



**Extended Data Figure 1 | Effect of tungstate on anaerobic respiration *in vitro*.** **a**, Nitrate reductase activity of *E. coli* Nissle 1917 measured in medium supplemented with sodium nitrate and the indicated concentrations of sodium tungstate. **b**, Competitive growth of the *E. coli* Nissle 1917 wild-type strain and the isogenic molybdenum-cofactor-deficient mutant in the presence of the indicated electron acceptors under

anaerobic conditions. **c**, Competitive growth of *E. coli* NRG857c wild-type strain and the isogenic molybdenum-cofactor-deficient mutant in the presence of the indicated electron acceptors under anaerobic conditions. In **a–c**,  $n = 3$  replicates per condition;  $n$  denotes the number of biological replicates. Data are shown as geometric mean and geometric s.d. of three experiments.