



# The Sanum Preparation Sanukehl Brucel Its Action Principle *Brucella melitensis* in Therapy

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The gram-negative pleomorphic bacillus *Brucella melitensis* belongs to a genus of pathogens responsible for mostly chronic infectious diseases in man and animals. So-called "brucellosis" has three main variants:

## 1. Malte Fever

Pathogen: *Brucella melitensis*

Vectors: sheep, goats

## 2. Bang's Disease

Pathogen: *Brucella abortus*

Vector: cattle

## 3. Brucella suis

Pathogen: *Brucella suis*

Vector: pigs, hares, reindeer

Host specificity is not strict; almost all domestic and wild animals, guinea pigs and even birds can become infected with Brucellosis. Ultimately, all *Brucella* species are human and animal pathogens-which has led to a situation in bacterial nomenclature where only the species *Brucella melitensis* is listed, under which all the others are subsumed. Since *Brucella* species are bound to their host animals, they are considered obligate parasites under natural conditions. As an animal disease, they mainly induce abortions; the danger to humans comes from the pathogen's excretions in infected animals, which gets into their milk, feces, urine and sexual organ secretions. Humans become infected mainly through working around and with the host animals, e.g. assisting in

abortions, slaughtering and meat processing (even if the worker has the slightest of skin lesions). Another channel of transmission is via the digestive tract through the consumption of raw milk or milk products. Interestingly, Brucellosis also represents the most frequently caught infectious disease in laboratories that deal with microorganisms.

In humans, it leads-after local lymphogenic spreading of the pathogen-to a generalized infection in the bacteriemic stage. The distinguishing feature of Brucellosis is a moderately high fever that recurs repeatedly over months and years (undulating fever). In its most severe form, a typhous clinical picture with long-term high fever can even be fatal. Other characteristics include organ manifestations due to granuloma and abscesses in the spleen and liver, as well as endocarditis, joint affections, etc. This manifold disease picture of chronic Brucellosis, which is not easy to recognize in its nonspecific subfebrile form, also encompasses neurological and psychological symptoms.

Growing *Brucella* in vitro is typically intracellular in granulocytes and monocytes, and can also occur strongly pleomorphic in a cell-wall-free form - one reason for the long persistence of the pathogen after the symptoms have faded. In this form, the

germs also escape the effects of antibiotic therapy and thus become foci for new fever attacks and organ manifestations.

As a gram-negative bacterium, *Brucella melitensis* has a very complexly structured lipopolysaccharide cell wall. Serological investigations have isolated three defined polysaccharides from *Brucella melitensis*:

1. The so-called "native hapten"
2. Polysaccharide B
3. Cell-wall lipopolysaccharide

Bound up with the lipopolysaccharide structure are the classic antigens A and M described for *Brucella*, which have been identified as polysaccharide side-chains. Lipopolysaccharide from *Brucella* has been put into use for active immunization, in which the production of protective anti-bodies is induced-and yet no thymus dependent immunological memory is generated, which would be necessary for any long-term defense against *Brucella*.

Polysaccharide B is a serologically inactive low-molecular-weight (ca. 5000 D) polysaccharide, a cyclic glucane such as also occurs in the bacterial species *Rhizobium* and *Agrobacterium*. It reacts neither with cattle serum nor with that of inoculated cows. It represents a classical hapten, which originates in the soluble cytoplasm of the bacterium.



The "native hapten" reacts with the serum of infected cattle, yet not with that of cattle who have been inoculated with weakened living germs of *Brucella melitensis*. It has been shown that it is identical with a side-chain of the cell-wall polysaccharide of *Brucella* with a smooth colony form, and consists of an unusual pentasaccharide polymer. It is well suited in identifying infected animals in herds, by using the radial immune diffusion test, in which antibodies in animal blood lead to precipitation of the *Brucella* hapten.

The preparation Sanukehl Brucel contains all the named polysaccharides, so that this agent has an immunizing effect, as well as the classical antigen and anti-

body binding effect of the haptens which qualify it as an intermediate agent for nosode therapy. Julian lists the following as positive diagnostic for the *Brucella melitensis* nosode:

1. Feverish condition with heavy perspiration during physical exertion and at night
2. Muscle and joint pains, primarily in the lower limbs
3. Anorexia, emaciation
4. Headaches, irritability, nervousness
5. Emotional lability, sleeplessness
6. Fainting spells, dizziness
7. Constipation: hard, dry stool
8. Herpes

Improvement: warmth, especially in sun.

Worsening: long periods of exertion, warm room, sea breeze, dampness, storms

**Clinical diagnostic picture:**

1. Malta fever, especially in the chronic stage
2. Myalgia
3. Subacute rheumatoid arthritis
4. Orchitis and Epididymitis
5. Neurasthenia

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