COMBATING MAREK’S DISEASE: It’s in the genes

WHAT IS IT?

Marek’s disease is a typically fatal condition that can be found within chicken populations.

The disease is brought on by the damage caused by the virus known as Gallid herpesvirus 2 (a.k.a. Marek's disease virus).

Gallid herpesvirus 2 is shed in the dander of infected chickens where it is then inhaled by others in the population.

Once inside the body, the virus targets the nervous system as well as tissues responsible for immune system function.

WHY DO WE CARE?

Due to the persistent nature of the virus in the environment, almost all commercial chickens are exposed at a very young age.

Infection with the virus and progression to the disease can lead to reduced egg production, death, and meat that is not considered suitable for consumption.

These losses cost the poultry industry upwards of $1-2 billion per year.

Currently, vaccines are the only available prevention strategy, but vaccines are only able to prevent the progression Marek’s disease symptoms.

Vaccines are unable to prevent the spread of the virus, which means that the virus can still mutate and outbreaks can still occur.

HOW ARE WE FIGHTING BACK?

Using what is known as the CRISPR/cas system, researchers are able to specifically target genes of interest and temporarily turn them off.

This system allows for the study of genes to determine those that are important for resistance to Marek’s disease.

The future of the poultry industry will include the use of chickens that have genes for resistance coupled with vaccination in order to prevent spread of the virus and progression to Marek’s disease.

Elimination of Marek’s disease will not only save the lives of many chickens, but also help poultry farmers redirect their resources to meet the demands of society effectively.

References:


Sydney Dudley, Evin Hildebrant, Avian Disease and Oncology Laboratory