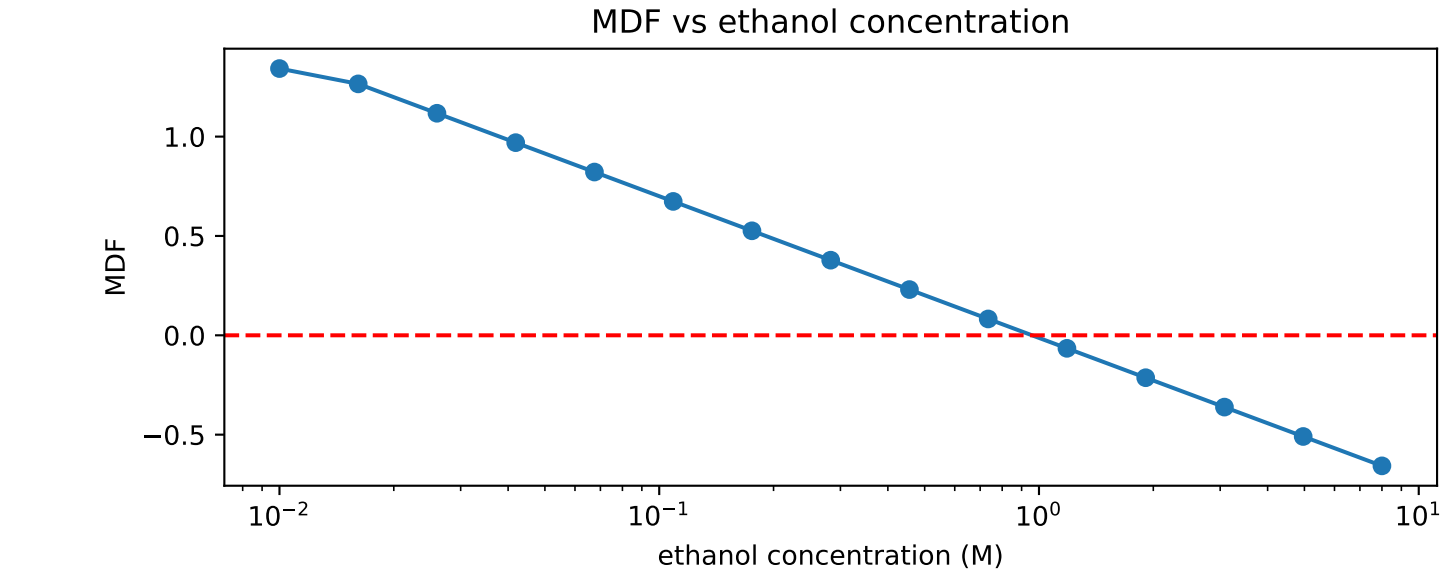


$\Delta G^0 = -386.89$
 $\text{ATP} + 8 \text{ NADH} + 8 \text{ NADP}^+ + 2 \text{ Orthophosphate} + 3 \text{ GDP} + \text{Cellobiose} = \text{H}_2\text{O} + 8 \text{ NAD}^+ + 8 \text{ NADPH} + \text{ADP} + 4 \text{ CO}_2 + 3 \text{ GTP} + 4 \text{ Ethanol}$

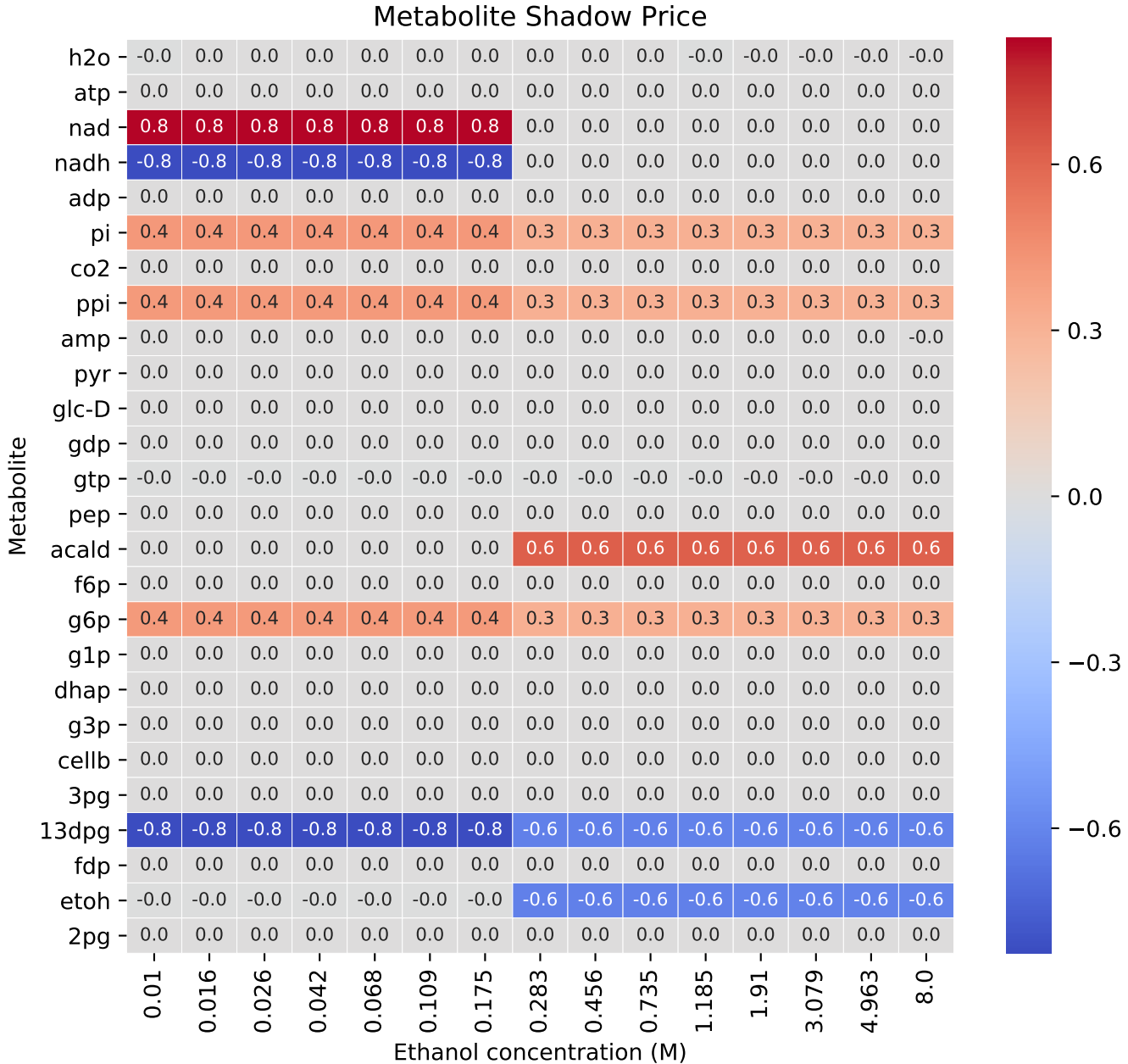
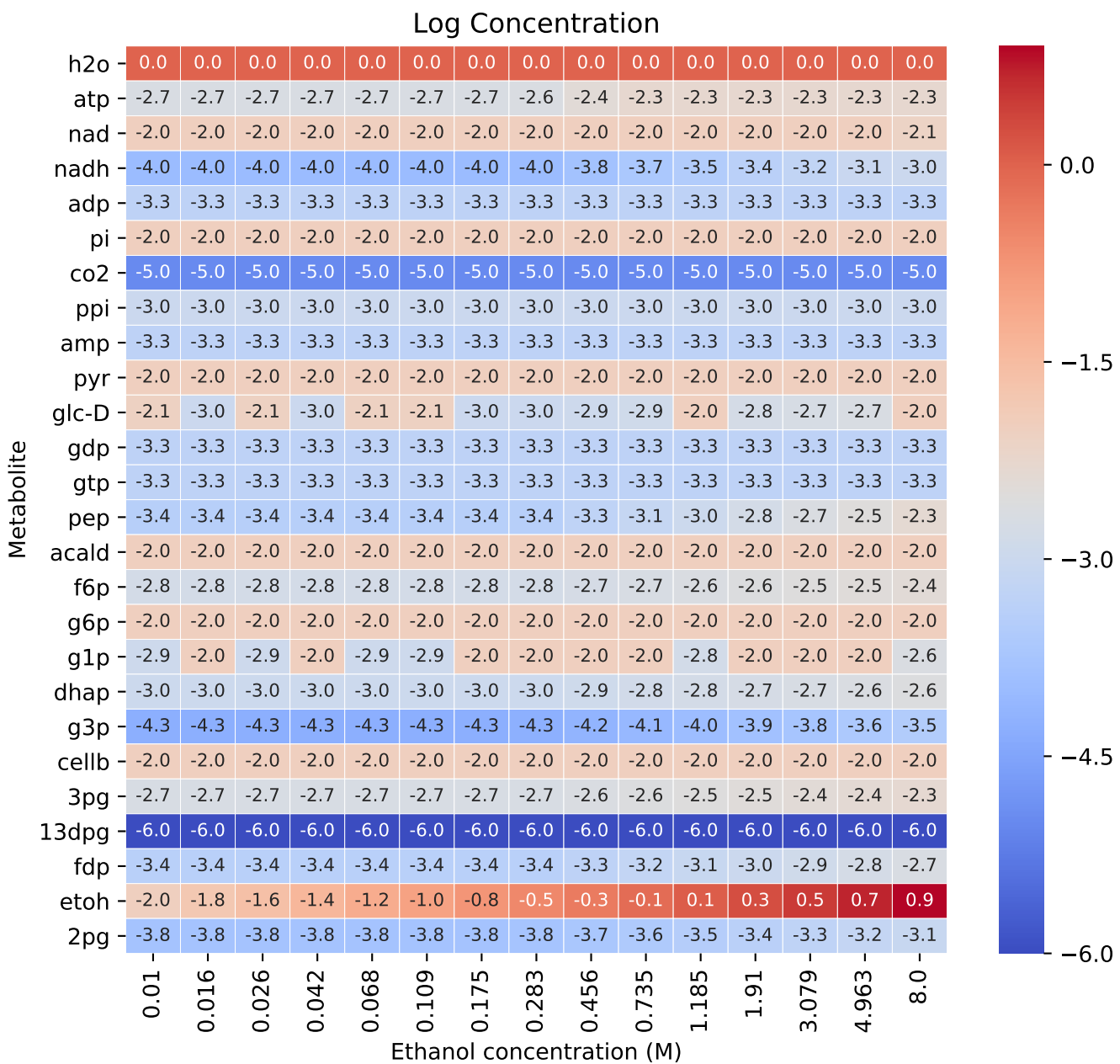


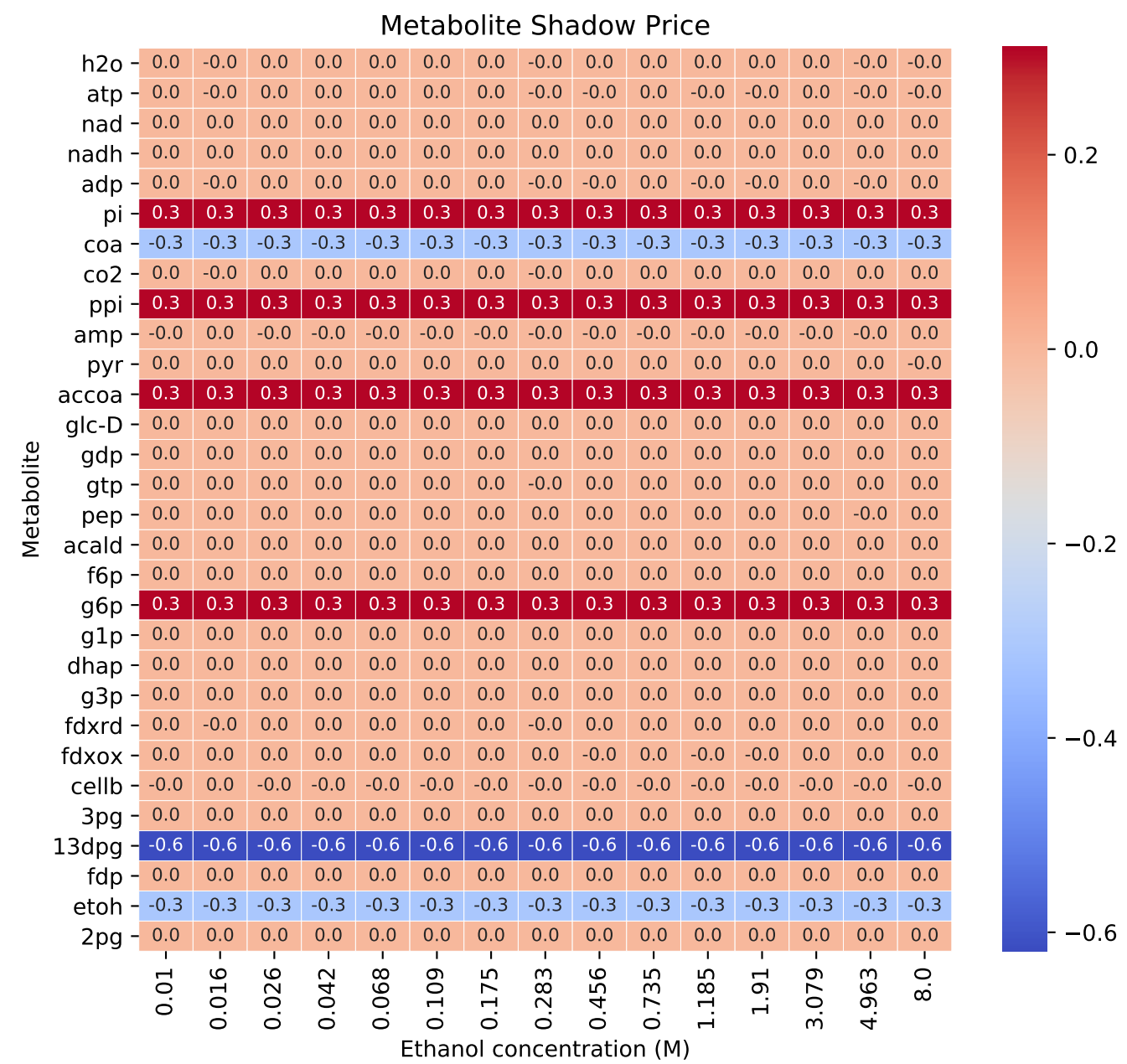
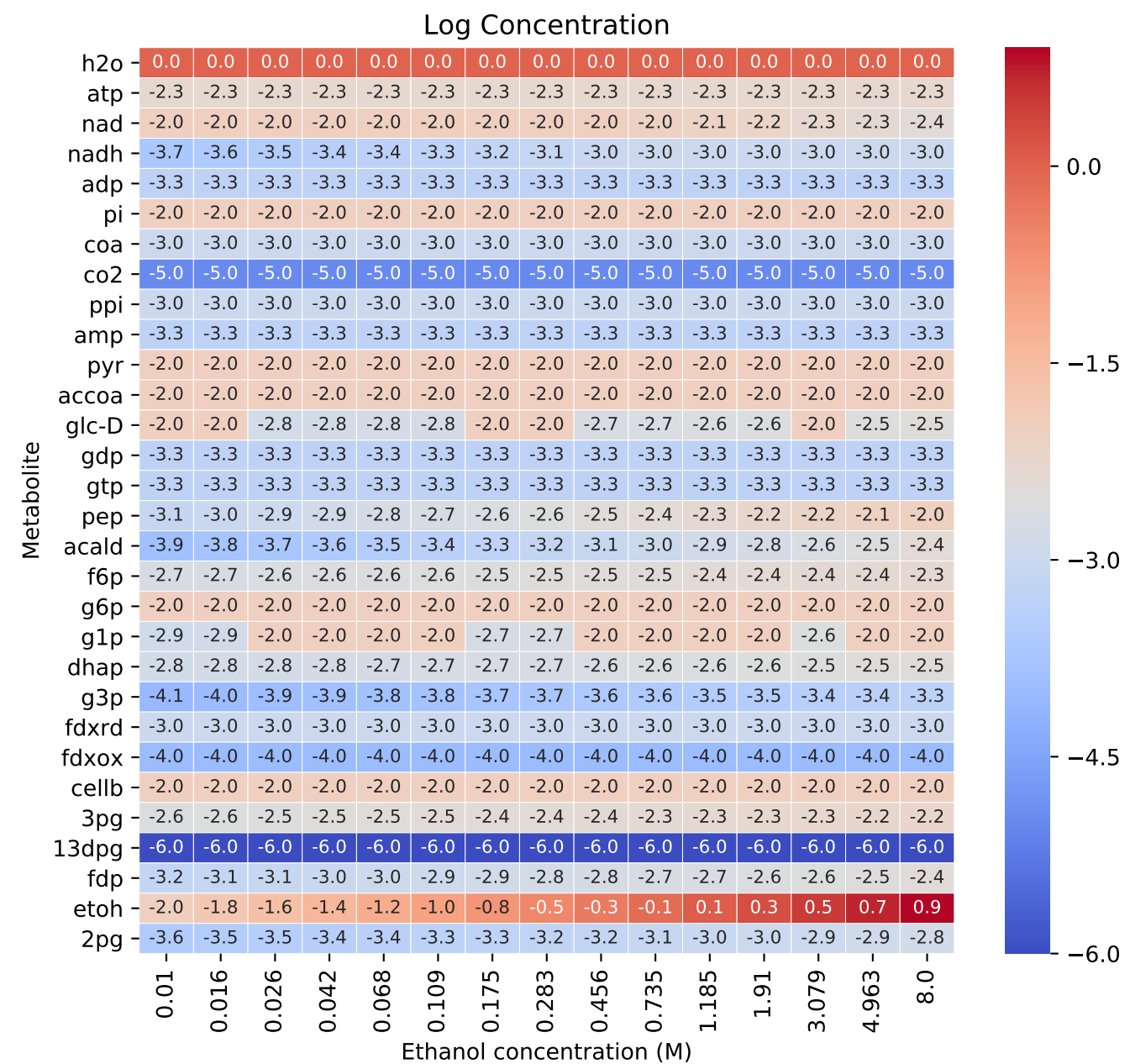
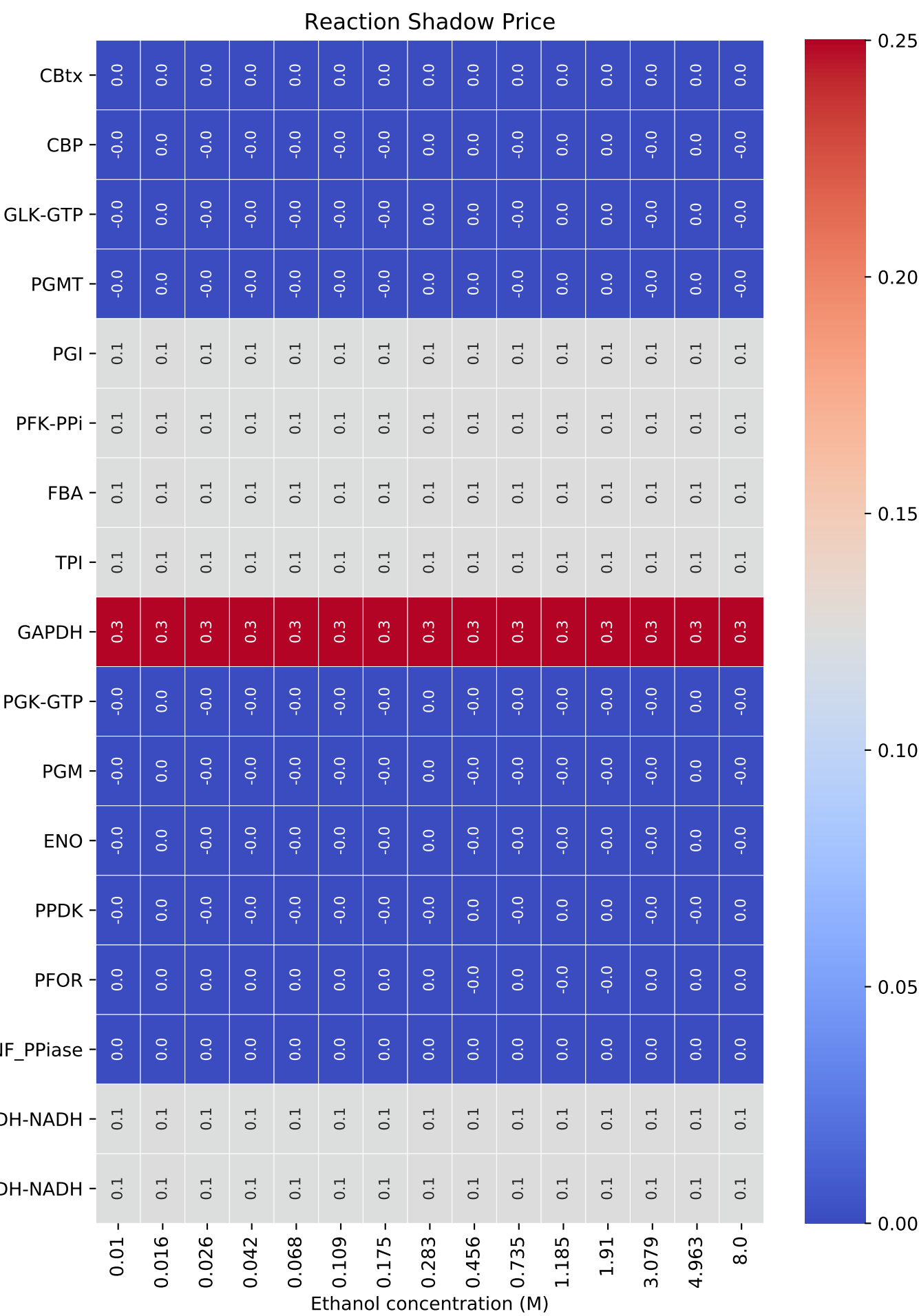
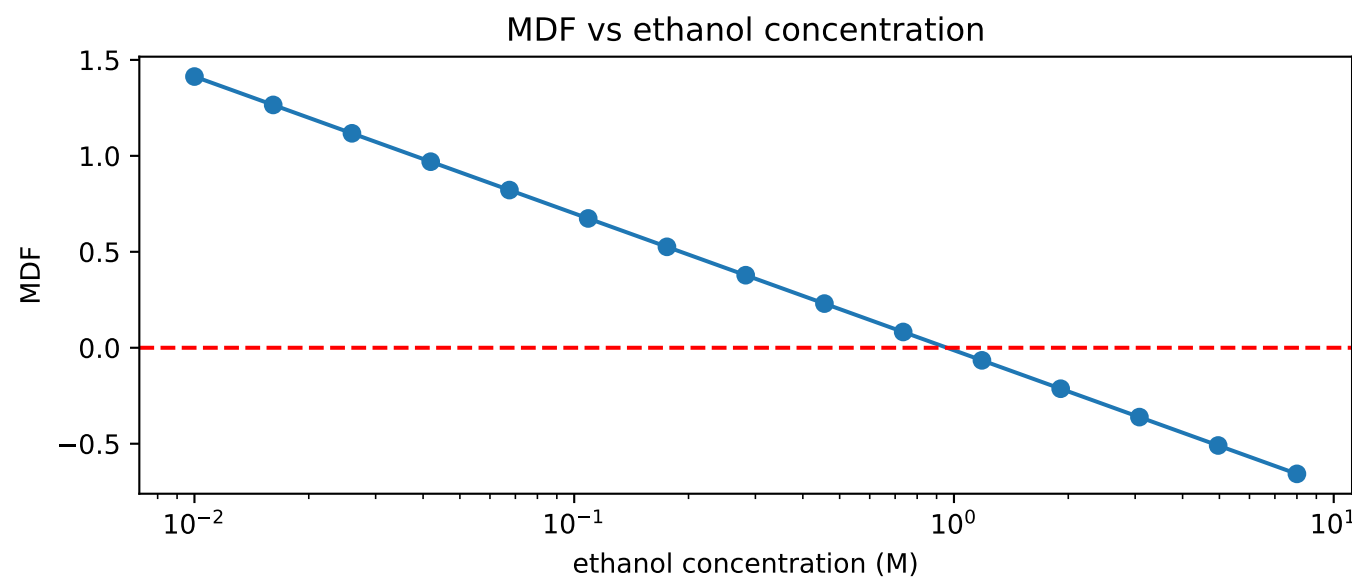
$\Delta G^0 = -295.16$
 $\text{ATP} + 4 \text{ NADH} + 4 \text{ NADP}^+ + 6 \text{ Orthophosphate} + 7 \text{ GDP} + \text{Cellobiose} = 5 \text{ H}_2\text{O} + 4 \text{ NAD}^+ + 4 \text{ NADPH} + \text{ADP} + 4 \text{ CO}_2 + 7 \text{ GTP} + 4 \text{ Ethanol}$

Analysis of flux set: mal-snt



Analysis of flux set: pdc



$$2 \text{ Orthophosphate} + 4 \text{ Diphosphate} + 4 \text{ AMP} + 3 \text{ GDP} + \text{Cellobiose} = 5 \text{ H}_2\text{O} + 3 \text{ ATP} + \text{ADP} + 4 \text{ CO}_2 + 3 \text{ GTP} + 4 \text{ Ethanol}$$


$\Delta G_0 = -361.00$
 $3 \text{ ADP} + 3 \text{ Orthophosphate} + \text{Cellobiose} = 2 \text{ H}_2\text{O} + 3 \text{ ATP} + 4 \text{ CO}_2 + 4 \text{ Ethanol}$

Analysis of flux set: tsac

