Mold is the general name for a group of fungi that is commonly found on food (e.g., blue or green Penicillium species that produce penicillin) and damp or wet materials. Mold thrives in warm, damp, and wet environments, especially in the presence of organic material and may either be light or dark colored in appearance.

**How does mold get into a cold room?**
Mold and fungal spores are ubiquitous and flourish where there is water damage, elevated and prolonged humidity, or dampness. Also, cellulose-containing materials sustain mold growth which can contaminate research materials.

**How do I know if a cold room has a mold problem?**
- Visible mold on surfaces (see Figure 1).
- Condensation observed on the outside of the door (see Figures 2 and 3).
- Doors that do not shut firmly (e.g., due to loose door handle or defective latch assembly).
- Rusting cans or other metal surfaces in the cold room.
- Musty odor.

**What I need to know...**
- Maintain indoor relative humidity levels below 60%.
- Ensure cold storage door latches and gaskets are in good condition.
- Dry out and clean water-damaged materials, or if heavily damaged, remove and replace.
- Discard materials that are wet for more than forty-eight (48) hours since they are likely to produce mold growth.

**How can mold growth be prevented?**
Preventing mold growth in cold rooms is achieved by controlling condensation/moisture and removing materials contributing to mold growth. The following preventive measures need to be taken:
- Proper Equipment (Design, Maintenance)
  - Ensure cold storage door latches and gaskets are in good condition.
  - Place a gauge in cold room to monitor relative humidity (RH). Maintain RH levels below 60%.
  - Keep air conditioner drip pans and drain lines clean.
  - Use stainless steel shelves instead of wood shelves. Open stainless steel shelves permit air flow throughout the entire storage area (see Figure 4).

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**Figure 1. Visible mold on cold room ceiling grid and wall.**

**Figure 2. Visible condensation on cold room door.**

**Figure 3. Visible condensation on cold room door handle.**

**Figure 4. Stainless steel open shelving used in the cold room.**

*Source: Etalex*
• Work Practices (Proper Storage, Cleaning)
  o Keep the door firmly shut to prevent water condensation inside cooler.
  o Dispose of all trash (paper towels, tubes, etc.) outside of the cold room.
  o If it is necessary to store paper products in a cold room, place them in a closed plastic container.
  o Do not use cardboard storage containers (see gold circle in Figure 5).
  o Do not store books or cardboard slide holders in the cold room.
  o Do not store items on the floor. Store materials only on the designated shelves.
  o Keep the use of wood, Styrofoam, and other porous materials to a minimum.
  o Promptly clean up spilled liquid (e.g., buffers, media). Mold can thrive on any organic medium.
  o Routinely clean surfaces (shelves, bench tops, equipment, etc.) inside cold rooms to prevent mold growth (see Figure 5).
  o Immediately report water leaks or any other mechanical issues to FMS at (213) 740-6833.

What is the suggested cleaning protocol?
1. Keep surface(s) clean. Clean cold room monthly (at a minimum). Clean more often if necessary.
3. Surfaces may be cleaned with a freshly prepared 1:100 dilution of common household bleach. Bleach will oxidize metals so wipe the bleach up with water, then wipe with 70% ethanol alcohol to remove the water.
4. Sweep, mop floor, and wipe walls with freshly prepared 1:100 dilution of household bleach.
5. Clean sink with 1:100 dilution of bleach and rinse quickly.
6. Regularly inspect stored items for mold. If item(s) are contaminated, promptly remove/discard or otherwise decontaminate as above.

REFERENCES
AIHA "Facts about Mold"
CDC “Facts about Mold and Dampness”
http://www.cdc.gov/mold/dampness_facts.htm
US EPA “Mold” https://www.epa.gov/mold

EH&S Mold Prevention Fact Sheet

How can mold be prevented?
The key to preventing and stopping indoor mold amplification is to control excessive moisture and condensation.

What I Need to Do...
• Maintain indoor relative humidity levels below 60%.
• Ensure the ground slopes downward and away from the building foundation.
• Check landscape irrigation to ensure the water spray pattern is not contacting the exterior walls.
• Keep air conditioner drip pans and drain lines clean.
• Ensure crawl space dike bitches and gaskets are in good condition.
• In cases of flooding or leaking pipes, remove any standing water promptly.
• Dry out and clean water-damaged materials, or if heavily damaged, remove and replace.
• Discard materials that are wet for more than 48 hours since they are likely to produce mold growth.
• Consult with a commercial restoration company immediately in instances where the water damage is extensive.

It is important to keep the susceptible areas in the building clean and dry in general. Mold will not grow indoors without water, dampness, or excessive moisture. If mold is discovered, contact EH&S (injuryprevention@usc.edu) to report it.

Affiliates
CDC "Facts about Mold and Dampness" http://www.cdc.gov/mold/dampness_facts.htm
US EPA "Mold" https://www.epa.gov/mold

FactSheet Mold Prevention

Figure 5. Cardboard box used for storage in cold room.

Figure 6. Soiled cold room table surface.