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BAKER INSTITUTE *for* ANIMAL HEALTH

Dedicated to the study of veterinary infectious diseases, immunology, genetics, and reproduction.



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[H3N2 influenza: how to protect your dog](#)

[New York State Animal Health Diagnostic Center's page on canine influenza](#)

[AVMA's FAQs on canine influenza](#)

[AVMA's canine influenza pet owner's guide](#)



Kai Huang, a graduate student in Dr. Colin Parrish's laboratory, is sequencing all the genes in the H3N2 canine influenza genome. The H3N2 strain has infected hundreds of dogs in the Midwest.



"We're working to characterize the virus so that we might eventually help develop new diagnostics for this disease," says Institute Director Dr. Colin Parrish.



The H3N2 canine influenza virus appears to spread more easily between dogs than does the H3N8 canine influenza virus that has circulated in North America for 15 years.

Influenza updates: Baker Institute studying H3N2

May 6, 2015

An [outbreak of canine influenza in the Chicago, Illinois area](#) that began earlier this year has since spread to Alabama, California, Texas, New York, Iowa, Michigan, Wisconsin and Indiana [according to recent reports](#), to other regions of the USA. Scientists at Cornell University and at the Baker Institute are working to understand more about the virus responsible, investigating how the canine immune system reacts to the virus, and are working with others to create models of how the virus passes from dog to dog.

Earlier this month, Drs. Edward Dubovi and Amy Glaser at [Cornell's Animal Health Diagnostic Laboratory \(AHDC\)](#) [identified the virus responsible for the outbreak as a strain of H3N2 influenza](#) that had previously only been seen in Korea, China, and Thailand. Thanks to the assistance of the AHDC, [Dr. Colin Parrish's](#) laboratory has been able to obtain virus samples from dogs sickened in Midwest outbreak, and is working to pinpoint the identity and source of the virus strain responsible and carry out the basic research that will lead to ways to treat or prevent influenza infections. A generous bequest for the study of canine health from the estate of Barbara Herndon has made this research possible.

One of Dr. Parrish's Postdoctoral fellows, Dr. Kai Huang, is currently sequencing the genome of viruses from the US outbreak in order to identify the specific genes involved in infecting dogs and making them sick. By comparing these sequences to those of other canine influenza viruses, they also hope to develop better ideas of how the virus might mutate in the future.

In addition, Dr. Parrish's group is beginning to study the immune response to the virus by developing H3N2-specific antibodies. Antibodies are molecules produced by the immune system to specifically identify invading germs, attach, and target them for killing by other components of the immune system. By developing antibodies specific to the H3N2 influenza virus (along with antibodies to the H3N8 virus), they can determine whether dogs that have been exposed to one type of canine influenza can gain immunity to the other type. More importantly, they can begin to answer the question of whether the vaccines available for H3N8 canine influenza offer any protection to H3N2 canine influenza.

Dr. Parrish's laboratory is now collaborating with a group including Drs. [Ben Dalziel](#) and [Bryan Grenfell](#) at [Princeton University](#) to develop models to understand the ways in which the H3N2 virus is passed from dog to dog. Previous observations of the H3N2 virus in Asia, and early impressions of the outbreak in the Midwest seem to indicate that it passes more easily from one dog to another than does the H3N8 virus, and simulations will help determine best practices for how to limit the spread of H3N2 in outbreak scenarios.