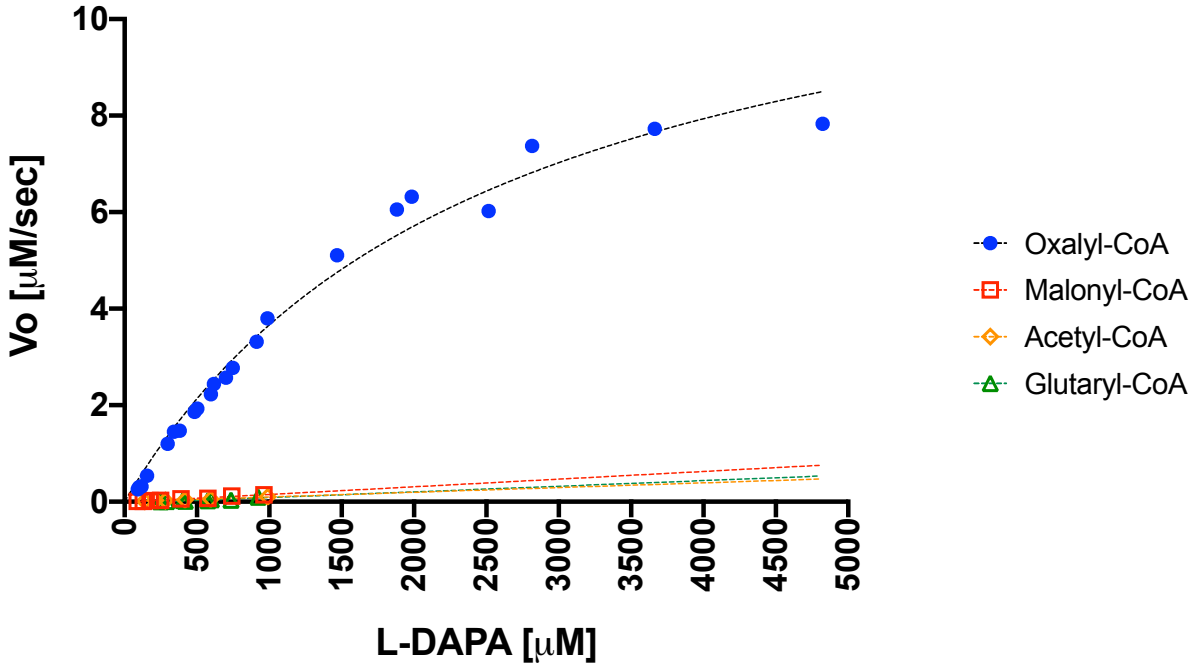
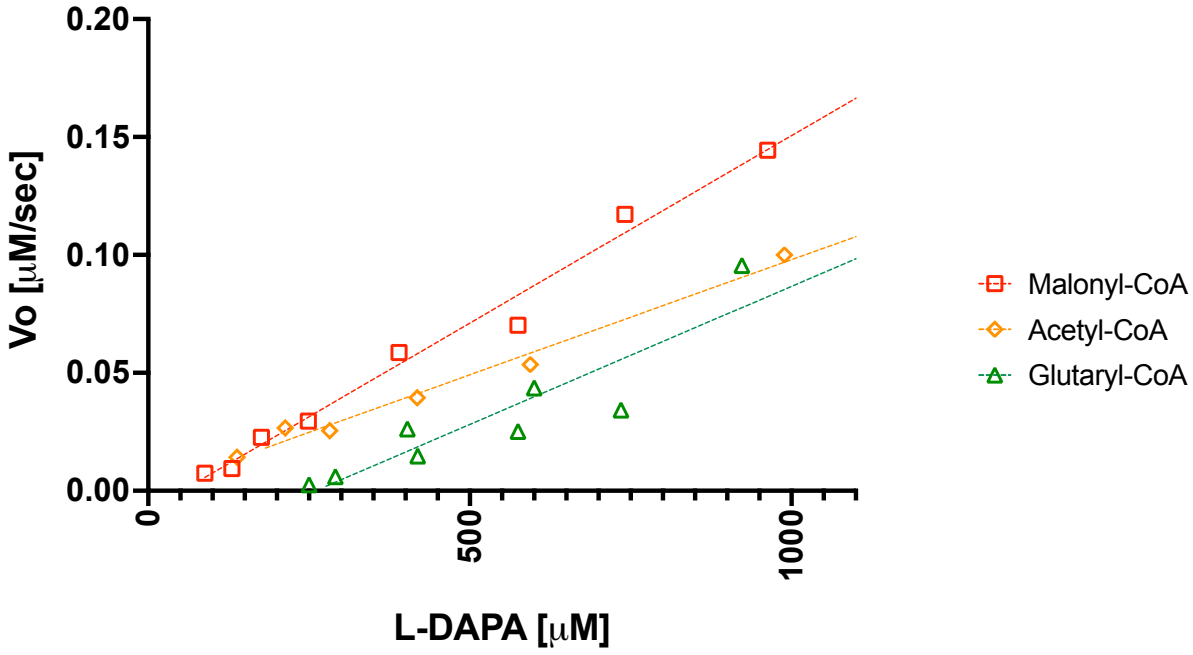
**S3a.**




**S3b.**




**Supplementary Figure S3. Kinetics of CoA substrate ligation to L-DAPA catalyzed by BOS. a.** *In vitro* generated oxalyl-CoA (6mM) or commercially obtained acetyl-CoA (2mM), malonyl-CoA (2mM) or glutaryl-CoA (2mM) were mixed with different concentrations of L-DAPA (0.09-4.8mM) and purified BOS (0.1μM) at R.T. Initial velocities ($V_0$) were determined by measuring residual L-DAPA concentrations at different time points. **b.** The initial velocities of reactions with acetyl-, malonyl- and glutaryl-CoA were much lower than with oxalyl-CoA, displayed linear progression curves and were, therefore, measured only up to an L-DAPA concentration of 1mM. Kinetic constants were derived by fitting the data to the Michaelis-Menten equation

(for oxalyl-CoA) or by linear regression (other acyl-CoA substrates) using GraphPad Prism 8.4.3 (GraphPad Software, San Diego, California USA.)