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Inventors

Mahasish Shome

Yunro Chung

Ramani Chavan

Jin Park

Ji Qiu

Contact

Jovan Heusser
jovan.heusser@skysonginnovations.com

Autoantibodies for Identification of False Positives of Disease and Uses Thereof

Autoantibodies are an excellent biomarker for both autoimmune disease and cancer, however, some autoantibodies, called common autoantibodies, have been found to occur frequently in healthy individuals. The presence of these common autoantibodies can impede the search for disease-linked autoantibodies or lead to false positives. The identification of common autoantibodies may simplify the discovery of autoantibodies specific to certain diseases.

Researchers at the Biodesign Institute of Arizona State University have developed a method for increasing the accuracy of a cancer or autoimmune screening by identifying at least one false positive indicator. By performing a meta-analysis of autoantibodyome data from 9 different case-control biomarker studies, they identified 77 common autoantibodies that are shared by healthy individuals. These common autoantibodies do not seem to lead to autoantibody-mediated pathology, and subcellular localization and tissue expression analysis show that this may be caused by inaccessibility to antibodies due to the autoantigen locations (e.g. intracellular sites, specific tissues/organs, etc.).

Because of the prevalence of these common autoantibodies, their identification may enhance autoimmune condition and cancer screening as well as facilitate a more holistic approach to understanding autoimmunity at the omics level.

Potential Applications

- The use of autoantibodies to identify false positives in detecting cancer or autoimmune conditions
- Autoimmunity research at the omics level
 - Help facilitate the elucidation of the complex immunology underlying their elicitation

Benefits and Advantages

- May help identify false positives in cancer and autoimmunity screening
- The most common autoantibodies occurred at similar frequencies in diseased cohorts to those in healthy cohorts
 - Indicates they were elicited through common non-pathogenic mechanisms
- Comprehensive - meta-analysis of autoantibodyome data from 9 different case-control biomarker studies
- Extensive quantification and statistical analyses were performed

For more information about this opportunity, please see

[Shome et al - Cell Rep. - 2022](#)

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

[Dr. LaBaer's departmental webpage](#)

[Dr. Chung's departmental webpage](#)