



**Project Deliverable D-JRP17-
WP7.Del4 – Report of the first
annual workshop**
Workpackage 7

Responsible Partner: ANSES

Contributing partners: INIAV, APHA, BfR, FLI,
IZSAM, NDRVMI, INSA, WBVR



GENERAL INFORMATION

European Joint Programme full title	<i>Identification of <u>emerging</u> <u>Brucella</u> species: new threats for human and animals</i>
European Joint Programme acronym	One Health EJP JRP-17 IDEMBRU
Funding	This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 773830.
Grant Agreement	Grant agreement n° 773830
Start Date	01/01/2020
Duration	36 Months

DOCUMENT MANAGEMENT

Project deliverable	D-JRP17-WP7. Del4 – Report of the first annual workshop
Project Acronym	IDEMBRU
Author	Vitomir DJOKIC
Other contributors	Claire PONSART, Ana Cristina FERREIRA
Due month of the report	36 – June 2021
Actual submission month	July 2021
Type <i>R: Document, report DEC: Websites, patent filings, videos, etc.; OTHER</i>	R, Save date: 2-Sep-21
Dissemination level <i>PU: Public (default) CO: confidential, only for members of the consortium (including the Commission Services)</i>	CO This is the default setting. If this project deliverable should be confidential, please add justification here (may be assessed by PMT):
Dissemination <i>Author's suggestion to inform the following possible interested parties.</i>	OHEJP WP 1 <input type="checkbox"/> OHEJP WP 2 <input type="checkbox"/> OHEJP WP 3 <input type="checkbox"/> OHEJP WP 4 <input checked="" type="checkbox"/> OHEJP WP 5 <input type="checkbox"/> OHEJP WP 6 <input type="checkbox"/> OHEJP WP 7 <input type="checkbox"/> Project Management Team <input checked="" type="checkbox"/> Communication Team <input type="checkbox"/> Scientific Steering Board <input checked="" type="checkbox"/> National Stakeholders/Program Owners Committee <input type="checkbox"/> EFSA <input type="checkbox"/> ECDC <input type="checkbox"/> EEA <input type="checkbox"/> EMA <input type="checkbox"/> FAO <input type="checkbox"/> WHO <input type="checkbox"/> OIE <input type="checkbox"/> Other international stakeholder(s): Social Media: Other recipient(s):



- SOPs in progress
- Classical tests for smooth antigens might be the wrong way. The project needs more sera from atypical human cases.

Presentation link:



WP.3

- T-1 Sample types are identified, however the treatment protocols evaluation and preparation had to be delayed
- T-2 more benchmarking than harmonisation and characterisation
- T-3 adaptation of molecular tools is in progress
- It was decided to use the Illumina platform for sequencing
- SOPs are in preparation
- Harmonized WGS is in preparation
- Molecular typing data storage platform in preparation
- Rapid detection assay in preparation

Strengths:

- Potential to make use of existing collections of strains and samples from all project partners including atypical isolates

Weaknesses

- Identify clear process of sharing the strains/samples/DNA between partners
- More clearly define role of project partners in various WPs and tasks
- Likelihood of identifying novel atypical *Brucella* species through survey activities (WP1 & WP2)

Opportunities:

- Chance to benefit from synergies with EURL work plan: Identifying optimal protocol for handling (and DNA extraction) from swabs and water; WGS/bioinformatics ring-trial
- Opportunities presented by emerging disease situations (e.g. *Brucella canis* in Western Europe).

Threats:

- Genome diversity of atypical *Brucella* spp. Makes identifying molecular markers challenging
- COVID-19, including further delays and challenges of remote collaboration
- Impacts of UK leaving the EU
- Risk of inflexibility and failure to adapt project where it would benefit outcomes

Presentation link:



WP.4

- T-1 Commercial bio typing systems are validated – Micronaut from Merlin Diagnostika
 - o Additionally microbiological and electron microscopy on flagella will be performed for phenotyping of atypical strains.
- T-2 Antibioresistance testing, using Micronaut plate system has been developed in FLI.
- RNA seq and peptidomics has been validated in BfR.
- RNA seq protocols are ready using the inactivation with the STOP mix and Isolation with Trizol max kit.
- The first results on differences between classical and emerging *Brucella* spp. will be available soon.
- Implementation of data analyses
- Preparation of targets for bioinformatics pipeline
- The implementation of MALDI-TOF as a backup phenotyping tool

Strengths:

- Many already existing strains collected



- WP-4 interface between WP-3 and WP-5
- EU-wide network of *Brucella* experts

Weaknesses:

- No exchange of material so far, regulation for this procedure
- What are the specific roles of project partners

Opportunities:

- Selection of interesting, new strains for further analyses
- Promotion of harmonisation of *Brucella* diagnostics (concerning emerging *Brucella* spp.)

Threats:

- COVID-19
- Less time to reach overall goal.

Presentation link:



WP.5

The WP.5 activities have not started yet. As previewed, this work package will start in July 2021.

Strengths:

- Bioinformatics pipeline:
 - o Only gDNA sequence required (no strain isolation)
 - o Compare strains on a big scale
- In vitro model – with right parameters easy to implement
- Start with known species (no delay) -> confirm with newly discovered, emerging species
- Confirm in in vivo model

Weaknesses:

- Bioinformatics: Only when differences are at genomic level
- Hard to verify for emerging strains (no data validation in humans)
- For task 2 and 3: need to isolate/obtain strains

Opportunities:

- Fast indication of zoonotic potential of emerging strains
- Identify novel directions and (research) ideas on virulence/zoonotic potential

Threats:

- Not enough well-characterized strains/sequences available
- Emerging strains too different from known, characterized strains
- Not enough isolates from humans (lack of sensibility)
- Delays due to COVID-19 crisis

Presentation link:



WP.6

The task will take all the necessary information generated by other IDEMBRU WPs and will make use of the deliverables produced during the project

WP 6 takes place over the second and the third year of the project

- T 1 takes place over the second year of the project
- T 2 takes place over the second and the third year

Strengths:

- All the partners involved

Weaknesses:

- The WP is related to the outcomes of ALL other WPs

Opportunities:

- All the partners involved

Threats:



- Shortage of time and already existing delays.

Presentation link



WP.7

General coordination and management of the project including all administrative and financial issues

Strengths:

- Regular meetings / individual meetings
- Availability of the management team
- Recruiting of new staff

Weaknesses:

- No project management platform
- Lack of reactivity / responsiveness from partners
- Need for closer collaboration between partners

Opportunities:

- Improved virtual communication lines
- Broader use of existing collections

Threats:

- COVID -> additional tasks / delays
- Problem with collection of new samples and isolation of new strains
- Late with posting the publically available information on project updates.

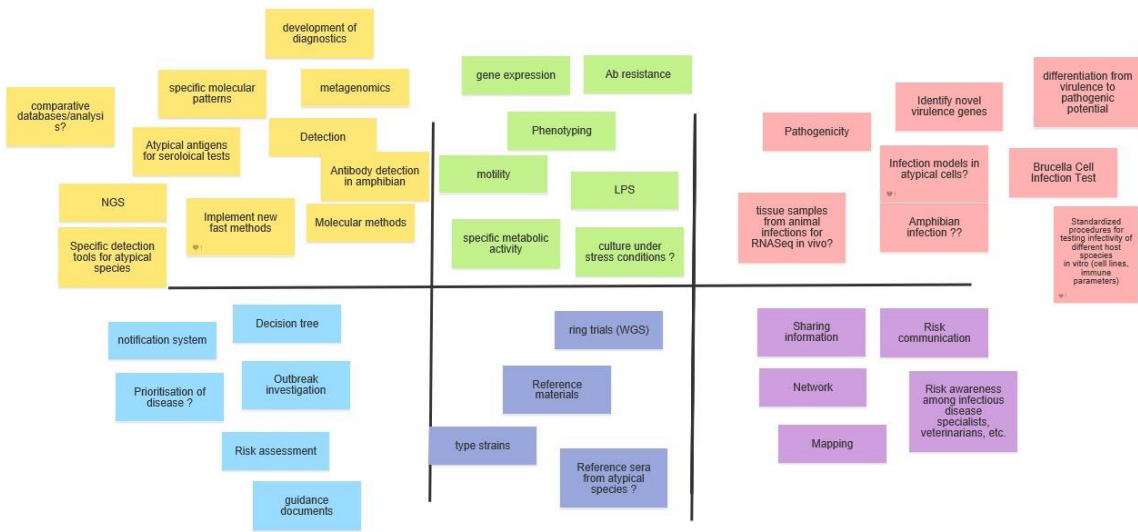
Presentation link:



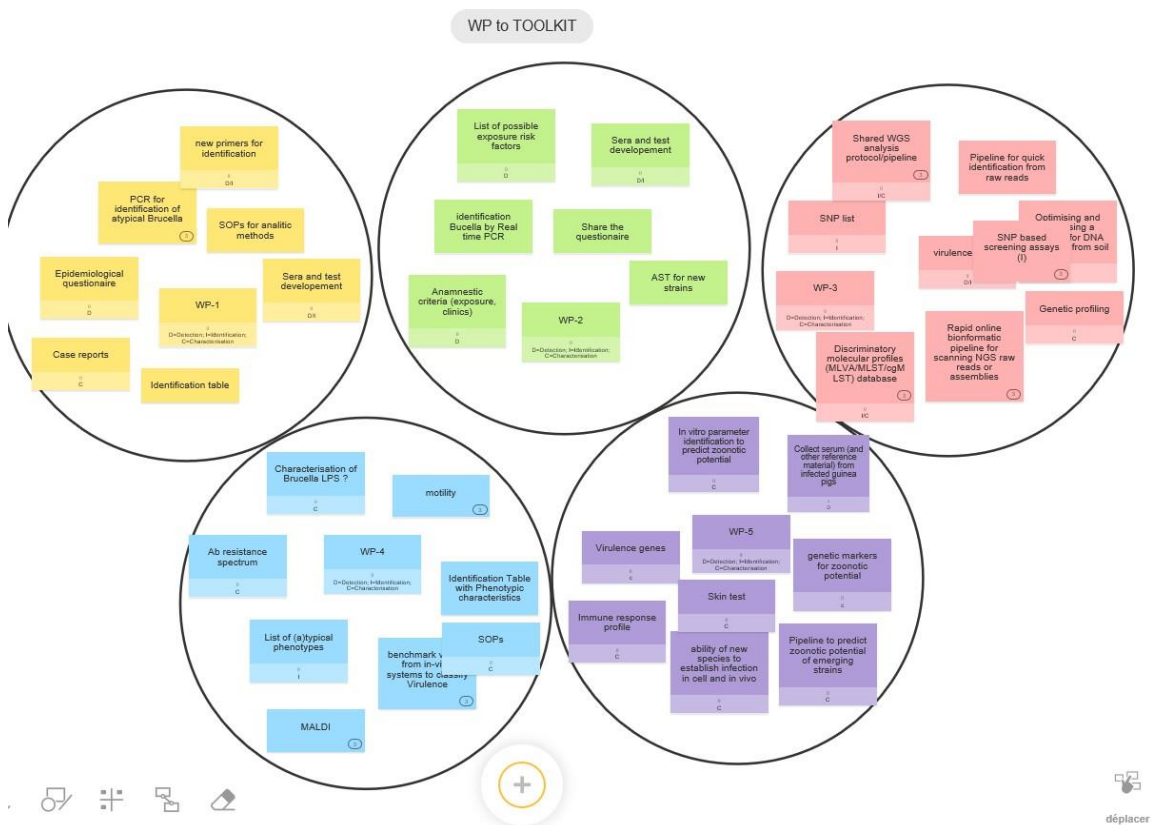


Two round tables were organized during the workshop encompassing two major topics:

- How the toolkit will contribute to atypical *Brucella* investigations?



- Contributions of each WP to the final toolkit



Major conclusions were:

- The delays due to a COVID-19 were encountered by all work packages.
- Furthermore, new delays were encountered due to UK leaving the European Union and uncertainties about the regulations for materials exchanges
- Equally important are the suppliers' delays and lack of certain consumables, such as swabs.
- The use of MALDI-TOF for bacterial protein profiling is on the rise and it is of utmost importance that IDEMBRU project investigates the use and precision of existing libraries as well as enlarges them. Specifically to compare the new and emerging *Brucella* spp.
- Benchmark values from in vitro systems to classify virulence using MALDI-TOF, Motility and AntiBio resistance and compare to the results of the WP.1 and WP.2



- For the WP.3, the pipeline for genotyping and using those data for rapid screening assays. Galaxy platform will be tested.

Additional presentations regarding the automatic alert systems and examples of infectious diseases toolkits in animal health:

- Claire Ponsart, ANSES - Examples of toolkits in Animal Health:



TOOLKITS FOR OUTBREAK INVESTIGATIONS: Two examples
from Food Safety & Animal Health (pre-workshop)

Vitamin D public, Claire Ponsart



- Francesco Berlingieri, DG SANTE - Presentation of ADNS system:





ANEX I

IDEMBRU ANNUAL WORKSHOP 2020

11th December

10 - 13 h – PROJECT SUMMARY (Work Package advancements and planning presentations):

10:15 – 10:40 – WP-1 – AC Ferreira and H. Daskalov (presentation and Q&A)

10:40 – 11:05 – WP2 – A Pelerito and S. Al Dahouk (presentation and Q&A)

11:05 – 11:30 – WP3 – R Ashford and G. Garofolo (presentation and Q&A)

Break

11:45 – 12:10 – WP4 – F. Melzer and S. Al Dahouk (presentation and Q&A)

12:10 – 12:35 – WP5 – M. van der Esker and L. Freddi (presentation and Q&A)

12:35 – 13:00 – WP7 – C. Ponsart, AC Ferreira and V. Djokic (presentation and Q&A)

13 – 14 h Lunch break

14 – 17 h – HOW TO DEVELOP A TOOLKIT?

14h-14h25: WP6 presentation

14h25-14h45: Round table (part 1) - How the toolkit will contribute to atypical *Brucella* investigations ?

14h45-15h15: Examples of toolkits in Animal Health (Claire Ponsart, ANSES)

Break

15h30-15h50: Presentation of ADNS system (Francesco Berlingieri, DG SANTE – Unit G2)

15h50-16h30: Round table (part 2) - contributions to each WP to the toolkit

16h30-17h00: Discussion / perspectives – WP6

17h  "Bring your real beverage to a virtual social hour and write to Santa with us" 