Q-LINEA
PROTEIN BASED SPORE DETECTION

The Q-linea platform employs padlock or proximity ligation probes directed towards specific nucleic acid sequence motifs or surface epitopes for detection, identification and quantification of pathogens.

This approach ensures high analytical sensitivity and selectivity in combination with flexibility in probe design. Reacted padlock probes are detected using Q-linea's amplified single molecule detection approach. This involves converting individual target recognition events to fluorescent micrometer-sized DNA molecules which are amenable to optical detection and enumeration in Q-linea's Aquila instrumentation.

Detection of minute amounts of Bacillus atrophaeus spores in 30 minutes

B. atrophaeus spores were used as a simulation agent for spores of pathogenic bacteria. A dilution series of known spore concentrations was first prepared. Without any preceding preparation steps samples were interrogated by proximity probes which subsequently were subjected to amplified single molecule detection. The total time for probing, amplification and analysis was 30 minutes.

The Q-linea platform could detect samples containing as little as 5 spores. The system also exhibits an excellent linear response to the amount of spores.

The proximity ligation assay in combination with amplified single-molecule detection, results in an analytical sensitivity significantly higher than standard sandwich immunoassays, and similar to the best PCR based approaches. In contrast to PCR protocols the Q-linea approach demands no sample preparation, is less sensitive to many known inhibitors in environmental sample matrices, has a high through-put, offers multiplexing capability and combines nucleic acid and protein analysis on the same platform.
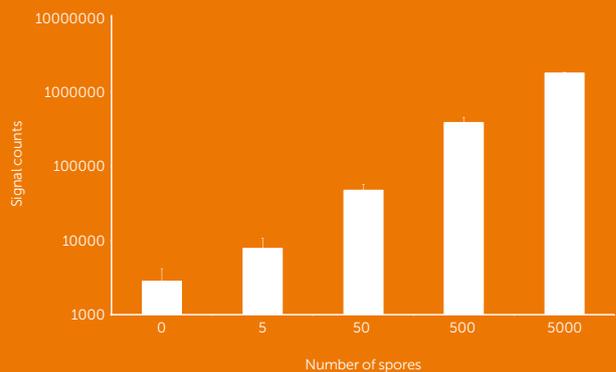
Characteristics of the Q-linea technology platform:

- Molecular probing mechanisms, with outstanding specificity.

- One platform for nucleic acid and protein analytes, enabling a wide-range assay menu (bacteria, spores, viruses, toxins, etc).

- Detection of minute analyte amounts, down to single-digit numbers.

- Rapid sample processing, down to 30 minutes depending on analyte type.

- Multiplex assay formats for detection and classification of analyte panels.

- Digital quantification offers simple data analysis and classification.

- Compatible with random access or batch processing of samples.

q-linea

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