How To Run A Gel

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Use this protocol to visualize DNA quantities and lengths.

Get out bleach, ethanol, paper towels, tube racks, your DNA, a gel dock, the gel dock power supply, DNA ladder, loading dye, parafilm, pipettor, tips, tip container, vortex, magic marker, a cooled gel with appropriately-sized holes, extra TAE solution if the docks are low, a gel dock, a power station.

1. Clean the counter with bleach and ethanol. Wipe with a paper towel.
2. Melt your DNA on the counter if it is frozen.
3. Make sure the gel dock is not plugged in to the power station.
4. Open the gel dock lid and gently place the solid gel in there with the wells nearest the black (-) electrode. If the TAE does not cover the gel and fill its wells, add more TAE.
5. Cut a strip of parafilm big enough for all your samples to fit comfortably on it and place it on the counter. You can tape it down if you like.
6. Using either a single-channel or multichannel pipettor, add 5 μL of loading dye on the parafilm so that it forms a little bead.
7. Carefully open your DNA tube(s)/uncover the PCR plate.
8. Using new tip(s), suck up 2 μL of DNA from your tube(s). You can change the volume of DNA used if you do so desire, oftentimes you want 1 μg of DNA in each well.
9. Touch the mouth(s) of the tip(s) to the bead(s) and gently mix by pipetting up and down.
10. Carefully insert the mouth(s) of the tip(s) into the well(s) in the gel. I find it easiest to use mymiddle finger to stabilize the pipettor. Remember that if you are using a multichannel pipettor that you must alternate wells each time you pipette new samples (XXXXXXXXXXXXXXX to 1X1X1X1X1X1X1X1X to 1212121212121212)
11. Press pipettor to first stop. Most of the DNA/loading dye mix should flow to the bottom of the wells. Press halfway to the second stop if you think you can get more out without producing bubbles. Bubbles are bad because they can force your DNA/loading dye mix to the top of the well where it can be lost or contaminate other wells.
12. Slowly remove pipettor and tip(s) from the well(s) and dispose of used tips in the bucket.
13. Once you are done pipetting, place the lid on the gel dock.
14. Plug the gel dock into the power station.
15. Turn on the power station and set it to 7.5 V

16. Leave the gel running until the tracking line has moved 75% of the way to the end of the gel.
17. Turn off power station.
18. Remove gel from gel dock.
19. Visualize it with the method of your choice, being sure to save the resulting photos in a folder with the date and time.
20. Dispose of your gel in the trash if it does not contain ethidium bromide (ours do not contain that chemical)
21. Rinse gel mold.
22. Cover gel dock
23. Throw away parafilm strip.
24. Cover and put away your samples.
25. Put away the ladder.
26. Clean the counter with bleach and ethanol. Wipe with a paper towel.
27. Print out and tape a photo of your gel to your lab notebook.