Borrelia hermsii と Borrelia miyamotoi の
主要抗原蛋白遺伝子の相異性解析

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Homology of Variable Major Protein Genes between Borrelia
hermsii and Borrelia miyamotoi

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ABSTRACT  Antigenic variation has been studied in detail for the etiological agent
of relapsing fever, Borrelia hermsii. The variable major proteins (vmps) are found at
its cell surface, enabling it to avoid the host's immune response. We have cloned
and sequenced the vmp-gene (vmp)-like sequences from the Borrelia miyamotoi
strains HT31 and FR64b and the deduced amino acid sequences were compared with
the published vmp proteins vmp3, vmp24, and vmp33 of B. hermsii. The sequences
were aligned and revealed pairwise sequence identities ranging from 45 to 51%, and
differences were scattered throughout the sequences. Southern hybridization using
the cloned vmp-like sequence of strain HT31 as a probe suggested that the vmp
homologues reside on the linear plasmids of B. miyamotoi. The probe hybridized
weakly with B. hermsii linear plasmids and restriction digests. These results suggest
that B. miyamotoi has sequences resembling the vmp genes in B. hermsii.

抄録 回帰熱ポリリアの主要抗原蛋白（vmps）は宿主の免疫応答を回避するための
抗原変異の主体をなすものである。そこで、回帰熱ポリリア様の性状を有する新種ポ
リリア Borrelia miyamotoi の抗原変異システムを検討するため vmp 様遺伝子の解析を行っ
た。その結果、B. miyamotoi は Borrelia hermsii の vmp に類似した遺伝子を複数
有しており、その遺伝子は直鎖状のプラスミド上に位置していることが明らかになっ
た。