

Faculty of Veterinary Medicine
Department of Virology, Parasitology and Immunology



Em. Prof. Dr. Maurice Pensaert

**Opportunities for cooperation between
ChinAquaNet and Ghent University**

Ghent, August 31, 2007

Laboratory for Virology

White Spot Syndrome Virus group

founders

scientific support



Em. Prof. Dr.
Maurice Pensaert



Prof. Dr.
Patrick Sorgeloos



Prof. Dr. Hans
Nauwynck



Dr. Victoria
Alday-Sanz



Dr. Cesar
Escobedo



Meezanur
Rahman



Mathias
Corteel



João
Lima



Phuoc
Le Hong

PhD's

Research lines

A. Finalized Research

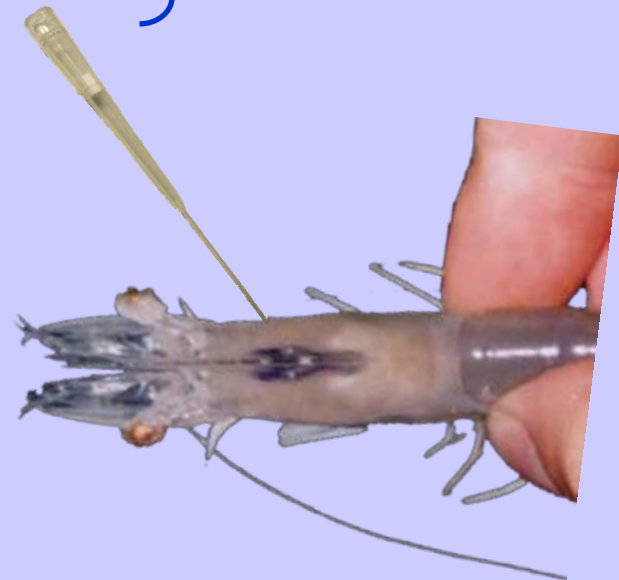
1. Development of reproducible White Spot Syndrome Virus inoculation procedures

- virus stock production
- standardization of inoculation procedures
- *in vivo* titrations

using SPF
Penaeus vannamei
shrimp



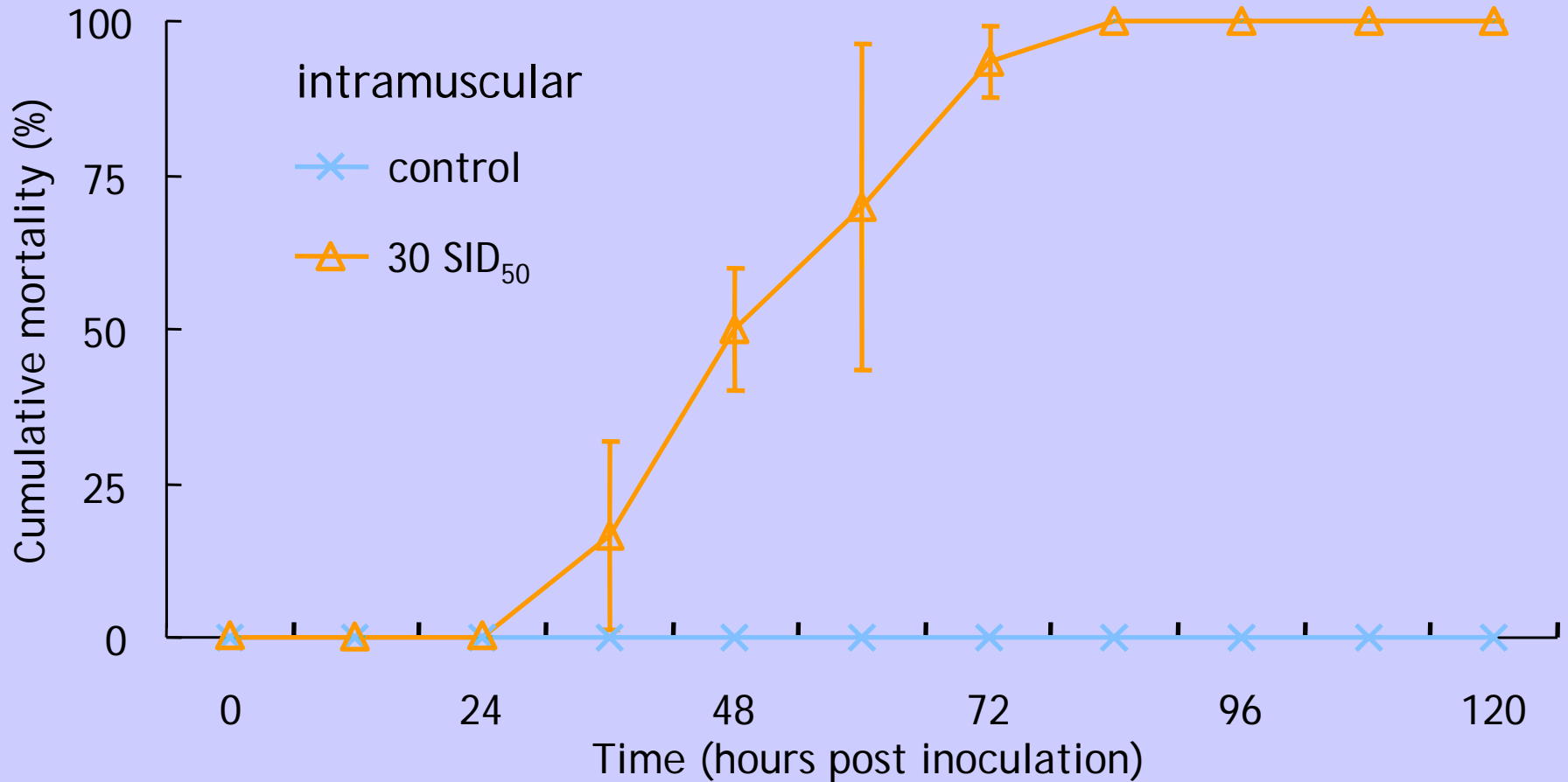
intramuscular route



oral route

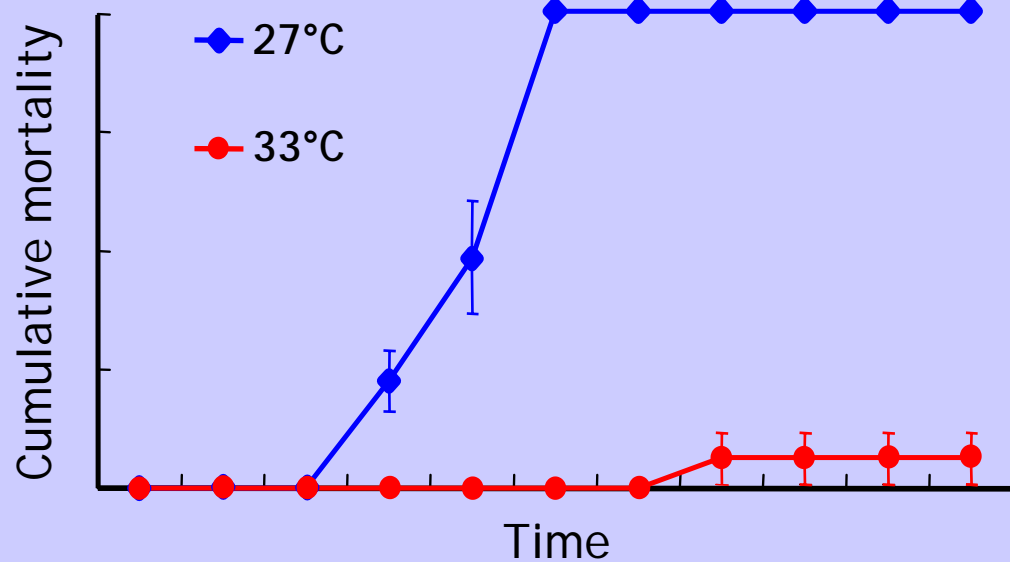
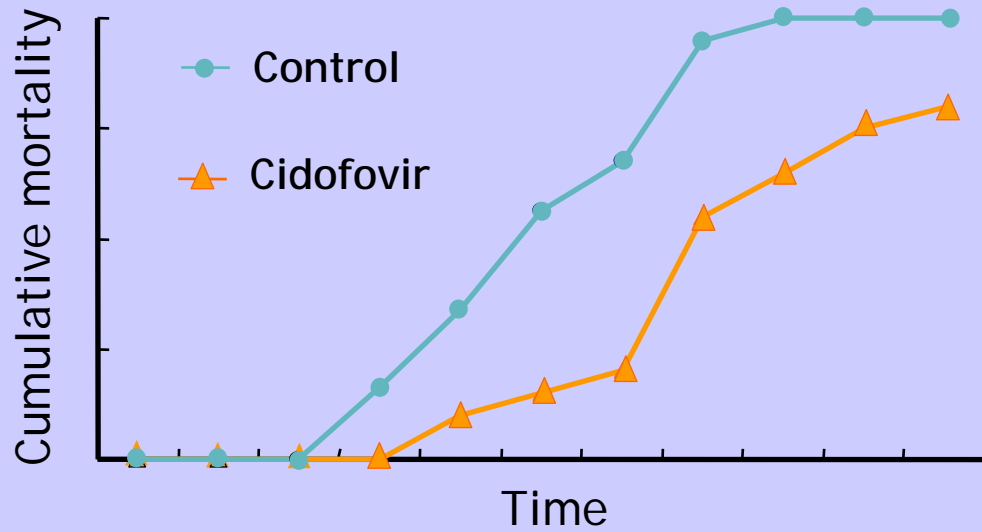
1. Development of reproducible WSSV inoculation procedures

→ standardized procedures for delivering known doses of virus
= reproducible result of acute disease and mortality



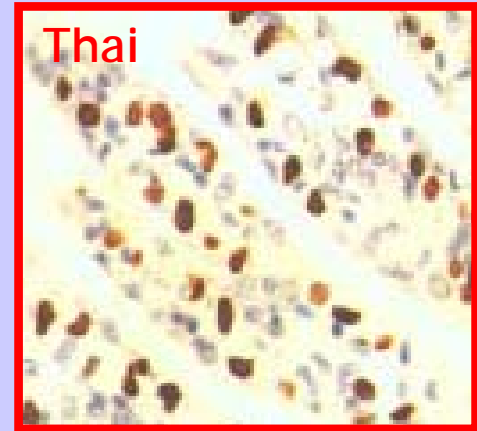
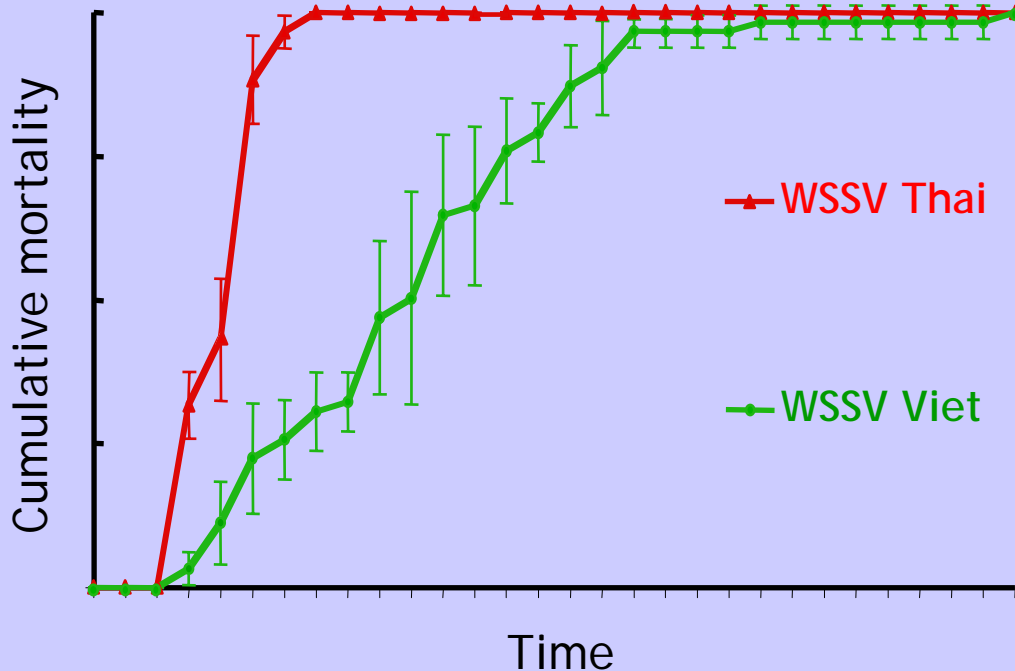
→ studies on control and pathogenesis

2. Testing of anti-viral agents for the control of WSSV

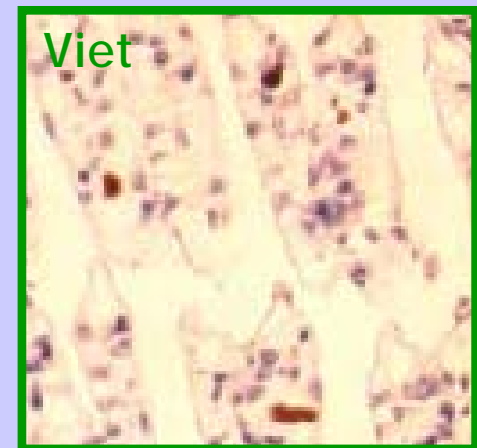


3. Comparison of virulence of WSSV strains

difference in mortality rate



difference in numbers of infected cells

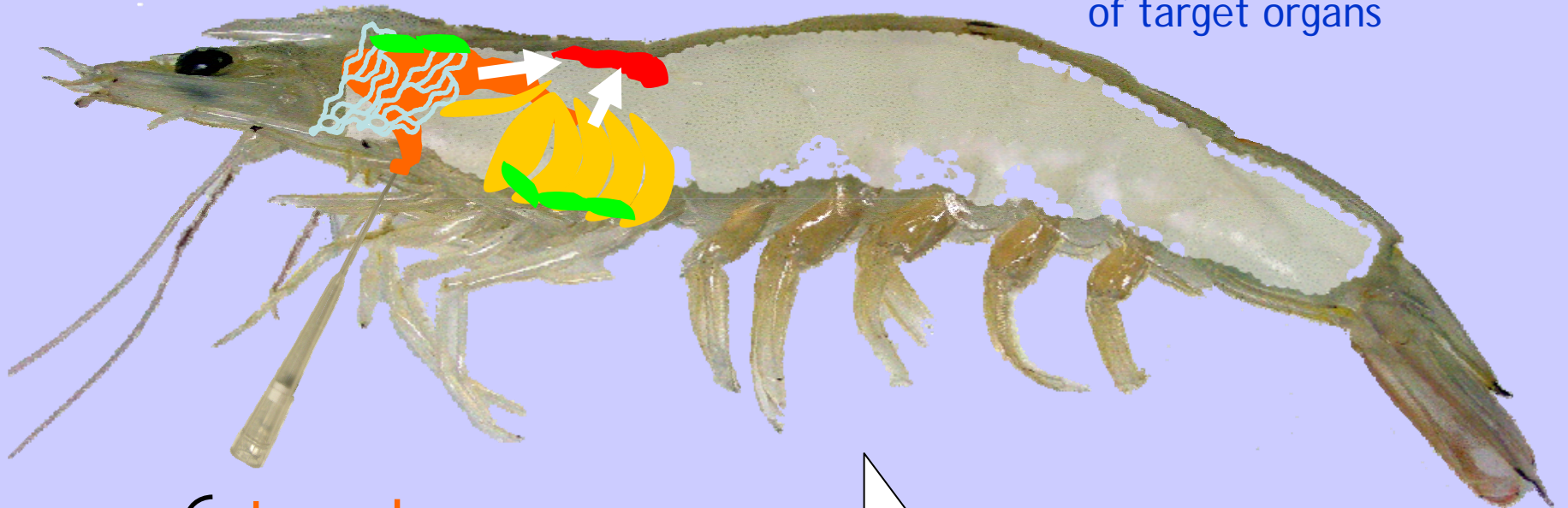


Research lines

A. Ongoing Research

1. Study of White Spot Syndrome Virus pathogenesis upon oral inoculation

standardized oral inoculation of 10000 SID_{50}
in SPF *Litopenaeus vannamei* shrimp → time course study
of target organs



12 hpi {
stomach
gills
antennal gland

systemic in hemolymph
via heart

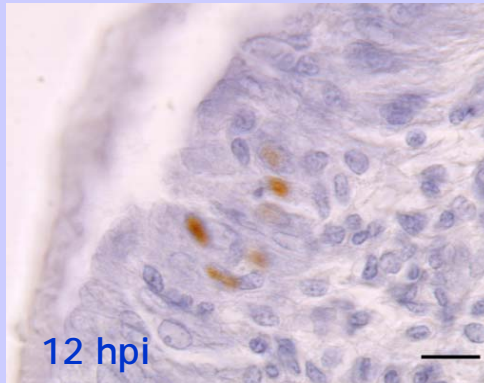
24 hpi

hematopoietic tissue
and other internal organs such as cuticular epithelium etc.

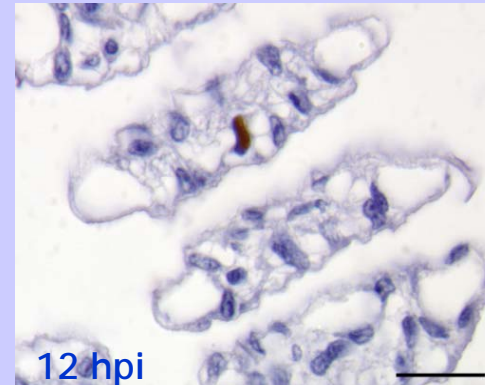
1. WSSV pathogenesis

Study of cellular sites of replication by immunohistochemistry

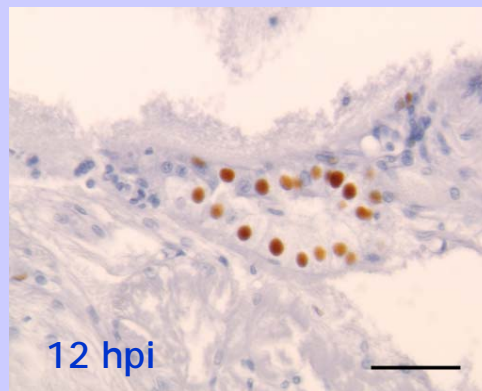
stomach



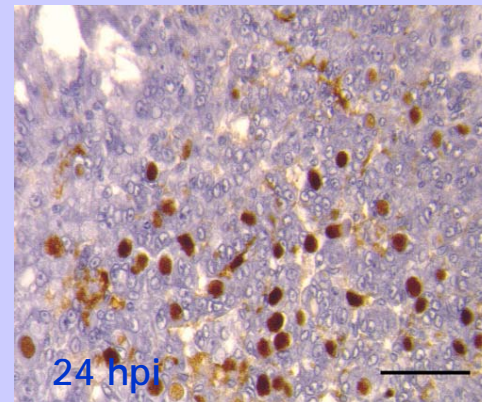
gills



antennal gland



internal organs



→ usefull for diagnostic purposes

Research lines

A. Recently started research topics

1. Attempts to establish shrimp cell cultures and *ex vivo* explant systems

- *in vitro* titrations of WSSV
 - virus isolation
- study of the viral replication cycle
- *in vitro* testing of anti-viral agents

2. Production of monoclonal antibodies directed against shrimp and viral antigens

- develop cellular markers
- identify virus receptors
 - make diagnostic kits

3. Dual infections of WSSV and Vibrio

(in cooperation with ARC)

- reproduce Vibrio disease in SPF shrimp
- study the clinical effect of secondary bacterial infections



site of the Lab of Virology:

<http://www.vpi.ugent.be/>