

IDENTIFICATION OF **ANIMAL INGREDIENTS** IN FOOD AND FEED USING MICROCHIP REAL-TIME PCR ANALYZER ARIADNA®

The identification of animal derived ingredients included in raw and processed food, animal feed, and pharmaceutical products is very important for food safety control. Since materials used in the production of food originate from a diverse sources, detection and identification of animal derived matter included in food and feed decrease health risks associated with the consumption of undisclosed ingredients, provide measures to prevent food fraud, ensure compliance with dietary or cultural specifications (such as vegetarian, Kosher and Halal food), and help to avoid financial losses due to recall of products.



Microchip-based real-time PCR analyzer AriaDNA



Nucleic acid extraction kit



Microchip kit for identification of animal ingredients

Alternative techniques, such as ELISA-based assays and protein profiling using two-dimensional pulsed-field gel electrophoresis (2D PFGE), detect proteins specific to a target animal species. Both of these methods are labor intensive and may be strongly affected by protein denaturation during food processing, since changes in protein structure would result in decreased antibody binding and altered gel migration times that would lead to unreliable results. In contrast, detection of DNA derived from target animal species by real-time PCR is not susceptible to processing modifications and thus, it renders real-time PCR a highly reliable and robust testing method. Currently, real-time PCR method is widely accepted by food safety industry and referred in national, industry and local standards as a method of choice.

▶ TEST PANEL OF ANIMAL DERIVED INGREDIENTS IN MICROCHIP KITS

DOMESTIC ANIMAL SPECIES

- Cattle
- Pig
- Sheep
- Goat
- Horse
- Donkey
- Buffalo
- Camel
- Yak

POULTRY SPECIES

- Chicken
- Duck
- Goose
- Turkey
- Quail
- Partridge

OTHER SPECIES

- Cat
- Dog
- Fox
- Dove
- Martes

▶ APPLICATION AREAS

- Identification of animal ingredients in food, feed and cosmetics
- Detection of animal derived matter in food, feed and cosmetics



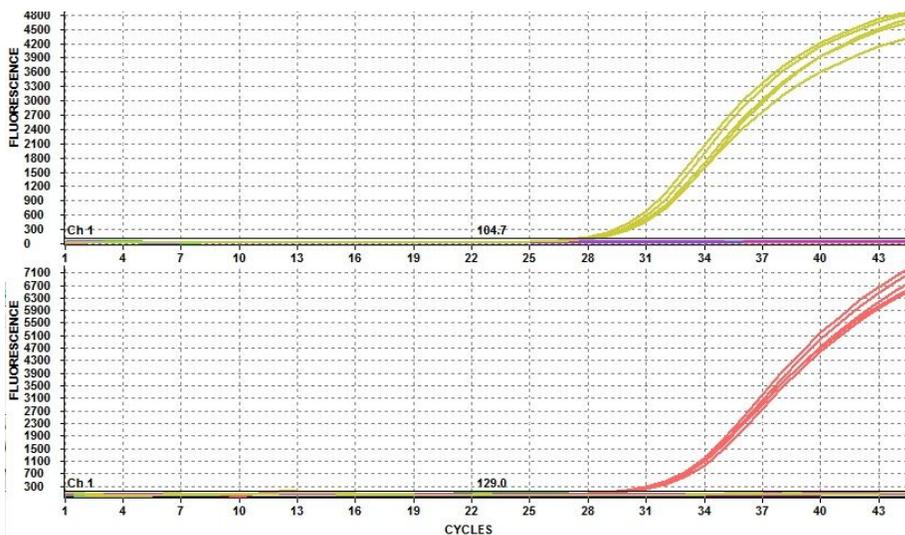
ADVANTAGES OF THE MICROCHIP-BASED REAL-TIME PCR

- Test kits are exactly the same as recommended by Chinese Standards
- High sensitivity and specificity confirmed by Standard's application practices
- Microchips with ready-to-use lyophilized PCR mixture reduce user labor
- Rapid analysis and lower test costs
- Simultaneous identification of animal ingredients ranging from 1 ingredient in 28 samples, to 3 ingredients in 13 samples, and up to 7 ingredients in 6 samples
- Minimize human error

ANALYSIS FLOW-CHART

1 Extract DNA from food or feed samples

2 Add DNA extracted from samples into the microchip reactors



Results of microchip real-time PCR of two raw meat samples: **Beef** (yellow curves) and **Pork** (red curves) against 4 Animal ID test kits. Only respective test kits show positive results, while other test kits (for sheep and goat) show negative results for both samples.

3 Insert the microchip into the AriaDNA[®] analyzer and run the analysis via the software on a PC

4 Obtain real-time PCR results and print report in 45 minutes

The information and specifications in this publication are subject to change without notice.

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