



University of Idaho

Aquaculture Research Institute

2019 UI ARI/CNR FISH HEALTH RESEARCH UPDATE

TIMOTHY J. BRUCE

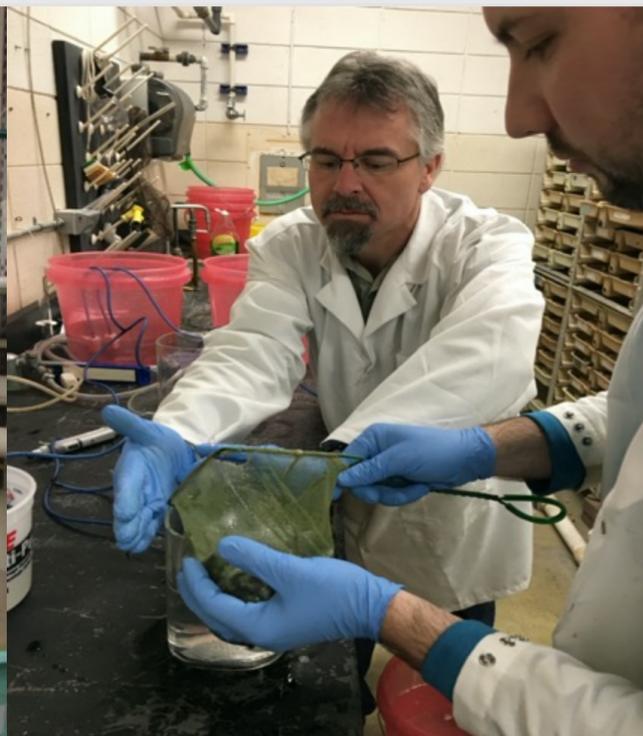
UNIVERSITY OF IDAHO, DEPARTMENT OF FISH AND WILDLIFE SCIENCES,
MS1136, MOSCOW, ID 83843

CONTACT: TBRUCE@UIDAHO.EDU

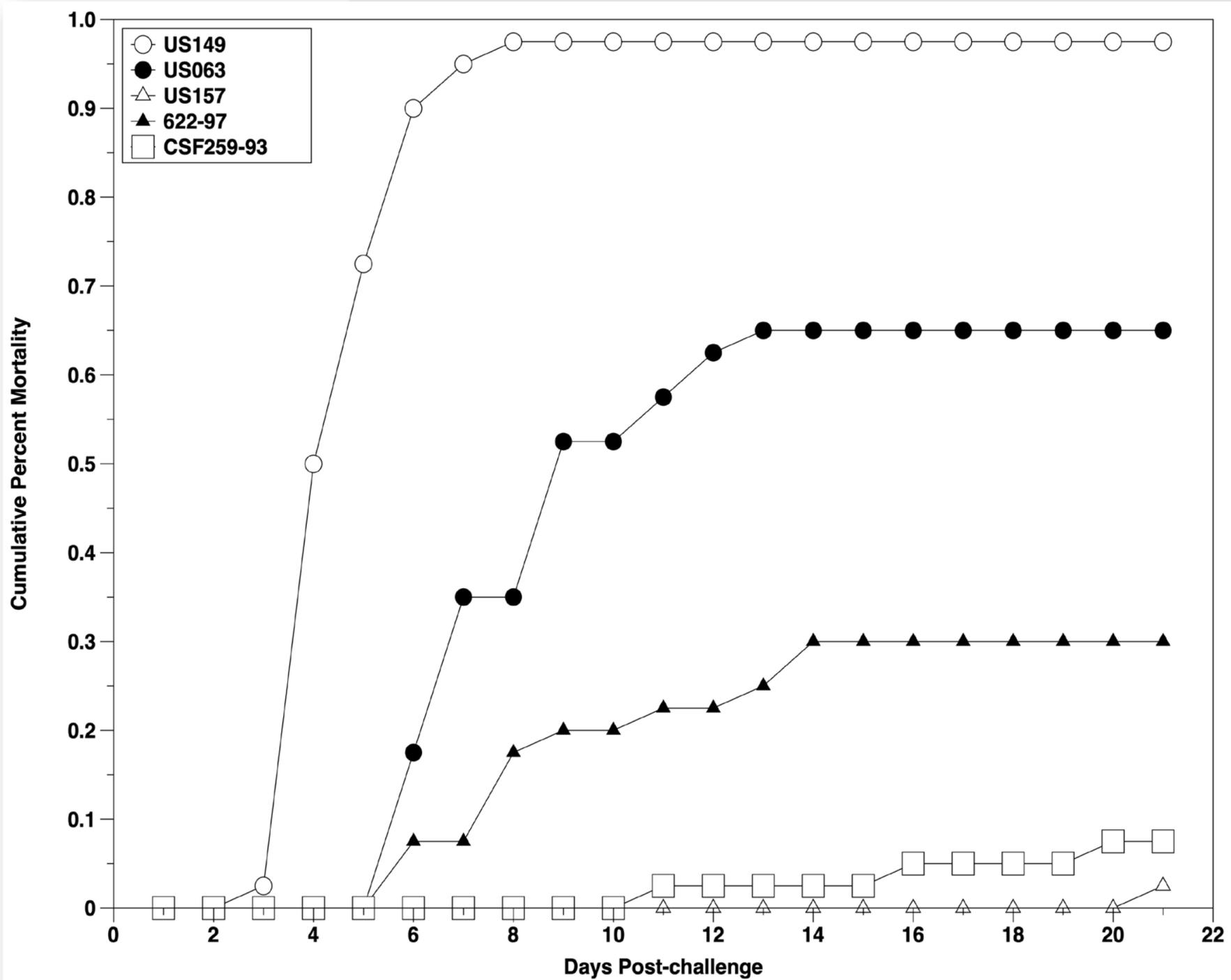
ONGOING PROJECTS IN THE UI FISH HEALTH LAB



- I *F. psychrophilum* vaccine optimization in Atlantic salmon
- I Virulence assessments of *Flavobacterium* spp. in rainbow trout
- I Health/nutrition projects with novel feed ingredients in cultured burbot
- I Pathogen interactions (i.e., co-infections)
- I Vaccination strategy (route/uptake) and host response



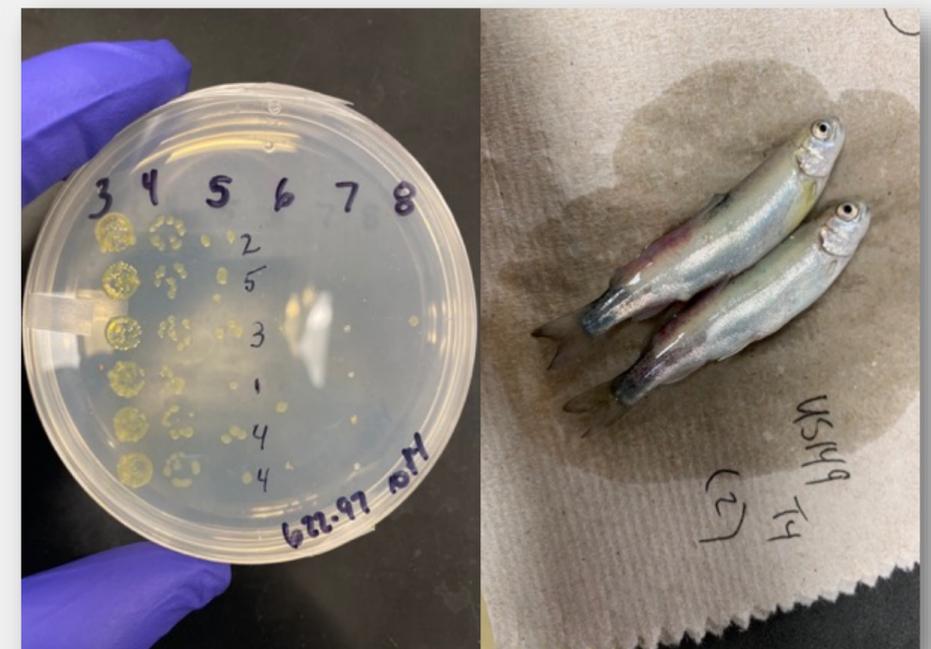
F. psychrophilum VIRULENCE IN ATLANTIC SALMON (*Salmo salar*)



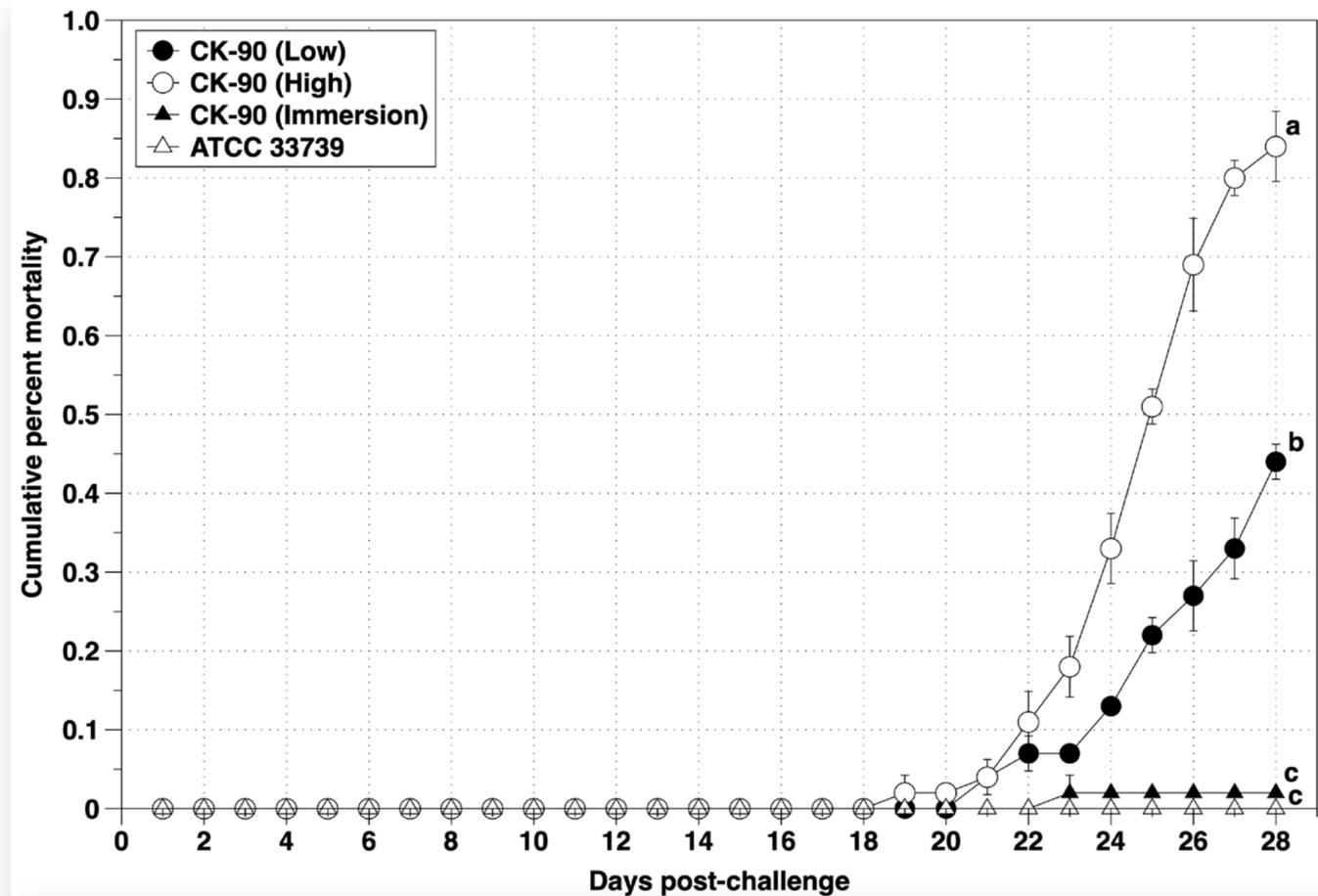
I Virulence of 5 *F. psychrophilum* strains assessed for pathogenicity

I Virulence: 2.5% to 97.5% over 21d

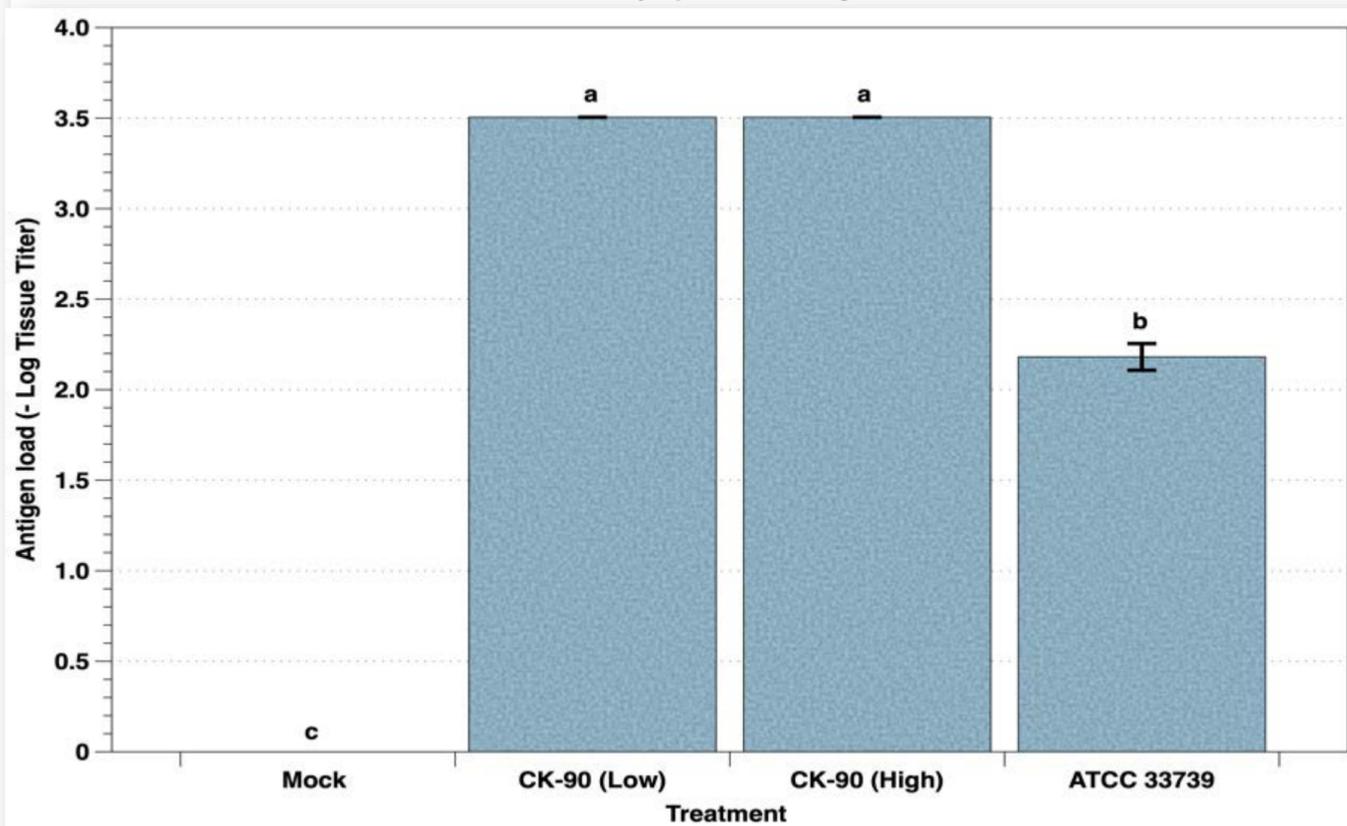
I Next steps: Optimize live-attenuated *Fp* vaccine for use in Atlantic salmon



R. salmoninarum VIRULENCE ASSESSMENT



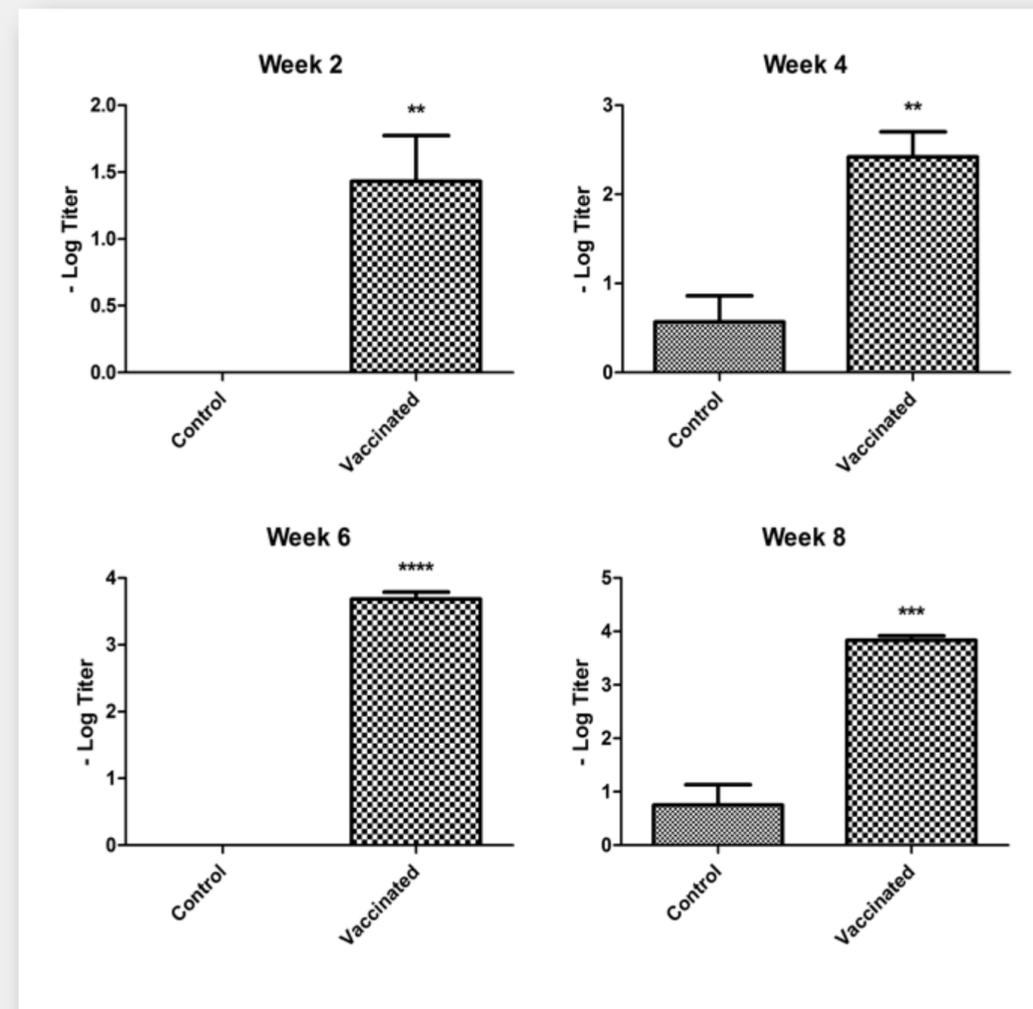
- Virulent strain isolated from Chinook salmon at Dworshak NFH in 1990
- Optimized challenge route and dosing
- Gram-positive pathogen available for use in assessment of immunostimulatory agents



BCWD VACCINE PROTECTION AGAINST NOVEL *Flavobacteriaceae*



- I *Flavobacterium* spp. and *Chryseobacterium* spp.
- I Virulent, found in cultured and wild fishes
- I Often cohabitating with other pathogenic bacteria
- I Collaboration with Dr. Tom Loch at Michigan State University and Dr. Doug Call at Washington State University



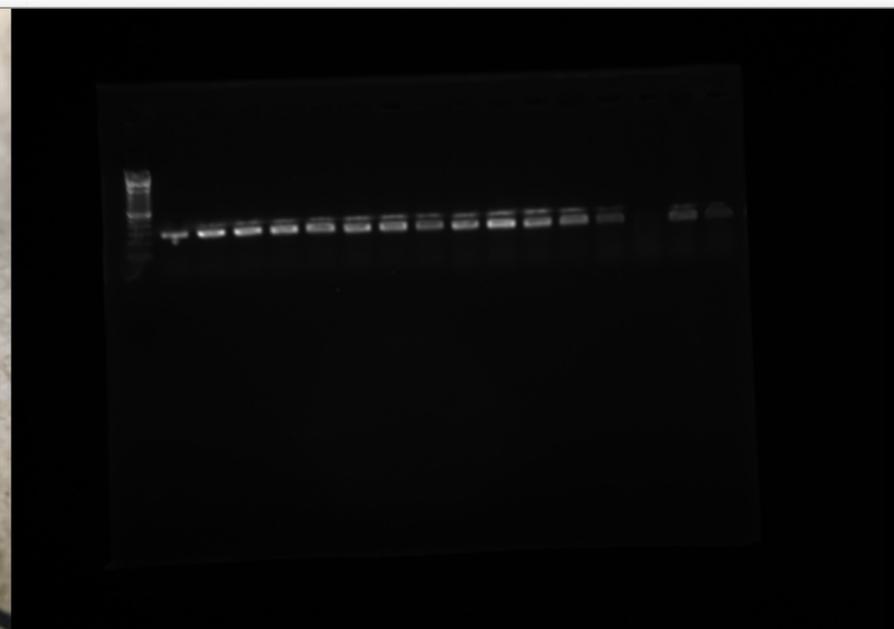
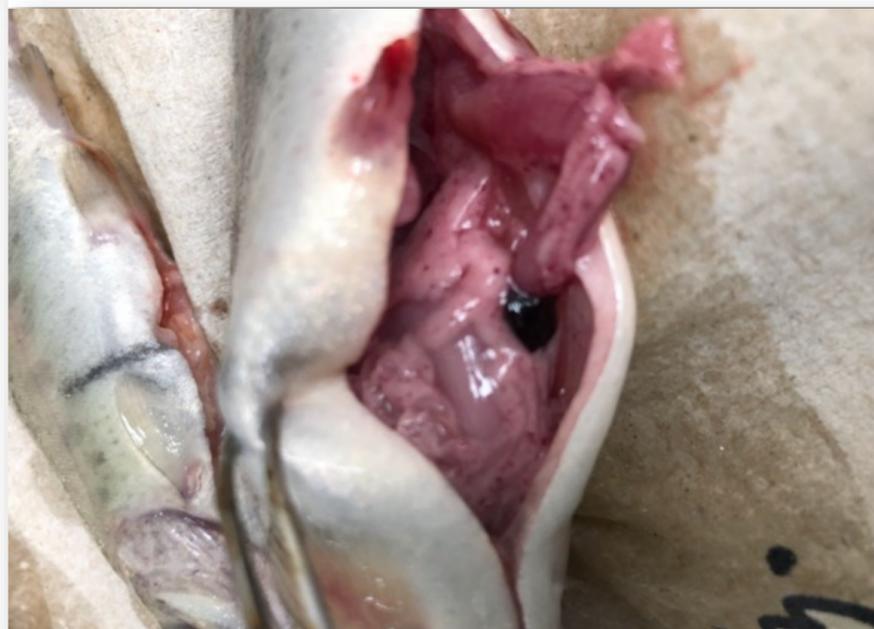
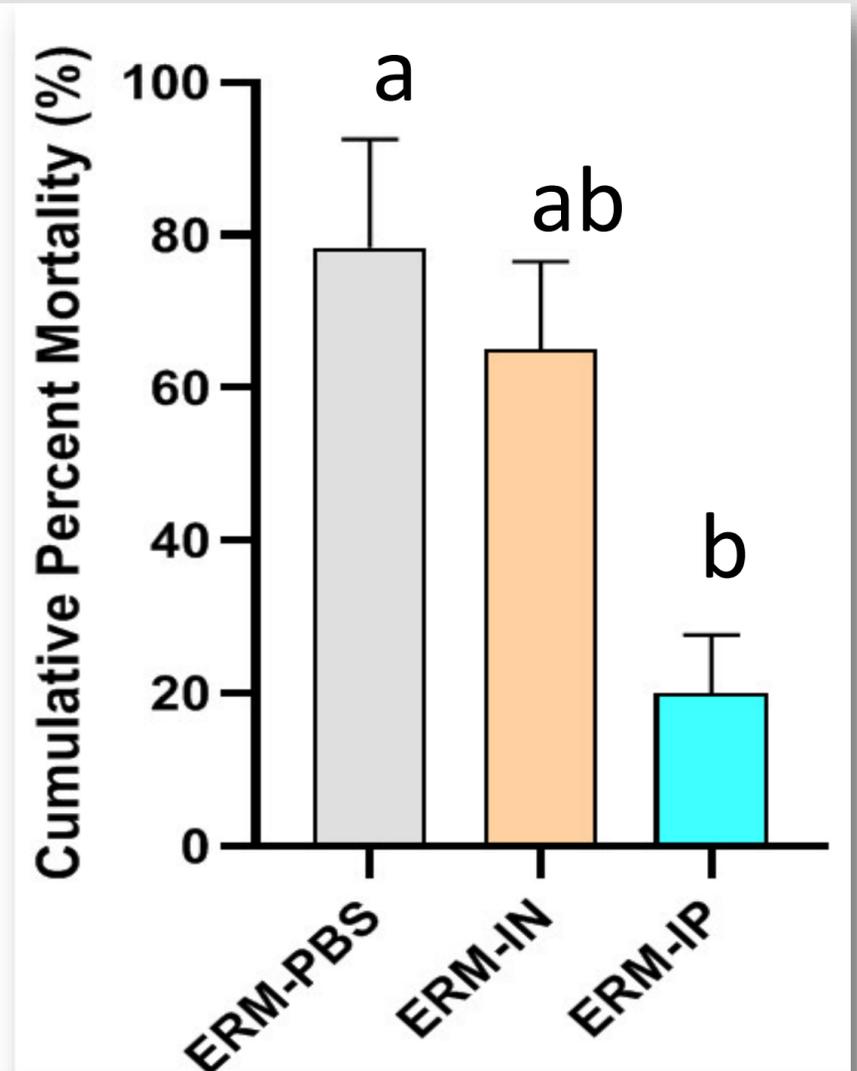
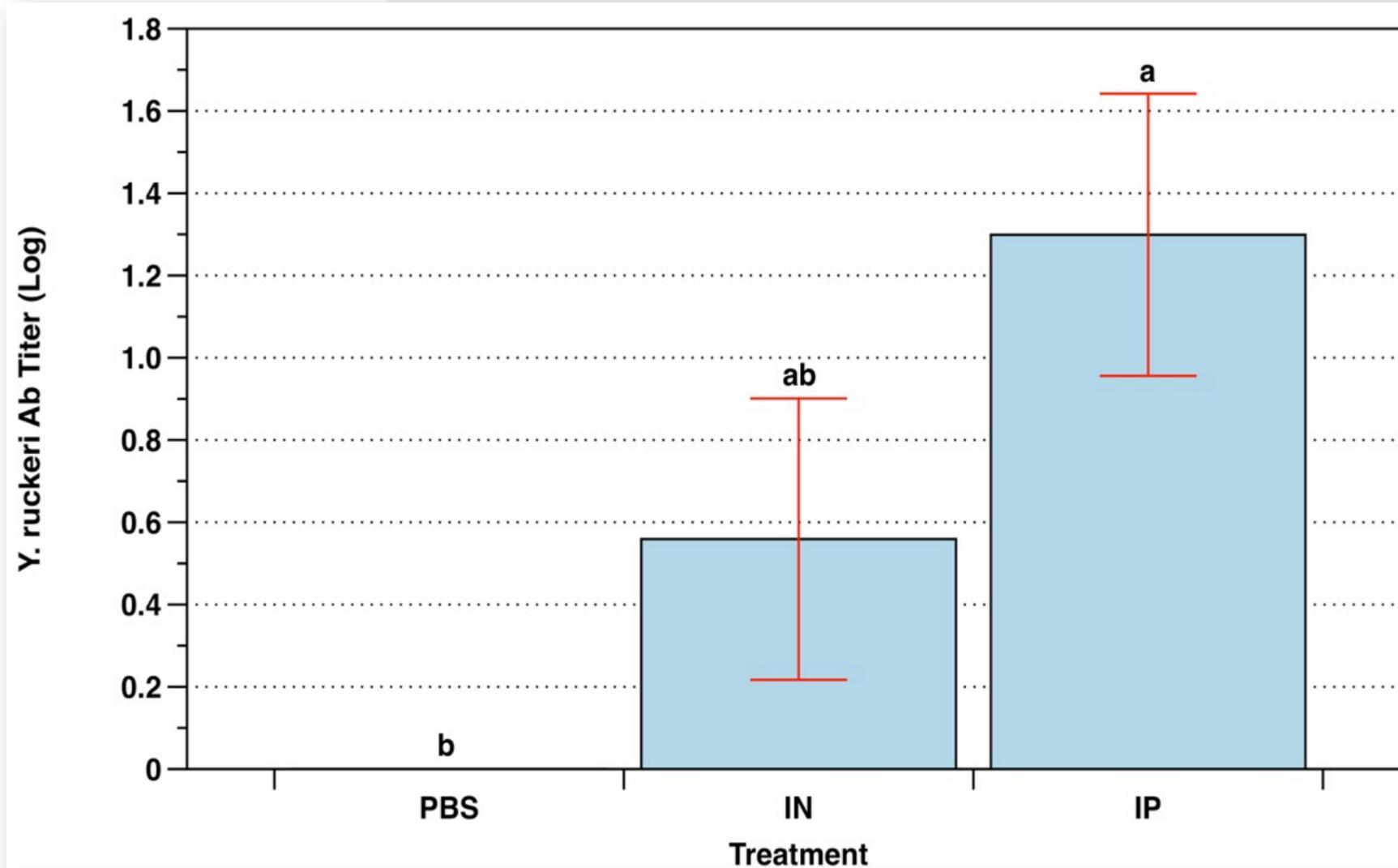
NASAL VACCINATION FOR *Y. ruckeri* AND INFECTIOUS HEMATOPOIETIC NECROSIS VIRUS



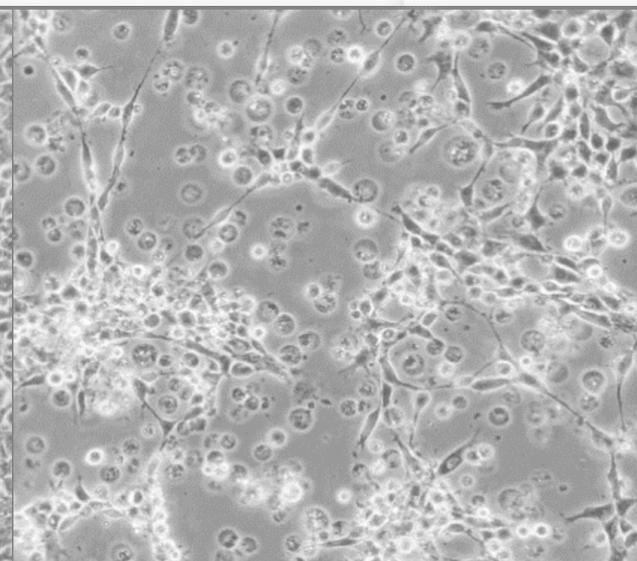
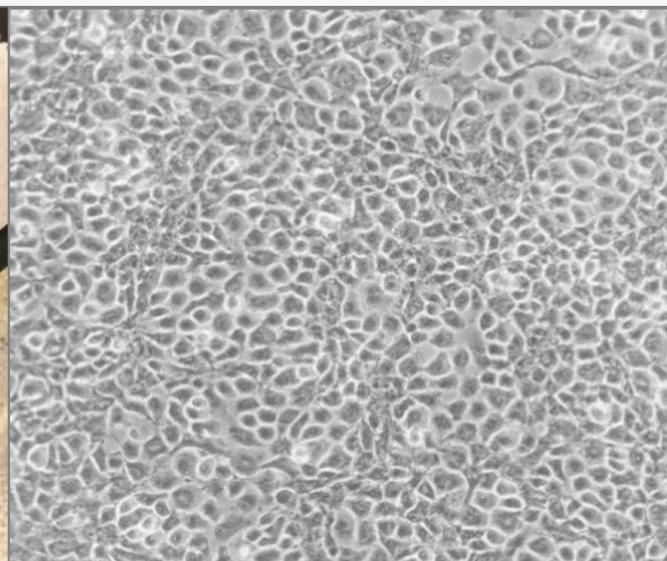
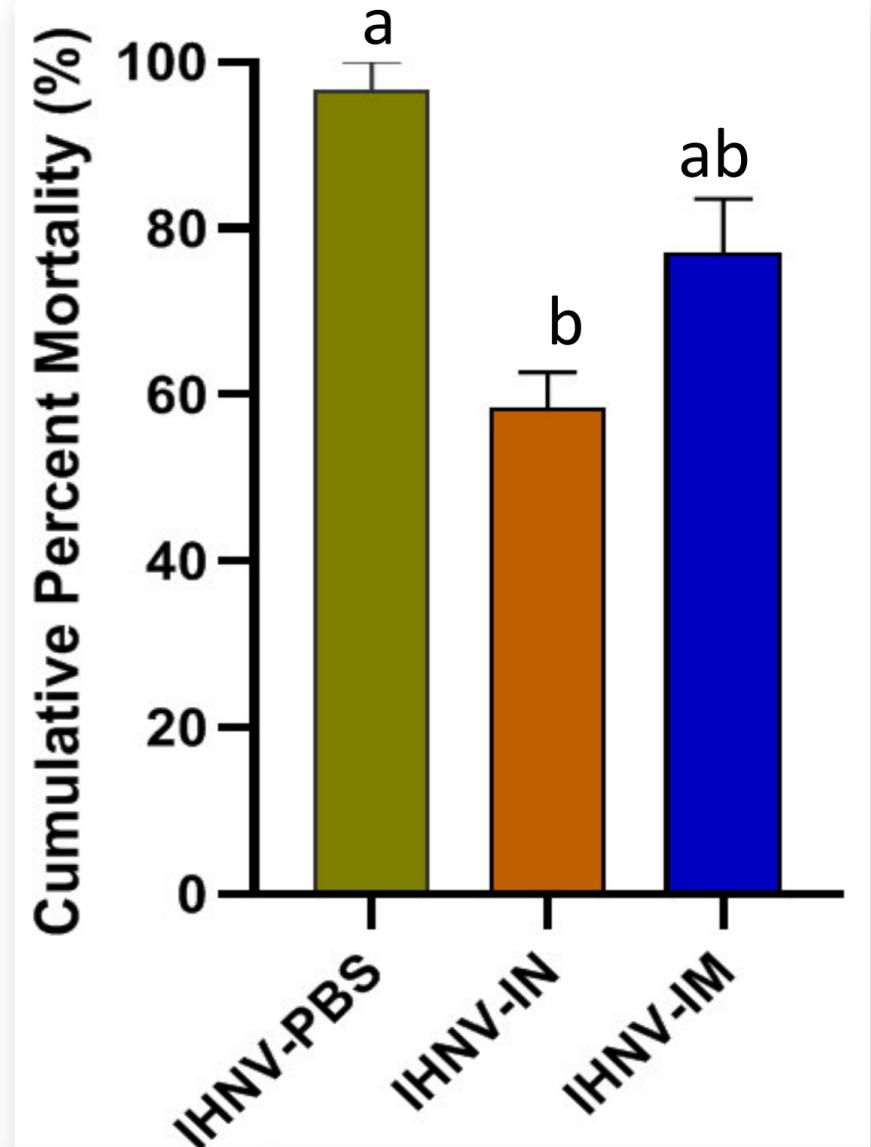
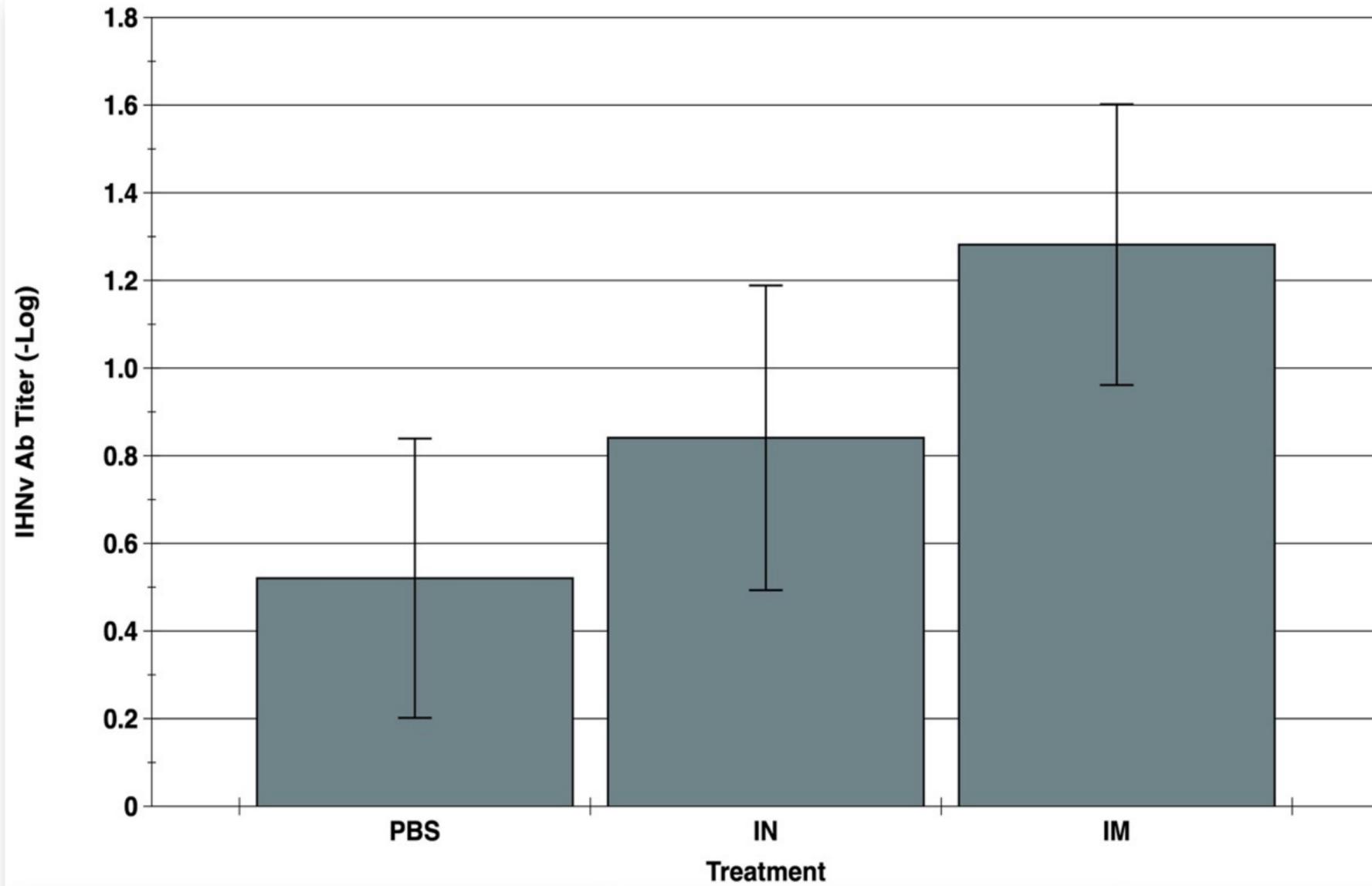
- I Collaboration with the Salinas lab at the University of New Mexico
- I 12m vaccination and challenge trial to assess protection from nasal vaccinations in two industry-relevant pathogens
- I Pathogen-specific response titers measured via specific ELISA (IgM and IgT)
- I Immune gene expression profiles of spleen tissue and NALT currently underway



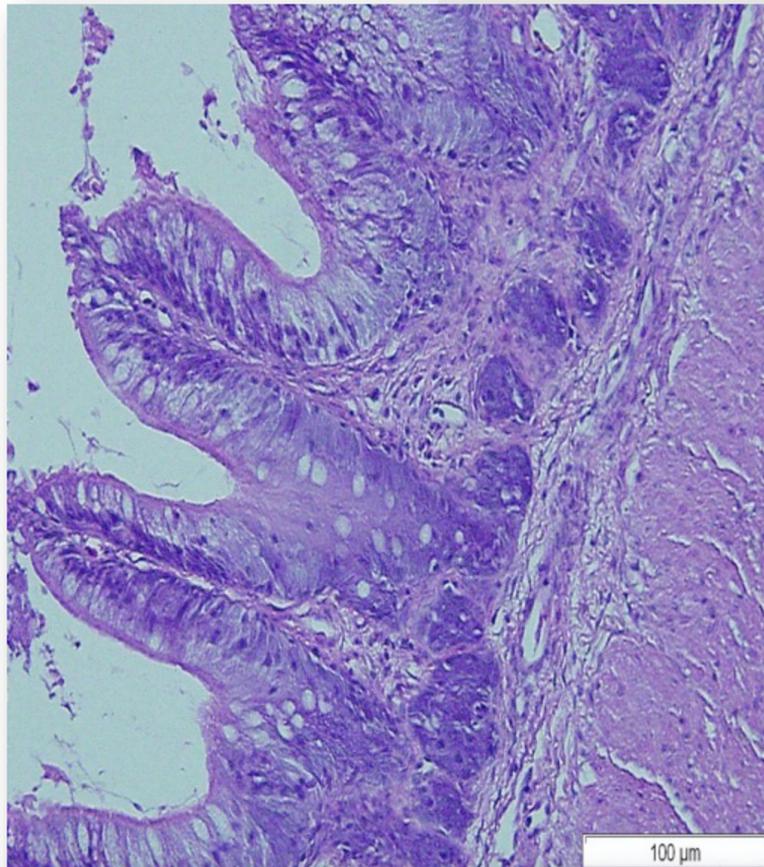
NASAL VACCINATION RESULTS: *Y. ruckeri*



NASAL VACCINATION RESULTS: IHNV



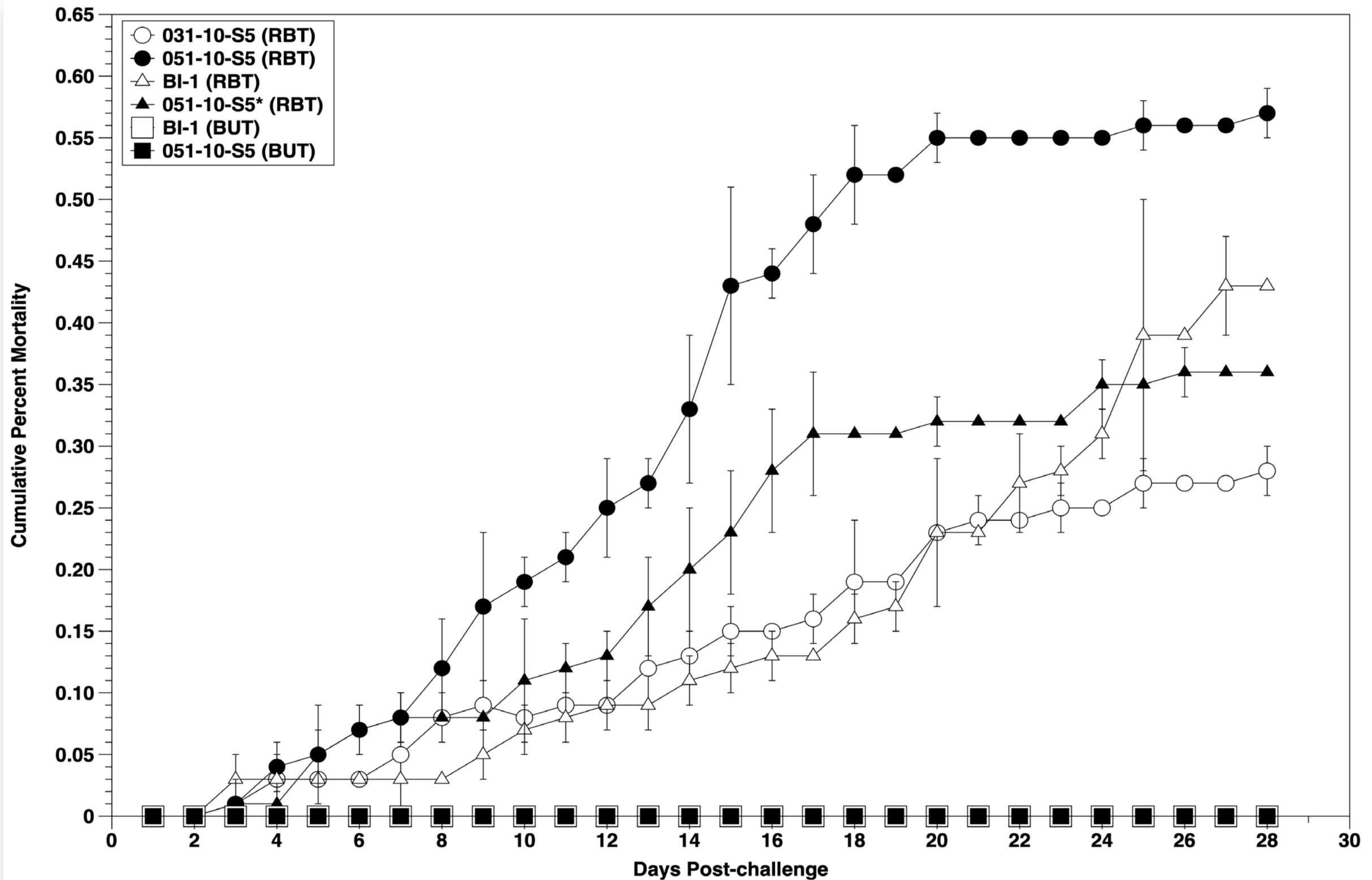
BURBOT HEALTH & IMMUNOLOGY



- I Novel species of freshwater cod with industry potential
- I Response to plant-based protein sources as FM replacement
- I Immune assay development for response to opportunistic aquatic pathogens
- I Investigation of microbiota in response to plant-based ingredients and burbot vaccine development



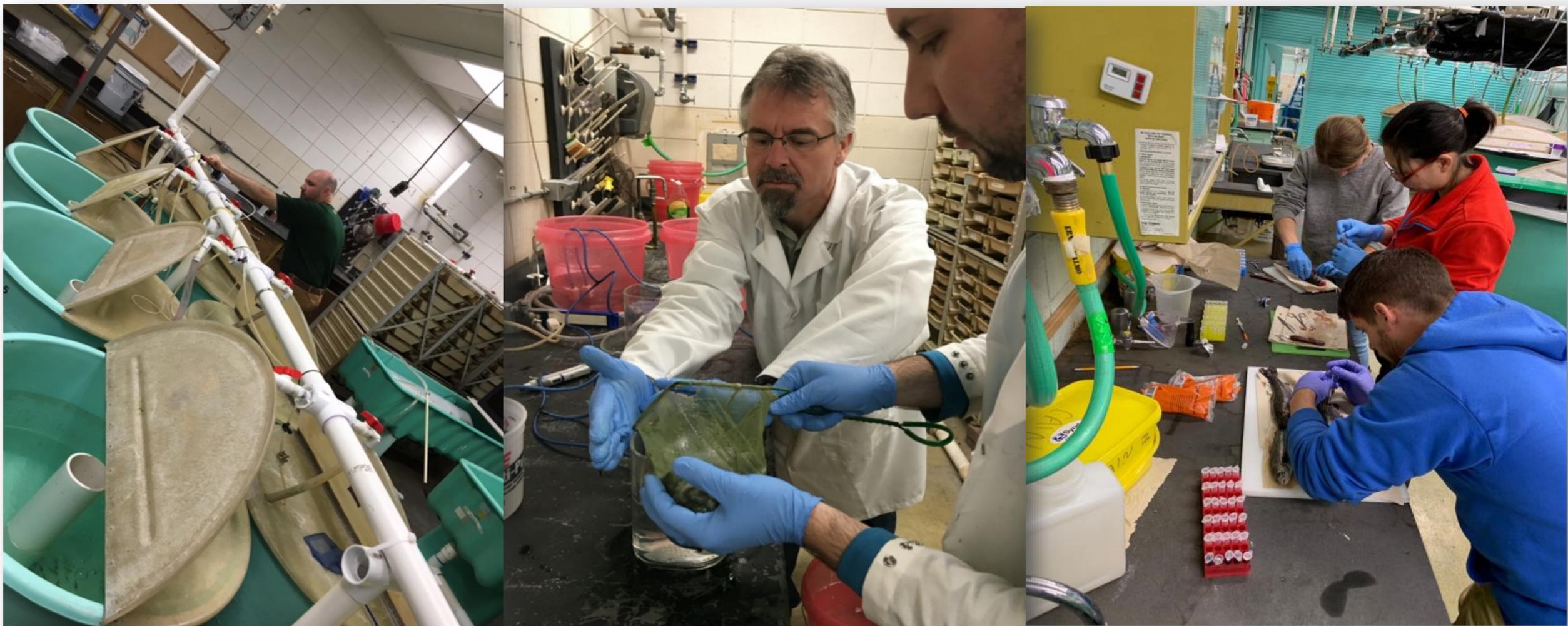
BURBOT PATHOGEN CHALLENGE: *Flavobacterium columnare* strains



ACKNOWLEDGMENTS



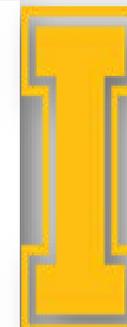
RESEARCH SUPPORT AND FUNDING



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