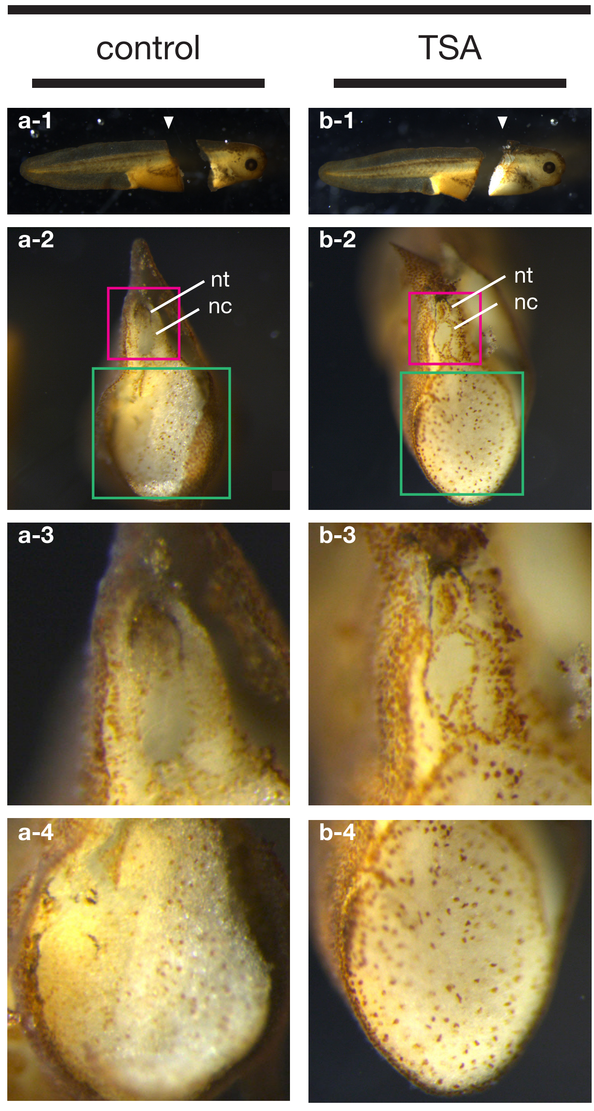
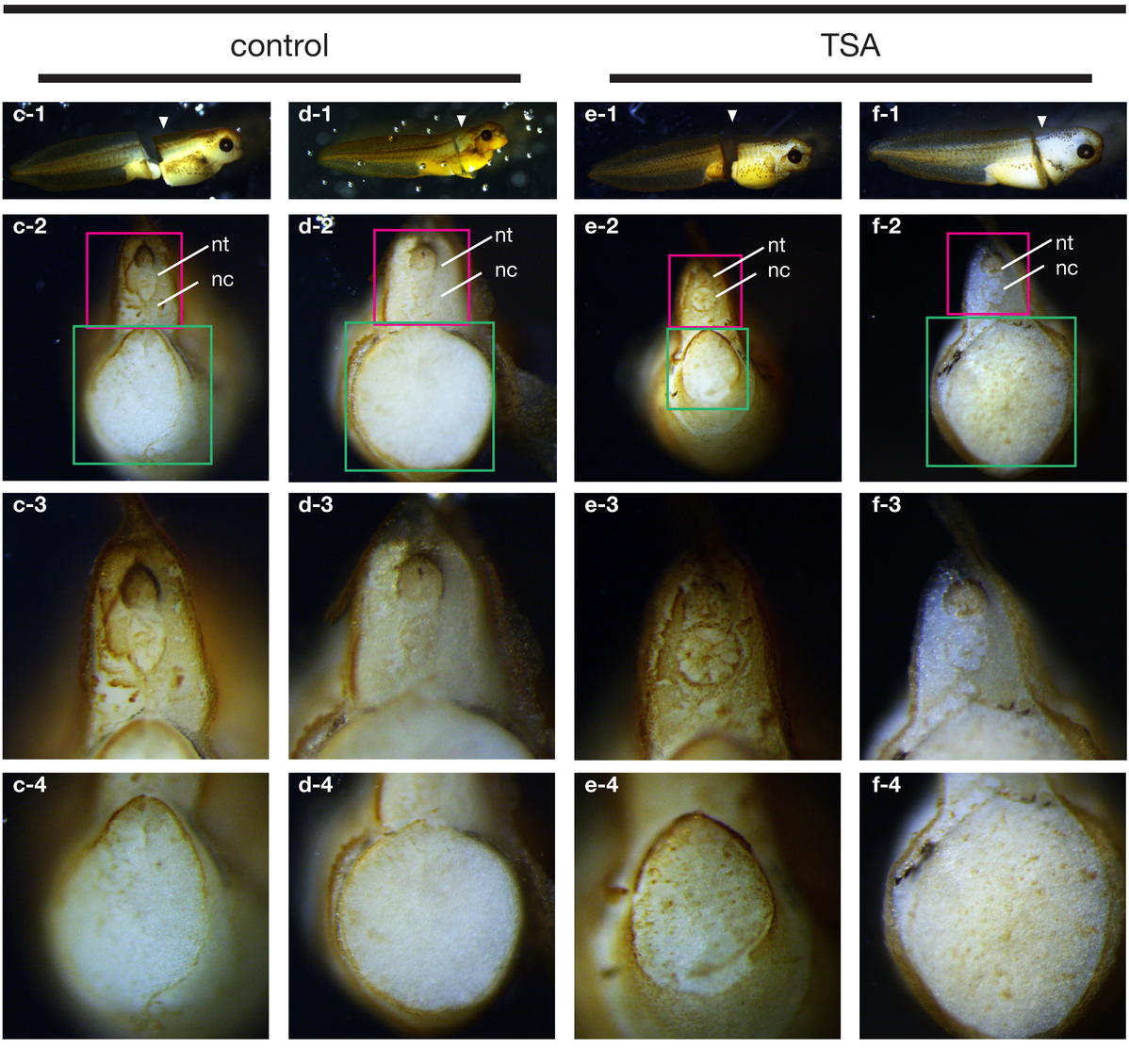
replicate #1



replicate #2