中央タンザニアに生息するダニからの鞭毛遺伝子に基づいた nested PCRによるダニ媒介性回帰熱病原体 *Borrelia duttonii*の検出

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Detection of *Borrelia duttonii*, a tick-borne relapsing fever agent in central Tanzania, within tick by flagellin gene-based nested polymerase chain reaction

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ABSTRUCT: Argasid ticks collected in the site near Mvumi Hospital, Dodoma, Tanzania, were subjected to flagellin gene - based nested polymerase chain reaction (PCR) amplification for examination of borrelial infection. Eight of 13 ticks gave a strong 350 - bp signal; three had a weak signal at the same size, and the rest were negative. Sequense determination of eight of the positive sample resulted in three types of flagellin gene sequences. The first type of sequence (shown by three individuals) was identical to that *Borrelia duttonii* strain Ly. The second type of sequence from PCR products from four individual ticks had only one base substitution without amino acid alteration in deduced protein sequence. The third type of sequence was different from that of any other Old World relapsing fever borrreliae, and the tick was thought to be infected with an unknown Borrelia species. Ticks were also examined to determine the nucleotide sequence of the mitochondrial 16S rDNA gene. The partial sequence of ~ 470 bases was aligned for comparison with previously published sequences to identify the species. The sequences of 13 individual ticks were all identical, and the sequence similarity analysis revealed the ticks should be classified as members of the *Ornithodoros porcinus* species. The PCR method described in this report appears to be a reliable tool for the detection of borreliae and epidemiological study of tick - borne relapsing fever.

抄録 タンザニアのドドマ、ブミ病院近郊で採捕したヒメダニのボレリア感染有無について鞭毛遺伝子に基づいた nested PCR を行った。ダニ13匹中８匹に、350塩基の強いシグナルが、３匹に弱いシグナルがあり、残りのダニサンプルからは何も増幅されなかった。得られた PCR 産物８匹分の鞭毛遺伝子塩基配列解析結果から、３タイプのボレリア

があった。このうち3匹のダニにみられた第1のタイプは、*Borrelia duttonii* Ly株と同一であった。また4匹のダニにみられた2つ目のタイプは、1塩基のみの塩基置換があるもののアミノ酸には影響はなかった。さらに3つ目のタイプは、旧世界回帰熱ボレリアのいずれとも異なったものであった。ダニのミトコンドリア16 SrDNA の塩基配列解析から、13匹のダニはすべて同一で、系統解析結果から *Ornithodoros porcinus* 種に分類された。

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