

# The Animal Vaccine & Adjuvant Research Center(AVARC)

## 1.Introduction

### 1.1 Objectives

The Animal Vaccine & Adjuvant Research Center ( AVARC ) was founded in 2003 by the Ministry of Education and National Pingtung University of Science and Technology (NPUST), aiming to developing new technologies, fostering research and development personnel, and enhancing the research capability on animal vaccines and adjuvants of NPUST. In addition, apply biotechnologies to fulfill the demands from the industry. Thus, the goal "Industrial technology, technological industrialization" can be achieved.

### 1.2 Features

1.2.1 The First and Unique Animal Vaccine & Adjuvant Research Center of Taiwan.

1.2.2 The First and Unique Graduate Institute of Animal Vaccine Technology.

1.2.3 Affiliation with The Animal Laboratory of Animal Disease Diagnostic Center in the Southern District.

1.2.4 Equipped with an Animal Vaccine Pilot.

### 1.3 Services

1.3.1 Core Laboratory : Microfluidizer 、 Ultra-Centrifuge 、 Light Cycler 、 Particle Size Analysis 、 Immunofluorescence Fluorescence Imaging System 、 Freeze Dryer.

1.3.2 Isolated Breeding Systems of Aquatic Species.

1.3.3 Isolated Feeding System for Swine And Chicken.

1.3.4 Animal Vaccine Pilot.

1.3.5 Evaluation of Immuno-Modulatory Effects 、 Safety Evaluation 、 Evaluation on Hepatoprotection 、 Evaluation of Antioxidative Activity.

## 2.Achievements

### 2.1 Obtained 5 Patents

2.1.1 Anti-Hypersensitive Inflammation and Anti-Allergic Activities of Zingiber Zerumbet (L.) Smith. ( Invention No. I 82281)

2.1.2 Methodology for Obtaining Porcine Bone Marrow Haematopoietic Cells Used for Dendritic Cells in Vitro Differentiation. ( Invention No. I 272307)



Chun-Yen Chu, Graduate Institute of Animal Vaccine Technology  
http://tve.npu.edu.tw:8080/College/AgriCulture/vaccine.htm

2.1.3 Structure Improvement of Animal Isolator. (Invention No. I 268757)

2.1.4 Structure Improvement of Animal Isolator System. ( Invention No. I 284505)

2.1.5 Movable Multi-Purpose Isolation Facility with Negative Pressure Ventilation. (Invention No. I 248810)

### 2.2 Completion of Eight Cases of Technology Transfer

2.2.1 Porcine Clostridium Toxoid Vaccine.

KAOHSIUNG BIOLOGICAL PRODUCT CO., LTD

2.2.2 Porcine Reproductive and Respiratory Syndrome Virus Subunit Vaccine.

FORMOSA BIOMEDICAL INC.

2.2.3 Porcine Circovirus Type 2 Subunit Vaccine.

FORMOSA BIOMEDICAL INC.

2.2.4 Method for Obtaining Porcine Bone Marrow Haematopoietic Cells Used for Dendritic Cells in Vitro Differentiation.

KAISER PHARMACEUTICAL CO., LTD.

2.2.5 An in Vitro Screening System for

KUANG CHUAN BIOTECH CO., LTD.

2.2.6 Development of Sterptococcus Suis Inactivated Vaccine (I)(II).

CHIEN YING CO., LTD.

2.2.7 An in Vitro Screening System of A-

avian Immune Cells for Detection of Biological Activities of Immunomodulators.

KING'S CROWN NUTRITION TECHNOLOGY CO., LTD.

2.2.8 Streptococcus suis Recombinant Subunit Vaccine.

CHIEN YING CO., LTD.

### 2.3 Patent in application

2.3.1 Chinese Hamster Ovary Cells with A Stable Expression of Porcine Granulocyte/Macro-phage Colony-Stimulating Factor.

2.3.2 CpG DNA Adjuvant in Avian Vaccines.

2.3.3 A Competitive Receptor Binding Assay for Detecting Beta-Glucans Having Immunomodulatory Activity to Human Cells.

2.3.4 Stable Clone Of Chinese Hamster Ovary Can Stably Express Chicken Interleukin-18.

2.3.5 Bioactive Liposomes and Method for Making the Same.

2.3.6 In Vivo Quantitative Method of Soluble  $\beta$ -Glucans By Using Transformant of Surface Expression Vector Carrying Gene of Receptor Fusion Protein.

2.3.7 Mannheimia Haemolytica Recombinant Membrane Proteins Vaccine.

2.3.8 A Competitive Binding Assay for Detecting Soluble  $\beta$ -Glucans Using Cell Surface Display System of Carbohydrate Recognition Domain of Human Dectin-1.

2.3.9 To Develop the Chlamydomonas Abortus Diagnostic Kit.

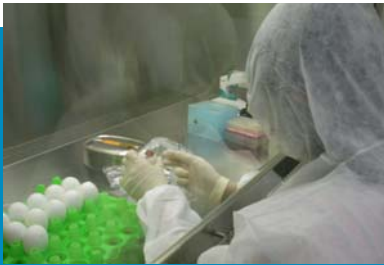
## 3.Faculty

Research Group	Name
Adjuvant	<b>Hso-Chi Chung</b> , Mei-Li Wu, Chi-I Chang, Jai-Wei Lee, Kuo Pin Chuang
Poultry vaccine	<b>Yi-Yang Lien</b> , Hung-Jen Liu, Maw-Yeong Lin
Aquatic vaccine	<b>Shih-Chu Chen</b> , Shinn-Shyong Tsai, Chung-Da Yang
Swine vaccine	<b>Wen-Bin Chung</b> , Ming-Huei Liao, Ming-Tang Chiou
Ruminant vaccine	<b>Chun-Yen Chu</b> , Shyh-Shyan Liu, Tsung-Chou Chang

#### 4. Animal Vaccine Pilot facilities and activities

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