Protozoa

A CAROLINA™ CareSheet

Immediate Care and Handling

When your protozoa culture arrives, immediately open the shipping container, remove the culture jars, and inspect them. Once you have verified that the shipment is OK, loosen the lids on the jars. Aerate the cultures using the supplied pipets. Aerating the cultures helps replace oxygen depleted during shipment. Use a different pipet for each culture and write the name of the culture on each pipet to avoid cross-contamination. To aerate, place the tip of a pipet into the culture water and squeeze the bulb, bubbling air into the water. Withdraw the pipet and release the bulb, allowing it to refill with air. Repeat about 4 times.

Sampling and Observation

Allow 15 to 20 minutes after aeration for the organisms to settle, and then inspect the culture using a stereomicroscope and low illumination. This allows you to locate areas where protozoans are concentrated. In preparing slides for viewing, students should take their samples from those areas. Using a stereomicroscope and the pipet designated for the culture, students can easily pick up a single organism (or group of organisms) for a slide.

Many protozoans (such as *Paramecium*) concentrate where food is abundant. These areas are visible as fuzzy debris in the culture. *Amoeba* can be difficult to locate at first because they move slowly and lack a constant shape. To find them, focus on the bottom of the jar after it has sat undisturbed for at least 15 minutes. Watch through the stereomicroscope for a few seconds and you should begin to see dozens of *Amoeba* as they creep slowly about on the bottom. *Stentor* tends to attach to the sides of the culture jar. Other protozoans may concentrate near the water's surface.

To pick up an organism (or organisms), squeeze the pipet bulb before inserting the pipet into the culture. Release the bulb when the pipet's tip is close to the concentration of protozoans. Keep the pipet vertical as you are drawing the sample to avoid stirring up the culture and scattering the organisms. Do not squirt the pipet water back into the culture.

One drop should contain more than enough organisms for a slide mount. After adding a coverslip, examine the slide using the microscope's lowest magnification. After protozoans have been located, high magnification can be used to observe in detail. Some protozoans, mainly ciliates, move so rapidly that it is difficult to keep them in the field of view at high power. Protoslo® (item #885141) can be used to slow their movement, improving observation. Simply add a drop of Protoslo® to a drop of culture on a slide, mix well, add a coverslip, and observe.

Care and Culturing

Photosynthetic protozoans (e.g., *Euglena* and *Volvox*) need light. Use either indirect natural light or a light bank. Never place a protozoan culture in a refrigerator or in direct sunlight. Maintain at cool temperatures from 20 to 22° C (68 to 72° F) with the lid placed lightly over the jar. Plan to use the culture as soon after receipt as possible.

Many protozoans are easily cultured. *Paramecium* and *Blepharisma* are among the easiest to culture. See our *Carolina Protozoa and Invertebrates Manual* (item #131065) for details.

FAQ's

How long can I keep my cultures before using them?
If possible, use them within 2 to 3 days of receipt. The longer you delay, the more likely the cultures will go bad, be knocked over, etc.

Will the cultures last longer if I place the jars in a refrigerator?
We do not recommend refrigeration or rapid temperature changes. Both may kill the organisms.

Are these protozoans dangerous?
No, the protozoans we offer for general classroom use are not parasitic or pathogenic. Even so, know and follow your district's guidelines so you are prepared if a student should ingest a culture.

My cultures arrived today (Friday) and I need them for class Monday. Will they be OK?
Remove the cultures from their shipping container and care for them as directed in the "Immediate Care and Handling" section and they should be fine. Do not leave them in the unopened shipping container. Photosynthetic forms need light. Heterotrophic forms are shipped with enough food to maintain the cultures for an extended period. You may even find that the cultures improve a bit because they have time to recover from shipping.

My students are not finding any protozoans. What can I do?
The culture may have been agitated, scattering the protozoans. If this is a problem, ensure that students are following the sampling procedure as described in the "Sampling and Observation" section. Protozoan species vary greatly in size. If students have previously observed a comparatively large protozoan such as *Paramecium*, remind them to look for something smaller when searching for *Euglena*. Finally, examine the culture under a stereomicroscope to locate areas where protozoans are concentrated and direct students to sample from those areas.

We used Protoslo® but now the protozoans are all at the edge of the coverslip and some have even been squeezed out from under the coverslip completely. What is wrong?
If Protoslo® and culture water are not properly mixed, the thicker Protoslo® will displace the water and protozoans when the coverslip is added. Clean the slide and start over, thoroughly mixing the Protoslo® and culture water before adding the coverslip.

Problems? We hope not, but if so contact us. We want you to have a good experience.
Orders and replacements: 800.334.5551 then select Customer Service
Technical Support and Questions: caresheets@carolina.com

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