IMMUNOHISTOCHEMICAL LOCALIZATION OF TGFα AND EPIDERMAL GROWTH FACTOR RECEPTOR IN HUMAN STOMACH.


ATM: This study examines localization of TGFα and EGFR, two high crystal growth factor receptors (EGFR), in the human gastric mucosa by immunohistochemistry in search for the role of TGFα in gastric mucus proliferation and regeneration. METHODS: Eleven patients with gastric ulcers and 10 volunteers with normal endoscopic appearance were enrolled in the study. During endoscopic examination, two biopsy specimens for each were taken from the gastric body, the gastric antrum, and the regenerating mucosa adjacent to the ulcers and were served for immunohistochemistry for TGFα, EGFR, and proliferating cell nuclear antigen (PCNA). RESULTS: In both the oxyntic mucosa and the antral mucosa, cells expressing PCNA were exclusively located in the neck of the gland and were less frequently localized to the base of the gland. A part of parietal cells also expressed PCNA; however, surface mucous epithelial cells and chief cells rarely expressed it. A strong co-expression of TGFα and EGFR was demonstrated in the neck and the base of the gastric gland. Observations made in serially sectioned specimens suggest that PCNA-positive cells in the neck of the gland (i.e. stem cells) co-express strongly TGFα and EGFR. Parietal cells and chief cells at the base of the gland express TGFα and EGFR whereas chief cells do not. In the regenerating mucosa adjacent to the ulcer, PCNA-positive cells were localized to the basal portion of the gland and co-expressed TGFα and EGFR. CONCLUSION: The results of this study suggest that TGFα might be involved in the regulation of gastric mucosal proliferation and mucosal regeneration during gastric ulcer healing.


Trichostongylus colubriformis (TC), a nematode observed essentially in ruminants, provokes hyperplasia of intestinal crypts in vivo, especially at the site of worm implantation and in nearby intestinal regions of the intestine (Exp Parasitol 1988; 67: 39-46). These findings suggest that TC might secrete an intestinal epithelial growth factor.

Aims: This in vitro study was designed to determine the effect of the conditioned medium from TC on intestinal epithelial cells HT29-D4.

Methods: The nematodes were incubated for 24 h in DMEM and the supernatant was collected. The cells were incubated with various TC-conditioned medium concentrations for 72 h; the medium was changed every day.

Results: Our results revealed: (1) none of the TC-conditioned medium concentrations (0.05 to 15 μg protein/ml) were cytotoxic, as measured by release of LDH; (2) cell proliferation increased as measured by (3) thymidine incorporation (+25% for 0.5 μg/ml, p < 0.005); the MTT method (+15% to +30% for concentrations of 0.2 to 1 μg/ml, p < 0.005); and cell counts (+12% to +20% for these same concentrations); (3) the activity of this factor persists after dialysis and disappears after heat treatment, acid hydrolysis, and TCA precipitation; (4) SDS-PAGE of TC-conditioned medium showed 7 major proteins.

Conclusion: TC secretes a protein factor that induces in vitro proliferation of intestinal epithelial cells. Purification of this factor is in progress.