AUTOANTIBODIES AS BIOMARKERS FOR AUTOIMMUNE POLYGLANDULAR SYNDROME TYPE 1

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INVENTION NOVELTY

Researchers at UCSF and the Chan Zuckerberg Biohub have identified multiple common autoantibody targets in APS1 patients through proteome-wide programmable phage-display.

VALUE PROPOSITION

- Proteome-wide PhIP-Seq approach overcomes challenges in identifying autoantibodies with weak affinity for target antigen, or rare or low expression of the target antigen
- Programmable phage display can comprehensively cover all annotated proteins and their isoforms
- Reduced volume requirement for human serum
- Platform can be adapted for antigen discovery and to reveal identities of autoantibodies in other common autoimmune diseases

TECHNOLOGY DESCRIPTION

The identification of autoantigens remains a critical challenge for understanding and treating autoimmune diseases. Autoimmune polyglandular syndrome type 1 (APS1) is a rare monogenic form of autoimmunity that presents with widespread T and B cell autoimmune responses to multiple organs. Although APS1 is rare, many autoantibodies in APS1 patients are observed in individuals with more common autoimmune diseases. Therefore, autoantibody discovery in individuals with APS1 can illuminate fundamental autoimmune disease pathogenesis and provide biomarkers for identifying those at risk for disease.

APPLICATION

Autoantibody discovery to diagnose autoimmune diseases and identify tissues at risk of damage

STAGE OF DEVELOPMENT

The inventors have identified autoantibody targets for APS1 by employing high-throughput, proteome-wide phage immunoprecipitation sequencing (PhIP-Seq) of serum from a cohort of patients with APS1. This PhIP-Seq autoantibody survey identified a collection of novel APS1 autoantigens as well as numerous known APS1 autoantigens. The inventors interrogated the PhIP-Seq data for phenotypic associations, as the cohort of APS1 individuals was extensively phenotyped for 24 clinical

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OTHER INFORMATION

KEYWORDS

autoantibody, antibody, particle display, serum

CATEGORIZED AS

- Medical
  - Diagnostics
  - Disease: Autoimmune and Inflammation

RELATED CASES

2020-051-0

manifestations, and validated seven novel autoantigens. The identification of clinically-correlated autoantigens has important implications for poorly understood manifestations of APS1.

RELATED MATERIALS

- Identification of novel, clinically correlated autoantigens in the monogenic autoimmune syndrome APS1 by proteome-wide PhIP-Seq - 05/15/2020

PATENT STATUS

Patent Pending

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