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(54) Title: METHODS AND SYSTEMS FOR DETECTING AN ANALYTE OR CLASSIFYING A SAMPLE

(57) Abstract: The present invention relates to methods and systems for detecting one or more analytes in a sample and/or for classifying a sample. In particular, the present invention relates to methods and systems which can be used to detect the analytes in real time and which rely on flowing through a microfluidic device one or more types of sensor molecule each comprising a domain that binds one or more analytes, a chemiluminescent donor domain and an acceptor domain, wherein the separation and relative orientation of the chemiluminescent donor domain and the acceptor domain, in the presence and/or the absence of analyte, is within + 50% of the Forster distance.

