

What's more helpful: The chicken or the egg?

December 23 2011, By Mary McIntyre

Success for Dr. Hoon Sunwoo can be traced back to a research project that began in the 1990's and is perpetuated through his latest research benefiting the livestock industry.

“We have been working on increasing specific and various antibody levels in the egg yolk for 15 years. I first studied the antibody when working on my PhD,” said Dr. Hoon Sunwoo, Research Associate Professor.

His first research project produced a natural antibody powder created from egg yolk. The powder helps prevent disease caused by food borne germs that include Campylobacter, E. Coli O157, [Listeria](#), [Salmonella](#), and [Staphylococcus](#).

Dr. Sunwoo's research aims to create a safe and simply vaccine to prevent [osteoporosis](#) in caged laying hens. Now he has new funding in place to help rectify this serious animal welfare problem. Osteoporosis causes hens severe and prolonged pain that leads to lower egg production and a shorter life span.

In nature, antibodies tend to accumulate in large amounts in the egg yolks of healthy laying hens. Dr. Sunwoo has created a method to take advantage of this natural occurrence by boosting antibodies that can be used to treat osteoporosis. He injects young healthy hens with the osteoporosis causing factors so the hens will produce eggs with large amounts of these important antibodies in the yolks.

The concentration of these antibodies in these designer eggs allows him to create a significant amount of an injectable vaccine.

“Eggs from 1,000 injected [chickens](#) will produce enough vaccine to treat 20 million chickens. This is the first time in a natural antibody vaccine, which prevents osteoporosis in chicken, is being developed from egg yolks to create a vaccine,” said Dr. Hoon Sunwoo.

This designer egg project follows a proven track record. His previous research using natural antibodies developed in egg yolks has produced therapeutic drugs, diagnostic agents, and a natural health product to help people with celiac disease.

Funding for this project comes from the Alberta Livestock and Meat Agency Ltd. A patent is pending for this vaccine.

Provided by University of Alberta

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