Media Release
Atlantic Veterinary College at UPEI

Discovery of world's first anti-microsporidian vaccine

(Charlottetown, PEI) April 24, 2008:A team of researchers at the University of Prince Edward Island's Atlantic Veterinary College has developed the world's first vaccine that is effective against a destructive microsporidian parasite of salmon.

"Although there are many diseases of fish, animals and humans caused by microsporidian parasites, there have been no successful treatment or prevention methods against these enigmatic disease-causing organisms until now," says Dr. David J. Speare (DVM, DVSc), lead researcher responsible for the discovery. "Now we can say that we actually have one. We have a vaccine."

Speare, an internationally recognized fish pathologist, and fellow researchers Dr. Fred Markham and Dr. Nicole Guselle, have worked on the vaccine for more than a decade. Recently they published their findings in a leading international experimental medical research journal Clinical and Vaccine Immunology.

The team's novel spore-based vaccine works to prevent microsporidial gill disease (MSGD) in salmon. MSGD is a significant disease to farmed salmon species caused by the microsporidian parasite Loma salmonae. The result of the disease is the death of pre-market size salmon. Mortality rates on some farms affect 30 per cent of the stock. Within repeated experimental trials of the vaccine, vaccinated fish demonstrate a significant decrease in the incidence of infection and disease.

"We are very excited that we have made a breakthrough on a disease for which there are no other effective treatments," says Speare.

Aquaculture is the fastest growing food production sector in the world. The aquaculture industry's worth worldwide is estimated at $50 billion. In Canada, this estimate is $750 million. With Canada now ranked fourth in world salmon and trout production, the research team's vaccine discovery holds great promise for safe-guarding the growth of the farmed aquatic sector at home and on a global scale.

"As infectious diseases continue to remain an impediment to the development, productivity and profitability of fish farms, vaccination plays an important role in large-scale commercial fish farming," explains Speare.

Microsporidians are one of the stranger and least understood parasites that can live for long periods within the cells of infected hosts. Unlike other parasites, there is no medication to fight microsporidian parasites. In human health, microsporidians have emerged as major disease problems in AIDS patients and people receiving immunosuppressive drugs after organ transplant.

"The development of a vaccine for a microsporidian parasite of fish - and demonstrating its effectiveness - is likely to spark renewed efforts in developing similar vaccine strategies or immunological approaches that could be effective in limiting several microsporidial diseases affecting humans," says Speare. "Our research team at the Atlantic Veterinary College is very excited to be at the forefront of this field of research."

The Atlantic Veterinary College at UPEI is known around the world as "the fish vet school" because of its expertise in aquatic species health. In addition to being home to the Centre for Aquatic Health Sciences, the Atlantic Veterinary College offers aquatic expertise through North America's only OIE Reference Laboratory for infectious salmon anaemia, the AVC Lobster Science Centre (the only lobster research centre in the world that is a part of a veterinary college), the Centre for Marine and Aquatic Resources, and the AVC Shellfish Research Group.

The Atlantic Veterinary College at UPEI trains doctors of veterinary medicine as well as animal health, human health, and comparative biomedical researchers. Since opening in 1986, the Atlantic Veterinary College has become known worldwide for its quality educational programs, rapidly growing research agenda and outstanding professional services.

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