

# Contemporary Bovine Viral Diarrhea (BVD) Viruses for Improved Vaccines

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## Technology description

### Summary

An Iowa State University researcher has purified a set of contemporary bovine viral diarrhea virus isolates that may be useful as vaccine strains.

### Description

The bovine viral diarrhea virus (BVDV) causes disease in cattle and other ruminants. Diseased animals may show respiratory and reproductive symptoms ranging from mild to very severe, in some cases resulting in the death of the animal. The disease primarily affects young cattle and usually results in mucosal lesions that can be misdiagnosed because of their similarity to infections by other viruses. BVDV effects significant economic losses to producers globally, and persistently infected cattle may explain the magnitude of such losses since the persistently infected animals are disease reservoirs. Treatment is usually supportive therapy, while control is through management practices (e.g., good biosecurity), elimination of infected animals, and vaccination. While there are a number of BVDV vaccines available, vaccination programs do not provide complete herd protection, which is likely due to an incomplete correspondence between the contemporary antigenic determinants in the field compared to those used for vaccination. For example, most commercially available modified live vaccines do not appear to protect against BVDV-1b, a strain that emerged in the 1990s in persistently infected cattle. An ISU investigator has isolated contemporary BVDVs comprising various genotypes (e.g., type 1a, 1b or 2) and biotypes (cytopathic or non-cytopathic strains). Some of the ISU isolates came from diseased animals vaccinated with commercially available BVDV vaccines, further suggesting that current vaccines need to be updated. Consequently, these new isolates may be useful to develop improved vaccines. Other uses include diagnostics and as challenge strains for vaccine development.

## Application area

Animal health

## Advantages

More representative of currently circulating BVDV strains than strains used in current commercial

vaccines

Include various genotypes and biotypes

Have utility for vaccine development, diagnostics, or as challenge strains

## Institution

[Iowa State University](#)

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