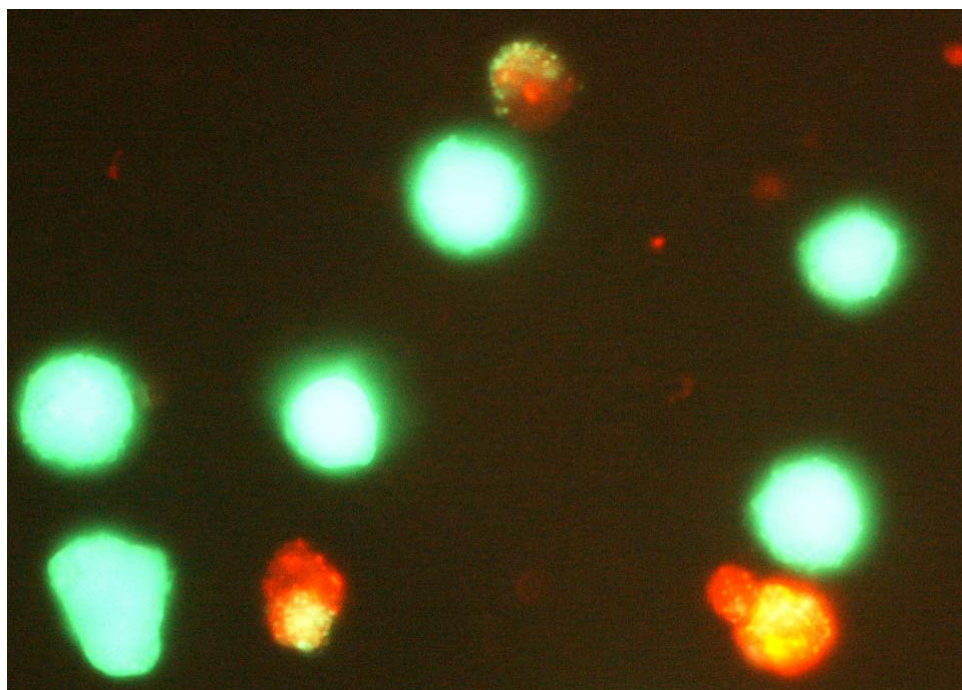


	<h1>CELLS ONLINE WORKSHEET</h1>
TOPIC	DETECTING LIVE AND DEAD CELLS WITH FLUORESCENT STAINS

Fluorescent stains can be used to detect living and dead cells. A stain called fluorescein diacetate (FDA) can be used to identify live cells. It is a non-fluorescent molecule which can pass through the plasma membrane. When inside a live cell, esterase enzymes convert it into a fluorescent molecule. If the cell is dead and the enzymes not working, the molecule does not get converted and stays non-fluorescent. Another stain called propidium iodide (PI) is a red fluorescent molecule that binds to DNA. It cannot pass across the intact plasma membrane of a live cell. It identifies dead cells. Animal cells treated with FDA and PI were viewed with the fluorescence microscope at 600x magnification. (High levels of red fluorescence may appear yellow when photographed).

Animal cells stained with fluorescein diacetate (FDA) and propidium iodide (PI)



Download this page, place in your notebook and answer the following questions.

Q1: How many live cells are in the photo? ____ How many dead cells are in the photo? ____

Q2: Which of the following properties allows a living cell to fluoresce green?

- an intact plasma membrane **Yes / No**
- active enzymes **Yes / No**
- stain can bind to DNA **Yes / No**

Q3: Which of the following properties allows a dead cell to fluoresce red?

- an intact plasma membrane **Yes / No**
- active enzymes **Yes / No**
- stain can bind to DNA **Yes / No**