Competitions in the ministats

This protocol is for doing fitness assays in the ministats.

1. Grow your evolved and ancestral strains to steady state. Ancestral strain can be grown in ministats or in chemostats, evolved strains should be grown in ministats.
   a. In the ministats, pump at 5.25 rpm for 0.12 dilution rate.
2. Sterilely aliquot your ancestor into conicals.
3. Using ethanol on the needles, push the outflow needles on the ministats down as far as they will go to empty evolved strains to ~5 ml.
4. Pull the outflow needles back up to their previous height (20 ml).
5. Sterilely add 20 ml of ancestor to each ministat tube using a needle and syringe.
   a. This will make your initial concentration of evolved strain ~15%.
6. Wait about 15 minutes, then take your first sample from the outflow.
7. Continue taking samples every 2-3 generations for about 20 generations.