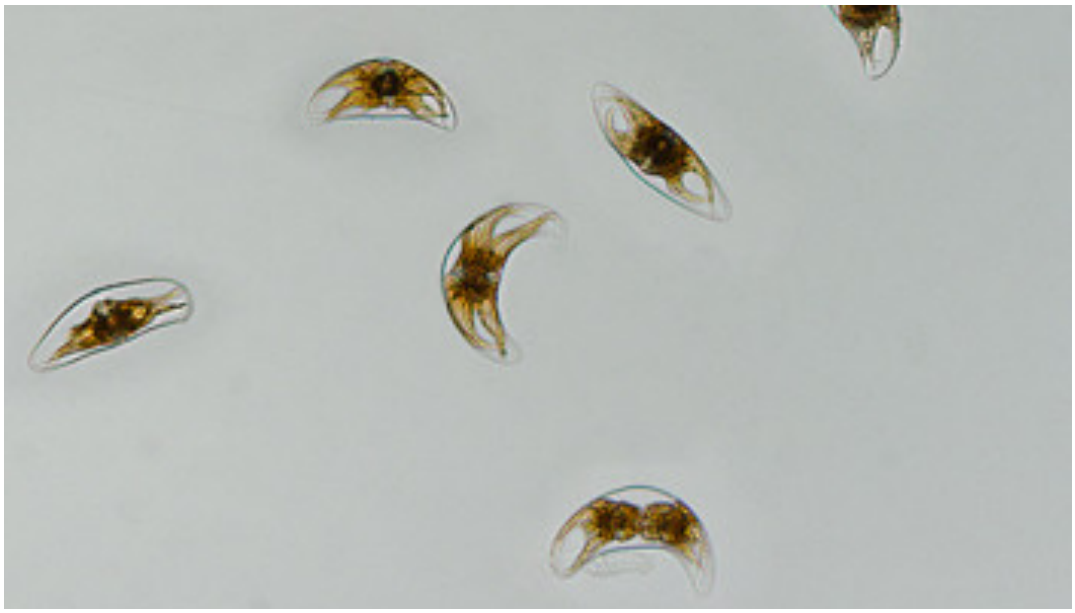
Bioluminescence Kit

Teaching Kit



Thank you for your purchase!

Please read through the instructions below to ensure your kit works and behaves properly.

Your kit will contain either Pyrocystis noctiluca or Pyrocystis lunula, depending on which strain is the healthiest when filling the order. Notify UTEX of any issues as soon as possible, and continue with the instructions below.

1 UNPACK

Remove the six (6) test tubes from the shipping container. Inspect the items for any leakage or damage from shipping. Loosen the caps of the test tubes to allow gas exchange, but do not completely remove it.

2 TEMPERATURE

Place the tubes in a well-lit room preferably at 20 °C (68 °F); they can tolerate between 17-23 °C (63-73 °F).

Do not place cultures in direct sunlight or use a light source with a bulb that gets hot!

3 LIGHT

Give as much light as possible! Place light directly below tubes so light is not blocked before it reaches the cells at the bottom.

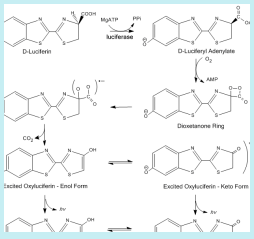
Again, do not place cultures in direct sunlight or use a light source with a bulb that gets hot!

Pyrocystis

Pyrocystis is a marine single-celled alga that emits light when a culture is stressed such as by mechanical agitation or by the addition of acetic acid.

Bioluminescence

The production and emission of light by a living organism as the result of a chemical reaction. The chemical energy is converted to light energy.



Luciferase

The chemical enzyme responsible for this light emission in many organisms is called luciferase. This same enzyme is found in fireflies.

Central Standard Time Zone (CST)

12/12 Light:Dark Diurnal Cycle

Light period: 7 AM to 7 PM (CST)

Dark period: 7 PM to 7 AM (CST)

The cultures in your kit are accustomed to the circadian rhythm utilized at UTEX in the Central Standard Time Zone. It will adapt to your schedule over time, but it is important to be aware that the algae will only bioluminesce during their dark period (currently 7 PM to 7 AM CST)!

You may find it helpful to reverse this cycle so that observations can be made during the day instead of at night. To do this, place the tubes in a location that does not receive any natural light. Use a light source attached to a timer set for a reversed 12/12 Dark:Light cycle. For example, if you are in the Central Standard Time Zone like we are, the new light period would be from 7 PM to 7 AM (CST) and the dark period from 7 AM to 7 PM (CST).

*****Please note that it can take about 2 weeks for the kit to adjust to this kind of cycle change.*****

Viability Check

Examine cultures under a microscope to check for viability. If you do not have access to a microscope, viability can be checked, although less accurately, through a visual examination: Allow the tubes to sit undisturbed for a few minutes so the cells can settle to the bottom of the tube. Note the color of the cells: brown to light-brown in color means the culture is alive; white color may indicate the kit did not survive the transit. (Use QR code/link below to submit replacement request.)

It is important to note that your kit may not exhibit bioluminescence on the first or second night. If that is the case, give them a couple more days of light so they can 'recharge'. If you still do not see anything after the third night, contact us so we can help troubleshoot and/or send a replacement kit.

CHECKING BIOLUMINESCENCE

Shipping can be very stressful for algae so please allow your kit to re-acclimate for a minimum of 3 days before running any experiments or checking for bioluminescence.

The cells will not bioluminesce during their day period unless you place them in the dark for a minimum of 2 hours–you can wrap the tubes in foil as an alternative. You must check for bioluminescence in a very dark room as even the smallest amount of ambient light can hide their glow! Seal the test tube cap shut and gently invert the tube back and forth. The air bubble will be the main cause of agitation and as it travels up and down the test tube, you will see the cells light up. The harder you shake the culture, the brighter the glow, but also the higher the risk of damage to the cells. We recommend letting your eyes adjust to the darkness first so the faint blue light will be better visible and not require rough agitation.

Scan QR code to request replacements.

You can also visit:
https://link.utex.org/Replacement-Request