

“Tanaka Precious Metals” is ready to Supply Japan and Islamic Countries with a sensitive “Easy to use Pork Detection Kits” for the Detection of Pork in Food

Nano-colloidal gold enables simple, fast and economical detection of pork

Tanaka Precious Metals (in Japanese, Tanaka Kikinzoku Kogyo) (Headquarters: Marunouchi, Chiyoda-ku; President & CEO: Hideya Okamoto) will be supplying companies in Japan and overseas centered on the Islamic world with two “Easy to use Pork Detection Kits” for the detection of pork in either raw or cooked food materials with a high level of sensitivity.

These detection kits are Immunochromatographic assays² using nano-sized colloidal gold particles to reveal the result. The assays allows a rapid detection of pork in food samples in a short time and at a low cost without using any special equipment or requiring skillful techniques. In addition to food regulatory agencies and meat processors in Japan, these kits can also be widely used by manufacturers seeking to obtain widespread trust in the quality of their food products globally. The detection kits will also be of interest to trading companies that are considering new business opportunities in the Islamic world where pork is a taboo for religious reasons. The main features of these detection kits are as follows.

- Assays can be performed on spot in 10 to 15 minutes.
- Assays can easily be performed anywhere as no special equipment is required.
- The assay can detect pork levels as low as 0.1% in cooked food and 0.005% in raw food.
- The cost per assay is much cheaper than any existing methods.

Background

In many regions in Japan, there have been growing concerns about food among consumers due to problems concerning meat processing. The mislabeling of ground beef in 2007 by the meat processing company, Meat Hope, and another company being found to include other undeclared species of meat in 8 of its 15 ground beef samples revealed by the government conducted survey using DNA techniques, has brought public attention to this species adulteration issue. The Islamic population, which accounts for a quarter of the world’s total population, is expected to grow rapidly and the food market for this group is also rapidly expanding. It is anticipated that there is an increased interest and need in pork testing by Muslims for whom pork is prohibited from their diet.

Differences Compared to Existing Methods

Existing testing methods (PCR³ and ELISA⁴) require special techniques and equipment, because of laborious procedures involved in sample preparation, extraction, analysis and obtaining results, many food processors and dealers have been unable to conduct sufficient testing for their meat products. These pork detection kits make it possible to increase the number of sample inspection and testing because each of the test kit can be rapidly performed on site with no special equipment or trained personnel required. In addition, the cost is only one third of the cost of existing tests or less. Therefore, it is suitable for conducting preliminary screening of large number of routine samples before using an existing method for confirmation, enabling an enhanced surveillance program of the food supply.

<Comparison with Existing Test Methods>

	Easy to use Pork Detection Kit	Existing Methods	
		PCR	ELISA
Time (From sample extraction to obtaining results)	15 minutes	6 hours	5 hours
Detection Limit	0.1% (processed meat) 0.005% (raw meat)	0.001-0.1% <small>* varies with the types of the materials and sample processing conditions recommended by each manufacturer</small>	1%

Business Scenarios

Easy to use Pork Detection Kits will not only enable the testing of intentional adulteration of pork but also allows the detection of low levels of unintentional or accidental contaminations in various meat products. Potential applications of the detection kits include:

- Sample inspection of imported processed meat products;
- Monitoring the proper cleaning procedure of the equipment used by meat processing industry;
- Quality assurance and quality control of meat products at the retail level. ; and
- Field inspection by national and municipal government organizations for food labeling law enforcement.

Countries such as Malaysia and Brunei are aiming at the centralized certification, management and distribution of halal food⁵ for Islamic food markets that are expected to grow rapidly. By using these detection kits, it will facilitate the establishment of a more effective meat testing system and a reliable brand certification program. The government of Brunei has expressed strong interest in these kits and a demonstration was recently conducted in Brunei.

Tanaka Precious Metals will extend this similar technology to develop a variety of assay kits for diverse applications. Since pork fat has been commonly used as an ingredient in a wide range of meat and non-meat products due to its functional properties, we are currently working with Prof. Y-H. Peggy Hsieh, of Florida State University in the United States, to jointly develop a rapid immunochromatographic kit for detection of porcine fat, which is also prohibited under Islamic dietary law,. We are also engaged in the development of a kit which is able to detect pig-derived gelatin used in pharmaceuticals or food. We believe that we will make substantial contribution to the Islamic community by providing these convenient testing kits.

Tanaka Precious Metals will provide a demonstration of these pork testing kits at the Japan Meat Industry Fair 2010 to be held at Tokyo Big Sight from April 7 (Wed) to April 9 (Fri). The company is also aiming at selling 30,000 test kits per month in the first year and expect to increase the sell to 100,000 kits per month once potential marketing partners for the products have been identified,

About the Japan Meat Industry Fair 2010

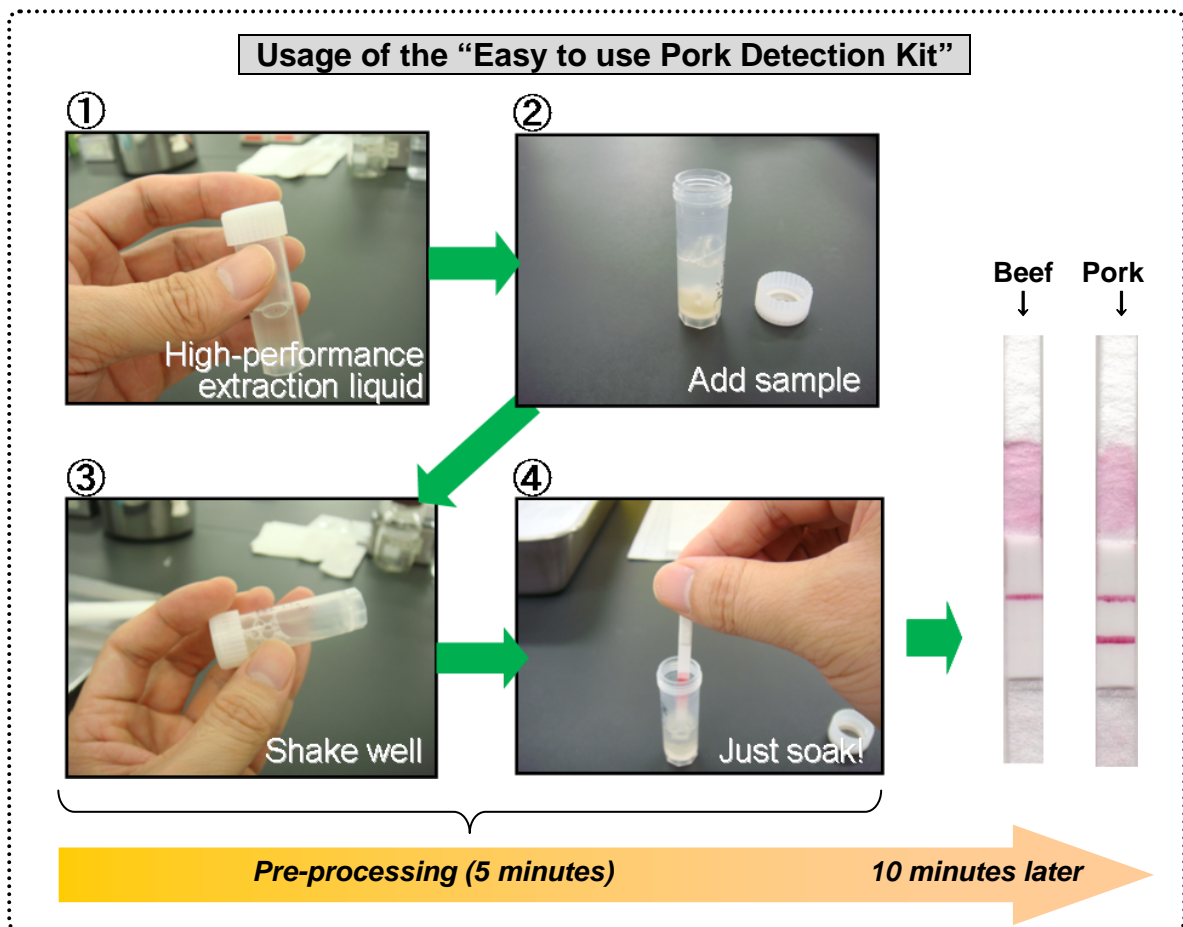
Date: 10am-6pm, April 7 (Wed) - April 9 (Fri), 2010
 Venue: Tokyo Big Sight East Hall 1,2,3 (3-21-1 Ariake, Koto-ku, Tokyo)
 Booth No.: 3B-26

Product Overview

Product name: Easy to use Pork Detection Kit

Measurement principle: Immunochromatography

Purpose: Detection of pork



■ Terminology

***1 Nano-colloidal gold**

Colloidally dispersed particles of nano-sized gold as a means to generate visualized color of the assay signal

***2 Immunochromatography**

An analytical method enabling visual determination of the concentration of a target molecule is above or below a specified threshold of concentration by reacting colored-particle labeled antibodies immobilized on the test strip with a liquid sample which is drawn into the test strip by capillary action

* See the following page for a diagram describing the principle.

***3 PCR (Polymerase Chain Reaction)**

An analytical technique involves the amplification of a single or few copies of a piece of DNA to generate thousands to millions copies of a particular DNA sequence through an enzymatic assembling of the nucleotides.

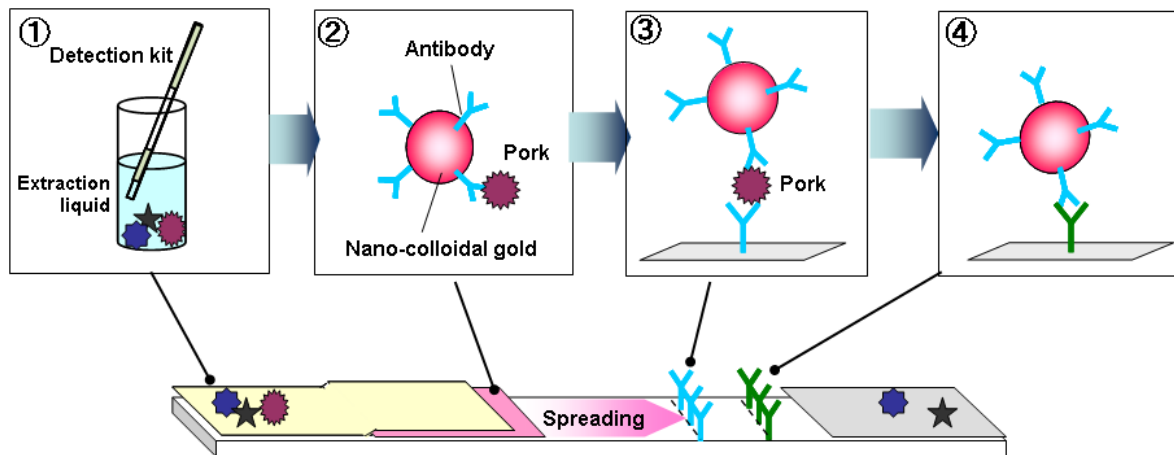
***4 ELISA (Enzyme-linked immunosorbent assay)**

Analytical methods involve the binding of a soluble antigen or antibody to a solid support (immunosorbent) with an enzyme label being used to the detecting antigen or antibody to convert a colorless substrate to a colored soluble product in the solution, thus generating a detectable signal for the assay.

***5 Halal food**

Food that has been prepared and processed according to Islamic dietary laws.

Principle of Detection Using Immunochromatography



- (1) Add the sample to the extraction liquid and mix well. Then, dip the sample end of the test strip into the sample solution.
- (2) Antibodies labeled with colored nano-colloidal gold particles will capture pork antigen in the sample solution.
- (3) The gold-antibody-antigen complex is captured by the second antibody in the Test Zone. A red colored line will be formed and visualized at the Test Zone indicating the positive result.
- (4) Unbound gold labeled –antibody will be captured by the third antibody at the Control Zone to form a red line indicating the test ran properly.

■ Company Overview

Company name: Tanaka Kikinzoku Kogyo K.K. (Tanaka Precious Metals)

Address: 22F, Tokyo Building, 2-7-3 Marunouchi, Chiyoda-ku, Tokyo

Representative: Hideya Okamoto, President & CEO

Founded: 1885 Incorporated: 1918

Capital: 500 million yen Employees: 1,653 (as of March 2009)

Sales: 829 billion yen (year ended March 2009)

Businesses: Manufacture, sales, import and export of precious metals (platinum, gold, silver, and others) and various types of industrial precious metals products. Recycling and refining of precious metals.

Website: <http://www.tanaka.co.jp>