In vivo and in vitro binding of ^{3}H-estradiol to eosinophils in various rat and mouse tissues. Y. Sugiura and V. Mizuhira*. Dept. Biol. Sci., Hoechst Japan Ltd., Kawagoe 350, Japan.
* Dept. Cell Biol., Tokyo Med. Dent. Univ.

Cyclic eosinophilia correlated with estrus is observed in the rat and mouse uteri. Our previous autoradiographic studies have demonstrated the accumulation of developed silver grains on the specific granules of uterine eosinophils after incubation with ^{3}H-estradiol (E2). Eosinophils are normally distributed in many places, such as the intestinal submucosa, spleen, blood, and bone marrow, which are not associated with the ovarian cycle. The present work was undertaken to study the affinity of E2 for eosinophils in various tissues by in vivo and in vitro autoradiography (ARG). When fresh frozen sections were incubated in ^{3}H-E2, E2 was bound to the eosinophils in spleen, small intestine, blood, and bone marrow. However, in vivo ARG using the fresh thaw-mount technique showed that eosinophils were bound to ^{3}H-E2 in the uterus but not in other tissues. Furthermore, migration of eosinophils into the atrophied uterus of ovariectomized rats was induced by direct injection of E2 into the uterine wall. These results suggest that all eosinophils may have a strong affinity for E2, and that they are directly induced into the uterus by estrogen. Specific granules containing potent peroxidase enzymatic activity seem to destroy the excess amount of E2 in the uterus at estrus. Under in vivo conditions, other tissues, non-target organs, retained no E2 and their eosinophils were not bound to ^{3}H-E2.

Immunocytochemical observation of secretory IgA (sIgA) components in the human minor salivary glands. Yasunori Sumi, Hiroshi Nagura, Toshio Kaneda, Tohru Oka; Department of Oral Surgery, School of Medicine, Nagoya University

To define the mechanism involved in the transport of sIgA into the saliva from the minor salivary glands, the localization of IgA, SC and J chain was investigated in the human lip and palatine minor salivary glands with the peroxidase-labeled antibody technique.

Immunoelectron microscopy demonstrated SC in association with perinuclear spaces, rough endoplasmic reticulum, saccules associated with Golgi complexes, cytoplasmic vesicles and secretory granules of mucous acinar cells and ductal epithelial cells. SC was found also on the lateral and basal plasma membranes and endocytic-appearing invaginations of the membranes of these cells. IgA and J chain were identified on the plasma membranes and in the cytoplasmic vesicles of these cells where SC is located, but were not found associated with the secretory granules.

These findings provide the following evidence. 1) The sites of SC synthesis in the lip and palatine glands are mucous acinar cells. 2) Free SC is secreted into the saliva through secretory granules in the mucous acinar cells, and it is also thought that it is secreted through cytoplasmic vesicles within these cells. 3) Dimeric IgA containing J chain (dimeric IgA) is translocated through these epithelial cells as sIgA by a SC-mediated transport mechanism involving cytoplasmic vesicles.

DNA and RNA Synthesis in Mouse Submandibular Gland Treated with Testostrone. S. SUMITOMO, S. KUMASA, and M. MORI. Dept. Oral Surg. Asahi Univ. School of Dent., Gifu, Japan

Granular conboluted tubule (GCT) cells have large amount of biological active polypeptides (EGF and NGF). Testostrone (TP) administration to female mice makes to develop GCT cells as found in the male. DNA and RNA synthesis in submandibular gland (SMG) were studied in TP treated female mice. Single administration of 100mg/kg TP and serial administration of 20mg/kg/day TP for 5 days was done in the female mice. Frash and cumulative labeling (every 6h) techniques of ^{3}H-thymidine and ^{3}H-Uridine were used. Immunohistochemical EGF staining was combined with autoradigraphy.

In normal SMG, there are very few cells labeled with ^{3}H-thymidine and RNA synthesis is more frequent in acinar cells than in GCT cells. Peak of synthesis of DNA and RNA were obtained in the 2nd and 3rd day after single administration of TP respectively. At this time, ^{3}H-thymidine labeled GCT cells showed slight to negative EGF staining while unlabeled GCT cells showed strong EGF staining and RNA synthesis is more abundant in GCT cells than in acinar cells. In TP serial administion, 7.5%, 12.2%, and 28.8% of GCT cells in SMG were labeled by single, 3, and 5 times ^{3}H-thymidine injection respectively.

The present result suggest that effect of TP treatment occures in GCT cells and GCT cells in S-phase may reduced the concentration of EGF. In GCT cells of TP treated female mice, a term of S-phase is about 12 hours.

Quantitative Analysis and Immunohistochemical Study for EGF in Mice Submandibular Glands Treated with Antitumor Agent. S. SUMITOMO and M. MORI. Dept. Oral Surg. Asahi Univ. School of Dent., Gifu, Japan

EGF is synthesized in granuler convoluted tubule(GCT) of mice submandibular gland (SMG) and is increased by testosterone(TP) administration. Mice were treated with antitumor agents; actinomycin D(Ac) and chromomycin A3(Ch) and with TP. RIA and immunohistochemical studies of EGF were done in 6 groups, and the volume of EGF positive cells were measured in female mice SMG by morphometry

1. nontreatment
2. Ac (150μg/kg/day X 5days)
3. Ch (400μg/kg/day X 5days)
4. TP (20mg/kg/day X 5days)
5. TP+Ac (same doses X 5days, use together)
6. TP+Ch

Significant decrease of EGF was given in groups 2 and 3 (female mice), and meaningful increase was obtained in group 4 as compared to group 1. There were no significant differences between groups 1 and 5, 6. Immunohistochemical detectable EGF was confined to GCT cells. In groups 1 and 5, EGF positive GCT cells occupied about 10% in total SMG volume. In the group 4, well developed GCT cells show strong reaction for EGF and EGF positive cells occupied about 44%. On the contrary in the groups 2 and 3, EGF positive cells decreased into a few. The results suggest that anti-tumor agent, which inhibit RNA synthesis, restrict EGF synthesis and inhibit testosteron effect to GCT cells.