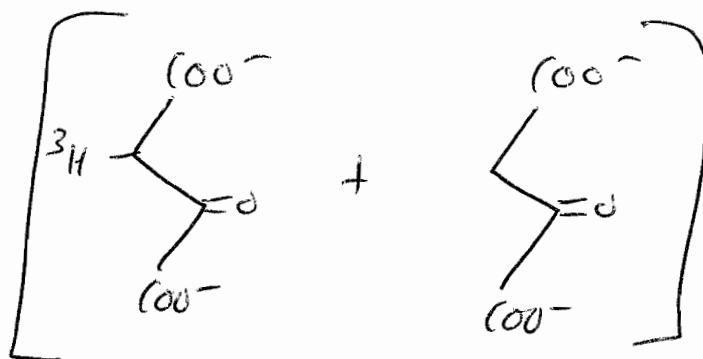


OR



b) ONE ³H IS LOST IN THE CITRATE SYNTHASE STEP
 ONE ³H IS LOST IN SUCCINATE DH STEP
 50% OF AN ³H IS LOST IN THE MALATE DH STEP
 (SEE ATTACHED SCHEME)

② THE MUTANT WILL PRODUCE MUCH LESS ATP/GLUCOSE THAN THE WILD-TYPE. THE MUTANT WILL GROW MORE SLOWLY UNDER AEROBIC CONDITIONS THAN WILL WILD-TYPE YEAST.

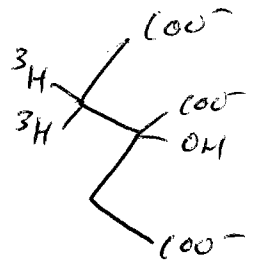
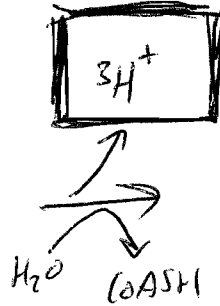
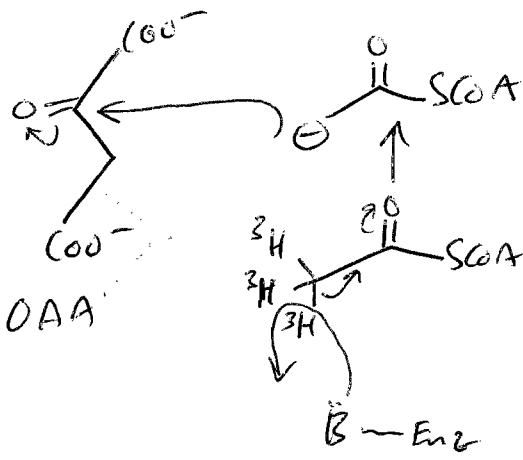
ATP YIELDS: WILD-TYPE - 38/GLUCOSE (2 ATP + 10 NADH + 2 FADH₂ + 2 GTP)
 MUTANT - 20/GLUCOSE (2 ATP + 5 NADH + 1 FADH₂ + 1 GTP)

THE MUTANT PRODUCES 1 NADH & 1 PYRUVATE FEWER THAN DOES WILD-TYPE. EACH PYRUVATE IS ABLE TO PRODUCE:

3 CO₂ + 4 NADH + 1 FADH₂ + 1 GTP; THUS, THE MUTANT PRODUCES

5 NADH → 15 ATP }
 1 FADH₂ → 2 ATP } 18 ATP FEWER PER GLUCOSE THAN
 1 GTP → 1 ATP } DOES WILD-TYPE.

~~NOTE: MUST MAKE SOME QUANTITATIVE COMPARISON OF ATP YIELD FOR FULL CREDIT~~



"TRITIATED FADH₂"

