

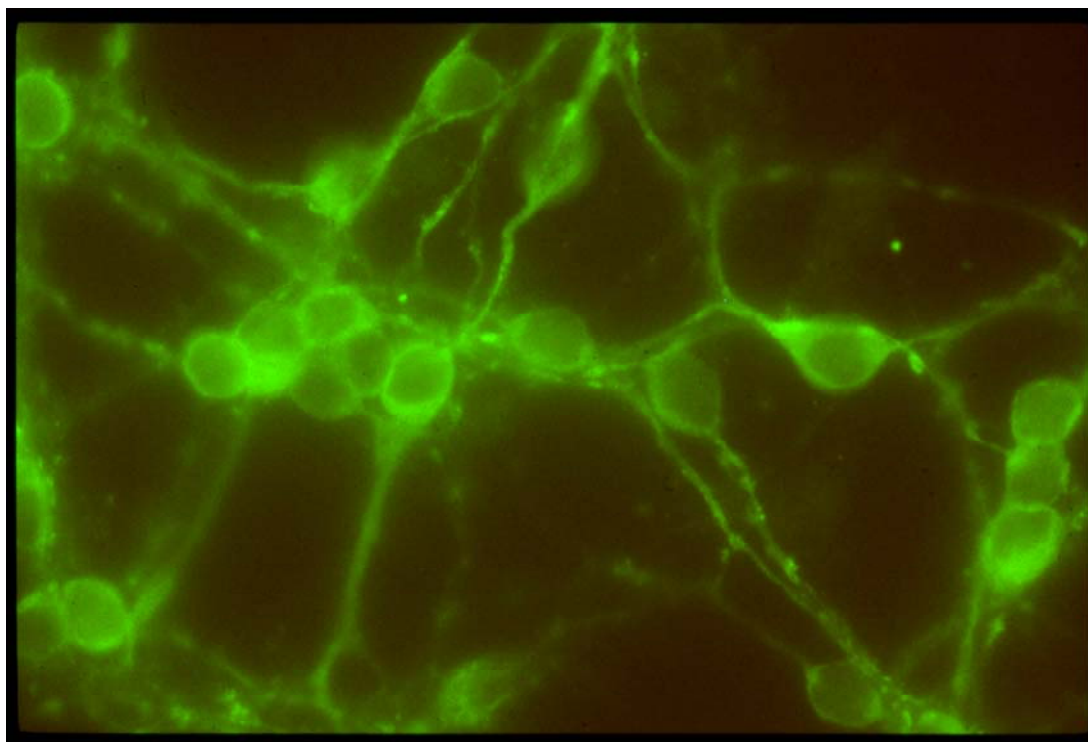
CELLS ONLINE WORKSHEET

TOPIC

NEURONS IN CULTURE

Neurons can be grown in cell culture. To establish neuronal cultures, brains are removed from fetal mice at a time before the neurons have extended their dendrites and axons. The neurons mature in culture, producing dendrites and axons, making connections with other neurons, and producing neuron-specific proteins. If the connections between these neurons is broken, the cells die. Neurons can be identified by the production of a protein called MAP2 (microtubule associated protein 2) which is made only in neurons. MAP2 is located in the cytoplasm.

Cultured neurons stained to show MAP2 (green fluorescence)



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

- Q1: Label the neuronal cell body, nucleus, cytoplasm and dendrites.
- Q2: Can you explain how the photo shows that MAP2 is located in the cytoplasm and not in the nucleus?
- Q3: Using the information above, can you suggest why neuronal cultures are made from fetal brains rather than from adult brains?