HOKKAIDO UNIVERSITY

| | |
|---|---|
| Title | PREFERENTIAL MULTIPLICATION OF BABESIA GIBSONI IN RETICULOCYTES IN VITRO |
| Author(s) | IWAI, Masami |
| Citation | Japanese Journal of Veterinary Research, 41(1), 20-20 |
| Issue Date | 1993-05-27 |
| Doc URL | https://hdl.handle.net/2115/2412 |
| Type | departmental bulletin paper |
| File Information | KJ00002377625.pdf |

Hokkaido University Collection of Scholarly and Academic Papers : HUSCAP

# PREFERENTIAL MULTIPLICATION OF *BABESIA GIBSONI* IN RETICULOCYTES *IN VITRO*

Masami IWAI

*Department of Veterinary Internal Medicine,*
*Faculty of Veterinary Medicine,*
*Hokkaido University, Sapporo 060, Japan*

In order to clarify the effect of age of host erythrocytes on the multiplication of *Babesia gibsoni*, parasitized erythrocytes were mixed with either reticulocytes (culture A), or mature erythrocytes (culture B) from dogs made anemic by phlebotomy, and incubated at 37℃ for 9–14 days at hematocrit (Ht) values of 3% and 10%. At the onset of culture, reticulocyte counts were 66.0–98.8% in culture A and 0% in culture B, and the percentage of parasitized erythrocytes was 0.3% in both cultures.

The results were as follows: (1) In culture A with an Ht value of 3%, the percentage of parasitized cells linearly increased associated with the increase of hemoglobin in the medium, reached 28.8% at day 7 and then gradually decreased. A large number of poikilocytes, e. g. fragmented red cells and microspherocytes, were observed on days 7–14. When reticulocytes were suspended in the medium at an Ht value of 10%, the percentage of parasitized cells was not increased, and a severe hemolysis was observed during incubation even in control culture. (2) In culture B, the highest percentage of parasitized cells was only 2.5% on day 5. Neither hemolysis nor poikilocytes were observed during incubation. (3) The concentration of cellular ATP increased to 1.6-fold that of the initial value when the percentage of parasitized cells reached 25.9% in culture A, followed by a decrease with a simultaneous decrease in the parasitized cells.

These results clearly demonstrated that *B. gibsoni* preferentially multiplied in reticulocytes rather than mature erythrocytes, and that host cells were strongly damaged by the multiplication of the parasites.