

# Terminology

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Immunity; The ability of a chicken to resist an infection after exposure to a pathogen

Pathogen; A bacteria, virus or microorganism that causes disease

Antigen; The specific component of the pathogens structure that allows immune system identification and response.

Antibody; the component of the immune system specialized to respond to a specific antigen

Disease; Any disruption to the normal functioning of the bird's system (illness). This may or may not be contagious in nature

Serology; Diagnostic testing done on the serum component of blood. Usually ELISA testing, but could also be Hemagglutination Inhibition (HI), Virus Neutralization (VN), AGID (Agar Gel immunodiffusion) or other tests using serum samples

Titers; A relative measurement of the amount of antibodies present in circulation for an animal

# Antibody Types in Poultry

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Chickens have 3 major antibody types;

- IgA
- IgM
- IgY (functional equivalent to IgG)

IgY is the main circulating antibody and binds strongly to viruses and bacteria. This is also the main antibody type found in eggs and is a strong component of maternal antibodies

IgA is found primarily in the mucous membranes and GI tract

IgM is the first antibody manufactured in response to an infection for which the animal is naïve. IgM is found in the lymphatic system and in the general circulation in the blood stream

Presence of IgM in greater concentrations to IgY can be indicative of an early / recent infection  
Most serologic testing do not differentiate between immunoglobulin types, this would require specialized testing

# Fundamental immunity principles

Avian immunity consists of two systems;

- Passive or Innate immunity
  - Passive immunity exists naturally and includes physical barriers (skin, cilia, normal flora), chemical barriers (gastric secretions) blood proteins (complement) and phagocytic immune functioning cells (heterophils, macrophages, natural killer cells, and thrombocytes)
  - Maternal Antibody presence can be considered passive immunity, as it is naturally present in the birds after hatch but consists of antibodies passed on from the hens own immune profile
- Active or Acquired immunity
  - This is built over time via exposure to a pathogen and is specific to that pathogen should it be encountered again

Antibodies are part of the acquired immune response

- Generated in response to exposure to an antigen
- Subsequent response is faster and more robust

Serology measures antibody levels circulating in the blood

An Antibody

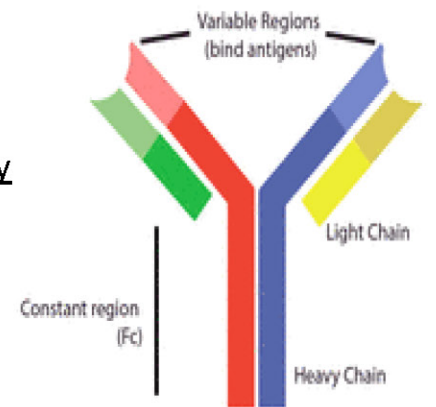


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