

指 導 教 授 氏 名	指 導 役 割
大原 直也 印	指導全般
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学 位 論 文 要 旨

岡山大学大学院医歯薬学総合研究科

専攻分野口腔微生物学分野	身分 大学院生	氏名 SHAHRIAR ABU SALEH MUHAMMAD
論 文 題 名 The role of PGN_0296 in <i>Porphyromonas gingivalis</i> . (<i>Porphyromonas gingivalis</i> におけるPGN_0296遺伝子の役割の探求)		
論文内容の要旨 (2000字程度) <p> Periodontal disease is a chronic inflammatory disease that causes the destruction of periodontal tissues and alveolar bone, is one of major infectious diseases in oral cavity. <i>Porphyromonas gingivalis</i> (<i>Pg</i>), known as one of major pathogens on periodontal diseases. It possesses Type IX secretion system (T9SS). The C-terminal domain (CTD) proteins including gingipains are secreted via T9SS. We previously reported that Omp17, which is an Skp-like protein (also known as OmpH), encoded by PGN_0300 gene, is involved in the function of T9SS to transport CTD-proteins, and the deficiency of PGN_0300 gene shows loss of the protease activity of gingipains in this mutant. Moreover, according to a tiling microarray analysis, it is likely that the genes from PGN_296 gene to PGN_301 gene form an operon on <i>Pg</i> genome. PGN_0296 gene is the first gene on the operon and its characteristics and functions have not been clarified. In this study, we attempted to delete the PGN_0296 gene on the <i>Pg</i> genome to clarify the role of PGN_0296. First, we constructed the suicide plasmid for deletion of the PGN_0296 gene to replace the PGN_0296 gene with the <i>ermF</i> gene. After linearization of this plasmid by restriction enzymes, we performed the transformation by electroporation, and then the PGN_0296-deficient strain (ΔPGN_296) was generated. Next, we transformed PGN_0296 gene into <i>Pg</i> genome to establish the complementary strain of PGN_0296 (CPGN_0296). Direct PCR and reverse transcription-PCR indicated the location of PGN_0296 gene and its expression in <i>Pg</i> wild type (WT) and CPGN_0296, but ΔPGN_296 certainly lose the gene and its expression. We found the black pigmented colonies for all the strains and further we investigated the role of all the strains gingipain and found no significant change. Which is suggesting that the PGN_0296 neither linked with hemoglobin protein nor with activities of gingipain. These results are also suggesting that the PGN_0296 has not any involvement in T9SS as well. </p>		