



# Horizon 2020 SME Innovation Associate

Matching talented researchers and business



**SMEs**



**PHDs**



# WORKSHOP

BRUSSELS | 19th of February, 2019

Project acronym: **PROZE**

Supported SME: TubaScan

Country: the Netherlands

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and: Sander Ouburg

# TubaScan

- Spin-off
  - Department of Medical Microbiology and Infection Control (VU University medical center, Amsterdam)
  - 8 employees,  $\pm$  5 fte
- Focus on developing molecular diagnostic assays on the basis of human biomarkers



# Products

- CeliaSCAN
  - Assay for the rapid detection of HLA-DQ2.5, HLA-DQ2.2, and HLA-DQ8
  - On the market
- PreselectSCAN
  - Rheumatoid Arthritis Therapy Response Assay
  - End 2018
- TubaSCAN
  - Diagnostic test for *Chlamydia* associated infertility and tubal pathology based on host genetic markers
  - End 2018



# Waddlia chondrophila: Introduction

- Many couples (10-15% worldwide) are struggling to conceive
  - Infertility, IVF failure, tubal pathology, miscarriage
- *Waddlia chondrophila* is a new potential agent of infertility and miscarriages
  - Family of *Chlamydia trachomatis* (world most common bacterial STI)
  - Intracellular bacterium
  - Associated with miscarriage in women
  - Abortion in cattle



# Waddlia chondrophila: Problem

- Current diagnostics are not ideal
  - PCR does not detect a past infection
  - Current ELISA is not user friendly

There is a need for an easy-to-use serological test



# PROZE: WaddliaSCAN

- WaddliaSCAN is based on *Waddlia* specific peptides
- Specific and sensitive
- Easy-to-use with limited internal controls
- Gynecologists, diagnostics laboratories, research groups, veterinary field



# PROZE: Objectives

- Technical
  - Establish in-house *Waddlia chondrophila* culture and protein techniques
  - Identify *Waddlia* specific peptides which can be used to develop an ELISA
  - Report on sensitivity and specificity WaddliaSCAN
  - *Waddlia* infection model in zebrafish (including CRIPSR/Cas9 technique)
- Business
  - Feasibility report



# PROZE: Results 1 Peptides and ELISA

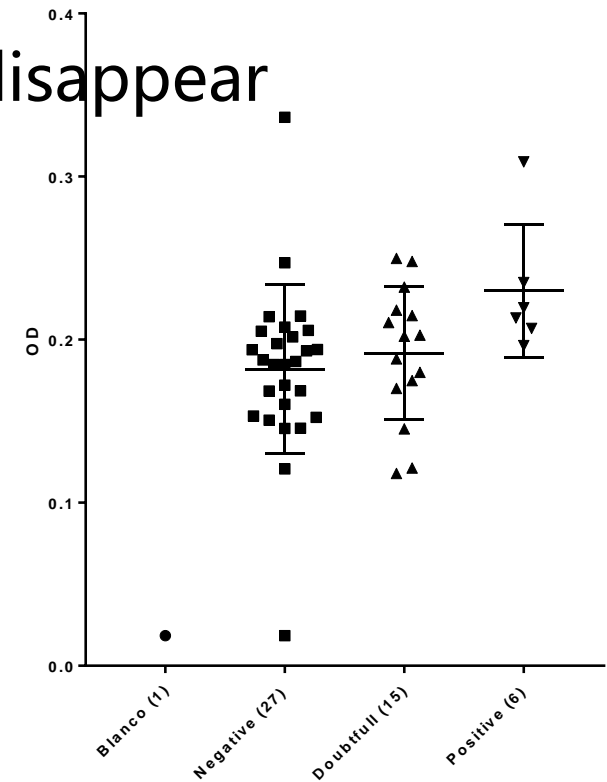
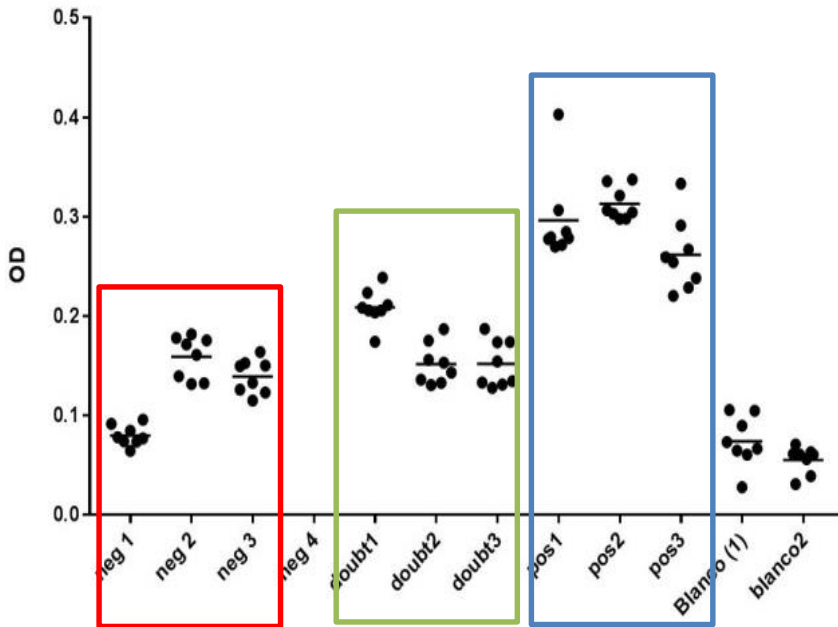
- Successful peptide selection
  - Identification of 142 *Waddlia* specific proteins
  - Selection of 4 promising proteins
  - Identification of most promising peptides: Selection of 12 peptides
  - Omp11A (4 peptides), wcw\_0812 (2 peptides), wcw\_0766 (3 peptides), wcw\_0836 (3 peptides)
- ELISA
  - Serum samples with known *Waddlia* status (negative, doubtful, or positive)
  - Testing many variables in ELISA experimental setup





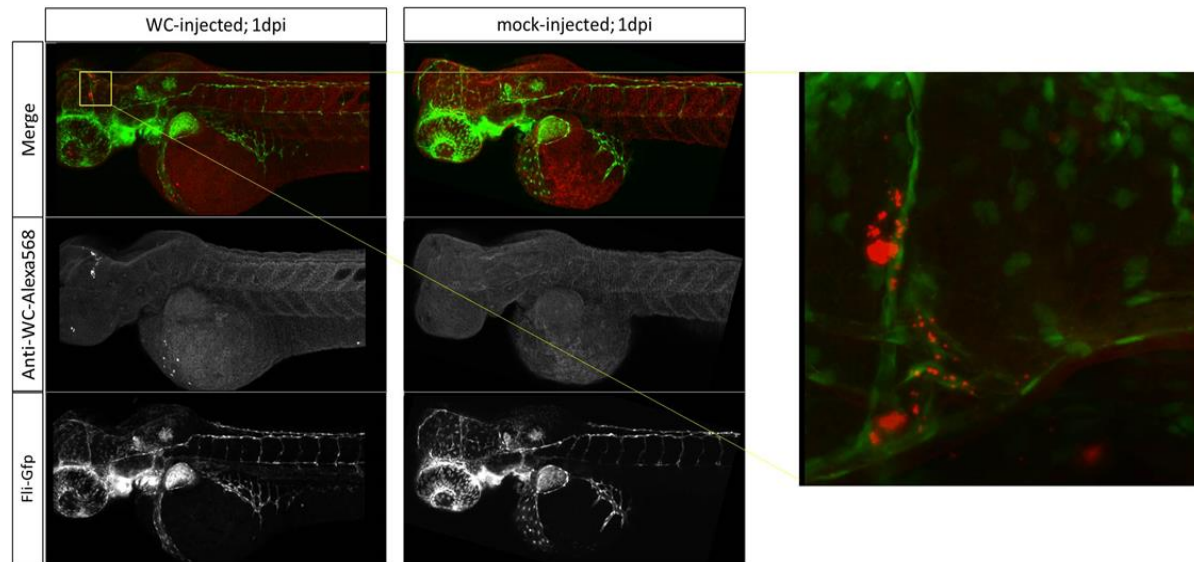
# PROZE: Results 1 Peptides and ELISA

- Selected (**neg**, **doubt**, **pos**) samples show promising result
- All samples together, differences disappear



# PROZE: Results 2 Zebrafish model

- *Waddlia chondrophila* culture established in-house
- Zebrafish successfully infected with *Waddlia chondrophila*
  - Intensive training, zebrafish handling and injecting (embryo's are  $\pm$  2mm)



# PROZE: Results 3 Feasibility Report

- Potential market
  - Research groups (gynecology, microbiology)
  - Diagnostics labs
  - Human and Veterinary
- Current situation
  - Limited research on *Waddlia*
  - Pathogenicity is questioned
  - No routine testing in laboratories
- Recommendation
  - Develop the WaddliaSCAN for research only
  - No market for a commercial kit



# SME Innovation Associate Program: PRO's

- TubaScan
  - New research / product line on *Waddlia*
  - Training in biobusiness and innovation
- Innovation Associate
  - First step towards a career in industry
    - TubaSCAN and PROZE: link between academics and industry
  - Training
    - IMProve Academy, Biobusiness summerschool
  - Responsibility
    - EU Reporting, Supervision junior researcher, Starting new collaborations



# SME Innovation Associate Program: CON's

- TubaScan
  - Minimal contact with 'similar' SME's
  - One year is limited to develop a new product
- Innovation Associate
  - Moving countries for a one-year contract
  - Limited contact among IA's outside of the seminars
  - Find new funding opportunities



# Lessons Learned: TubaScan

- Eyeopener
- Creating new ideas
  - Brainstorm sessions
  - Documentation
- Structure & Professionalization
- Business mindset



# SME Innovation Associate Program: Recommendations

- General
  - One year is limited
  - Provide a platform for all IA's (background, contacts, needs, expertise)
- Seminars
  - Open for all supervisors
- Online community events
  - Make It more clear what is expected from the IA's.
- Ideas
  - Set-up meeting with IA's within the same country to discuss process and problems over a coffee/beer

