The first IBR vaccine in the world with a double deletion (gE-/tk-).

Produces no vaccine latency, no vaccine re-excretion and reduced risk of reversion to virulence by recombination.

Efficacious protection: significant reduction of clinical symptoms and reduction of viral excretion.

Centrally registered in all the countries of the European Union.
For suitable and well-founded disease eradication IBR (marker) vaccines must provide:

- Marked reduction of clinical signs and of viral excretion after infection.
- Control of vaccine latency: the vaccine virus must never infect neurons or the trigeminal ganglion nor become lodged in them to once again replicate when an animal’s immunity decreases.
- Zero viral re-excretion: the vaccine virus must not be re-excreted into the environment after vaccination.
- Minimum risk of recombination with IBR field virus and re-excretion into the environment of recombinant strains that have recovered virulence.

Eradication of IBR in Europe

- There are IBR eradication programmes in the majority of European countries (six are already free of disease).
- Eradication is carried out by specific use of marker vaccines that enable infected animals to be differentiated from vaccinated animals.
- The use of live vaccines for eradicating IBR is predominant.

HIPRABOVIS® IBR MARKER LIVE

is the only IBR vaccine with a double deletion

- The first vaccine in the world that incorporates a double deletion of the genome (gE-/tk-).
- The gE- deletion is essential for differentiating vaccinated from field infected animals.
- The double deletion gE-/tk- prevents vaccine latency and re-excretion of the vaccine virus into the environment, in addition to reducing the risk of reversion to virulence by recombination with a wild BoHV-1 strain.

HIPRABOVIS® IBR MARKER LIVE

is an EU-wide product.

- Has been centrally registered in all the countries of the European Union.
- Available for use in the eradication plans of the different territories.

(1) EMA/CVMP/764405/2010
The performance of a doubly deleted gE-/tk- vaccine demonstrates an effective control and eradication of IBR.

**Clinical trial 1:**
After administration of an overdose (10x) of [HIPRABOVIS® IBR MARKER LIVE](#) to 3-month-old calves, the gE-/tk- vaccine virus was not detected in target organs, bodily fluids or secretions, or nervous tissue (trigeminal ganglion) or in the reproductive tract.

**Results:**

- **Does not produce latency of the vaccine virus:** Not found in the trigeminal ganglion.
- **Is not spread to the environment (re-excretion):** Not found in bodily fluids or secretions.
- **Does not replicate in the reproductive tract**
  Virus is not found in testicles, seminal vesicles, prostate, ovaries, uterine or vaginal mucosa.

**Importance of gE-/tk- double deletion in recombination:**
The probability of recombination with a wild strain and reversion to virulence of a doubly deleted gE-/tk- IBR strain is 0.0009%.

**Classic deletion gE-**
- Serological marking which enables discrimination between vaccinated and field-infected animals. Attenuation of the native vaccine strain.

**New deletion tk-**
- Reduction of viral neurotropism and of latency as well as lower viral reactivation in infected animals. Attenuation of the native vaccine strain.

**Double deletion gE-/tk- (new on world market)**
The benefits of both deletions +
- Genetic stability against recombination of two viral strains (frequent in herpesvirus like IBRv).
- No latency, no re-excretion and genetic stability

**IBR virus genome**

(1) study of dissemination and study of latency, reactivation and re-excretion in calves vaccinated with a live attenuated IBR vaccine containing a double genetic deletion gE/tk- and treated with dexamethasone.


**References:**

HIPRABOVIS® IBR MARKER LIVE produces a significant reduction in clinical symptoms, rectal temperature and viral excretion.

**Clinical trial 2:** calves challenged by intranasal route **21 days after primary vaccination.**

HIPRABOVIS® IBR MARKER LIVE reduced the intensity of clinical symptoms by **72%** and viral excretion by **5 days.**

**Clinical trial 3:** virulent challenge **6 months after primary vaccination.**

HIPRABOVIS® IBR MARKER LIVE reduced the intensity of clinical symptoms by **48%** and viral excretion by **5 days.**

**Clinical trial 4:** calves challenged in the presence or absence of maternal antibodies (MA).

In the absence of maternal antibodies, HIPRABOVIS® IBR MARKER LIVE reduced the intensity of clinical symptoms by **53%** and viral excretion by **6 days.**

In the presence of maternal antibodies, the intensity of clinical symptoms was reduced by **56%** and viral excretion by **4 days.**

*Efficiency of an attenuated IBR live vaccine containing a double genetic deletion gE-/tk- in front of an experimental BoHV1 infection:
Efficacy of the basic vaccination plan, duration of immunity and efficacy in the presence of maternally derived antibodies.*