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Tests for Diagnosis or Prognostic Monitoring of Valley Fever

Valley Fever (VF), or coccidioidomycosis, is a systemic fungal infection caused by the fungus Coccidioides that is endemic to the Southwestern United States but can occur in other regions of the world. Roughly 40% of VF patients experience vague or flu-like symptoms and approximately 5-10% of patients, progress to a disseminated form of the disease with potentially fatal consequences. The incidence of VF has risen 6-fold since 1993. Because clinical symptoms of VF present similarly to other infectious diseases, accurate diagnoses are often delayed. Current laboratory diagnosis of VF is performed using ELISA, immunodiffusion and complement fixation tests using preparations of Coccidioides fungal lysates that vary in their seroreactive antigenicity, resulting in variability in patient positivity and prognosis.

Researchers at the Biodesign Institute of Arizona State University have developed a method to identify Coccidioides antigens which are reactive to antibodies in serum as well as identified over 50 such Coccidioidal proteins. These proteins are seroreactive with IgG from samples infected with Coccidioides. These proteins have been used to construct a multi-antigen test for detecting antibodies against Coccidioides, to aid in the diagnosis of Valley Fever (VF) as well as provide prognostic monitoring of patients with VF. This method can be used to quickly identify proteins that are reactive to IgG, IgM, IgA or IgE in any species.

These proteins can be used to reliably construct VF diagnostic and prognostic tests which are more sensitive, specific and accurate.

Potential Applications

- Valley Fever diagnoses
  - Humans, dogs, other animals
- Prognostic monitoring of patients with VF

Benefits and Advantages

- Can be used to quickly identify proteins that react with IgG, IgM or even IgA or IgE in any species infected with Coccidioides
- Has identified individual antigens that are seroreactive so they can be produced as recombinant proteins, quantified and then used in a single antibody test
- Improves sensitivity, specificity and accuracy for diagnosis and prognosis of VF
- Provides for more uniform, quantifiable method of producing consistently seroreactive tests for infection with VF
- Could be used as a platform for diagnosing other pathogens

For more information about the inventor(s) and their research, please see

Dr. Lake's departmental webpage

Dr. Magee’s departmental webpage