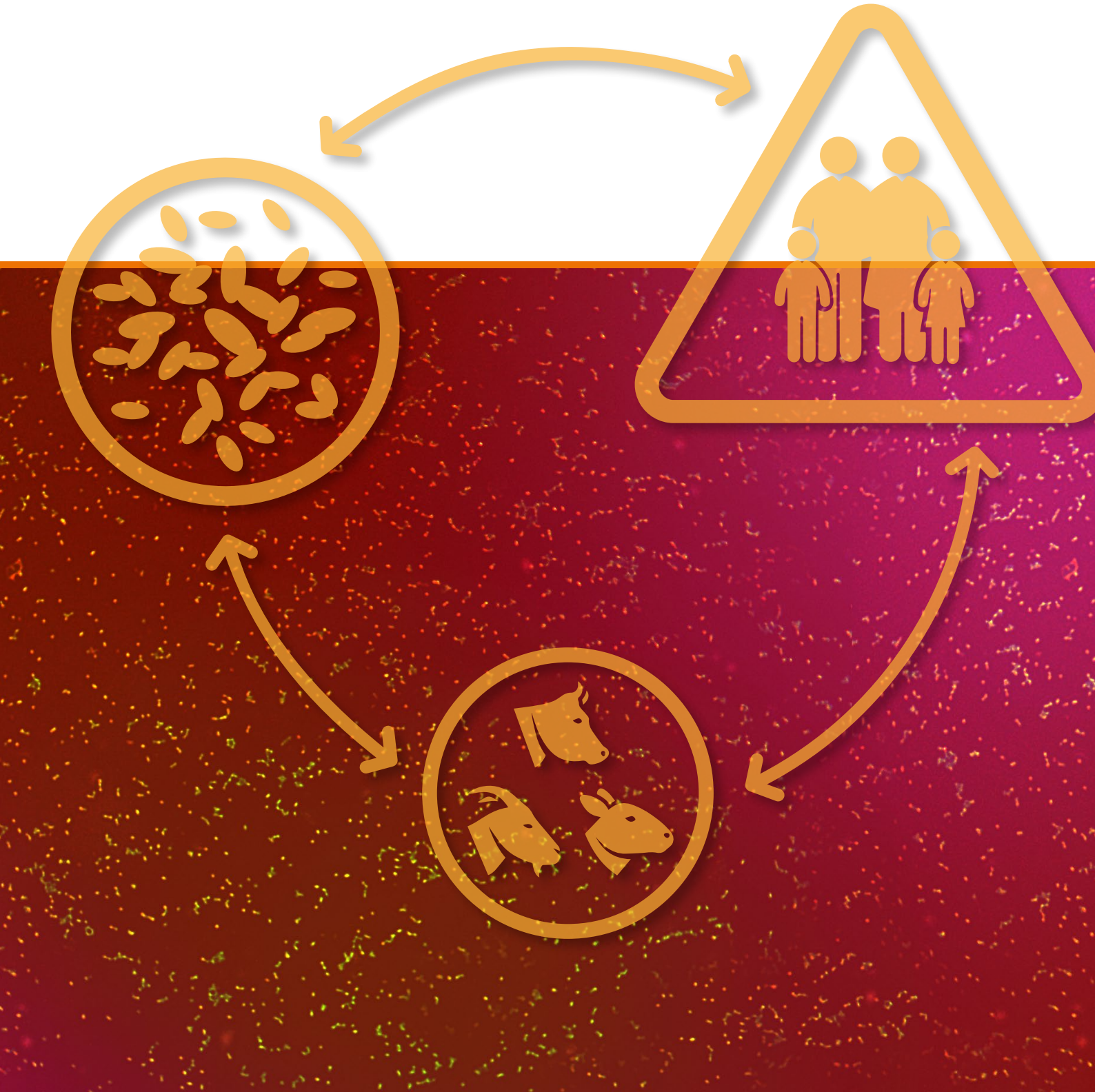
Prevent Human Brucellosis by means of livestock vaccination



BRUCELLOSIS IS A ZOONOSIS

Brucellosis, also named as undulant fever, Mediterranean fever or Malta fever is a disease of animals, especially domesticated livestock, caused by bacteria of the Brucella group with humans as an accidental host.

It is an important human disease in many parts of the world and yet it is often unrecognized and frequently goes unreported. There are only a few countries in the world that are officially free of the disease. <<

The duration of the human illness and its long convalescence means that brucellosis is an **important economic problem** as well as a medical problem. <<

The human disease usually manifests itself as an acute febrile illness which may persist and progress to a chronically incapacitating disease with severe complications. <<

Foodborne transmission is a major source of infection, with cheese made from raw milk and unpasteurized milk presenting a high risk. <<

Brucella abortus strain 19 vaccine

The most widely used vaccine for the prevention of brucellosis in cattle is the one that contains *Brucella abortus* 19 strain (named as B19 or S19), which remains as the reference vaccine to which any other vaccines are compared.

Brucella melitensis Rev-1 strain

The live *B. melitensis* Rev 1 strain is currently considered as **the best vaccine available** for the control of small ruminant brucellosis, specially when used by the conjunctival route.

This strain is used in whole-flock vaccination programmes, which contribute effectively in reducing the disease prevalence in both sheep and human populations.

BRUCELLOSIS IN ANIMALS

Brucellosis infects many species, especially cattle, sheep, goats and pigs.

Brucellosis presents typically as abortion in animals.

Diagnosis can only be confirmed by laboratory tests.

Different Brucella types infect different species preferentially:

B. melitensis is the type most frequently reported as a cause of human disease.

B. abortus is the most widespread cause of infection, but associated with much less human disease. Infection in human is often sub-clinical and where disease does occur, it is usually less severe than that caused by *B. melitensis* or *B. suis*.

Brucella species causing disease in domesticated livestock

Host	*B. abortus*	*B. Melitensis*	*B. suis*	*B. ovis*
Cattle	+++	+++	+	–
Sheep	+	+++	+	+
Goats	+	+++	–	–
Swine	+	+	+++	–

Conjunctival vaccination

It is often recommended that vaccination with strains 19 or Rev-1 should be limited to sexually immature female animals. This is to minimize the stimulation of post-vaccinal antibodies, which may confuse the interpretation of diagnostic tests and also to prevent possible abortions induced by the vaccines.

Alternatively these vaccines can be administered to cattle or sheep of any age by the conjunctival route. This produces protection without a persistent antibody response that might interfere with the serological tests, and reduces the risks of abortion when vaccinating adult cattle.

PREVENTION OF BRUCELLOSIS IN HUMANS

The prevention of human brucellosis is based on

1_ Food hygiene

- All dairy products should be prepared from heat-treated milk.
- Consumption of raw milk or products made from raw milk should be avoided.
- Meat should be adequately cooked.

2_ Controlling the disease in animals

- Infected animals and/or their products are the principal source of human brucellosis.
- Prevention must be based on controlling the disease in animals.
- Vaccination is the most successful method for preventing brucellosis in animals.

3_ Occupational Exposure

Special prevention measures shall be implemented for people who are in close contact with animals like for instance farmers and veterinarians.

VACCINATION AGAINST BRUCELLA

Vaccination protects animals against the clinical disease. It also contributes to reduce the infective pressure, and consequently the incidence of brucellosis among the livestock population.

Vaccines containing attenuated *B. Melitensis* Rev-1 strains and *B. abortus* 19 strain have proven to be effective.

Vaccines must be obtained from a reliable and internationally approved supplier.

Brucella reference laboratories approved by the OIE

Sanitary vaccination campaigns against Brucellosis should be carried out with vaccines that are approved by OIE Reference Laboratories for Brucellosis. These laboratories are located in the following countries:

ARGENTINA (Buenos Aires): Servicio Nacional de Sanidad y Calidad Agroalimentaria (SENASA)

FRANCE (Maisons-Alfort, Cedex): Agence Nationale de Sécurité de l'Alimentation, de l'Environnement et du Travail (Anses)

GERMANY (Jena): Friedrich-Loeffer Institute (FLI)

ISRAEL (Beit Dagan)Department of Bacteriology

ITALY (Teramo) Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise 'G. Caporale' CESME.

KOREA (Kyunggi-do) National Veterinary Research & Quarantine Service (NVRQS)

UNITED KINGDOM (Weybridge) Animal Health and Veterinary Laboratories Agency

Lio-B-19

LIVE LYOPHILIZED VACCINE AGAINST BOVINE BRUCELLOSIS

Composition per dose

Live attenuated *Brucella abortus* B-19* strain ... 50 - 120 x 10^9 CFU**

*B-19 strain is known in some countries as S-19, being both the same strain.

**CFU: Colony forming units.

Indications

Active immunization of cattle against Brucellosis caused by *Brucella abortus*.

Administration Route

Subcutaneous injection.

Dosage and administration

Administer 5 ml of the rehydrated vaccine **from 3 to 6 month old calves.**

Use during pregnancy or lactation

Do not use during pregnancy or lactation.

Shelf-life period

One year.

Withdrawal period

Zero days.

Storage and transport

Store and transport this product refrigerated (between 2°C and 8°C). Do not freeze. Protect from light. Keep the product in its original packaging material.

Supply

1 dose packs containing 1 vial with the freeze-dried vaccine plus 1 vial with 5 ml of aqueous diluent.

Spanish Marketing Authorisation Number

2718 ESP

Lio Vac Rev-1 Oftalmica (Conjunctival instillation)

LIVE LYOPHILIZED VACCINE AGAINST BRUCELLOSIS IN SHEEP AND GOATS

Composition per dose

Live attenuated *Brucella melitensis* Rev-1 strain .....1 - 2 × 10^9 CFU*
Patent Blue Colorant V (E-131) ..... 0,004 mg

*CFU: Colony forming units.

Indications

Active immunization against ovine and caprine brucellosis caused by *Brucella melitensis*.

Dosage and administration

Administer, by conjunctival route, a single dose of 1 drop (approximately 40 µl) per animal, to ovines and caprines **from 3 to 6 months old**.

Asepsis should be extremely kept in every case.

Use during pregnancy

Do not use during pregnancy.

Shelf-life period

One year.

Withdrawal period

Zero days.

Storage and transport

Store and transport this product refrigerated (between 2°C and 8°C). Do not freeze. Protect from light. Keep the product in its original packaging material.

Supply

Box containing 1 vial of 50 doses of lyophilised, 1 vial with 2,2 ml of solvent and a sterile PVC dropper.

Spanish Marketing Authorisation Number

3180 ESP

Lio Vac Rev-1 Reducida

LIVE LYOPHILIZED VACCINE AGAINST BRUCELLOSIS IN SHEEP AND GOATS (LOW CONCENTRATION)

Composition per dose

Live attenuated *Brucella melitensis* strain REV-1 ..... 1 - 2 x 10^6 CFU*

*CFU: Colony forming units.

Indications

Active immunization against ovine and caprine brucellosis caused by *Brucella melitensis*.

Administration Route

Subcutaneous injection.

Dosage and administration

Administer 1 ml of the rehydrated vaccine to **sheep and goats over 6 months**.

Use during pregnancy

It is safe to use during pregnancy.

Shelf-life period

One year.

Withdrawal period

Zero days.

Storage and transport

Store and transport this product refrigerated (between 2°C and 8°C). Do not freeze. Do not freeze. Protect from light. Keep the product in its original packaging material.

Supply

Packs containing 10, 20 and 50 doses of the freeze-dried vaccine with its corresponding diluent.

Spanish Marketing Authorisation Number

2717 ESP

Lio Vac Rev-1 (Subcutaneous administration)

LIVE LYOPHILIZED VACCINE AGAINST BRUCELLOSIS IN SHEEP AND GOATS

Composition per dose

Live attenuated Brucella melitensis Rev-1 strain..... 1 - 2 × 10^9 CFU*

*CFU: Colony forming units.

Indications

Active immunization against ovine and caprine brucellosis caused by Brucella melitensis.

Dosage and administration

Administer, by subcutaneous route, a single dose of 1 ml of vaccine per animal, to ovines and caprines **from 3 to 6 months old**.

Asepsis should be extremely kept in every case.

Use during pregnancy

Do not use during pregnancy.

Shelf-life period

One year.

Withdrawal period

Zero days.

Storage and transport

Store and transport this product refrigerated (between 2°C and 8°C). Do not freeze. Protect from light. Keep the product in its original packaging material.

Supply

Packs containing 10, 20 and 50 doses of the freeze-dried vaccine with its corresponding diluent.

Spanish Marketing Authorisation Number

2716 ESP

Special precautions for the product administration

Any Brucella vaccine, due to the fact of being live attenuated vaccines, could cause brucellosis in humans. Consequently proper preventive measures, as indicated in the product insert, shall be implemented to avoid the contamination of the person who administers the vaccine.

This veterinary medicinal product should not be administered by pregnant women.

In case of accidental self-injection, seek medical advice immediately and show the package insert or label.

References

Brucella melitensis infection in sheep: present and future. Bruno Garin-Bastuji José-Maria Blasco Maggy Gcrayon Jean-Michel Vc. M.J. Corbel (World Health Organization in collaboration with the Food and Agriculture Organization).

Brucellosis in humans and animals. M.J. Corbel. (World Health Organization; Food and Agriculture Organization of the United Nations; World Organisation for Animal Health)

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