

回帰熱ボレリア菌体表層蛋白の一次アミノ酸配列 C 末端の 有意な抗原性

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Immunodominant epitope in the C-terminus of a variable major protein in *Borrelia duttonii*, an agent of tick-borne relapsing fever.

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ABSTRACT : *Borrelia duttonii* strain Ly was isolated from a child with tick-borne relapsing fever in Tanzania. *B. duttonii* produces variable major proteins (Vmps), which undergo antigenic variation. We previously reported transcription of the vmpP gene, which is one of the Vmp genes in strain Ly, detected in vitro cultivation. In the current study, we purified the recombinant non-lipidated VmpP protein by affinity chromatography and produced VmpP polyclonal antibodies. Antigenicity of VmpP was examined by Western immunoblot analysis and peptide-based enzyme-linked immunosorbent assays. Antigenic epitopes were shown to comprise five regions interspersed within the VmpP primary amino acid sequence. Synthetic peptides spanning residues of three of five regions, 232-237 (LASIVD), 280-285 (AGGIAL), and 350-355 (KAADQQ), reacted strongly with the VmpP-specific antibody and these residues were identified as epitopes. In particular, the C-terminal domain (KAADQQ) of this protein was immunoreactive. Further research based on our results will promote the development of a recombinant vaccine for *B. duttonii* infection.

抄録 回帰熱患者から単離した *Borrelia duttonii* Ly 株は菌体表層蛋白 Vmps を発現し抗原変異を行う。そこで *B. duttonii* Ly 株が発現する菌体表層蛋白の一つ VmpP に対する多クローン抗体を作成し、抗原性についてウェスタンブロット解析および合成ペプチドを用いた ELISA 法により抗原性の解析を行った。その結果、VmpP 一次アミノ酸配列中 5 カ所に強い抗原性が認められ、特にカルボキシ末端 KAADQQ 配列に強い抗原性が認められた。この結果は抗原変異に関わる蛋白質の C 末端ペプチドが、この菌による感染症のワクチン開発に役立つかもしれないことを示唆している。

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