start with a stem cell

Cell Pet (wet lab activity)

Feed us, wash us, give us space - have you got what it takes to be a cell pet owner?

Audience: 7-12 year olds

Introduction:

'Cell Pet' is a practical activity designed to introduce young people to one of the lab processes that many stem cell scientists find themselves doing a lot – looking after cells!

Instructions:

Aim of the activity:

To look after your 'cell pets' by giving them more room to grow, by feeding them and keeping them warm.

You will need:

- Alcohol spray in a vaporiser (or water could be used instead)
- 'Cells' in a culture flask (food colouring + water)
- 5 ml plastic pipette (or syringe)
- 10 ml plastic pipette (or syringe)
- Gloves
- Lab coats
- 'Buffer' in container, labelled (water or food colouring plus water)
- 'Growth medium' in a container, labelled (water or food colouring plus water)
- 'Trypsin' , in a container labelled (water or food colouring plus water)
- Liquid gelatine
- 6 well plates or culture flasks
- Water for pipette practice
- Large plastic beakers for waste
- Lab roll
- Images of cells – hard copy or video of cells at different stages, or microscope set up to view fixed cells in flasks
- Incubator or hybridisation oven

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These are the instructions for the audience but usually a demonstrator (you!) will explain the steps.

How to look after your cell pets:

1. Put on your lab coat and gloves to keep your pet cells clean.

2. Have a look at your flask of pet cells. Your cells are stuck to the bottom of the flask in a layer [look at the image of cells or the cells under the microscope to see what they look like]. The cells need more room, they need feeding and also need to be kept clean.

3. Spray your gloves, table and cell flask. The alcohol will kill any bacteria cells and viruses so that your cells stay clean.

4. Your cells' new home needs to be sticky on the bottom so your cells have a base to grow on. Make it sticky by pipetting gelatine onto the bottom of your flask and removing any excess to leave a thin layer.

5. Take your cells and use a pipette to remove all of the old growth medium (the cells' food). You are now left with your cells stuck to the bottom of the flask in a layer.

6. Add 2 ml trypsin with a pipette to break your cells away from the bottom of the flask. [you could have an image to show how the cells lift away from the flask].

7. Give your cells plenty of space to grow by pipetting 10 ml into their new flask or plate.

8. We now need to feed them before they get too hungry! Add 10 ml growth medium if using a plate or 20 ml to a small flask and mix gently to give your cells lots of space.

9. Your cells are now well fed, clean and have lots of space to make new cells. All they need now is some body heat which they can get in an incubator.

10. Did you make it as a cell pet owner?

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Cell Pet in action

Kitted out in lab coat and gloves, ready to feed the cells.

Thinking about what the cells need to live.

Looking at flasks of fixed cells under the microscope to see what they look like.

Home, sweet home. Placing the cells in the incubator.

Risk assessment pointers:

- Pipettes and other equipment need to be plastic rather than glass.
- The incubator or hybridisation oven don't need to be plugged in but wires need to be secure and taped to prevent trip hazard (as with the microscope if used). If plugged in the equipment will need to have had an electrical safety test.

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