

● *Bacteroides intermedius*의 세 혈청형이 생체조직에 미치는 영향에 관한 연구

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*Bacteroides intermedius*의 혈청형 A(ATCC 25611), 혈청형 B(NCTC 9336) 및 혈청형 C(G8-9K-3)의 생체조직에 미치는 영향에 관한 차이를 연구하기 위하여 백서를 이용한 실험 결과 다음과 같은 결론을 얻었다.

1. 0.1ml(5×10^{10} microorganisma/ml)에서 최대 염증반응을 나타냈다.
2. 3일 이후에는 급성 염증세포가 소실되었다.
3. *Bacteroides intermedius* serotype A(ATCC 25611)은 mild한 염증, *Bacteroides intermedius* serotype B(NCTC 9336)은 diffuse moderate 염증반응을, *Bacteroides intermedius* serotype C(G8-9K-3)은 localized severe 염증반응을 나타냈다.

● *Bacteroides gingivalis*의 세포추출물이 섬유아세포의 성장에 미치는 영향

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본 연구에서는 *Bacteroides gingivalis*의 세포 추출물이 섬유아세포의 성장에 미치는 영향을 알아보고 섬유아세포의 성장 억제효과가 내독소에 의한 것인지 알아보기 위하여 *Bacteroides gingivalis*, *Bacteroides fragilis*, *E.coli*, *Streptococcus sanguis*의 세포 추출물 및 내독소가 뒤 섬유아세포(L929)와 치은섬유아세포에 미치는 영향을 비교 관찰하였으며, *Bacteroides gingivalis*의 세포 추출물에 의한 치은섬유아세포의 성장 억제효과와 가역성 및 열에 대한 반응을 관찰하였다. 또한 *Bacteroides gingivalis*의 세포 추출물로 처리한 치은섬유아세포의 형태적 변화를 관찰하여 다음과 같은 결론을 얻었다.

1. *Bacteroides gingivalis*, *Bacteroides fragilis*, *E.coli* 및 *Streptococcus sanguis*의 세포 추출물은 농도에 비례해서 치은섬유아세포의 성장을 억제하는 것으로 나타났다.
치은섬유아세포에 대한 각 균주의 세포 추출물 및 내독소의 ID_{50} 값은 *Bacteroides gingivalis* 84.8, *Bacteroides fragilis* 381.1, *E.coli* 287.4, *Streptococcus sanguis* 696.7, 내독소 925.0이상으로 *Bacteroides gingivalis*의 세포 추출물에 의한 성장 억제효과가 가장 높았다. 각 세균의 세포 추출물 및 내독소에 의한 섬유아세포 성장 억제효과는 변형된 세포인 쥐 섬유아세포(L929)에서도 유사한 결과를 보였다.
2. *Bacteroides gingivalis*의 세포 추출물(126.5 μ g of protein/ml)로 처리한 치은섬유아세포는 시간이 경과함에 따라 형태적 변화를 일으켜 24시간이 경과함에 따라 형태적 변화를 일으켜 24시간에서 방추형의 세포 형태를 잃기 시작하였으며 48시간, 72시간, 96시간에는 방추형의 세포가 둥근 형태로 변형되어 세포배양기가 바닥에서 분리되는 양상을 보였다.
Bacteroides fragilis, *E.coli*, *Streptococcus sanguis*의 세포 추출물로 처리된 치은섬유아세포에서도 유사한 형태적 변화를 일으켰으나 더 높은 농도의 세포 추출물이 필요하였다.
3. *Bacteroides gingivalis*의 세포 추출물(126.5 μ g of protein/ml)의 치은섬유아세포의 성장 억제효과는 열(80 $^{\circ}$ C)에 불안정 하였다.

spectrophotometer. A site about 7cm lateral from the midline on the dorsal surface of female ICR mice were depilated, and 0.05ml, 0.01ml, and 0.15ml of bacterial suspension(5×10^{10} microorganisms/ml) was injected subcutaneously into the site.

They were examined daily for clinical status, and was sacrificed at 2 days after injection and lesions were biopsied and fixed in 10% formalin. The histological sections were stained with hematoxylin and eosin(H & E).

The mouse injected 0.10ml(5×10^{10} microorganisms/ml) showed a local abscess without death. Clinically, non-specific features were seen after 3 and 4 days after injection. Histologically, *Bacteroides intermedius* serotype A(ATCC 25611) showed mild inflammatory reaction, and *Bacteroides intermedius* serotype B(NCTC 9336) showed diffuse moderate inflammatory reaction, and *Bacteroides intermedius* serotype C(G8-9K-3) showed localized severe inflammatory reaction.

This study suggested that 3 serotypes of *Bacteroides intermedius* should have a different in vivo effect.

Further study is needed to the relation between serotype and clinical symptoms, and specific antigens among 3 serotypes of *Bacteroides intermedius*.

Effect on growth of fibroblasts by sonic extract from *Bacteroides gingivalis*

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Periodontal disease is a chronic inflammatory disease that lead to the destruction of the supporting tissue of tooth of collagen is a major feature of disease process. Although *Bacteroides gingivalis* in now believed to be associated with the pathogenesis of this disease, it is not clear how *Bacteroides gingivalis* contribute to the development of periodontal disease.

In this study, the followings were studied to elucidate whether the sonic extract of *Bacteroides gingivalis* inhibits the growth of fibroblasts and, such an inhibitor is present, whether this inhibitory effect is due to endotoxin : i) growth inhibitory effects of murine fibroblasts(L929) and human gingival fibroblasts by sonic extracts of *Bacteroides gingivalis*, *Bacteroides fragilis*, *E.coli*, *Streptococcus sanguis* and endotoxin, ii) reversibility of inhibitory effect on human gingival fibroblasts by sonic extract of *Bacteroides gingivalis*, iii) effect of temperature on inhibitory effect on human gingival fibroblasts by sonic extract of *Bacteroides gingivalis*, iv) morphological change of human gingival fibroblasts treated with sonic extract of *Bacteroides gingivalis*

The results obtained in this study were as follows :

1. Sonic extracts of *Bacteroides gingivalis*, *Bacteroides fragilis*, *E.coli* and *Streptococcus sanguis* inhibited the growth of human gingival fibroblasts depend on its concentration.

ID_{50} values of sonic extracts were 84.8, 381.4, 696.7 > 925.0 for *Bacteroides gingivalis*, *Bacteroides fragilis*, *E.coli*, *Streptococcus sanguis* and endotoxin. The most potent Inhibitory effect on human gingival fibroblasts was shown by sonic extract of *Bacteroides gingivalis*. Similar results were shown on murine fibroblasts(L929).

2. Human gingival fibroblasts were treated with sonic extract of *Bacteroides gingivalis*(126.5µg of protein/ml) started to change its cell morphology of spindle shape at 24 hr and as the cell incubated further more under above condition, cells were detached from the bottom of culture flask with its morphological change.
3. Growth inhibitory effect of sonic extract of *Bacteroides gingivalis*(126.5µg of protein/ml) on human gingival fibroblasts was reversible.
4. Growth inhibitory effect of sonic extract of *Bacteroides gingivalis*(126.5µg of protein/ml) on human gingival fibroblasts was unstable after heat treatment at 80°C for 30 min.

Above results suggest that sonic extract of *Bacteroides gingivalis* inhibits strongly the growth of human gingival fibroblasts and murine fibroblasts(L929) and substances which inhibit the growth were not endotoxin but heat labile substances.

The antimicrobial and clinical effects of a single subgingival irrigation of chlorhexidine and tetracycline solution in periodontal pocket

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The purpose of this study was to assess the antimicrobial effects and clinical effects of a single episode of subgingival chlorhexidine and tetracycline irrigation on the pathogenic flora in periodontal pockets and to evaluate the lasting period of this effects.

Change in the pattern of colonization within the subgingival pockets were monitored by differential dark-field microscopy, in 20 patients, over a period of 6 weeks. In addition, changes in the clinical parameters of the diseased sites were also monitored. 4-sites of pockets ≤ 3 mm were selected in each patient and divided into 3 group (group I : $3 \leq$ pocket depth < 4.5 mm, group II : $4.5 \text{mm} \leq$ pocket depth < 6 mm, group III : $6 \text{mm} \leq$ pocket depth).

These were randomly irrigated with a single dose of either 0.1% chlorhexidine (group CH), 250mg tetracycline/25cc saline (group TC), physiologic saline (group SA), while 1 site were left as control (group CT).

The results as follows :

1. A reduction in the proportion of motile bacteria and an increase in the proportion of cocci were observed with a single episode of subgingival irrigation. The motile bacteria decreased 75–85% in group I, II and 50–60% in group III.
2. The suppression of motile bacteria with a single subgingival irrigation was maintained for up to 3–4 weeks at group I, to 2–3 weeks at group II, to 1–2 weeks at group III before values started to climb back to levels before irrigation.
3. The three irrigated group did not differ significantly in proportion of bacteria in the subgingival plaque after subgingival irrigation.
4. The bleeding index showed a significant difference in group CH, TC, SA of group I, II compared with group CT ($P < 0.01$), but there was no significant difference in group III.