6.2 Serum neutralisation test

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The serum neutralisation test (SNT) is accepted as the "gold standard" for BVD antibody detection. It is suitable for the detection and quantification of BVD-specific antibodies in serum. Depending on the test setup, it provides information on recent infections, infective status of a herd or the efficiency of a vaccination program (for a determination of the viral incidence in a herd only one serum sample is necessary, whereas an acute infection has to be tested with a paired serum sample 2-3 weeks apart, whereby a fourfold increase in the titre is considered to be significant).

In the SNT, a serum sample is diluted in steps and incubated each with the same quantity of virus. If there are enough antibodies in the serum the viruses are neutralized. In order to make the neutralization effect visible, susceptible cells are added to the samples. If neutralization is successful the cells remain intact, i.e. a cytopathic effect is not recognized or an immune staining remains negative. The SNT is sensitive and specific, compared to the ELISA, it has, however, disadvantages regarding labour and dependence on cell cultures. Serum neutralisation test

1. A specific amount of virus is added to progressively diluted serum probes.
2. Susceptible cells are added to the virus-antibody mixture.
3. The neutralisation effect is made visible (cytopathic effect or immunostaining).