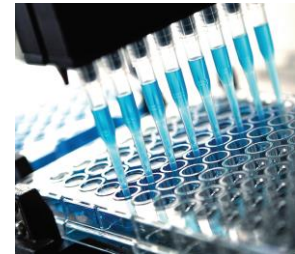


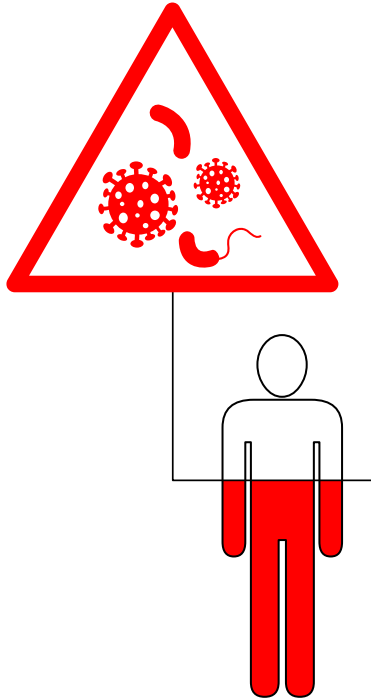


Jean-Luc Troch (President)
Animal Health, Nutrition & Technology Innovation
London - UK
23th February 2022

Background

- Animal Health Diagnostics (AHDx) business has a niche position in the global Animal Health market ($\approx 2\%$)
- Founded in March 2006, and headquartered in France, Diagnostics for Animals, D4A (formerly EMVD), is a professional organization exclusively dedicated to AHDx on an international/EU level
- D4A, through its 21 members, covers over 80% (est.) of the global Animal Health Diagnostic market
- All members operate under a high-level Quality Management System (ISO 9001 and higher)
- Global presence (Mainly EU and USA)

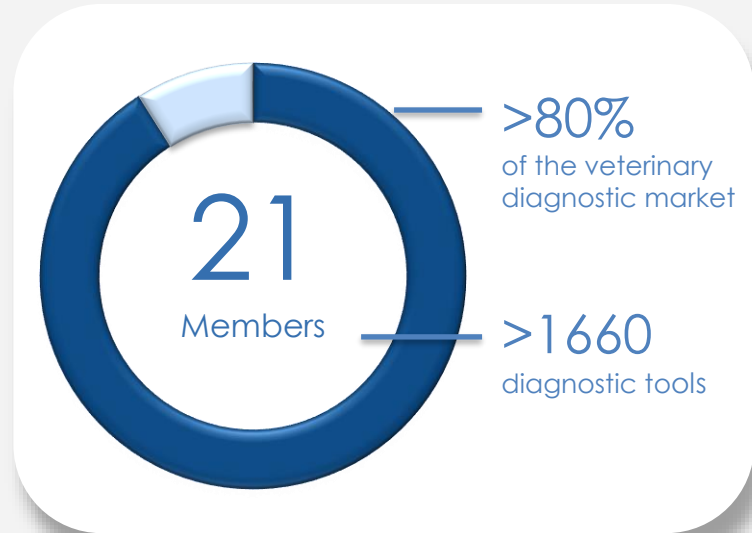




≈ 60%

of the pathogens circulating
in the human population
originated in **animals**"

Boris Johnson, UNGA 2020



- 🧬 Promotes **One Health** initiatives for the development of Animal Health Diagnostics.
- 🧬 Helps the International Community to prevent and be prepared for next pandemic

The importance of ANIMAL HEALTH DIAGNOSTICS



Monitoring

- Animal Health status (prevention, treatment etc.)
 - Eradication programs
 - Vaccination efficiency (monitor protective antibodies)
 - Detect infected animals among vaccinated animals with DIVA
 - One Health: Early detection of food pathogens in livestock to reduce food borne diseases and zoonosis monitoring
-
- Animal-side tests prior to prescription, or to follow/improve productivity
 - AMR: Sensitivity testing prior to the use of “critical antibiotics”



Diagnostic Veterinary Tools (Over 1,660)

- Identifying the cause of a disease or illness.
- Veterinarians can diagnose several diseases in farm animals
- They have several tools and tests to help them make an informed decision over treatment and management of disease.
- They should collect some samples like bloods, milk, feces, saliva, swabs, postmortem tissue (BSE)...
- The laboratory tests are performed depending on the pathogen(s) that is (are) suspected to be present.



In the new global approach to health security...

Needs:

PREVENTION



Early pathogen detection
in emerging countries

More **funding** for
decentralized veterinary
testing **laboratories**

INNOVATION



Open mass screening technologies, including
point of care solutions

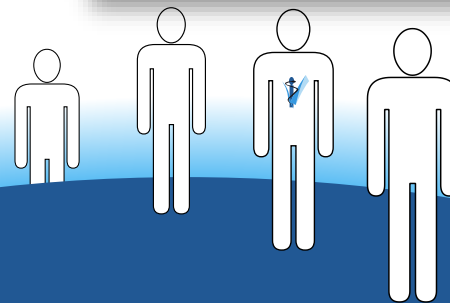
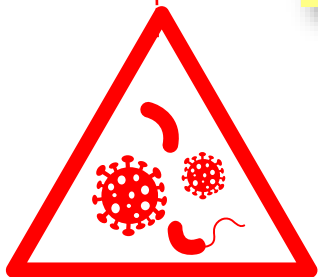
Promote the investment
of new, faster and
affordable **diagnostic technologies**

OUTBREAK RESPONSE



Engage the veterinary
community
in outbreak responses

Include the „**vet lab**“
capacity under an
adapted legal framework



... veterinary diagnostics are part of the solution

Point of Care Diagnostics to Support a Preventative Approach to Ruminant Health

- 🧬 Latest development: Multi-Drug resistant species typing
- 🧬 Technology Advances in diagnostic tools on farms
- 🧬 Potential Challenges of introducing POC in farm animal health management



Point of Care Diagnostics to Support a Preventative Approach to Ruminant Health

- 🧬 Latest development: Multi-Drug resistant species typing
- 🧬 PBRT kit PCR based replicon Typing



- Antibiotic resistance is a serious threat to Public Health leading to increased healthcare costs, treatment failures and sometimes death. Plasmids typing represents one of the most difficult tasks in the management of antimicrobial resistance.
- The epidemiology of resistance plasmids is the major challenge for the characterization of microbial drug resistance.
- The PBRT 2.0 kit is a PCR-based assay that allows early typing of drug resistance related plasmids, offering the possibility to screen before sequencing.
- The kit was developed in collaboration with Prof. Alessandra Carattoli.

Point of Care Diagnostics to Support a Preventative Approach to Ruminant Health

Technology Advances in diagnostic tools...

- Development of a multiplex assay for antibody detection in serum against pathogens affecting ruminants
- Development of a novel lateral flow assay for detection of African swine fever in blood
- Receptor-binding domain–based immunoassays for serosurveillance differentiate efficiently between SARS-CoV2– exposed and non-exposed farmed mink
- Several RT-PCR tests for Bovine, Swine, Poultry,... diseases (single, multiplex)
- Very large portfolio ELISA kits for all species
- Microbiology instruments, tests,... (bacteria, identification, antibiotic resistance,...)

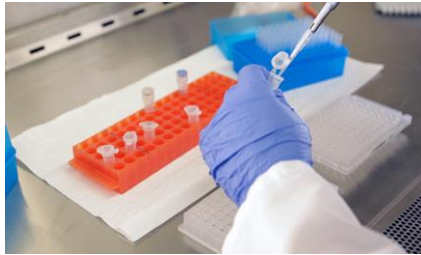


Point of Care Diagnostics to Support a Preventative Approach to Ruminant Health

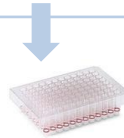
 Technology Advances in diagnostic tools...

ELISA	RT-PCR	MICROARRAY	Lateral Flow Assay
Multiple Samples	Multiple Samples	Multiple Samples	Single Sample
ELISA Reader	Specific equipment	Sophisticated equipment	No equipment required/skilled personnel
Individual result	Individual result-Xplex	Multiple results simultaneously	Individual result-4plex
Screening	Screening	Screening	Point of Care

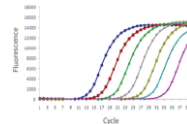
Point of Care Diagnostics to Support a Preventative Approach to Ruminant Health



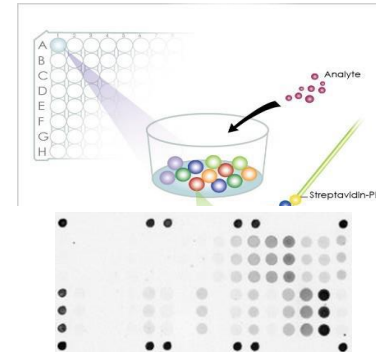
Collect sample: contains viral/bacterial and host DNA/RNA.



Extract DNA/RNA: eluate contains viral/bacterial and host DNA/RNA.



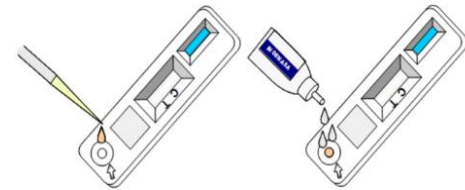
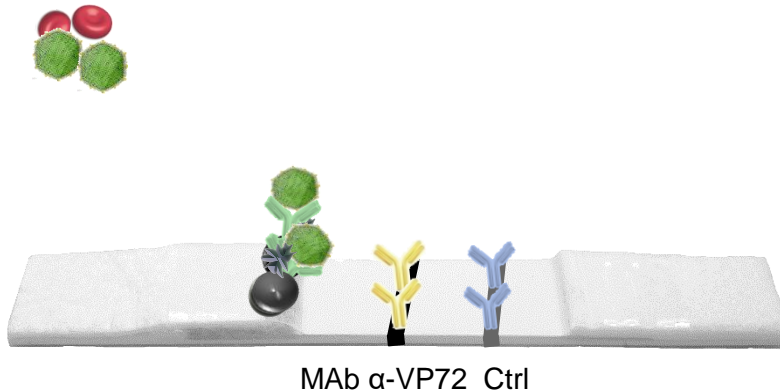
Run RealPCR*: identify viral/bacterial and host DNA/RNA in multiplex reaction.



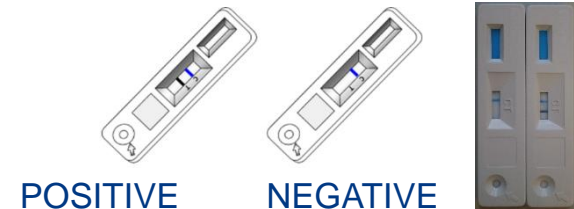
Point of Care Diagnostics to Support a Preventative Approach to Ruminant Health

🧬 Technology Advances in diagnostic tools on farms

• LFA (CROM Antigen)



1. Add 20 μ L of sample to the round window
2. Add 3-4 drops of running buffer
3. Read results after 10 min



Point of Care Diagnostics to Support a Preventative Approach to Ruminant Health

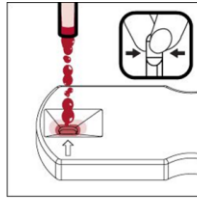
Technology Advances in diagnostic tools on farms



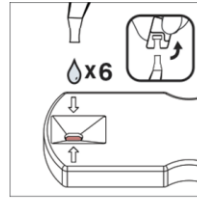
- Take a blood sample under the tail (purple-top tubes are recommended =EDTA)
- invert the tube 3 times



- Draw up the sample into the pipette.



- Dispense the full pipette of blood into the sample port.

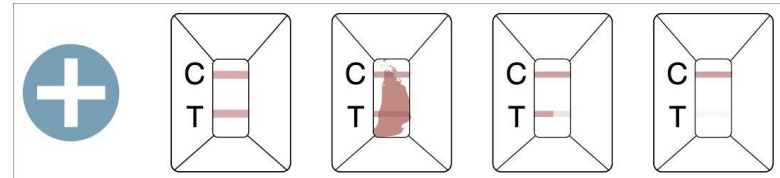
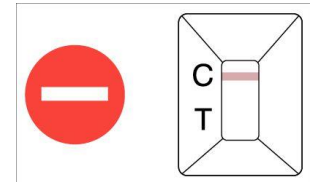
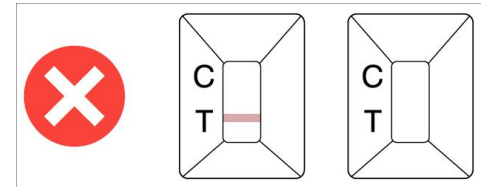


- Add 6 drops of the chase solution within 2 minutes.



- Read results between 5 to 20 minutes later.

Use separate needles to collect samples from each animal to be tested.
Label each tube with animal ID to prevent confusion
Use separate pipettes for each device used



Point of Care Diagnostics to Support a Preventative Approach to Ruminant Health

🧬 Potential Challenges of introducing POC in farm animal health management



Easily perform
on some drops
of blood or
Milk or Serum



Conveniently
test any cow
any time,
on **your**
schedule



Accurately
identify the
disease or
antibiotic
residues...



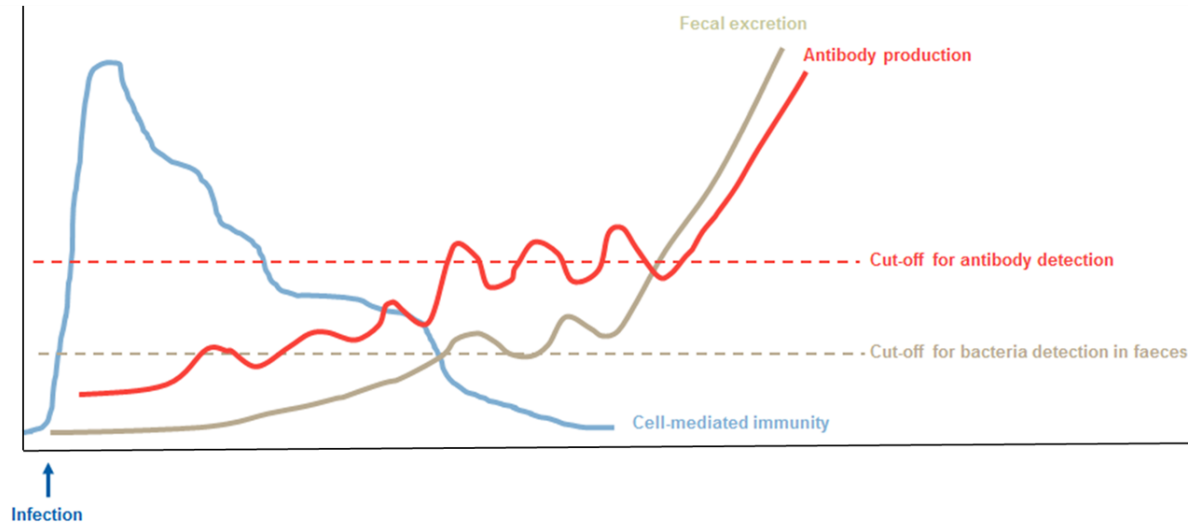
Find positive
cows in just a
few minutes
and take
immediate
action

Point of Care Diagnostics to Support a Preventative Approach to Ruminant Health

- 🧬 Potential Challenges of introducing POC in farm animal health management
 - 🧬 Easy to use
 - 🧬 Stability (refrigeration or room temperature) around 8-12 months
 - 🧬 Sample collection: Blood (drawing blood?), Serum, Milk, Saliva, Urine, Tissue,...
 - 🧬 Species: Cow, sheep, goat,... (pig, chicken,...)
 - 🧬 Education: Training, Interpretation,...
 - 🧬 Size of the kits, single disease, multiple diseases or tests
 - 🧬 Distribution Channel
 - 🧬 COSTS
 - 🧬 Controls?, Comparison with Lab results!

Point of Care Diagnostics to Support a Preventative Approach to Ruminant Health

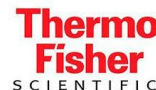
🧬 Potential Challenges of introducing POC in farm animal health management



adapted from Vialard, GTV, 2016

21 members manufacturing over 1660 veterinary diagnostic tools under ISO 9001 or higher QMS

<https://diagnosticsforanimals.com/>



<https://diagnosticsforanimals.com/list-of-animal-health-diagnostics/>

diagnosticsforanimals.com/list-of-animal-health-diagnostics/

DIAGNOSTICS FOR ANIMALS VETERINARY DIAGNOSTIC MANUFACTURERS

HOME LIST OF ANIMAL HEALTH DIAGNOSTICS MEMBERS ONLY SECTION

LIST OF ANIMAL HEALTH DIAGNOSTICS

keyword Disease

SEARCH Cancel EXTRACT

Disease ▼	Target species ▼	Producer ▼	Test principle ▼	Name of the product ▼	Packaging	DNA	Pathogenic	Product reference
drug resistance	Multiple species diseases	DIATHEVA	PCR	PBRT kit 2.0	192	✗		MBK0078
Gender identification	Avian	DIATHEVA	PCR	Avian DNA Sexing Test	50	✗	Not applicable	MBK0059
Salmonellosis (S. abortusovis)	Sheep and goats	DIATHEVA	ELISA	Salmonella Abortusovis Test	96	✗	Salmonella Abortusovis	AKE0016

contacts@diagnosticsforanimals.com