

## PATENT NO. US 11435344

### ELECTROCHEMICAL BIOSENSOR METHOD OF SENSING ALBUMIN AND ITS COMPLEXES

**APPLICATION NO.** US20170241996A1

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An electrochemically active device for collecting and retaining a biological sample with a bioanalyte, the device provided with at least a two-electrode member and an albumin-binding and an electrochemically active receptor in chemical contact with the two-electrode members and the biological sample. The present invention also provides a point-of-care biosensor with the device of the present invention and a method for measuring a bioanalyte in a biological sample. The device, point-of-care biosensor and the method of the present invention facilitate accurate measurements concentrations of urine albumin, human serum albumin (HSA), glycated albumin (GA) and methemalbumin (MHA) by determining redox current values in reduced volumes of biological samples.

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#### CLAIM 1

An electrochemically active device for collecting and retaining a biological sample, comprising:

- (i) at least a pair of conductive tracks disposed on a substrate;
- (ii) at least one electrode member, said member comprising two or three electrodes connected to said conductive tracks; and
- (iii) an electrochemically active receptor, wherein said receptor is selected from the group consisting of:
  - a) a metal porphyrin,
  - b) a combination of a metal porphyrin and methylene blue,
  - c) a copper (II) salt, and
  - d) a combination of a copper (II) salt and methylene blue, and wherein said receptor is in chemical contact with said at least one electrode member and a biological sample with a bioanalyte, wherein a membrane is disposed on said at least one electrode member; and said membrane is treated with a boronate affinity agent, selected from the group consisting of boronic acid, phenyl boronic acid (PBA), and aminophenyl boronic acid (APBA).