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SEROLOGY



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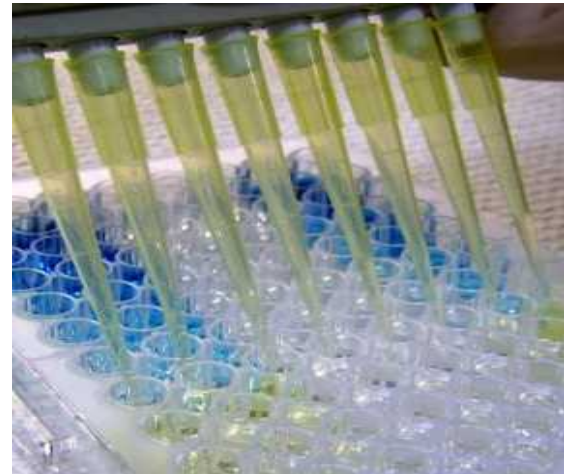
Seroconversion

- **Serum antibodies are produced in response to infection and vaccination**
- **The change of a test that measures serum antibodies from negative to positive, indicating the development of antibodies in response to immunization or infection is referred to as seroconversion**
- **Seroconversion presents challenges when differentiating infection from vaccination**



Serology

- **Measurement of serum antibodies**
- **Serum antibodies can be developed as a result of:**
 - Exposure to a pathogen
 - Vaccination
 - Cross reactivity
 - Maternal antibodies





Serology

- **Serology is often used to assess animals for past infection**
- **Serum antibody titers will rise after exposure to a given pathogen**
 - This response can be measured using a number of serological tests
 - **Enzyme linked immunosorbent assays (ELISA)**
 - **Virus neutralization**
 - **Agar immunodiffusion assay**
 - Presence of antibodies can be measured using
 - **Milk ring test**
 - **Card agglutination test**





Serology: Interpretation

- **Serology is frequently used in diagnostic medicine but has limitations**
- **Animals that seroconvert may or may not be infected with a pathogen**
 - Paired titers to measure increase in antibody production may be required to assess the potential for recent infection
- **Positive titers could be interpreted as:**
 - Vaccination
 - Presence of maternal antibodies (age dependent)
 - Cross-reactivity with different organism
 - Exposure to pathogens
- **Some vaccination titers can be differentiated from natural exposure to pathogens, but many cannot**



Serology: DIVA

- **Differentiating Infected from Vaccinated Animals (DIVA)**
- **Specific vaccines have been developed so that the antibodies produced from vaccination can be differentiated from those that cause infection**
 - Avian Influenza
 - Foot and mouth disease
- **The test kits are not commercialized and can be difficult to develop**
 - Expensive
- **The differentiating vaccines were developed in response to efforts to control avian influenza and foot and mouth disease**
 - Robust control and preventative strategies require frequent testing
 - Must differentiate vaccination from infection to demonstrate success