CONCEPT: CELL CULTURE

● Cells can be cultured in a _____ setting (Began in 1907)

□ **Primary cultures** are derived directly from tissues

- Take tissue, disrupt the ECM, and dissect cells from thin tissue slices

- Unfortunately, they don't live very long and are difficult to keep alive

□ **Secondary cultures** are cells that are derived from other cultured cells

- **Cell lines** are cells that have undergone genetic modifications to allow them to grow indefinitely

- Eventually each culture will die after 25-40 divisions – but you can freeze them at early cycles

□ Cells need a lot of _____ when grown in a laboratory

- Need certain nutrients from media solutions

- Need to be grown in flat dishes, or in a 3D environment with fake ECM

- Need to be maintained at certain temperatures with certain gas exchanges

□ Cell culture provides certain benefits to scientists

- Provides homogenous population of cells to work with

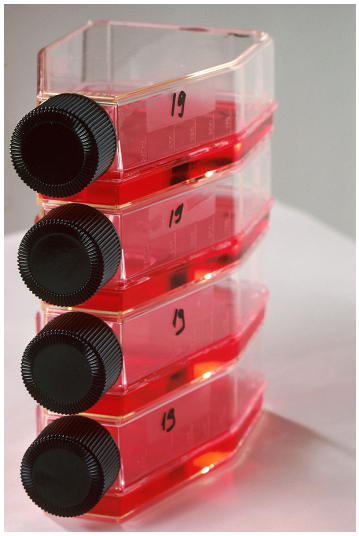
- More convenient to work in a lab

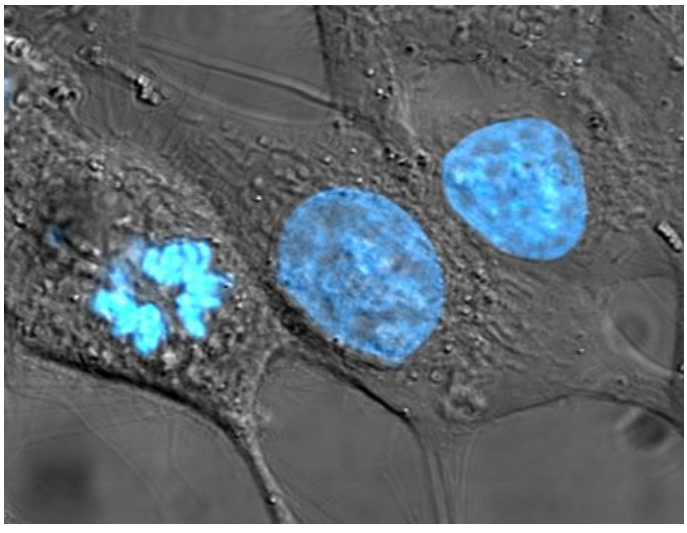
□ Research done using _____ is called:

- **In vitro** by most everyone because it doesn't happen in living organisms

- **In vivo** by biochemists, because it does happen in living cells

EXAMPLE:





PRACTICE:

1. Which cell types are derived from primary tissue?
    a. Primary cell cultures
    b. Secondary cell cultures
    c. Tertiary cell cultures
    d. Cell lines

2. *In vitro* can describe experiments happening in all but which of the following?
    a. In a tube
    b. In cells
    c. In living organisms