CARE AND USE OF FISH, FROGS, AND OTHER AQUATIC ANIMALS

The following is general information for those involved in the care and use of laboratory fish, frogs, and other aquatic animals. Contact occupational.health@cuanschutz.edu if you have any questions.

POTENTIAL RISKS

The development of fish, frog and aquatic animal-borne disease in a human host often requires a preexisting state that compromises the immune system (steroids, immunosuppressive drugs, or chemotherapy). In general, humans contract fish, frog and aquatic animal-borne disease through ingestion of infected tissues or aquarium water or by contamination of lacerated or abraded skin

Potential fish, frog, and aquatic animal zoonoses

Salmonellosis
- Inhabits the intestinal tract of many humans and animals
- Occurs worldwide
- Transmission
  - Ingestion (direct or indirect)
- Symptoms
  - Acute gastroenteritis
    - Sudden onset of abdominal pain
  - Diarrhea
  - Nausea
  - Fever
- Treated with antibiotics

Mycobacterium
- Non-motile, acid-fast rods
  - Two species: M. fortuitum & M. marinum
    - Pathogens of tropical fish
- Transmission
  - Contamination of lacerated or abraded skin with aquarium water or fish contact
- Symptoms
  - Localized granulomatous nodule (hard bump) may form at site of infection
    - Initially appear as reddish bumps that slowly enlarge to purplish nodules
    - Most commonly on hands or fingers
    - Appear ~6-8 weeks after exposure
- Infection can spread to nearby lymph nodes
- Possible to cause some degree of positive reaction to a tuberculin skin test

Aeromonas spp.
- Facultative anaerobic, gram-negative rods
- Can produce septicemia in infected fish
  - Species most commonly isolated is A. hydrophila
- Transmission
  - Via oral and fecal routes on exposure to contaminated water and food
- Symptoms
  - Gastroenteritis (nausea, vomiting and diarrhea)
  - Localized wound infections
  - Found world wide in tropical fresh water
  - Considered part of the normal intestinal microflora of healthy fish

Sparganosis
- Transmission:
  - Ingestion of meat or contaminated water
  - Contact with wounds or mucous membranes
- Symptoms
  - Nodular lesion (bump) that develops slowly on any part of the body
  - Itching
    - Sometimes with urticarial rash (hives)
  - Prevented by avoiding ingestion of contaminated water and meat
  - Avoiding direct contact with infected muscles

Other diseases associated with contact with fish, frogs and other aquatic animals:
- Gram-negative Organisms: Plesiomonas shigelloides, Pseudomonas fluorescens, Escherichia coli, Salmonella spp., Klebsiella spp., Edwardsiella tarda
- Gram-positive Organisms: Streptococcus, Staphylococcus, Clostridium, Erysipelothrix, Nocardia
- Protozoa: Cryptosporidium
ALLERGIC REACTIONS TO FISH, FROGS & AQUATIC ANIMALS

- Human sensitivity to fish, frogs and aquatic animal proteins in the laboratory setting is rare
- It remains possible, however, to become sensitized to fish, frogs and aquatic animal proteins through
  - Inhalation
  - Skin contact

HOW TO PROTECT YOURSELF

Wash your hands
- Single most effective preventative measure
- Regular, thorough hand washing
- Wash hands and arms after handling any animal
- Never drink or eat in the animals rooms or before washing your hands

Wear gloves
- When working with fish, frogs or other aquatic animals, wear appropriate gloves for the task
- Wash your hands after removing gloves

Wear respiratory protection
- Respiratory protection should be worn when there is risk of aerosol transmission of zoonotic agents
- Respiratory protection should be worn when there is a medical history or symptoms of allergies
- Initial Medical Evaluation for respiratory clearance is performed through Occupational Health
- Fit testing is performed through Industrial Hygiene once clearance is complete through Occupational Health

Wear other protective clothing
- Disposable gowns are required to be worn in the vivarium
- Consider changing clothing before leaving work
  - Place dirty clothing in a bag and launder clothes at home before wearing again

Follow proper exposure reporting protocols
- If you are injured on the job, promptly report the incident to your supervisor
  - Immediately call or email Occupational Health (303) 724-9145 during business hours
  - Outside of normal hours seek medical attention at emergency department or other healthcare provider
  - Fill out incident report for exposure to biological hazards
  - File a claim with University Risk Management
  - https://www.cu.edu/risk/file-claim
- Minor cuts and abrasions should be immediately cleansed with antibacterial soap
  - Protect injuries from exposure

Tell your physician you work with fish, frogs or other aquatic animals
- Whenever you are ill, mention to your physician that you work with fish, frogs or other aquatic animals
- Many zoonotic diseases have flu-like symptoms

For more information, refer to the Occupational Health website
https://research.cuanschutz.edu/ehs/home/divisions/occupational-health

or contact Occupational Health at occupational.health@cuanschutz.edu

Updated: 4/13/23