This information sheet is for the care and use of Fish

Potential Zoonotic Diseases: Aside from food poisonings, the overall incidence of transmission of disease-producing agents from fish to humans is low**.** There are, however, a number of agents that are found in fish and aquarium water that have the potential to be transmitted to humans. In general, humans contract fish borne disease through ingestion of infected fish tissues or aquarium water or by contamination of lacerated or abraded skin. An important feature of many of the disease causing agents is their opportunistic nature. The development of disease in the human host often requires a preexisting state that compromises the immune system. If you have an immune-compromising medical condition or you are taking medications that impair your immune system (steroids, immunosuppressive drugs, or chemotherapy), you are at-risk for contracting a fish borne disease and should consult your physician. The following is a list of known and potential fish borne zoonoses.

Mycobacterium: Organisms in the genus *Mycobacterium* are non-motile, acid-fast rods. Two species, *M. fortuitum* and *M. marinum*, are recognized as pathogens of tropical fish. Humans are typically infected by contamination of lacerated or abraded skin with aquarium water or fish contact. A localized granulomatous nodule (hard bump) may form at the site of infection, most commonly on hands or fingers. The granulomas usually appear approximately 6-8 weeks after exposure to the organism. They initially appear as reddish bumps (papules) that slowly enlarge into purplish nodules. The infection can spread to nearby lymph nodes. More disseminated forms of the disease are likely in immunocompromised individuals. It is possible for these species of mycobacterium to cause some degree of positive reaction to the tuberculin skin test.

Aeromonas spp.: Aeromonad organisms are facultative anaerobic, gram-negative rods. These organisms can produce septicemia (a severe generalized illness) in infected fish. The species most commonly isolated is *A. hydrophilia*. It is found world wide in tropical fresh water and is considered part of the normal intestinal microflora of healthy fish. Humans infected with *Aeromonas* may show a variety of clinical signs, but the two most common syndromes are gastroenteritis (nausea, vomiting and diarrhea) and localized wound infections. Again, infections are more common and serious in the immunocompromised individual.

Other Bacteria and Protozoa: Below is a list of additional zoonotic organisms that have been documented in fish or aquarium water. Human infections are typically acquired through ingestion of contaminated water (resulting in gastroenteritis symptoms) or from wound contamination.

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

Human sensitivity to fish proteins in the laboratory setting is rare. It remains possible, however, to become sensitized to fish proteins through inhalation or skin contact. If you have symptoms you are strongly advised to contact the Occupational Health Coordinator at 949-824-3757 to discuss this issue and arrange for follow-up with an occupational health physician.

SPECIES	BIOLOGICAL HAZARD/PATHOGEN	ROUTE OF TRANSMISSION	CLINICAL SYMPTOMS	PREVENTION/ PROPHYLAXIS	MEDICAL SURVEILLANCE REQUIRED	RISKS FOR EXPOSURE AT UCI
Fish	Aeoromonas	Fecal/oral contact with fish water	Gastrointestinal disorder (nausea, vomiting, diarrhea)	Personal hygiene, PPE	No	Yes
Fish	Erysipelothrix rhusiopathiae	Contact with animal and animal products through wounds and skin abrasions	Arthritis in the finger joints, burning sensation, pulsating pain, intense pruritus	Personal hygiene, PPE, proper treatment of wounds	No	Yes
Fish	Salmonellosis	Fecal/Oral, contaminated food and water	Diarrhea, vomiting, low grade fever	Personal hygiene	No	Yes

References:

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Microbial Presence:

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