dominant disorder.

These data suggested that the functional abnormality of cutaneous tissues of P1 was due to an abnormal gene of core protein that induced amino acid substitution.

Studies on the cause of increased multiplication of *Babesia gibsoni* in reticulocytes

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It has been reported that *Babesia gibsoni* shows greater multiplication when it is cultured together with canine reticulocytes, immature red blood cells (RBCs), as compared with erythrocytes, mature RBCs. The purpose of this study was to clarify the factors which enhance the multiplication of *B. gibsoni* in canine reticulocytes *in vitro*. First, *B. gibsoni* parasites were cultured together with the following four different kinds of resealed RBCs, resealed mature RBCs (M[M]RBCs), resealed reticulocytes (R[R]RBCs), resealed mature RBCs containing reticulocyte hemolysate (M[R]RBCs), and resealed reticulocytes containing mature RBC hemolysate (R[M]RBCs). As a result, a significant ($p<0.05$) increase of the parasites was observed in the culture with either R[R]RBCs or M[R]RBCs, compared to the culture with M[M]RBCs. These results suggested that the factor which enhances the multiplication of the parasites cultured in reticulocytes was present within the hemolysate of reticulocytes.

Second, the hemolysate of reticulocytes was filtrated using a 0.45 μm pore filter, or centrifuged at 20,000×g for 20 minutes. Resealed reticulocytes containing the filtrate (R[FR]RBCs) or the supernatant of the centrifuged hemolysate (R[CR]RBCs) were prepared. Resealed mature RBCs containing sediments of the hemolysate were also prepared (M[PR]RBCs). When the parasites were cultured together with R[FR]RBCs or R[CR]RBCs, multiplication of parasites was significantly ($p<0.05$) lower compared to the culture with R[R]RBCs and similar to that with M[M]RBCs. Furthermore, the multiplication of the parasites cultured with the M[PR]RBCs was significantly ($p<0.05$) increased compared to that with M[M]RBCs, and reached the same level as that with R[R] RBCs. Electron microscopic observation revealed that M[PR]RBCs have many vacuoles, containing small granules, and a few mitochondria.

These results indicate that an intracellular organelle, such as mitochondria, may be an important factor which enhances the multiplication of *B. gibsoni* in canine reticulocytes.