Markers selection for molecular epidemiology of *Yersinia ruckeri* and *Flavobacterium psychrophilum*, major pathogenic bacteria in salmonid farming
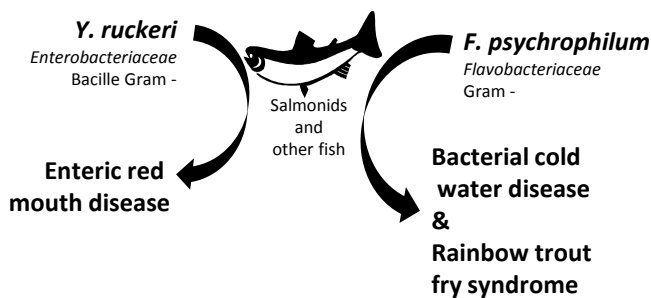
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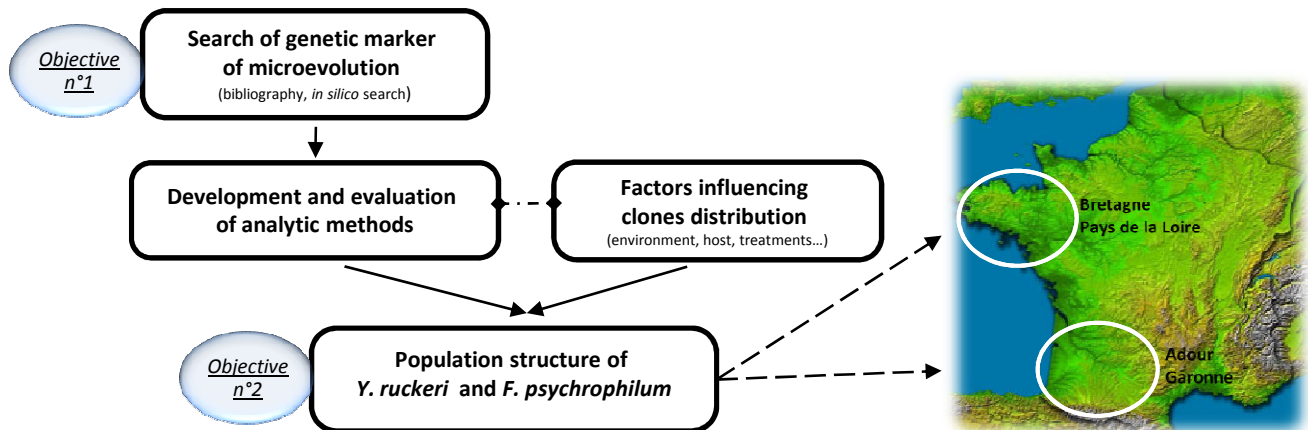[2] INRA, Virologie et Immunologie Moléculaires UR892, F-78350 Jouy-en-Josas, France

Introduction

Y. ruckeri
Enterobacteriaceae
Bacille Gram -

Enteric red mouth disease

Salmonids and other fish

F. psychrophilum
Flavobacteriaceae
Gram -

Bacterial cold water disease
&
Rainbow trout fry syndrome

Y. ruckeri and **F. psychrophilum** are currently recognized as part of main pathogens hampering the productivity of salmon farming worldwide, inducing important economic losses (1,2). Although horizontal transfer has been proven and vertical transmission suggested, very little information is available on their pathogenesis. Currently, antibiotics are the most widely used way of combating yersiniosis and flavobacteriosis, but should be limited or adapted due to questions about the resistance emergence. No vaccine is available for *F. psychrophilum* contrary to *Y. ruckeri*.

Objectives & Strategy

In order to **provide guidelines for prevention and control by antibiotherapy and vaccines against those diseases in France**, two goals will be achieved.

Objective n°1

Search of genetic marker of microevolution
(bibliography, *in silico* search)

Development and evaluation of analytic methods

Factors influencing clones distribution
(environment, host, treatments…)

Objective n°2

Population structure of Y. ruckeri and F. psychrophilum

Bretagne Pays de la Loire

Adour Garonne

Methods

Insight into microevolution by molecular tools			Characterization of clones	
MLST (Multi Locus Sequence Typing)	PFGE (Polymorphism Fragment Lenght Electrophoresis)	Spoligotyping (3)	Serotyping	Antibiotherapy

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(3) Karginov, F. V. and G. J. Hannon (2010). "The CRISPR system: small RNA-guided defense in bacteria and archaea." Molecular Cell **37(1): 7-19.**