



Brucella Vaccine: A Novel, Safe and Effective DIVA Enabled Vaccine Candidate

TECHNOLOGY AVAILABLE FOR TRANSFER

UNMET NEED AND OPPORTUNITY

- Brucellosis is one of the most important zoonotic diseases on a worldwide scale. More than 500,000 new cases of Brucellosis are reported globally every year¹.
- The annual incidence is huge varying from <2 to 500/1,000,000 cattle in different geographical regions found suffering from Brucellosis.¹
- The sero-prevalence of this disease in India is about 2% as per a large scale study in India with 30,437 cattle and buffalo samples from 23 states.²
- Calf-hood vaccination using live attenuated *B. abortus* S19 strain is the gold standard being practiced in India for control of the disease. However, it has major side effects such as abortion, poor weight gain, decline in milk production and interference with sero-diagnosis of clinical infection.
- To overcome some of these drawbacks, a novel brucella vaccine has been developed with modified strains of *B. abortus* S19.

TECHNOLOGY

- Modified strain of *Brucella abortus* S19 has been developed through knock-out approach.
- Developed modified strain demonstrated enhanced safety and increased efficacy, better immunogenicity and DIVA capability for controlling bovine brucellosis.
- Developed modified strains have been validated on small experimental models and then on buffalo (a natural host of Brucellosis) with encouraging results.
- It produced no reactivity or weak reactivity to RBPT antigen in most of the animals, unlike S19 strain.

KEY FEATURES

- Single shot calf-hood vaccination for imparting life-long protection from Brucellosis
- Higher levels of IFN- γ , IgG2a
- DIVA enabled safe vaccine
- 10-fold reduced dose of immunization
- Immunized buffaloes show negligible level of anti- LPS antibody

LICENSING OPPORTUNITY

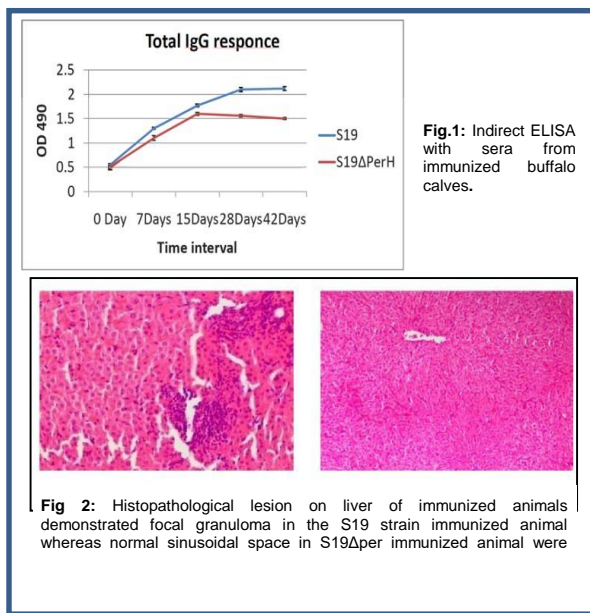
On behalf of BIRAC, Government of India, BCIL is looking for a suitable industrial partner for licensing out Brucella Vaccine

References

1. <https://www.businesstoday.in/current/economy-politics/cabinet-okays-rs-13343-cr-to-bear-full-cost-of-livestock-vaccination/story/352761.html>
2. <http://www.indimmune.com/index.php/business-divisions/animal-health/vaccines/ah-livestock-vaccines/>

STAGE OF DEVELOPMENT

- Technology has been validated on multiple animal models such as Rabbit, Swiss albino mice and Guinea pig.
- Technology validation successfully done on buffaloes which are natural host of Brucellosis.



INTELLECTUAL PROPERTY

Patent application filed in India in 2014

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