

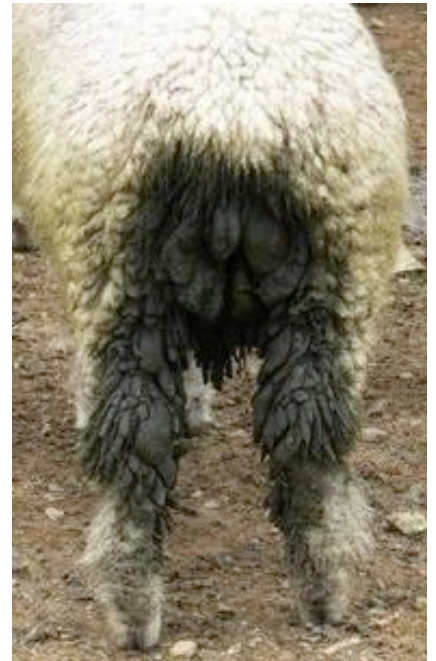
PARAGONE: vaccines for animal parasites

Professor Jacqui Matthews BVMS PhD MRCVS
Coordinator



Background

- Multicellular parasites: major constraint on livestock production & detrimental to animal health & welfare worldwide
- EU annual anthelmintics spend €400M
- Resistance a major issue
- Vaccines main alternative for control



Objectives

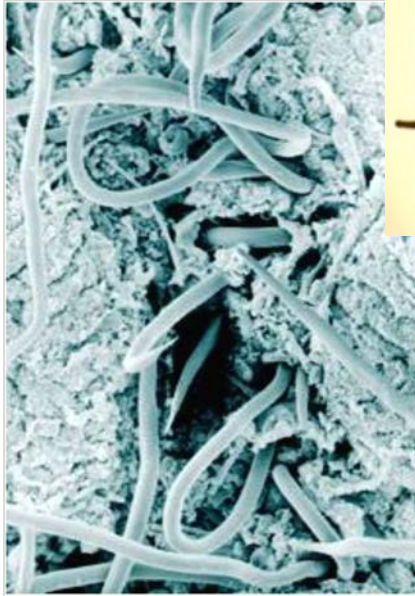
- To develop at least two multicellular parasite vaccines towards commercialisation
- Target hosts: cattle, sheep, poultry
- Ideally, recombinant vaccines

Ethos

“A successful anti-nematode vaccine is likely to be a multi-component vaccine involving antigens expressed by different developmental stages of the parasite”, Peter Hotez



Target pathogens



Partners



UNIVERSIDAD DE CÓRDOBA

ImmunoTools



UNIVERSIDAD
DE LA REPÚBLICA
URUGUAY



Veterinærinstituttet
Norwegian Veterinary Institute



Benchmark
Animal Health



zoetis

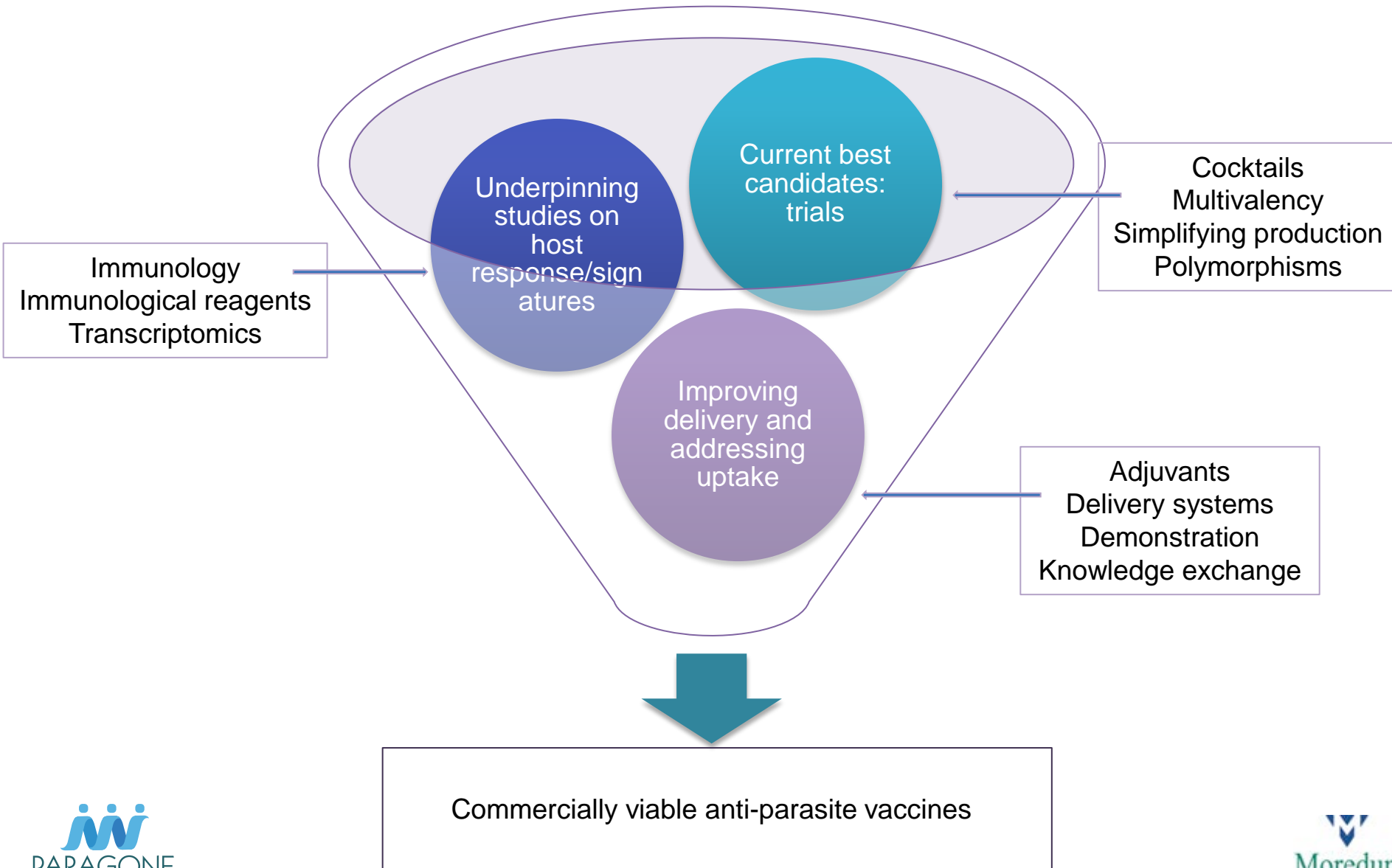


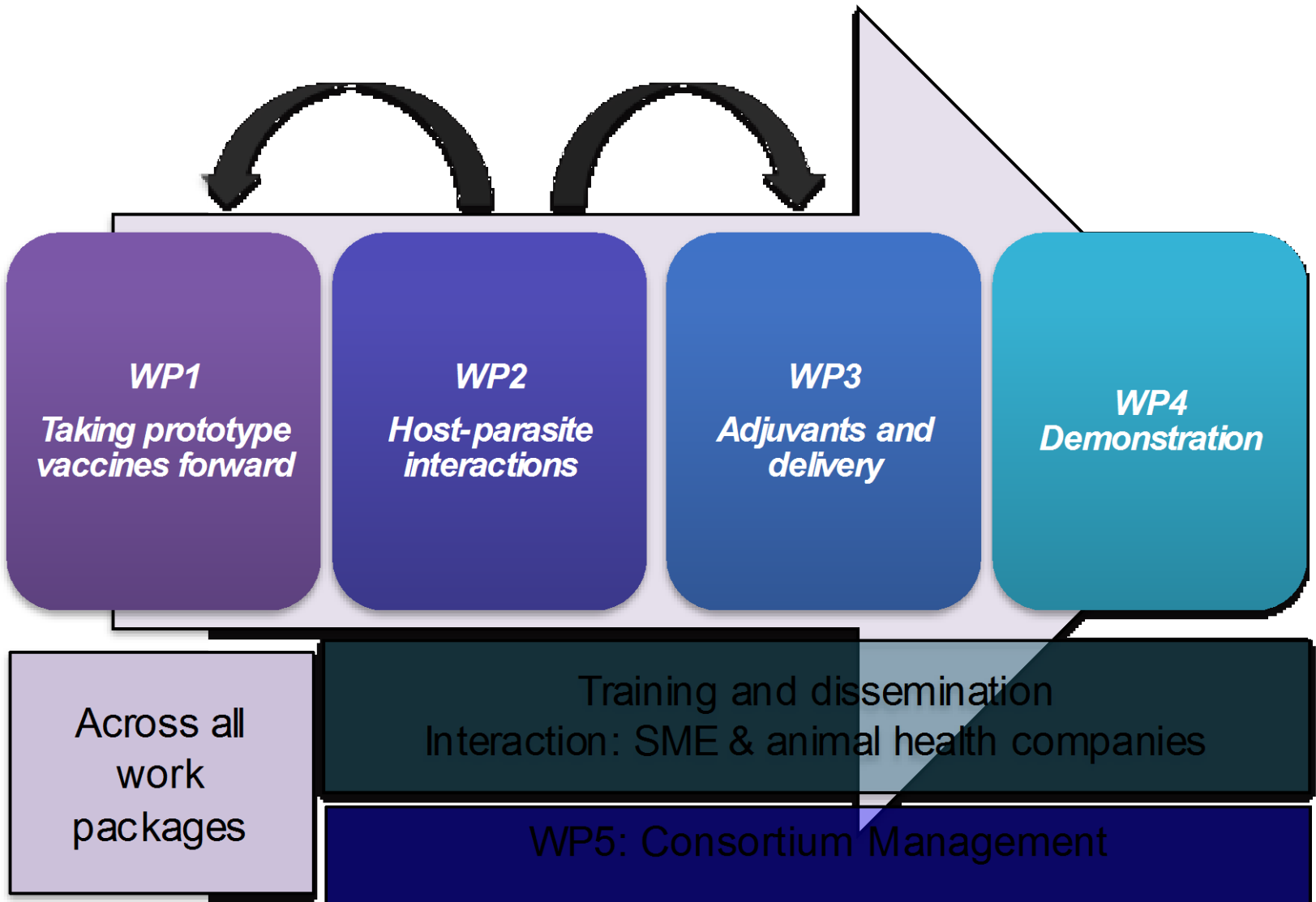
PARAGONE

vaccines for animal parasites



Strategy

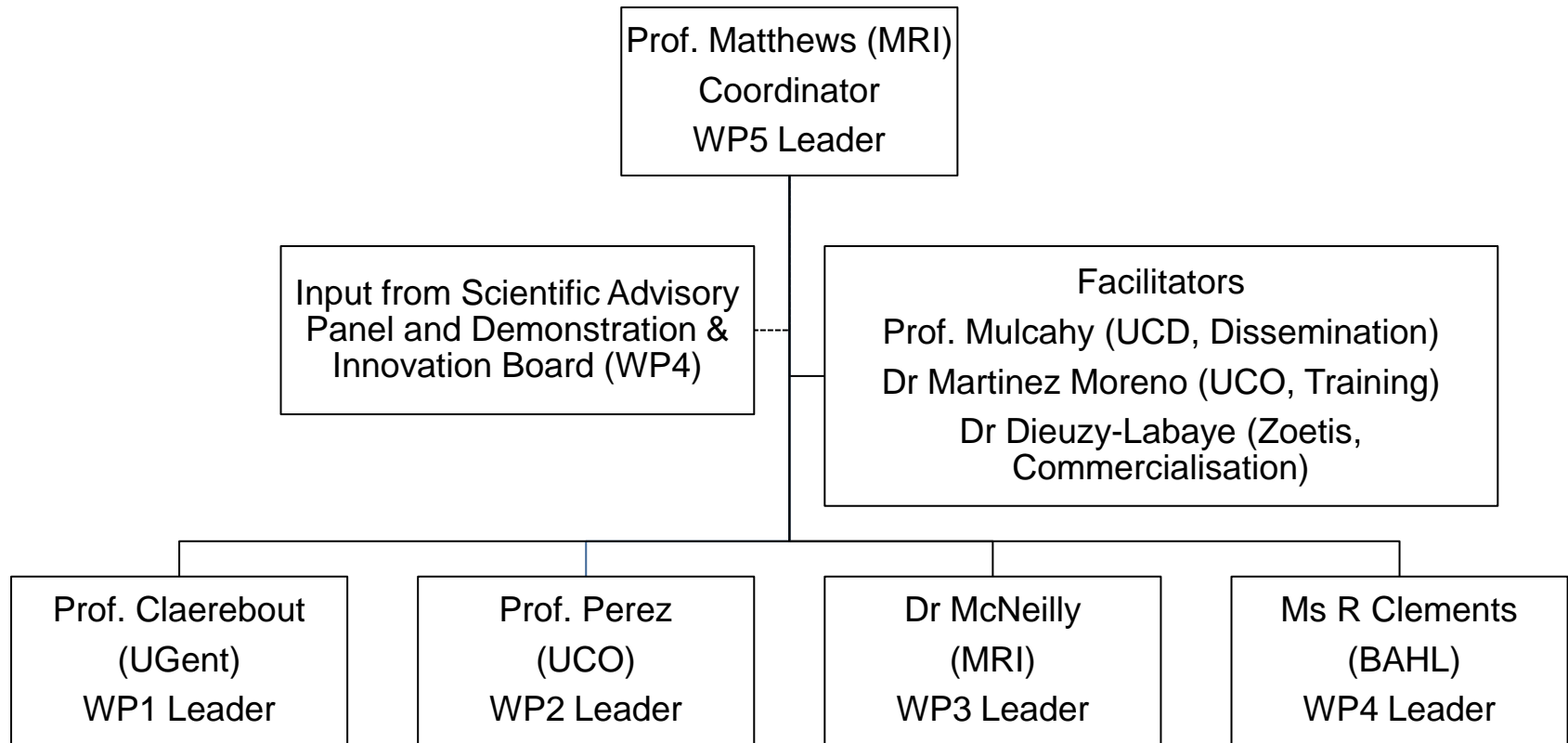


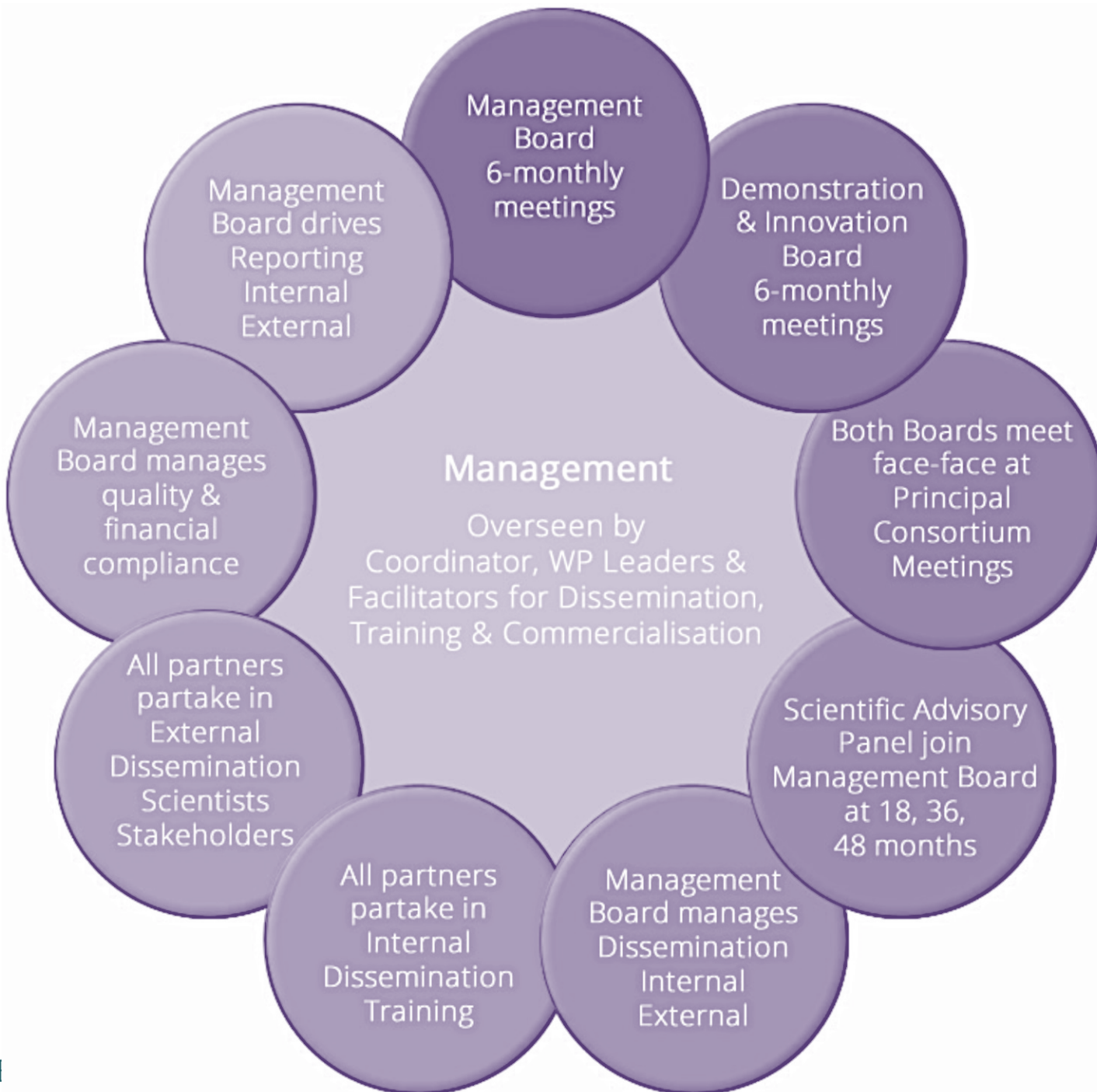


Governance

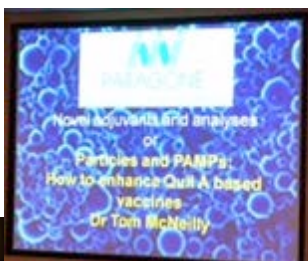
- General Assembly
- Management Board
- Grant Agreement
- Consortium Agreement

Management Board





First Principal Consortium Meeting



Dissemination

- Cross cutting
- Internal
 - Scientific meetings
 - Scientific exchanges
- External
 - Publications & presentations
 - Stakeholder & end-user interactions

Website

<http://www.paragoneh2020.eu>



Team Members

Home [Team Members](#)



Adrian Carr
Position: Senior Bioinformatician Skills and background: Summary A skilled bioinformatician with a background in cell and developmental biology. Seven years of postdoctoral research experience in bioinformatics, with particular expertise...

[read more](#)



Alasdair Nisbet
Alasdair Nisbet is a principal investigator in the Vaccines and Diagnostics pillar of the Moredun Research Institute, near Edinburgh where he has been involved in research into parasite vaccines since...

[read more](#)



Alvaro M artinez
Dr Alvaro Martinez M oreno, UCO, who leads on Training

[read more](#)



Annetta Zinti
I am a science graduate of Trinity College Dublin, Ireland. After completing my PhD at the Departments of Zoology and Biochemistry at TCD, I worked for several years as a...

[read more](#)

Parasites

The pathogens under investigation in PARAGONE include worms (helminths) with high economic impact on sheep (Ostertagia circumcincta, Fasciola hepatica) and cattle (Ostertagia circumcincta, Oesophostomum, if reported farming productivity). These infections are very common in ruminant systems globally.

- Helminth Infections
- GI worms of cattle
- GI worms of sheep
- Liver Fluke
- Ectoparasitic Mites
- Poultry red mite
- Parasitic Oats

The project also focuses on parasite-free infections, including the non-burrowing mite, *Parabronchus* spp., which causes debilitating disease and substantial production losses in ruminants. This mite is found worldwide and has only been eradicated from Australia and New Zealand. The final target is the poultry red mite, *Demodex gallinae*. This ectoparasite has major economic and welfare impacts on the egg industry globally.

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PARAGONE

TWEETS 11 FOLLOWING 23 FOLLOWS 26 LIKES 6 [Edit profile](#)

Vaccines @paragoneh2020

Global
Born on 1 April 2002

Photos and videos

Who to follow

- The Drex @thedrex
- Nature Medicine @natureM...
- Cell & M Cell @CellstemCell

Trends

- Christmas Eve Eve 16.3k Tweets
- Forth Road Bridge Trending for 3 hours now
- Capital A List Started trending in the last hour
- Mytler Started trending in the last hour
- #5pacx 37.6k Tweets
- @winterisnotice 30.5k Tweets
- #Fabsant 13.1k Tweets

Tweets Tweets & replies Photos & videos

Vaccines @paragoneh2020 Nov 25
Thanks to all who attended the NGS workshop. It's been a great few days; learning networking planning. Safe home all

Vaccines @paragoneh2020 Nov 23
Moredun welcomes PARAGONE partners to the NGS workshop - 23rd - 25th Nov

Vaccines @paragoneh2020 Oct 6
Looking forward to seeing PARAGONE members at Moredun Research Institute for the upcoming NGS Workshop 23-25th Nov

Vaccines @paragoneh2020 Sep 29
Poultry red mite vaccine candidate linked to four percent protein produced at Moredun

Partner dissemination

Paragone

El Programa Paragone, por su parte, se centra en el desarrollo de una vacuna contra parásitos en



animales y reúne a 17 grupos de investigación y asociados empresariales del continente europeo, todos ellos especialistas en parásitos multicelulares. En la UPLGC, la colaboración en este proyecto está liderada por el profesor



Investigadores. Gonzalo Suárez (Facultad de Veterinaria), Carlos Carmona (Facultad de Ciencias) y José Tort (Facultad de Medicina). Foto: Leonardo Carreño.

Pablo Antúnez.

Focalizados en dos parásitos de gran importancia económica para la ganadería uruguaya, como lo son *Fasciola hepatica* (saguaipe) que afecta el hígado y un gusano gastro intestinal llamado Cooperia, un grupo de investigadores uruguayos de las Facultades de Ciencias, Medicina y Veterinaria, trabajan en la confección de una vacuna para combatir cada una de las parasitosis ampliamente difundidas en ovinos y vacunos.

Es un proyecto a cuatro años que recién está en su comienzo, generando a nivel de productores e industria una gran expectativa.

El esfuerzo cuenta con el apoyo de la Unión Europea, en el marco del programa Horizonte 2020, que concedió una subvención de 9 millones de euros para trabajar en vacunas contra parásitos.

El proyecto que trabajan los uruguayos, conocido por el acrónimo de PARAGONE (vacunas para parásitos gastrointestinales) es coordinado por la profesora Jacqui Matthews, en Edimburgo y reúne a 17 socios científicos e industriales de todo Europa, Uruguay y China, que buscan alternativas para lograr nuevas vacunas contra parásitos multicelulares.

Hasta el momento no existen vacunas en el mercado contra los gusanos parásitos y su control se realiza básicamente a través de fármacos específicos veterinarios, con la problemática de que la mayoría de los principios activos, de tanto usarlos y de mal aplicarlos, están generando poblaciones resistentes; el fenómeno de resistencia afecta a todos los países productores y no solo a Uruguay.

Carlos Carmona, profesor agregado de la Unidad de Biología Parasitaria del Instituto de Higiene explicó a El País que “lo que se busca es utilizar prototipos de vacunas que existen en la actualidad, combinarlas, mejorarlas, de forma de generar respuestas inmunes efectivas contra esas enfermedades parasitarias”.

Carmona, junto a sus otros dos socios por Uruguay, Gonzalo Suárez (Facultad de Veterinaria) y José Tort (Facultad de Medicina), agregó que junto con especialistas de otros países, especialmente de Irlanda y España, “se trabajará en potenciar la efectividad de antígenos desarrollados por los distintos laboratorios para producir una vacuna más efectiva”.

Training

- Laboratory exchanges
 - Scholarships
- Workshops
 - NGS analysis
 - Immunological tools and livestock infection models
- Seminars

Partner exchanges: MRI & ULPGC



Demonstration & Innovation

optimizing efficacy

housed & field trials

designing products fit for purpose

patents

proof of concept in definitive host

regulator discussions: dossiers

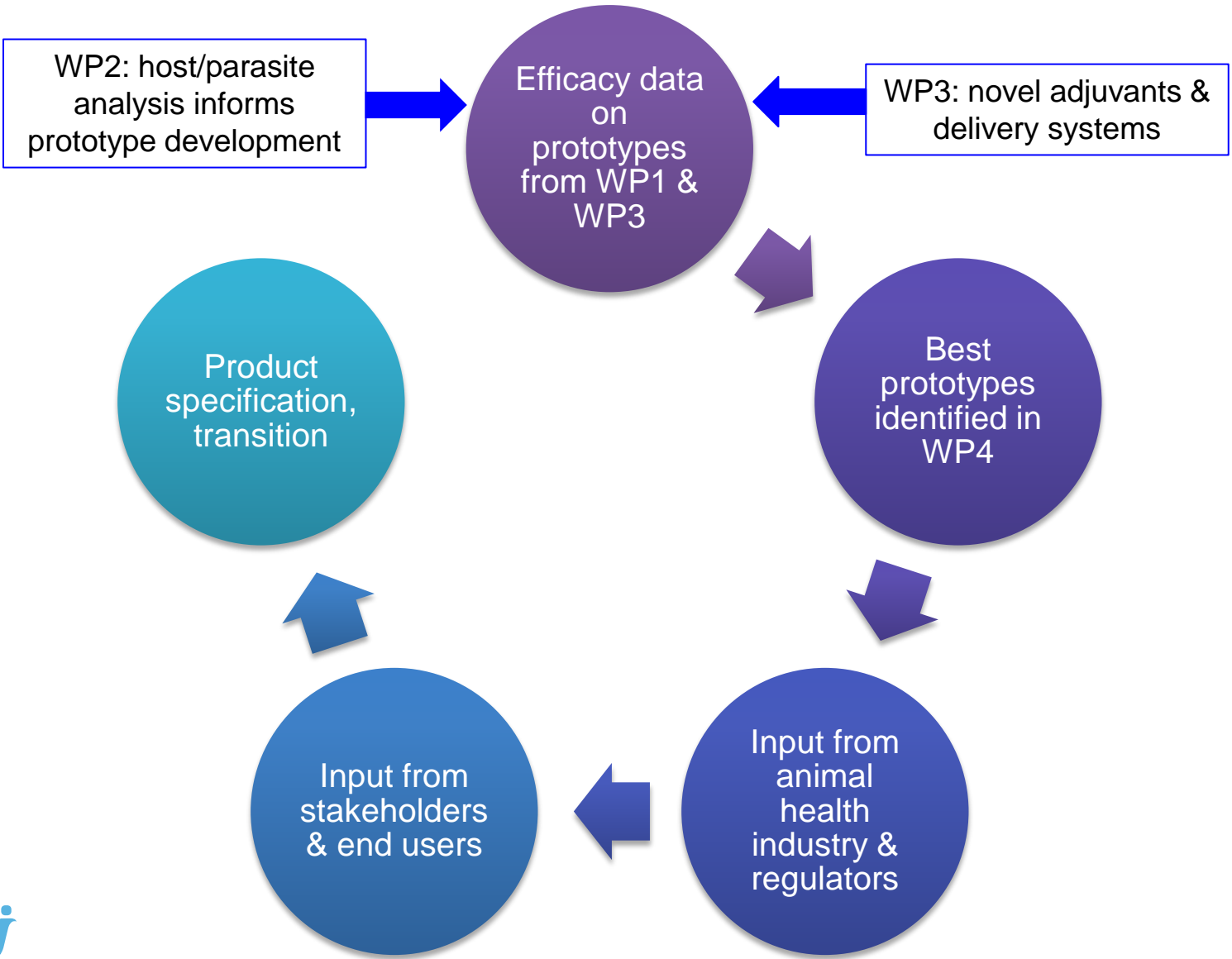


investment from animal health company

seed stocks

safety

Demonstration: pathway to exploitation



Management and reporting

- Internal reports
 - 6-monthly through WP Leader
- External reports
 - 18 months
 - 36 months
 - 48 months

Lessons learnt when writing the application

- Excellence (5/5), Impact (4.5/5), Quality & Efficiency of the Implementation (4.5/5)
- Read call text carefully. Address all points in call text
 - Science; Innovation & Ambition
 - Management; Risk Assessment & Mitigation
 - Dissemination
- Get advice from EU points of contact
- Start writing as early as possible
 - Communicate frequently with partners

Acknowledgements

All of the partners
Scientific Advisory Panel
Richard Mole & Maureen Ritchie

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http://cordis.europa.eu/project/rcn/193331_en.html

