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MEASUREMENT OF TOTAL, FREE, AND AUTOANTIBODY-BOUND BIOMARKERS

DIAGNOSTICS

Sensitive, mass spectrometry-based method for biomarker quantification that overcomes interference from autoantibodies and is suitable for use in clinical laboratories.

TECHNOLOGY TYPE

Biomarkers
Mass Spectrometry

STAGE OF DEVELOPMENT

Applied in a clinical reference laboratory setting for thyroglobulin measurement.

IP PROTECTION

U.S. Utility Patent Issued

Methods for Analysis of Free and Autoantibody-Bound Biomarkers and Associated Compositions, Devices and Systems

US9140695B2

Continuation Pending

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TECHNOLOGY SUMMARY

The presence or absence of specific biomarkers can be predictive in the diagnosis of various conditions. The majority of diagnostic tests for quantitative measurement of biomarkers use immune-based techniques, which utilize detection antibodies. In individuals with autoimmune disorders, however, patient autoantibodies affect the immunoassay and cause inaccurate results or misdiagnosis.

The proposed method binds antibodies to specific analytes, converting all target analytes in the sample to antibody-bound form. This creates enriched fractions that facilitate more accurate measurement of biomarker concentration. This method has been used for quantification of total thyroglobulin in serum and plasma samples to detect recurrence of thyroid carcinoma. This approach can also be applied to other biomarkers where autoantibodies can adversely affect the assay used to detect the biomarker.

FEATURES AND BENEFITS

- Facilitates accurate measurement of total concentration of free and antibody-bound biomarkers.
- Isolates specific biomarkers and determines analyte concentration.
- Demonstrates potential use with any biomarker for which autoantibody interference is an issue.

RECENT PUBLICATIONS

Kushnir, M.M., Rockwood, A.L., Roberts, W.L., Abraham, D., Hoofnagle, A. N., Meikle, A.W. (2013). Measurement of thyroglobulin by liquid chromatography-tandem mass spectrometry in serum and plasma in presence of anti-thyroglobulin autoantibodies. *Clinical Chemistry*. 59(6): 982-990. doi: [10.1373/clinchem.2012.195594](https://doi.org/10.1373/clinchem.2012.195594)

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