

## **DETECTION AND QUANTIFICATION OF GENETICALLY MODIFIED ORGANISMS USING VERY SHORT, LOCKED NUCLEIC ACID TAQMAN PROBES**

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Many countries have introduced mandatory labeling requirements on foods derived from genetically modified organisms (GMOs). Real-time quantitative PCR based upon the TaqMan probe chemistry has become the method mostly used to support these regulations; moreover, event-specific PCR is the preferred method in GMO detection because of its high specificity based on the flanking sequence of the exogenous integrant. The aim of this study was to evaluate the use of very short (8-nucleotide long) locked nucleic acid (LNA) TaqMan probes in 5'-nuclease PCR assays for the detection and quantification of GMOs. Classic TaqMan and LNA TaqMan probes were compared for the analysis of the maize MON810 transgene. The performance of the two types of probes was tested on the maize endogenous reference gene *hmga*, the CaMV 35S promoter, the *hsp70/cryIA(b)* construct as well as for the event-specific 5' integration junction of MON810, using plasmids as standard reference molecules. The results of our study demonstrate that the LNA 5'-nuclease PCR assays represent a valid and reliable analytical system for the detection and quantification of transgenes. Application of very short LNA TaqMan probes to GMO quantification can simplify the design of 5'-nuclease assays.