



Aeromonas hydrophila

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THE BASICS

- GRAM-NEGATIVE, ROD-SHAPED BACTERIA
- INFECTS FISH, REPTILES, HUMANS AND AMPHIBIANS
- FOUND WORLDWIDE.
 - NOT A CAUSE OF MASS DIE-OFFS/OUTBREAKS
- WHAT'S THE BIG DEAL?
 - UBIQUITOUS
 - SYMBIOTIC
 - DEFENSE
 - OPPORTUNISTIC

PATHOLOGY

Amphibian lines of bacterial defense:

- Skin
- Innate Immune System
- Adaptive Immune System

Signs:

- Red Leg??
- Ulceration
- Hemorrhaging
- Edema
- Anorexia
- Lethargy
- Necrosis



Hill, Newman, et al.

- Wild *Xenopus laevis*
 - oocyte removal
- 1 female with clinical signs
 - lip ulcer and liver tested
 - digit tested for Chytrid and Ranavirus
- Aeromonas* +, *Batrachochytrium* +, and *Micrococcus* +
- Chytrid? Surgery Trauma?

PATHOLOGY

Schadich, et al.

- Xenopus laevis, Litoria aurea, Litoria raniformis, Litoria ewingi
- ECP's vs. AMP's
- Proteases secreted by *A. hydrophila* allow for *E. Coli* growth



http://www.californiaherps.com/figs/figs11/110201-golden-bell-frog-lance-wells.jpg




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Tennesen, et al.

- Lithobates pipiens*
- Anti-microbial peptides:
- 4 new peptides found and tested
- 3 effective against chytrid fungus
- None effective on *A. hydrophila*
- *Skin peptides/defenses don't work**


AN INTERESTING CASE.....



http://www.californiaherps.com/figs/figs11/110201-golden-bell-frog-lance-wells.jpg

Reith, et al.

- 133 Cascade frogs sampled for *Batrachochytrium dendrobatidis*

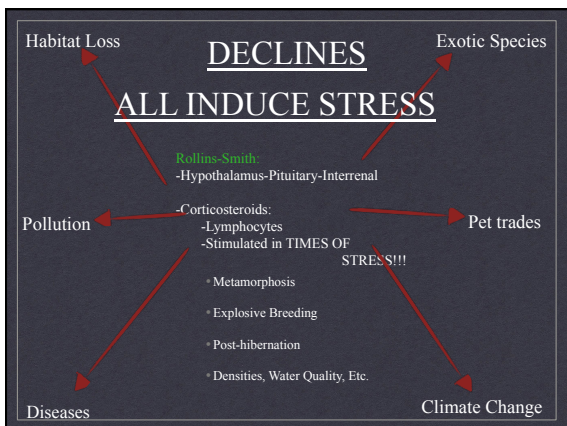


http://www.californiaherps.com/figs/figs11/110201-golden-bell-frog-lance-wells.jpg

- 46 bacterial isolates
- 7% *Aeromonas*
- B.d* vs bacteria
- B.d* vs *A.h*

Conclusions:

- Aeromonas hydrophila* = strong anti-B.d activity in vitro
- Exotoxins or ECP's preventing Chytrid fungus?
- Possible competitive exclusion of Chytrid fungus?



Devastating pathological effects

Symbiotic, ever-present bacteria

Additive mortality to every other possible stressor!!!

Aeromonas hydrophila

Favorable-time invader

Can't stop it without fixing everything else

Normal anti-microbial skin peptides fail to suppress

SOURCES CITED

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