

Dictyostelium discoideum

(cellular slime mold)

Species: *discoideum*
Genus: *Dictyostelium*
Family: Dictyosteliidae
Order: Dictyosteliida
Class: Dictyostelia
Phylum: Amoebozoa
Kingdom: Protozoa

Conditions for Customer Ownership

We are a USDA compliant facility and hold all necessary permits to transport our organisms. Each state is assisted by the USDA to determine which organisms can be transported across state lines. Some organisms may require end-user permits. Please contact your local regulatory authorities with questions or concerns. To access permit conditions, [click here](#).

Never purchase living specimens without having a disposition strategy in place. Live specimens should not be released into the wild! Please dispose of any unwanted organisms using the guidelines below.

Primary Hazard Considerations

Always wash your hands thoroughly after you handle your cultures, or anything it has touched. It is recommended to use gloves when working with mold, fungus, or bacteria. *Dictyostelium* is a slime mold.

Availability

- *Dictyostelium* is available year round.
- *Dictyostelium* is translucent (lacking color) and looks like little microscopic mushrooms or dandelions on the surface of the agar as fruiting bodies. *Dictyostelium* either ships as a demonstration plate (a Petri dish) or as an agar slant (a tube of agar). It is best viewed using a microscope, but can be seen using the naked eye. A fruiting body grows approximately 1 mm tall.
- *Dictyostelium* should be stored at room temperature and can be stored this way for about one month.

Care

- *Dictyostelium* is subcultured onto cornmeal agar (470179-634) in Petri dishes or onto an agar slant that has been inoculated with *E.coli* strain B or *Enterobacter aerogenes* bacteria as food and is incubated at 25°C or room temperature. To maintain viability *Dictyostelium* should be subcultured monthly.
- To subculture *Dictyostelium*, use a sterile swab to subculture the *E.coli* B or *Enterobacter* onto the plate. Then, using a second swab, remove several sporocarps (fruiting bodies; food deprivation stimulates the production of fruiting bodies so when fruiting bodies are present, subculture is necessary) from a mature *Dictyostelium* culture and streak them across the agar in the area inoculated with bacteria. Incubate in the dark for 24–72 hours.

Information

Method of reproduction: Asexual and sexual. Asexual mitosis with occasional fusion into a 2N macrocyst, followed by meiosis when the cells begin to aggregate to form the fruiting body that will release spores (1N).

Life Cycle

Most of the life cycle is spent as individual, amoeboid cells that reproduce by mitosis, with a doubling time of a few hours in optimal conditions. When food in the environment is depleted, the amoeboid cells aggregate to form a multicellular structure (about 100,000 cells) that produces spores. First a "slug" is formed, that then differentiates to form a stalk that elevates the fruiting body above the substrate to release spores. The full differentiation cycle takes about 24 hours under most conditions. The encapsulated spore cells are able to remain dormant until conditions improve when an amoeboid cell will emerge from the spore case.

Wild Habitat

In the wild, *Dictyostelium* is found on forest floors consuming decaying vegetable matter and bacteria. Spores permit survival in regions that periodically freeze.

Special Notes

Dictyostelium is a popular model system. It is a model of how multicellular organisms evolved from unicellular organisms. It is also a model of cell signaling with cyclic AMP providing a chemotactic signal for the amoeboid cells to aggregate. The entire genome of *Dictyostelium* has been sequenced.

Disposition

When finished with your *Dictyostelium* please dispose of it in one of the following ways:

- Use a 20% bleach solution for 10 minutes (ensure the culture does not open until the culture is submerged in solution in order to ensure no releasing of any of the organism into the environment).
- Place the organism in 70% isopropyl alcohol for 24 hours (ensure the culture does not open until the culture is submerged in solution in order to ensure no releasing of any of the organism into the environment).
- Autoclave the organism @ 121°C for 15 minutes in an autoclavable bag; the Petri dish it is contained in will melt in an autoclave be sure to bag your organism.