RIE & Partnership Development
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Temasek POLYTECHNIC
CREATING TOMORROW

A RAPID & SENSITIVE ONSITE PORCINE DETECTION SYSTEM

TECHNOLOGY OVERVIEW

The global halal market is experiencing significant growth, intensifying the need for **reliable and accessible methods to verify halal authenticity**, particularly in detecting porcine contamination. Traditional PCR-based approaches, while effective, often require expensive equipment, skilled personnel, and are limited in scalability for field use.

A **novel, portable CRISPR-based detection system** integrated with Recombinase Polymerase Amplification (RPA) has been developed for **rapid, onsite identification of porcine DNA**. This method represents a substantial advancement over traditional molecular approaches, aligning with the growing demand for efficient and accessible food authentication methods.

PRODUCT FEATURES

Unique features of this technology include:

Field Based Testing

Only a small heater and UV light emitter are required for on-site detection and visualization

Equipment Free

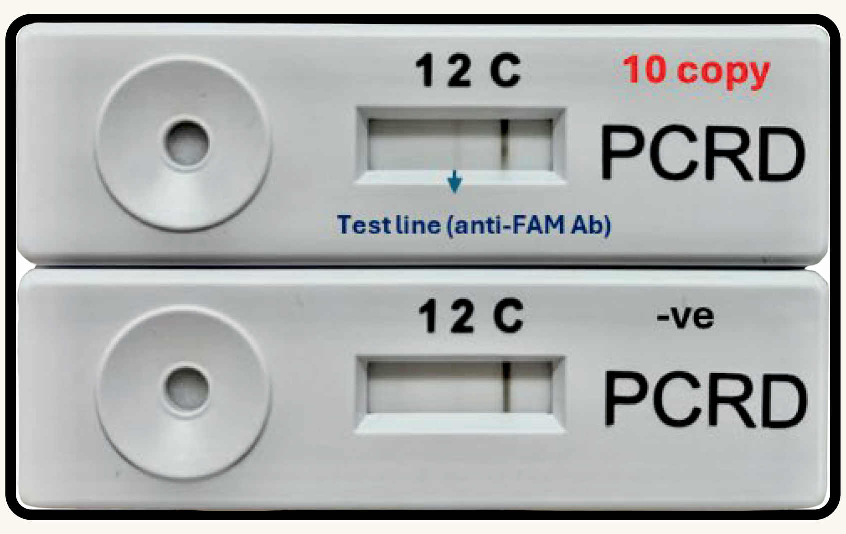
Cost-effective DNA extraction method that eliminates reliance on commercial kits

High Sensitivity

Target gene fragment in porcine gDNA is detectable with 10,000 to 1 dilution

UNIQUE VALUE PROPOSITION

- **Rapid Detection**: Amplification and detection can be completed in an hour, while traditional real-time qPCR can take up to 3 hours.
- **Integrated with Nucleic Acid Lateral Flow Assay**: Enables rapid, visual, and equipment-free detection of nucleic acid amplification products within 5–10 minutes.



POTENTIAL APPLICATIONS

- Detection of adulteration or substitution of costlier meat products with cheaper or inferior meats.
- Religious and certification bodies that ensure compliance with dietary laws and the exclusion of pork and pork derivatives.
- Quality control for porcine-derived materials including gelatin, collagen, or enzymes that are commonly used in medical products, capsules, and vaccines.