<table>
<thead>
<tr>
<th><strong>Title</strong></th>
<th>The relationship between the acid and alkaline phosphatase activity and the adherence of Candida parapsilosis to human buccal epithelial cells</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Author(s)</strong></td>
<td>Samaranayake, LP; Fernando, PHP; Panagoda, GJ</td>
</tr>
<tr>
<td><strong>Citation</strong></td>
<td>The 47th Annual Meeting of the Japanese Association for Dental Research, Kobe, Japan, 27-28 November 1999. In Journal of Dental Research, 2000, v. 79 n. 5, p. 1254, abstract no. 155</td>
</tr>
<tr>
<td><strong>Issued Date</strong></td>
<td>2000</td>
</tr>
<tr>
<td><strong>URL</strong></td>
<td><a href="http://hdl.handle.net/10722/53927">http://hdl.handle.net/10722/53927</a></td>
</tr>
<tr>
<td><strong>Rights</strong></td>
<td>This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.</td>
</tr>
</tbody>
</table>
Expression of the Cell-Surface Heparan Sulfate Proteoglycan mRNA in Monkey Submandibular Gland.
Y. YAMAGATA, A. KAMADA and T. SAKAKI

Cell-surface heparan sulfate proteoglycans belong primarily to two families of molecules, syndecans and glypicans, that differ significantly in core protein domain structure. They have been shown to participate in both matrix recognition and growth factor binding and therefore may participate in cell regulation. The microarray analysis of cell-surface heparan sulfate proteoglycans in adult female monkey (Macaca fascicularis) submandibular glands using the RT-PCR technique. Agarose gel electrophoresis of the PCR products using the mRNA generation from RNA was carried out to demonstrate the expression of mRNA in syndecan-1, syndecan-2, and glypican in this study. In order to compare the mRNA expression level among the cell-surface heparan sulfate proteoglycans, we measured changes in the relative intensity of PCR products with increasing thermal cycle number. The results demonstrated that the expression levels were syndecan-4, syndecan-1 and syndecan-2, glypican in descending order. Hence, it was indicated that the control of the expression patterns of the cell-surface proteoglycans may regulate the cellular function and behavior in the submandibular gland. This study was supported in part by the Grant-in-aid for Scientific Research (No. 10771550) from the Ministry of Education, Science and Culture of Japan.

VAMP-containing Complex at Secretory Granules in Parotid Acinar Cells.
J. YOSHIGAKI*, Y. DOIKE, M. HARA-YOKOYAMA, S. FURUYA, H. SUGIYAMA (Department of Dental Physiology, Nihon Univ. Sch. of Dentistry at Matsudo, Chiba, Japan).

VAMP release from parotid acinar cells is mainly regulated by accumulation of intracellular cAMP. We previously reported that VAMP-1, one of the SNAP receptors which are SNAP receptors specific to parotid acinar cells and has an essential role in cAMP-regulated amylase secretion. We also found that VAMP-2 associates with some unidentified protein(s) at secretory granules in the resting state. In the present study, we investigated whether the VAMP-2-containing complex in parotid acinar cells and VAMP-2 is a product of the SNAP-25 gene.

The relationship between the acid and alkaline phosphatase activity and the adherence of Candida parapsilosis to human buccal epithelial cells.
L. P. SAMARANAYAKE, P. H. P. FERNANDO & G. J. F. ANANDOGODA

Candida parapsilosis is an emerging fungal pathogen implicated in many diseases, especially in compromised individuals. C. parapsilosis adherence and invasion on the oral mucosa and gingival tissue over host surfaces, which in turn depends upon the host cell and the yeast cell wall components and the related biochemical mechanisms. Therefore we examined the potential pathogenic traits of 24 C. parapsilosis isolates, from buccal epithelial cells, for adherence and invasion. In this study, we evaluated the in vitro intracellular phosphatase activity of human parotid saliva to detect the yeast adhesion to human buccal epithelial cells (S. communis) and the quantification of the adhesion to human parotid epithelial cells (p < 0.001). Further, the acid phosphatase activity of the superficial isolates was significantly greater (152%) than the isolates (p < 0.0352). A highly significant positive correlation was also established between the yeast adhesion to buccal epithelial cells and both the acid (r = 0.88, p < 0.001) and alkaline (r = 0.89, p < 0.001) phosphatase activities. The relationship described, for the first time, imply that the acid and alkaline phosphatases of Candida species may play a substantive role in potentiating their virulence.

Supported by the CRGC of the University of Hong Kong and the RGC grants.

Clinical Assessment for Joint Effusion of the TMJ
K. KOBAYASHI (*) (Department of Oral Radiology, Tsurumi University School of Dental Medicine, Yokohama, Japan)

The purpose of this presentation was to find out a possible correlation between the MR image of the temporomandibular joint (TMJ) suffering from joint effusion and the existing symptomatic joint pain and internal derangement. In 1992, Westesson and Brooks suggested that the joint effusion was closely associated with joint pain. However, joint effusion is considered to correlate other some factors, too. For example, TMJ’s with clinical symptoms of the TMJ disorders, sagittal and coronal T2* and T2 relaxation times were examined to be different from those of normal subjects. After a three week period of intermittent oral occlusion of healthy rats, both specimens demonstrated variable oral occlusion (bilateral and unilateral). Of C. albicans, neither J Med Microbiol 1982; 15: 511-517 (Significant differences were seen in both). We also showed that the acid phosphatase activity of the superficial isolates was significantly greater (152%) than the isolates (p < 0.0352). A highly significant positive correlation was also established between the yeast adhesion to buccal epithelial cells and both the acid (r = 0.88, p < 0.001) and alkaline (r = 0.89, p < 0.001) phosphatase activities. The relationship described, for the first time, imply that the acid and alkaline phosphatases of Candida species may play a substantive role in potentiating their virulence.

Supported by the CRGC of the University of Hong Kong (grant nos. 8065/00E and 8065/00F).

Analysis of proinflammatory mediators in synovial fluids of the TMJ.
T. TAKAHASHI* (Division of Dentistry and Oral Surgery, Aki University School of Medicine, Aki, Japan)

Various inflammatory mediators including arachidonic acid metabolites, cytokines, glucose-regulated protein components, proteases, growth factors, and free radicals are found in SF from patients with TMD. In this study, we investigated how these mediators are involved in the pathology of synovitis and cartilage degeneration in TMJ. We measured the mRNA expression of IL-1β and IL-6 in the synovial fluids of patients with TMD. The results demonstrated that the mRNA expression of IL-1β was higher in TMD patients with severe synovitis and cartilage degeneration. Furthermore, significantly higher levels of IL-1β were seen in the patients with TMD. In addition, the levels of NO were higher in painful joints than in non-painful joints. In summary, we suggest that inflammatory mediators are involved in the progression of synovitis and cartilage degeneration in TMD.

Assay of catalase metabolism in synovial fluid of TMJ.
Kenji KAKUDO* (Second Department of Oral and Maxillofacial Surgery, Osaka Dental University, Osaka, Japan)

To clarify the mechanisms of cartilage degradation in temporomandibular joint (TMJ), we investigated the mRNA expression of hyaluronic acid (HA) and its activity of its degradation enzyme, N-acetyl-D-glycosaminidase (NAG) in the synovial fluid (SF) collected from patients with internal derangement of TMJ (ID group) or osteoarthritis of TMJ (OA group) detected by MRI and X-ray examination and normal subjects using by indirect aspiration technique. The joint effusion was diagnosed by MRI and matrix metalloproteinase (MMPs) levels were expressed by ELISA and its activities were determined by enzyme inhibition by Western blot analysis in SF samples obtained by aspiration technique (Shibata, T. et al. 1995). The synovial fluid of HA differed among the three groups. The mean level of HA was significantly higher in the OA group than in the ID group and the control group (p<0.05 by Tukey's test). The activity of NAG was lowest in the OA group than in the ID group and the control group. In conclusion, the assay of catalase metabolism in SF of TMJ was useful for diagnosis of TMD.