ParaFishControl

Development of a universal vaccine against *Philasterides dicentrarchi*

ParaFishControl Final Conference

"Innovative Strategies to Control Parasites in Aquaculture Farms"

Brussels, 11th March 2020

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Table of Contents

ParaFishControl

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What is *Philasterides dicentrarchi*?

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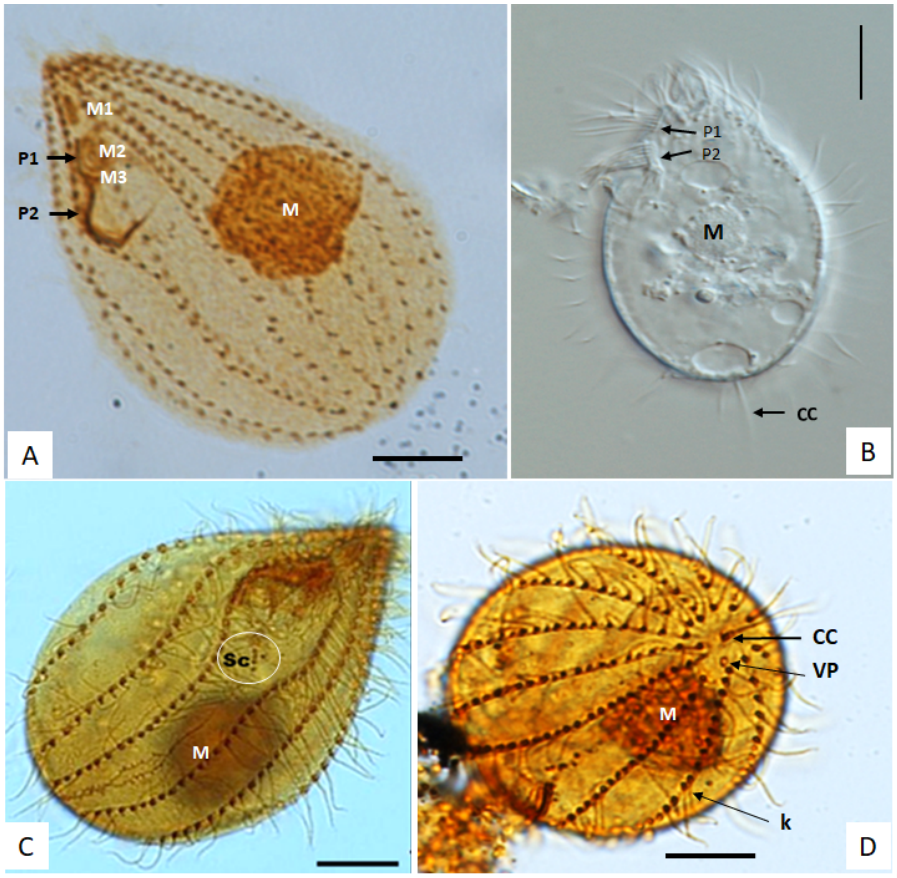
- **A free-living ciliate that can infect fish**



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Susceptible fish species

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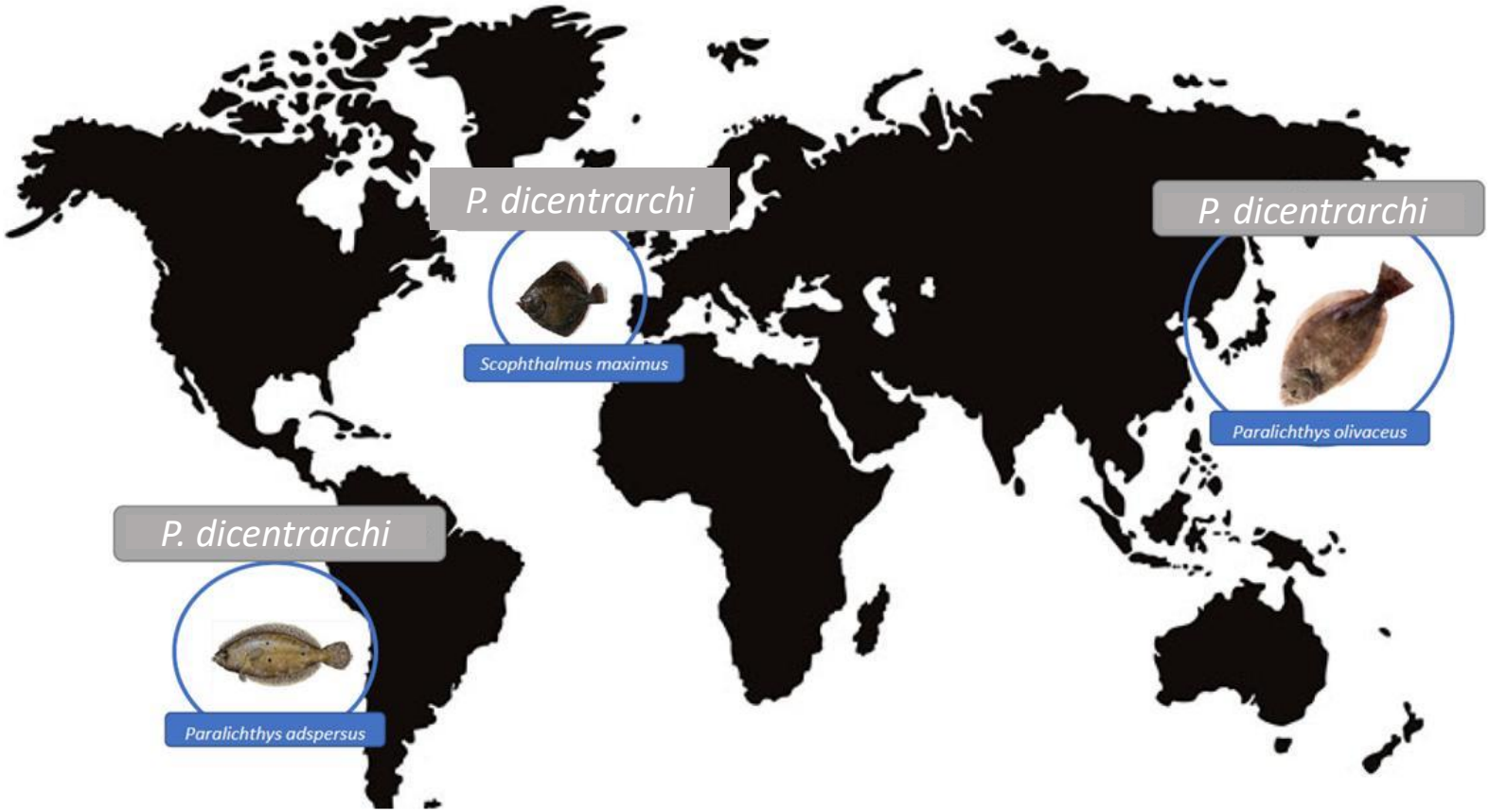
- **Marine fish kept in captivity - mainly farmed flatfish**



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Economic impact of scuticociliatosis

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Olive flounder farms. South Korea

-23.8 to 36.4 % of all fish mortalities between 2007 and 2014 (Kang et al., 2015)

Turbot farms. China

- Mass mortality of cultured juvenile turbot (Du et al., 2019)

Fine flounder farms. Peru

- 80-100% mortality affecting fish of different sizes (De Felipe et al., 2017)

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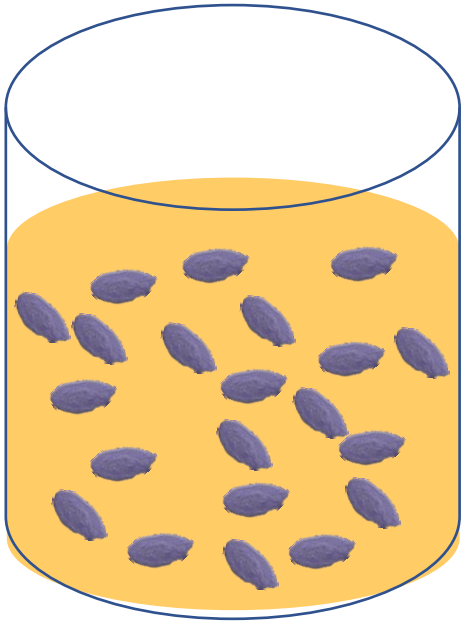
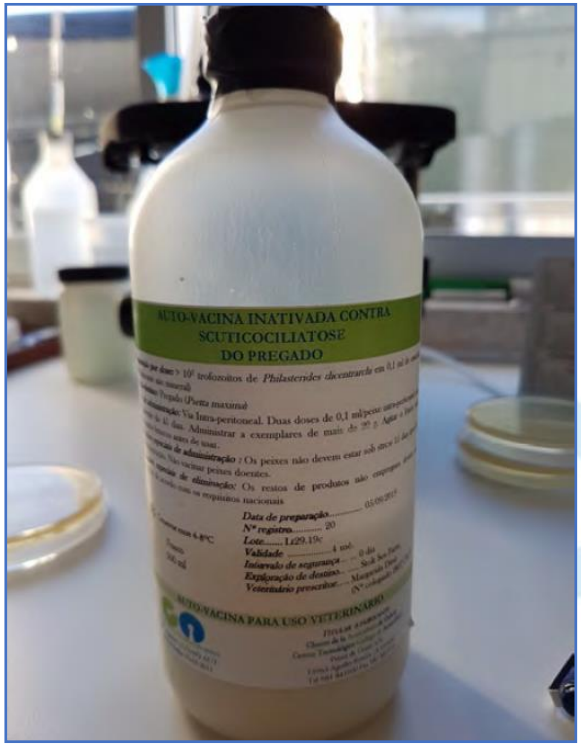
The current vaccine against *P. dicentrarchi*

- **Inactivated ciliates + oil-based adjuvant**



Lamas *et al.*, (2008)



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Current vaccine weaknesses

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- **The vaccine does not protect against heterologous *P. dicentrarchi* serotypes**

	Serum agglutination activity								
	1:25			1:50			1:.100		
Isolates	15 min	30 min	60 min	15 min	30 min	60 min	15 min	30 min	60 min
B1	0%	0%	0%	0%	0%	0%	0%	0%	0%
C1	0%	0%	9%	0%	6,50%	12%	0%	1,50%	5,50%
D2	0%	0%	0%	0%	0%	0%	0%	0%	0%
D3	0%	3,50%	11,50%	0%	17,50%	22,50%	0%	1%	4%
I1	27,50%	59,50%	77%	26,50%	58%	85,50%	31.5%	38,50%	46%
P1	0%	0%	0%	0%	0%	0%	0%	0%	0%
S1	31%	74%	74%	9%	47,50%	82,50%	3%	7,50%	8,50%

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Generation of a UNIVERSAL vaccine

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- Mixture of different *P. dicentrarchi* serotypes

- Recombinant proteins from different *P. dicentrarchi* serotypes

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Antigens

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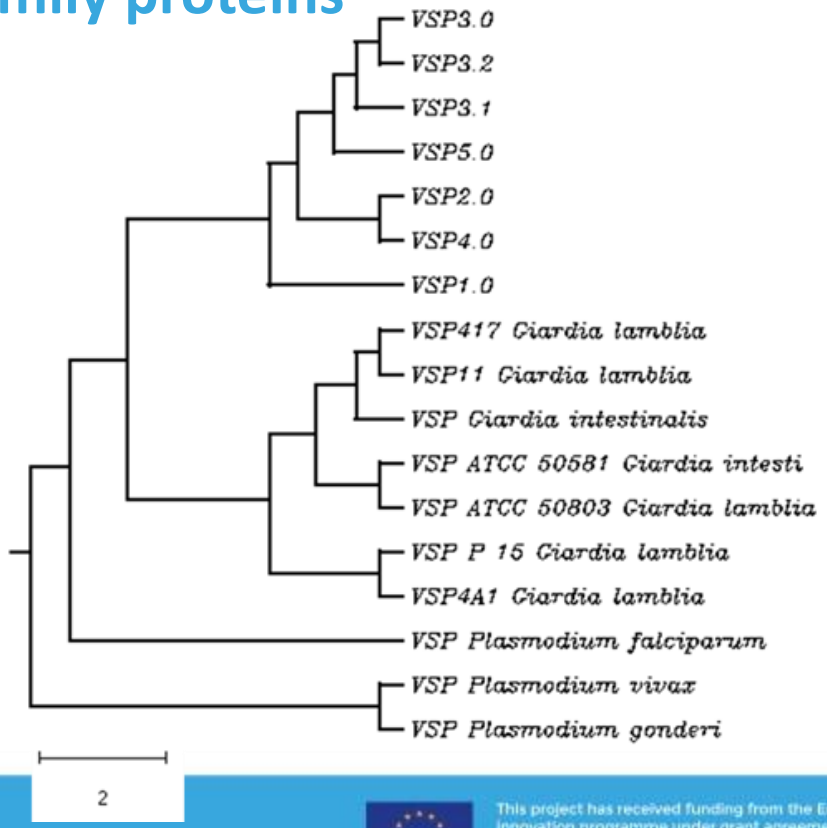
Candidates:

- Variant-specific surface proteins
- Leishmanolysin family proteins



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Single or chimeric proteins as antigens?

Variant-specific surface proteins

VSP1.0-VSP2.0-VSP3.0-VSP3.1-VSP3.2-VSP4-VSP5-H

Leishmanolysins

LSF12-LSF13-LSF15-LSF16-LSF17-LSF18-H

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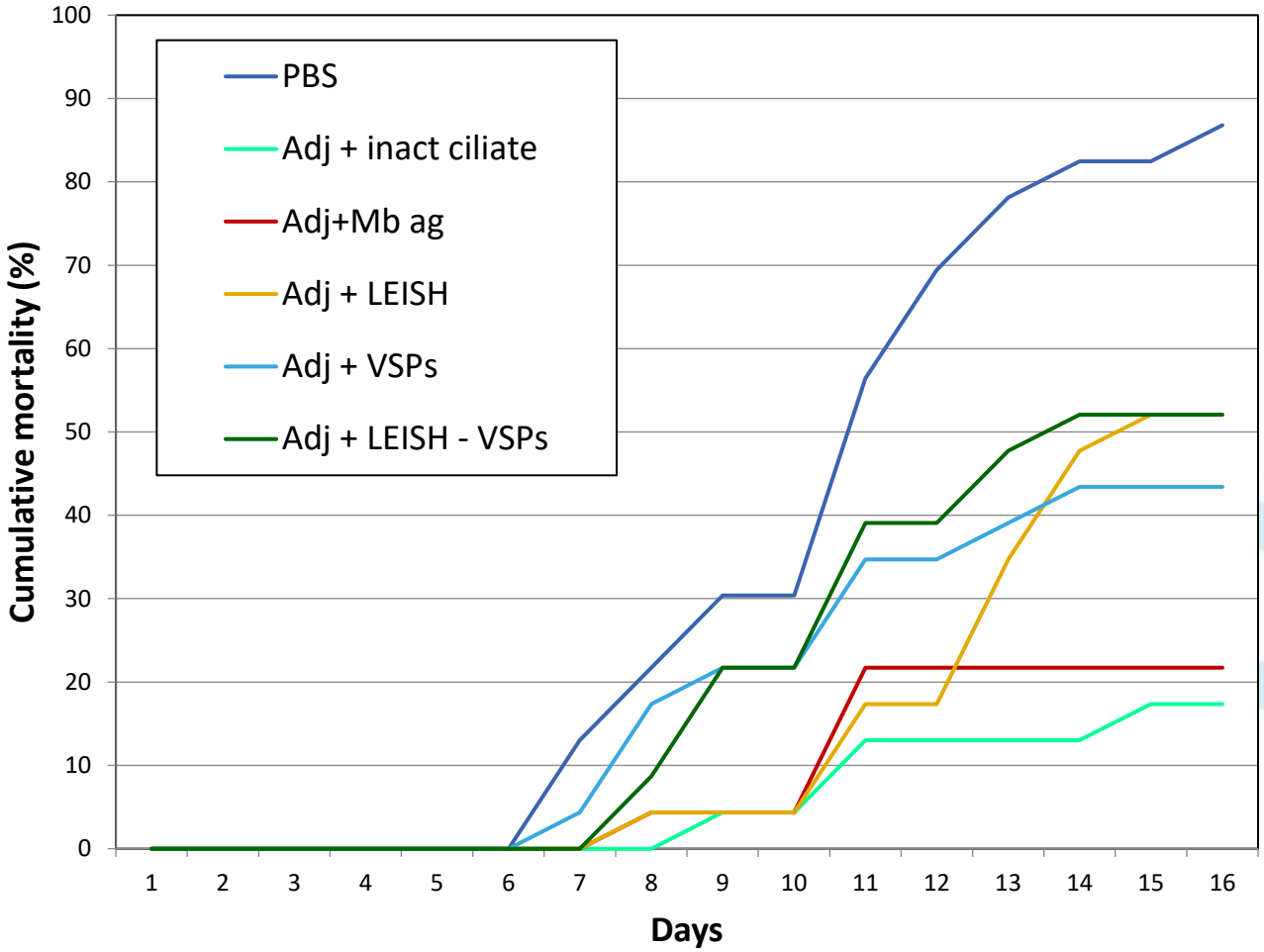

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Where are we now?

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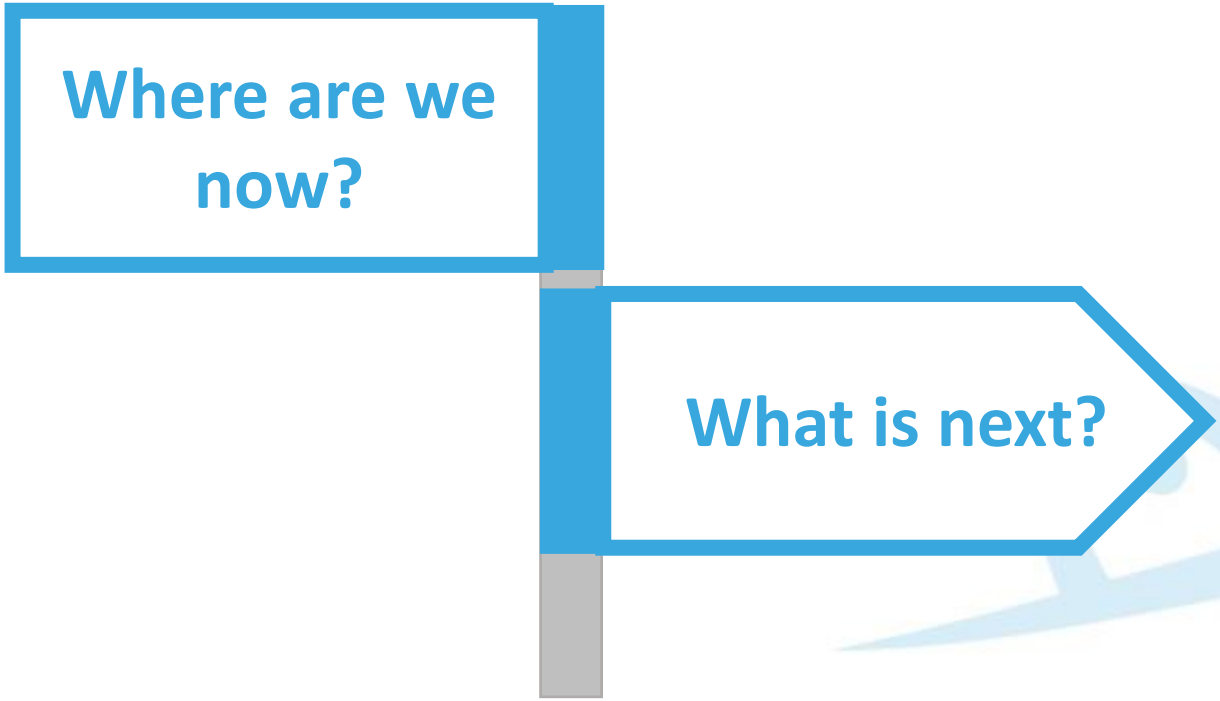

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Acknowledgements

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Horizon 2020
European Union Funding
for Research & Innovation

GOBIERNO DE ESPAÑA
MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES

XUNTA DE GALICIA

Stolt Sea Farm

Ansgar Stratmann
Marinnovac

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Thank You

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