Veterinary researchers discover new poxvirus in sea otters

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Wild southern sea otter (Enhydra lutris nereis) mother and newborn pup sheltering in the Great Tide Pool at the Monterey Bay Aquarium.

(Phys.org) —After studying unusual skin lesions seen in two orphaned sea otter pups, University of Florida scientists and their collaborators have identified a previously unknown poxvirus in the infected animals.

"To our knowledge, this is the first report of a poxvirus in a mustelid, the

group of mammals including otters, mink, badgers and related species," said James Wellehan, an assistant professor at the UF College of Veterinary Medicine who specializes in virology and zoological medicine.

Members of the poxvirus family cause significant disease affecting both animal and human populations, and the emergence of smallpox in humans became a global pandemic.

The scientists say the potential for transmission of this particular poxvirus to humans is unclear. Although no pox infections have been reported in humans exposed to sea otters, the scientists advise wearing protective clothes and gloves when handling these animals, either in the wild or in rehabilitation settings.

The otter pups came from two geographically and genetically distinct populations — one in Alaska and one in California — so the researchers say the virus must be geographically widespread. Both otters were undergoing rehabilitation at the time the skin lesions were noted and subsequently tested.

DNA testing revealed that viral gene sequences from both animals were identical, and that it represents a virus that had never been identified, according to findings that now appear online in the *Journal of Wildlife Diseases*.

UF researchers found the virus poses a threat to the otters because the lesions it causes interfere with the animals' hair coat, impeding their natural ability to survive in water.

"When you look at a Steller's sea cow, which is now extinct, a whale or a seal, they all have significant blubber layers," Wellehan said. "But what keeps sea otters alive in the cold water is their hair coat. Anything

affecting their hair coat, with its incredible density of fur, is a huge problem for them."

Researchers need to do additional studies to determine the source of the virus, how it was transmitted to the otters, its potential for transmission to humans and its biological significance.

"Understanding the diversity, ecology and evolution of medically important groups of viruses is crucial to prediction and monitoring," Wellehan said.

Provided by University of Florida