Docket #: S04-074

Methods of Improved Sensitivity for Proximity Ligation

This invention describes a highly sensitive technique for proximity-probe based detection of one or more analytes in a sample. In more detail, the target protein is analyzed using two so called proximity probes each with a target specific binding moiety (such as an antibody) and a reactive DNA oligonucleotide component. Upon the addition of a pair of asymmetric nucleic acid connectors, two proximity probes which are close to each other will hybridize to the same connector forming the ligation substrate and the assay signal. A high degree of specificity is ensured by the requirement of dual and proximate recognition of the target protein in a very user-friendly and automateable assay with no washing steps.
The number of ligation events reflects the amount of target protein present in the sample and these can be amplified by PCR. The reagent consumption in proximity ligation is very small, reducing the use of precious antibodies and associated costs. Since homogenous proximity ligation is performed without any immoblization or washing steps, it is also very suitable for robotic automation.

This invention has now been improved by providing means for greater degrees of target binding, so that highly sensitive protein detection is even possible with low affinity protein binders.

Applications

- Method for highly sensitive, specific and rapid protein detection with a wide dynamic range even with low affinity protein binders

Advantages

- Simple and sensitive protein detection method: 1000 times more sensitive than conventional sandwich ELISAs, while requiring 100 times less sample per assay.
- Suitable for robotic automation
- Protein detection with a wider dynamic range, even with low affinity protein binders

Publications

- Published patent application no. WO 2005/123963

Patents

- Published Application: WO2005123963
- Published Application: 20090162840
- Published Application: 20110136127
- Published Application: 20140106361

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