

# **National Veterinary Research Laboratory**

**LNIV**

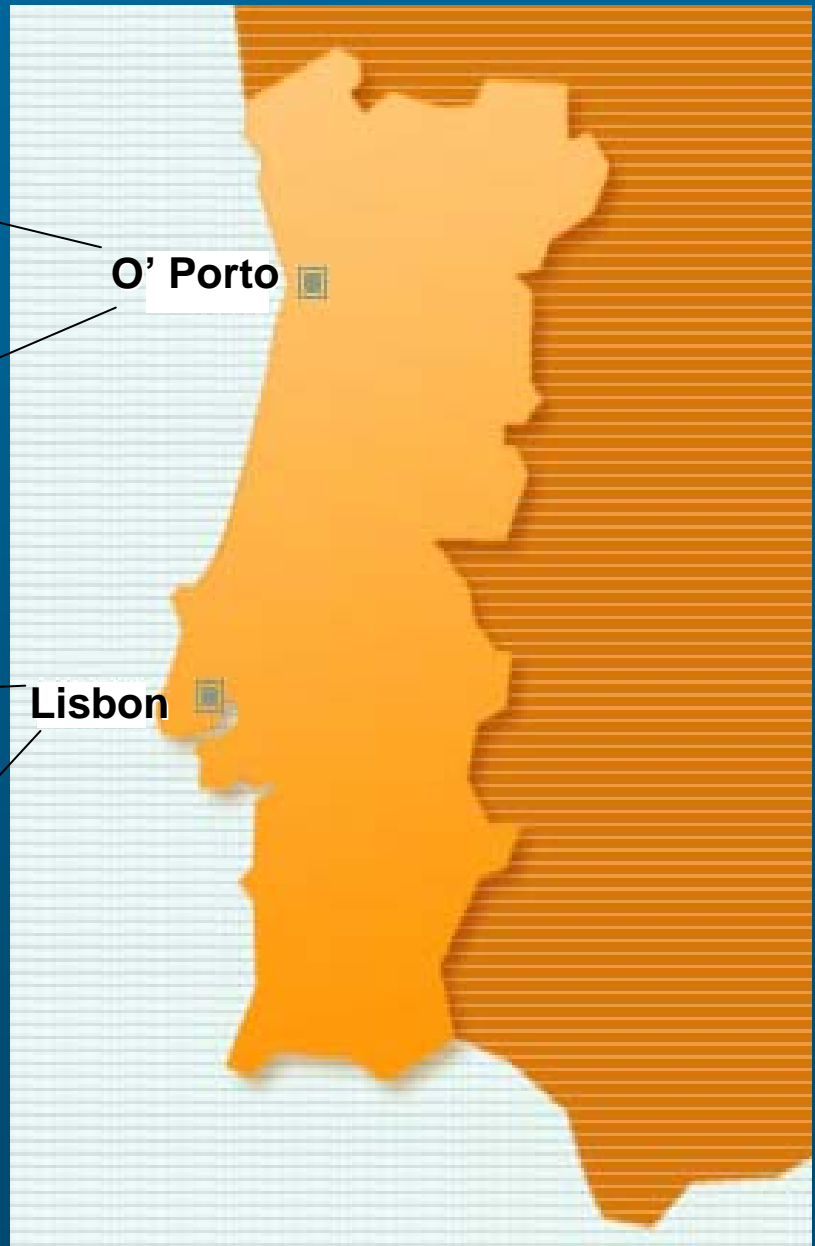
**National Reference Laboratory  
for VTEC - Portugal**

**Patrícia Themudo**

**November 2007**

# National Veterinary Research Laboratory

**LNIV**



# National Veterinary Research Laboratory - LNIV

- ❖ It was founded in 1913 in Lisbon
- ❖ 221 employees
- ❖ A new Laboratory in Lisbon will be constructed until 2009



**National Institute  
of Biological Resources  
IRNB. I.P.**

**National Research  
Agriculture Institute  
L-INIA**

**National Veterinary  
Research Laboratory  
LNIV**

**Laboratory of Research  
of Sea and Fisheries  
L-IPIMAR**



# National Veterinary Research Laboratory

## Activities

- Research, Support to Official and Private Entities Control

- Portuguese National Reference Laboratory for:

All animal diseases

Search of residues

Biological risk

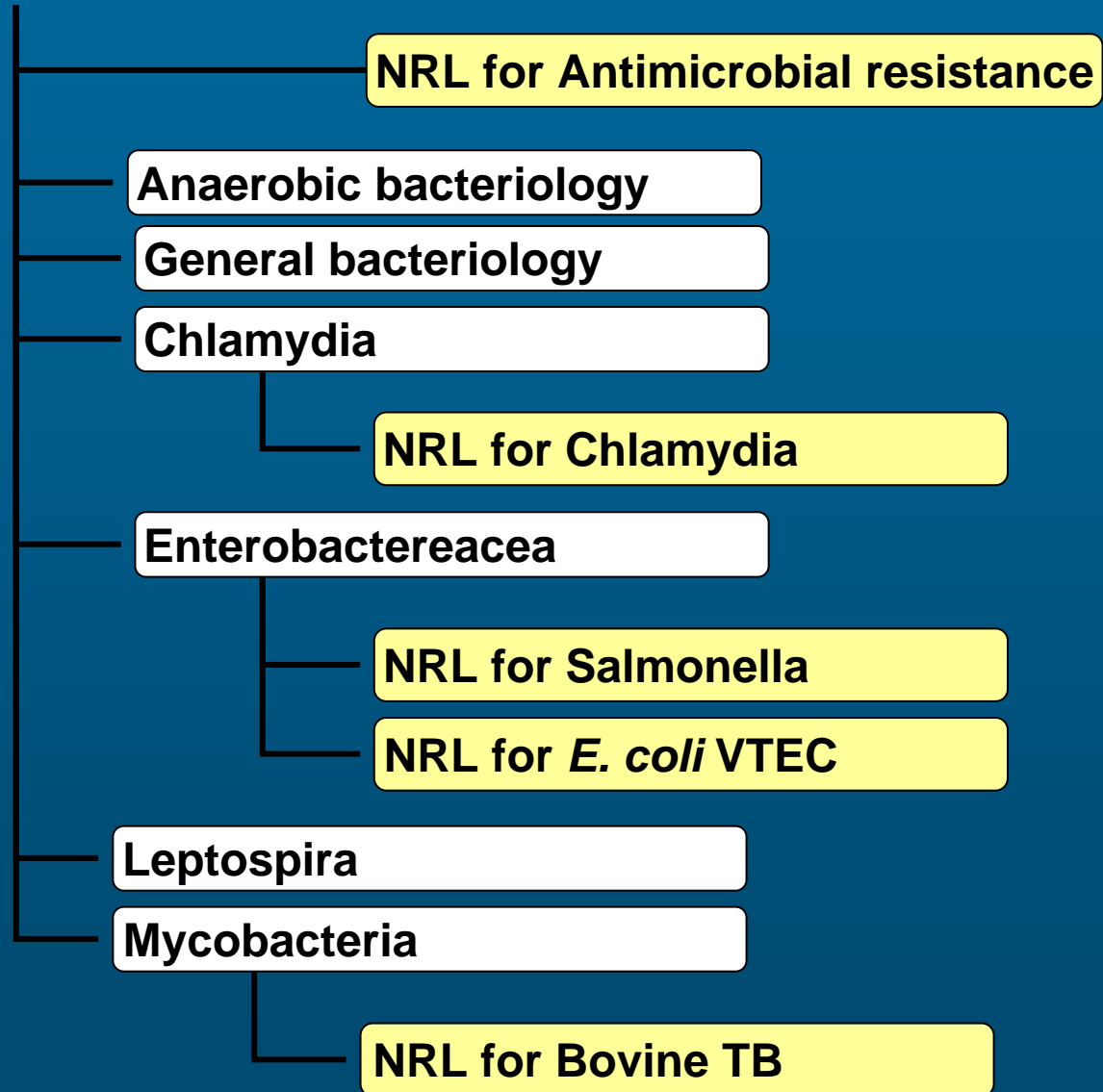
Milk and Milk products



- OIE Reference Laboratory for:

Contagious Bovine Pleuropneumonia (CBPP)

# Bacteriology Diagnostic Service



# Food Microbiology Service

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graph TD; A[Food Microbiology Service] --> B[Quality Control of Food and Feed]; A --> C[NRL];
```

## Quality Control of Food and Feed

- Hygiene control
- Pathogens control

## NRL

- Milk and milk products
- *Listeria monocytogenes*
- *Campylobacter*
- coagulase positive *Staphylococci* and enterotoxins

# ***NRL – E. coli O157 including VTEC***

## **Public Hygiene Department Food Microbiology Service**

### **Reference method**

- EN ISO 16654

### **Alternative method**

- Detection: VIDAS ECO
- Confirmation: VIDAS ICE

### **Isolation:**

- CT-SMAC-F and O157:H7 ID-F

### **Bioquimical confirmation**

- Indol

## **Bacteriology Department Enterobactereacea Sector**

### **Serotyping**

- O- and H- antigenes

### **Detection of VT and *eae* genes**

- PCR



# Detection of E. coli O157 in Food

- **Detection and confirmation**  
**VIDAS ECO + VIDAS ICE**

Alternative validated method used in routine



- **Isolation**  
**CT-SMAC and O157:H7 ID**

Negative results in 24 hours

- **Confirmation**  
**Indol production**

# Food samples analysed at LNIIV

**Milk**



- Raw milk
- Milk products

**Meat products**



- Minced meat
- Raw sausage
- Hamburgers

# Animal samples analysed at the LNIV

**Dead animals**



- Intestine
- Blood culture

**Live animal**

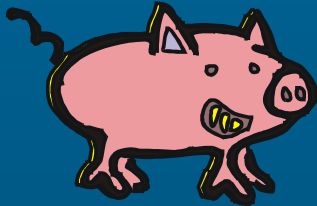


- Faeces
- Rectal swabs

# Origin of Samples investigated at *E. coli* Sector



Animals suspected  
of *E. coli* infections



Analyses *E. coli* + from  
general bacteriology

Detection  
*Pathogenic*  
*E. coli*

*E. Coli* strains isolated  
from Food  
Microbiology Service

*E. Coli* strains isolated  
from external laboratories

# ■ 1- Detection of pathogenic *E. coli*

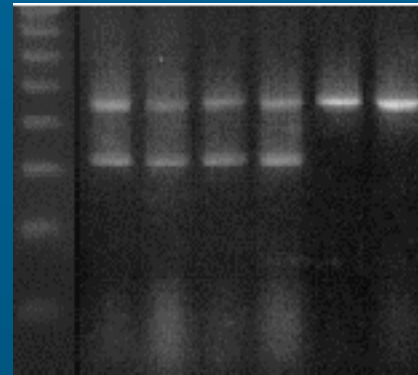
- Toxins and *eae* gene by PCR multiplex

STa

LT

VTc

*eae* gene



- Adhesins by slide agglutination

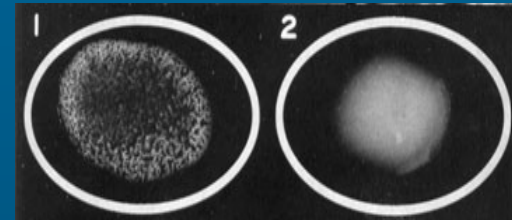
F4

F5

F17

## ■ 2- Identification of *E. coli* by serotyping

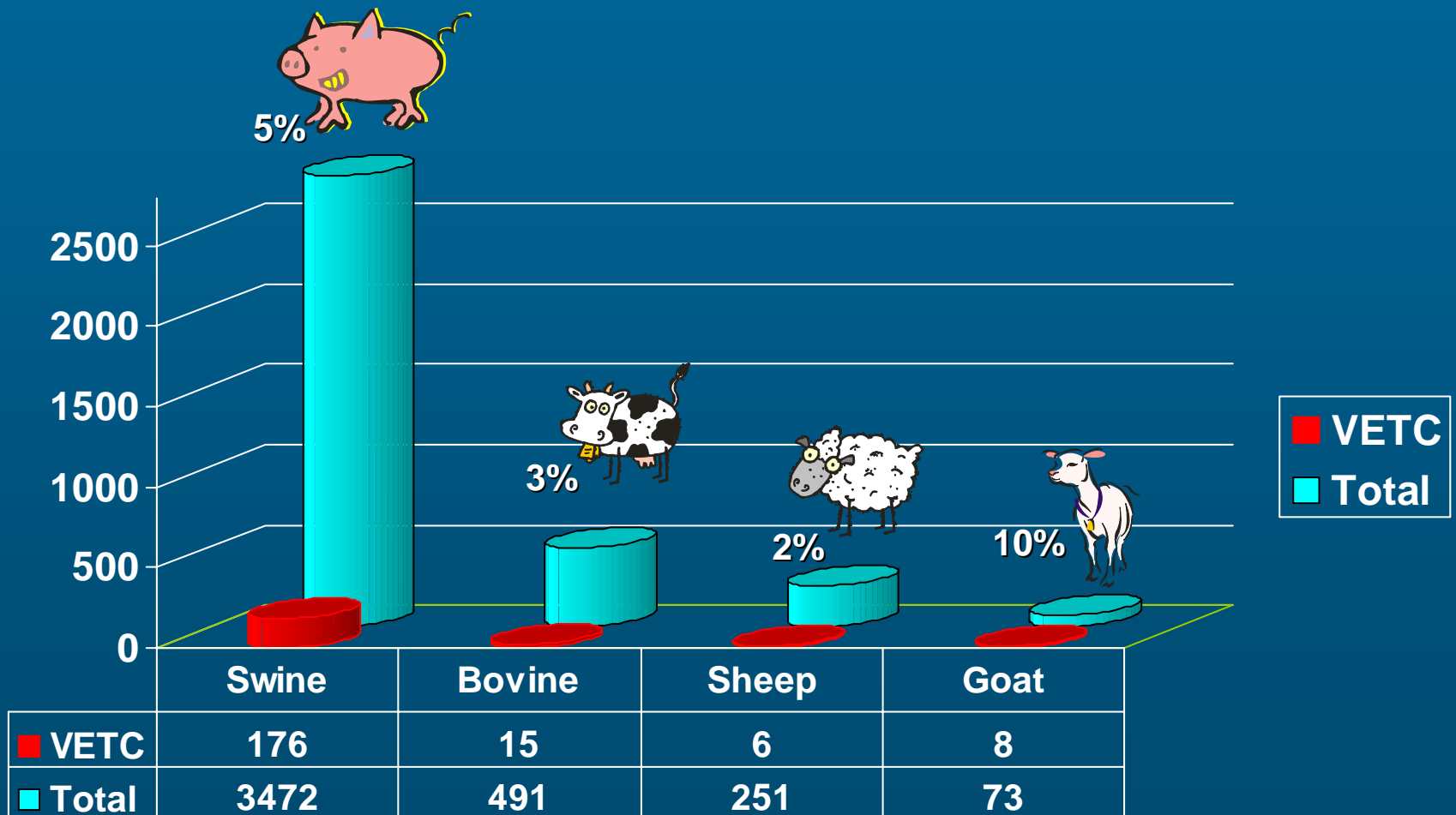
- Detection O-antigenes
- Strains O157 positive



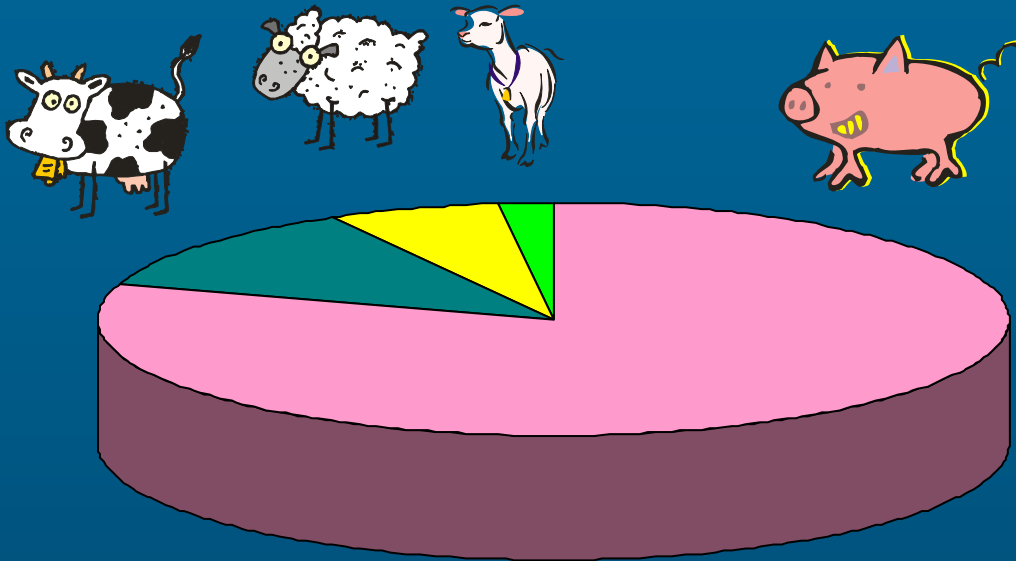
We search flagellar antigen H7 by agglutination in tube follow Difco protocol

Commercial sera H7 from Difco (BD) it is use

# VETC isolated from animals 1995-2007



# Animal strains investigated 1995-2007



	Swine	Bovine	Sheep	Goat
Analysis	1447	330	195	64
Strains	3472	510	269	85



**Thank you for your  
attention !**