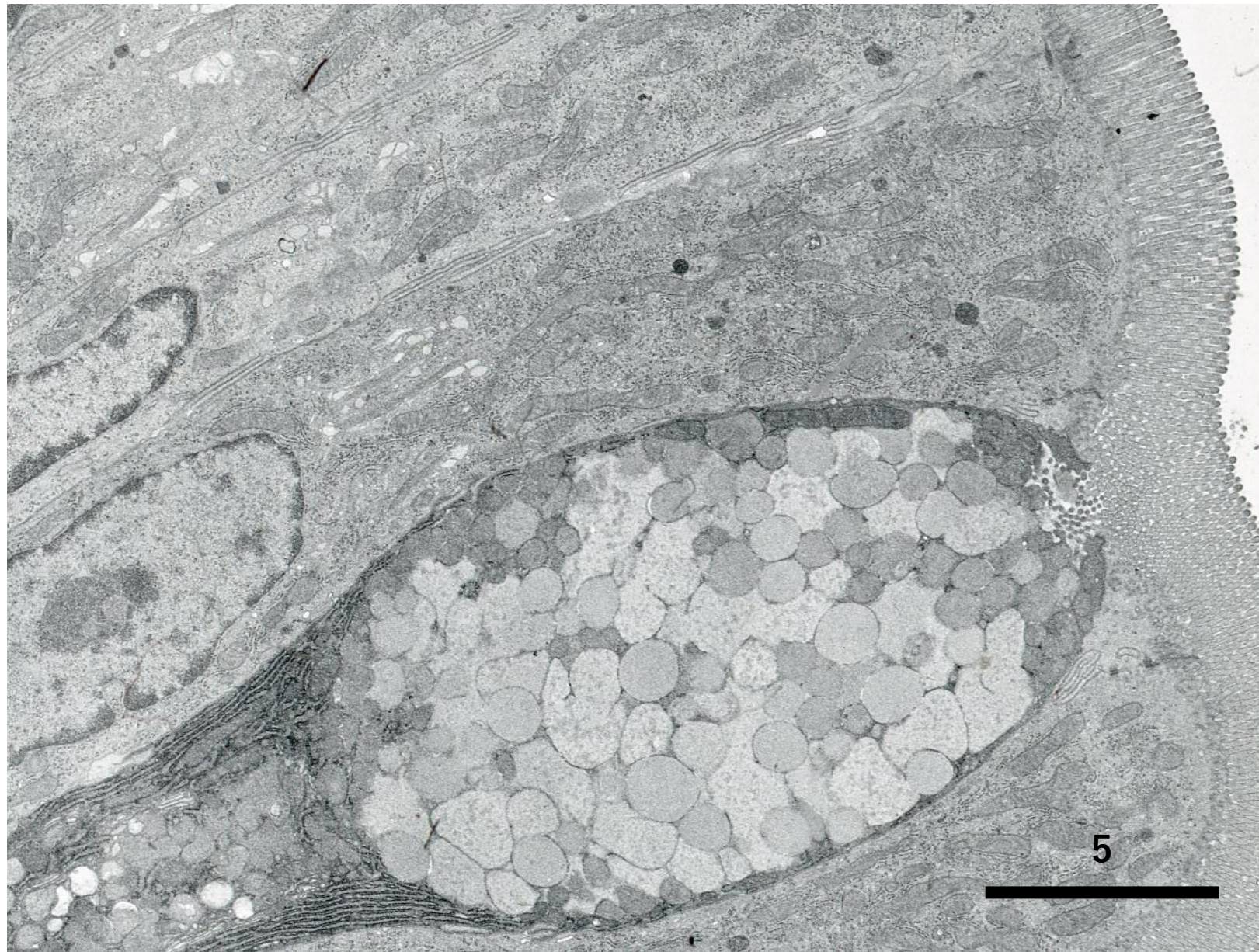


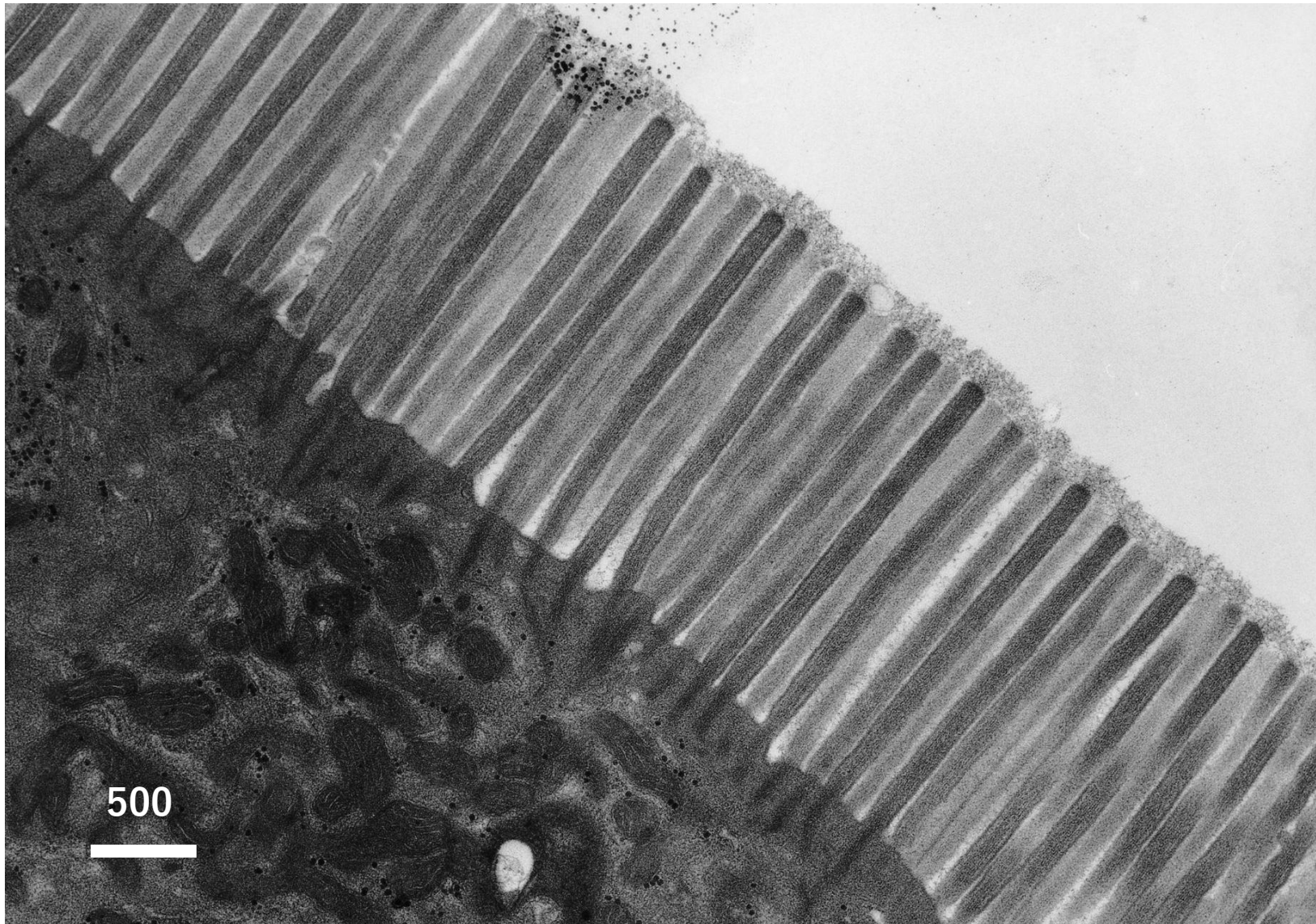
Ultrastructure of the normal intestinal mucosal cells

Ultrastructural morphology of the normal components of the small and large intestine is demonstrated. These include absorptive cells, goblet cells, Paneth cells, endocrine cells, capillary vessels, plasma cells, macrophages, eosinophils, basophils, mast cells and smooth muscle cells.

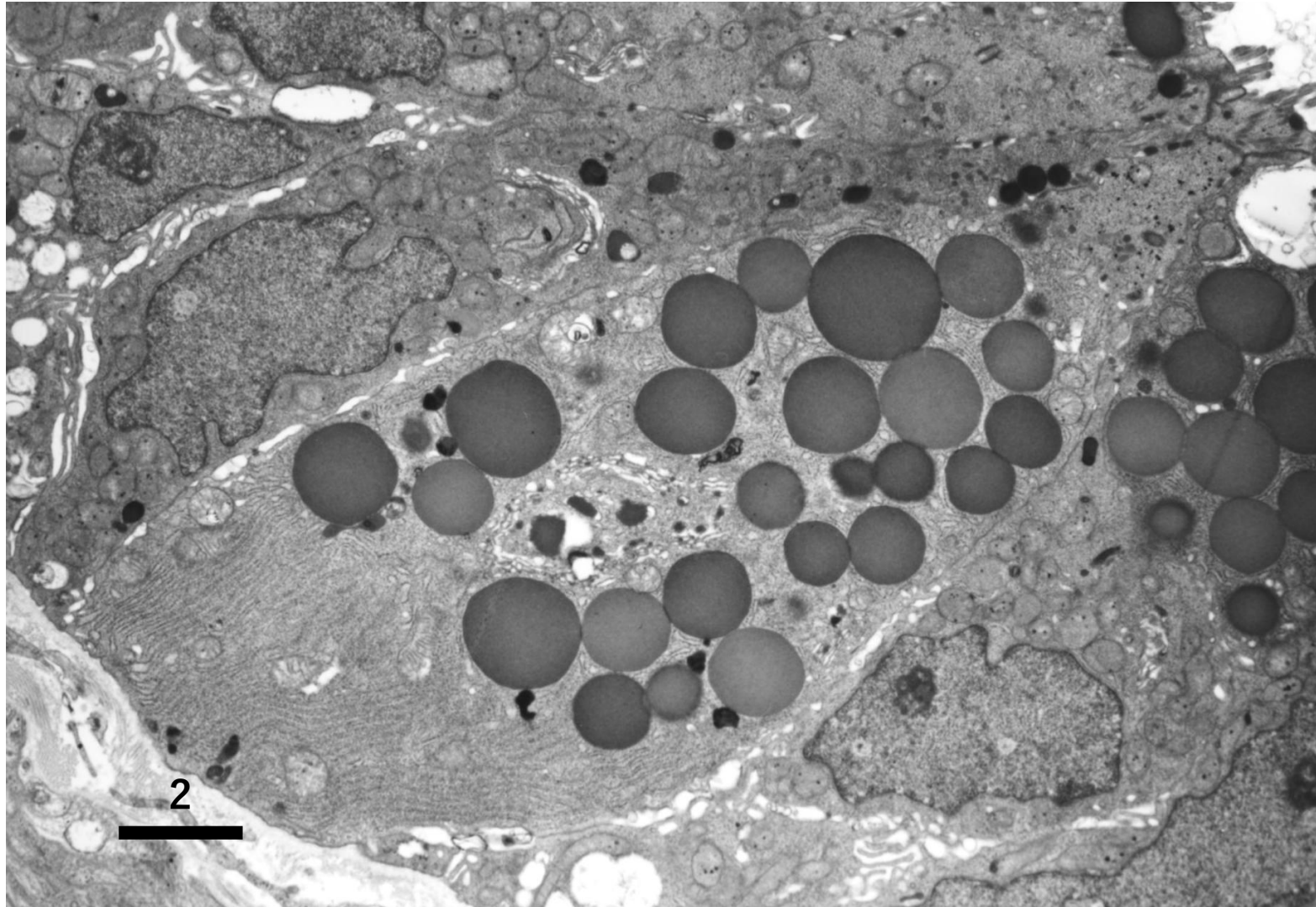
Ref.: Shiner M. Ultrastructure of the Small Intestinal Mucosa. Normal and Disease-Related Appearances. 1983. Springer Link. <https://link.springer.com/book/10.1007/978-1-4471-1338-6>



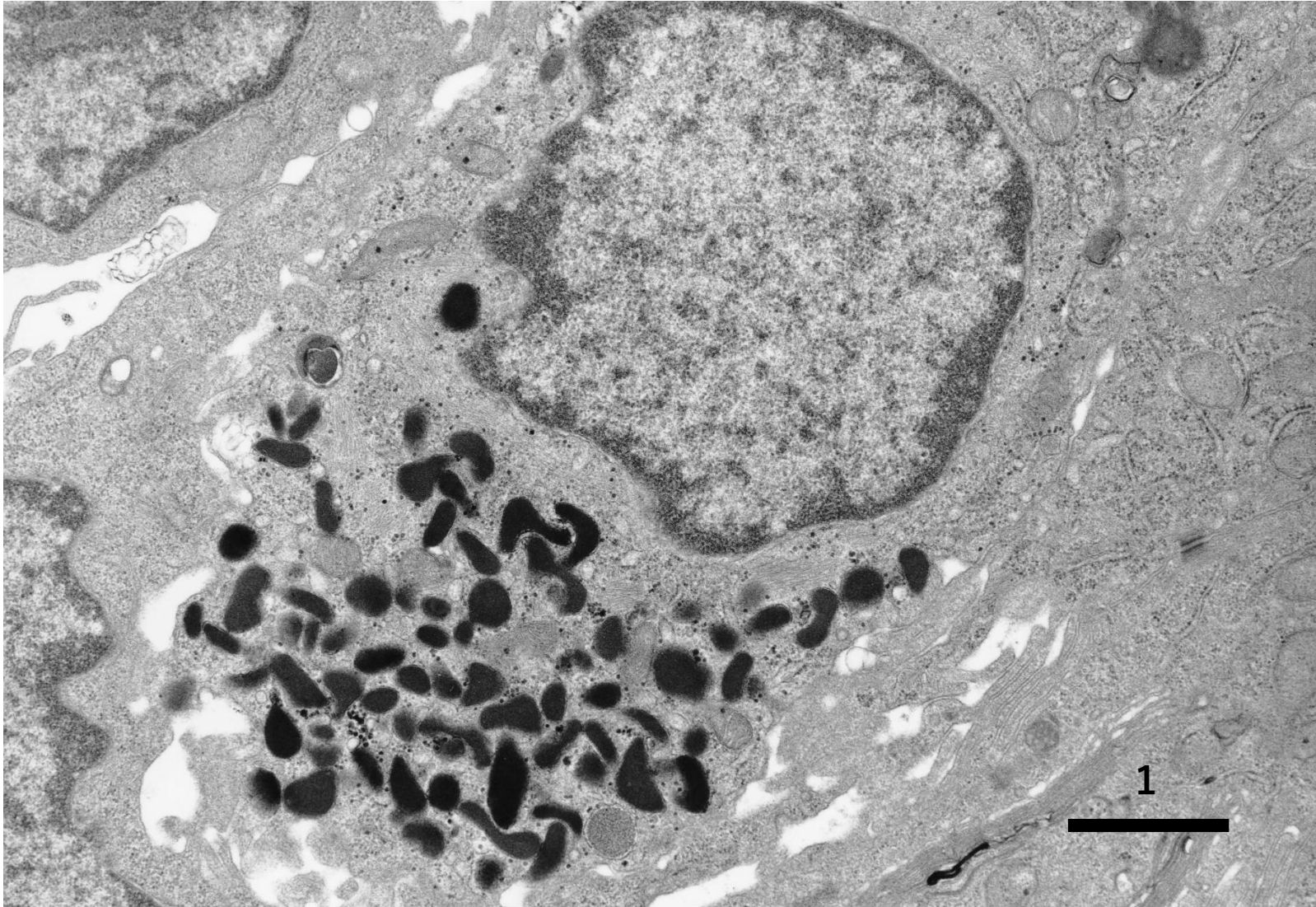
Ultrastructure of small intestinal epithelial cells. Microvillous columnar cells and a goblet cell are shown. Goblet cell mucous granules show low to moderate electron density. EM-1



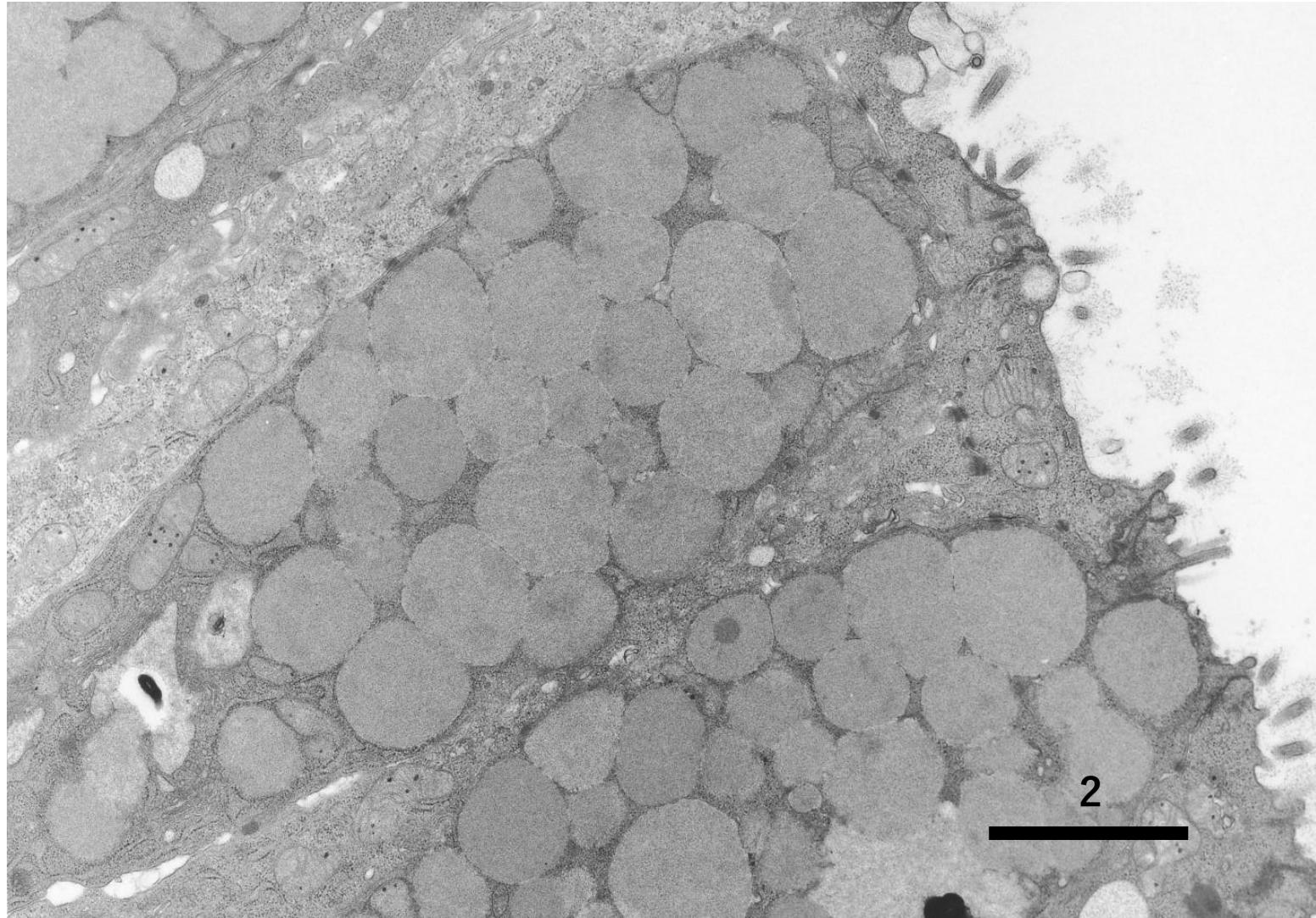
Ultrastructure of small intestinal epithelial cells. Surface Microvilli are rich in actin filaments. A thin glycocalyx layer is seen on the microvilli. EM-2



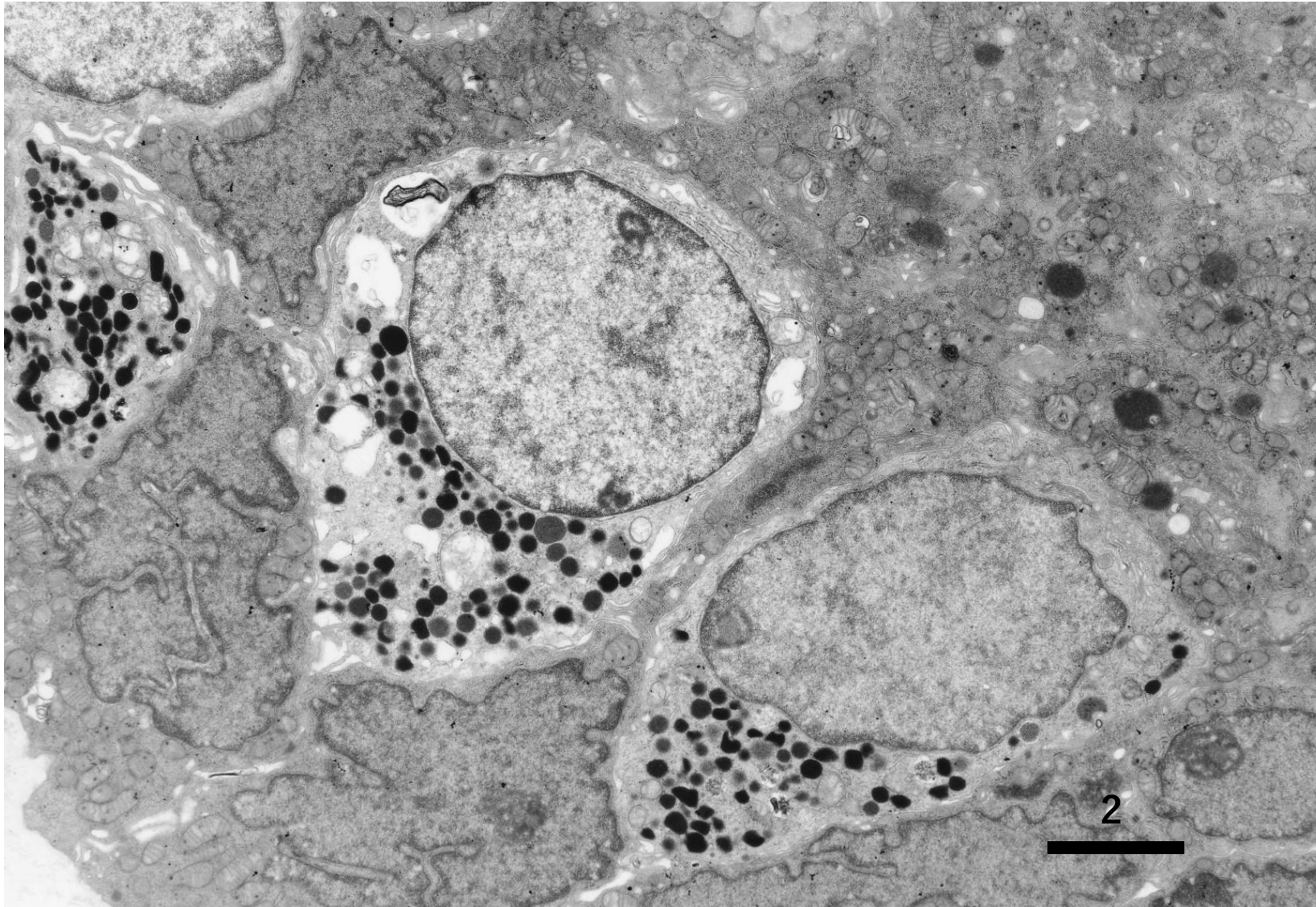
Ultrastructure of the small intestinal crypt. Paneth cells contain large electron-dense exocrine granules. Rough endoplasmic reticula are moderately developed. An endocrine cell is located just adjacent to the Paneth cell. EM-3



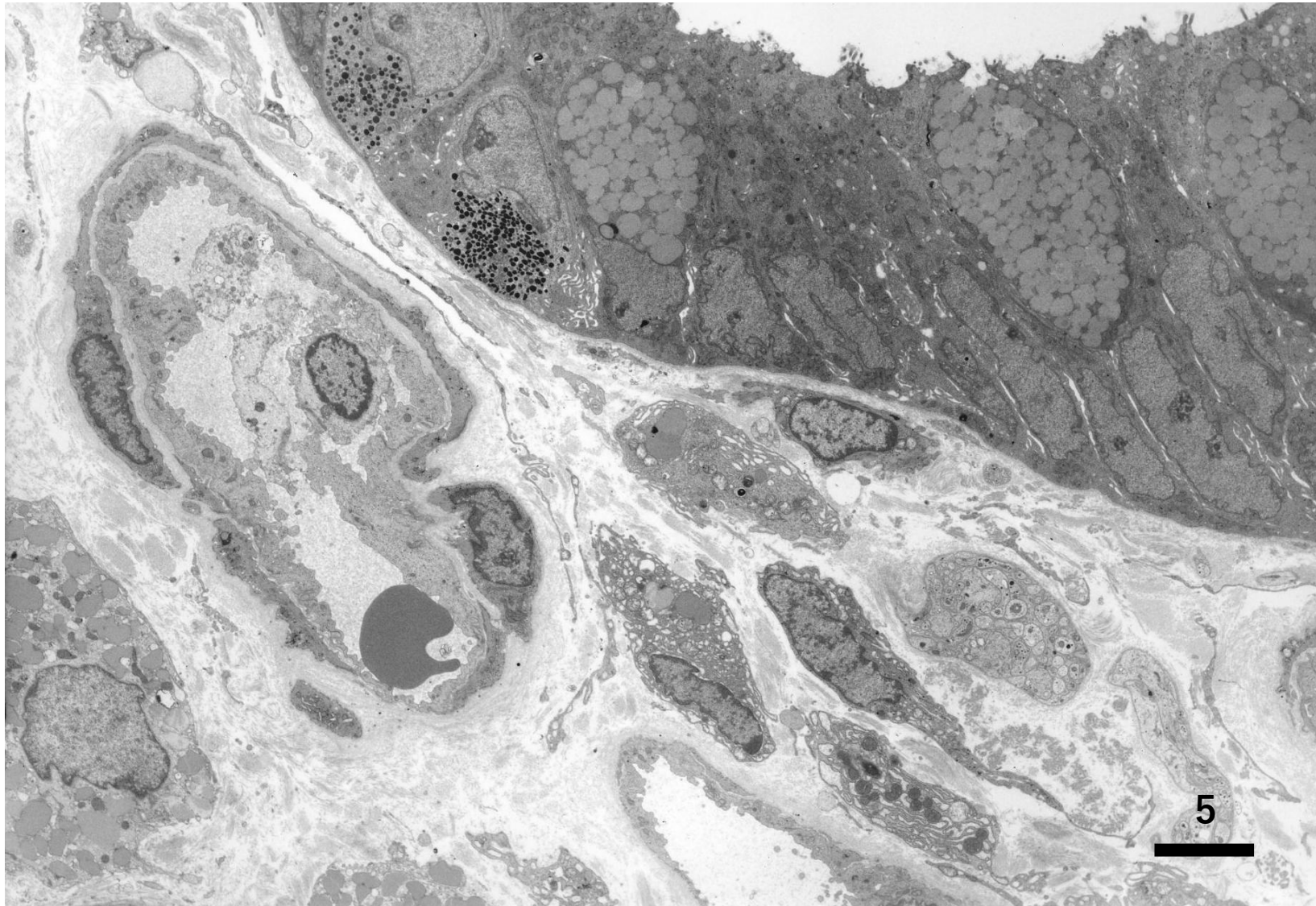
Ultrastructure of the small intestinal crypt. Endocrine cell contains small and irregular-shaped electron-dense neuroendocrine granules. This represents serotonin-secreting enterochromaffin cell. EM-4



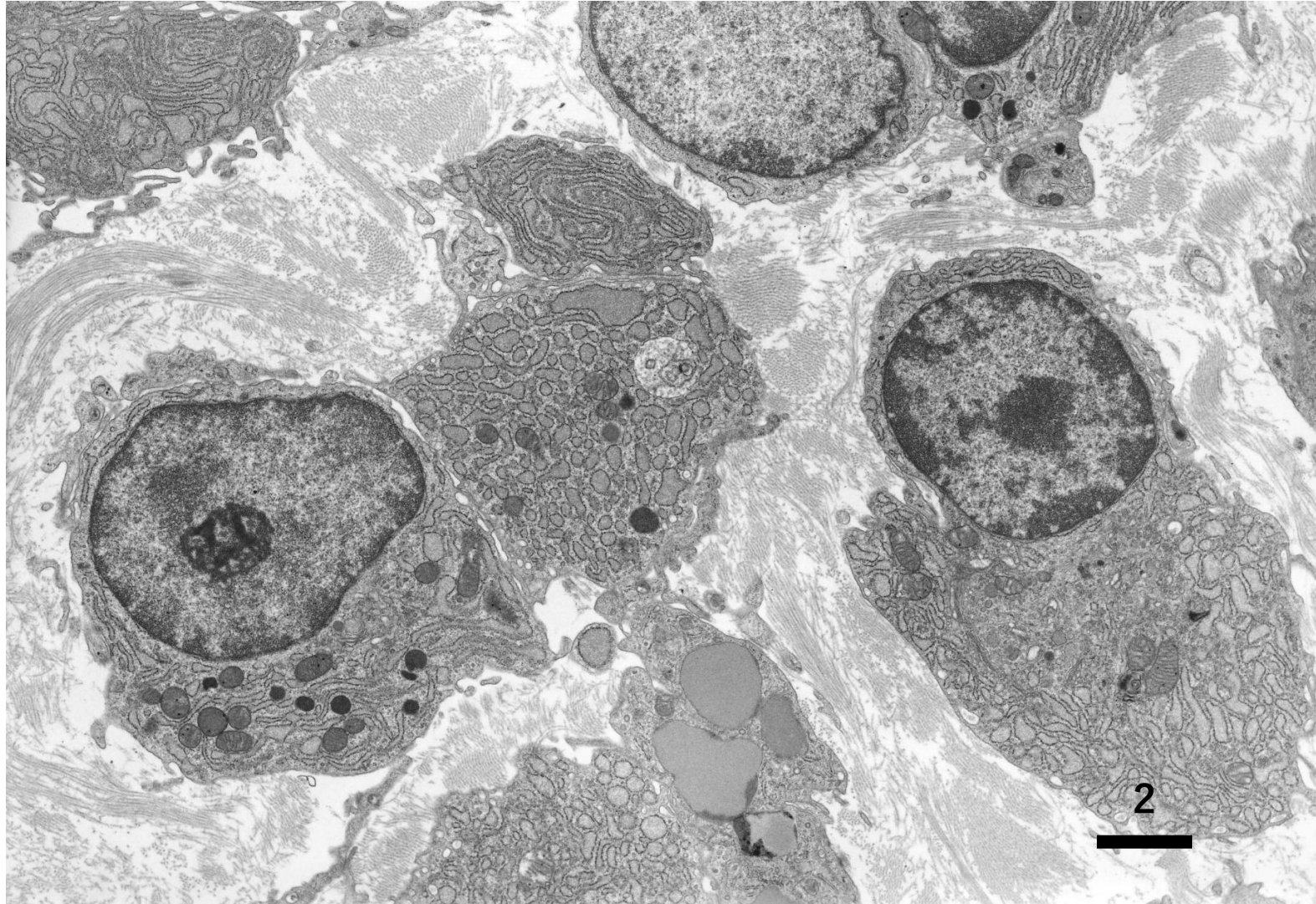
Ultrastructure of large intestinal epithelial cells. Microvilli on the apical surface are poorly developed. Compare with the small intestinal villous epithelial (EM-1). Goblet cells are richly distributed. EM-5



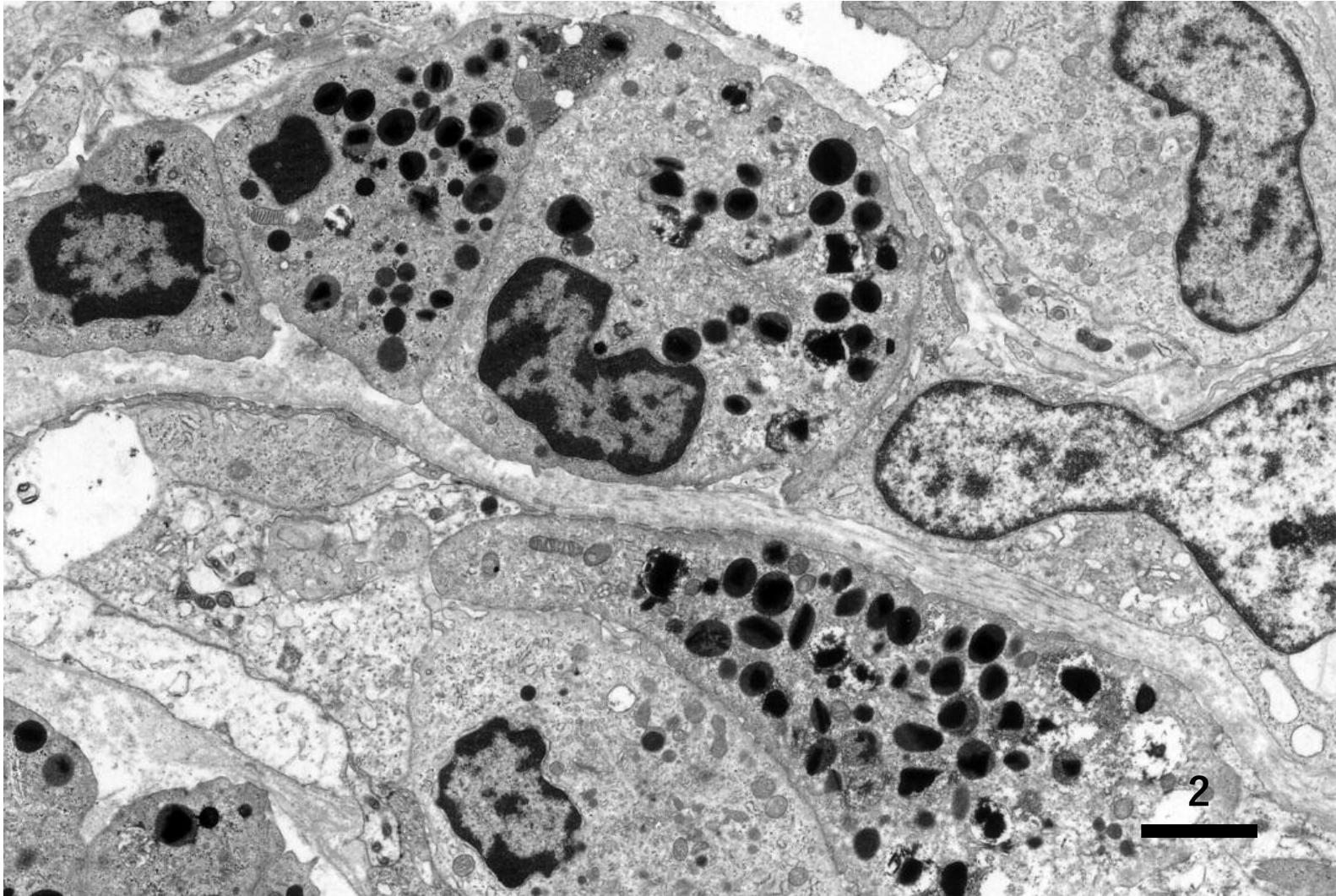
Ultrastructure of the large intestinal crypt. Endocrine cells contain small and monomorphic electron-dense neuroendocrine granules mainly beneath the nucleus. EM-6



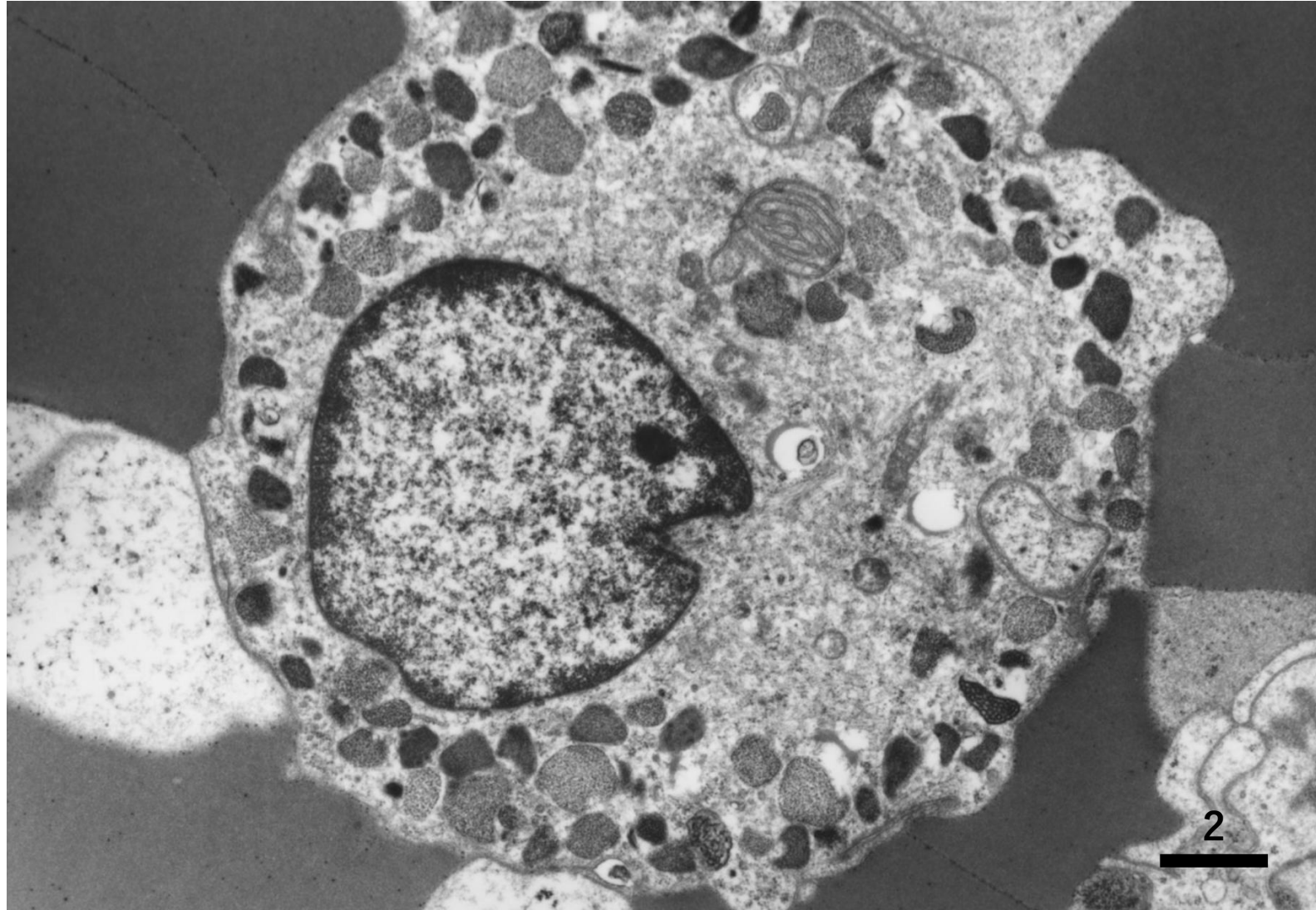
Ultrastructure of the large intestinal mucosa. In the lamina propria mucosae, capillary vessels lined by endothelial and perithelial cells are richly distributed. Macrophages are seen particularly in the superficial part of the lamina propria mucosae. The surface epithelial layer consists of microvilli-poor absorptive epithelial cells, goblet cells and endocrine cells. EM-7



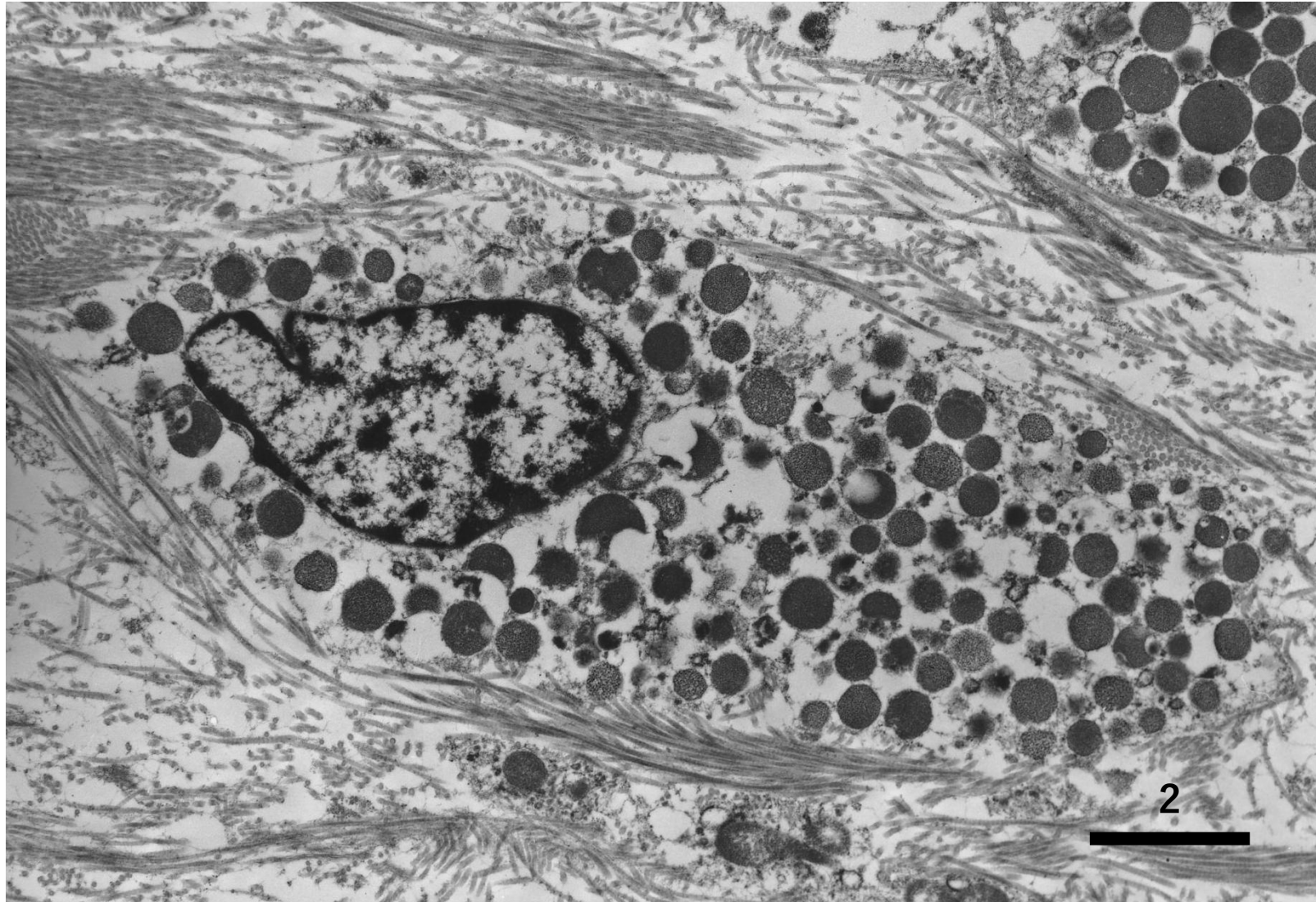
Ultrastructure of the large intestinal mucosa. In the lamina propria mucosae, mature plasma cells and small lymphocytes are observed. The plasma cells possess an eccentric nucleus and well-developed rough endoplasmic reticula. EM-8



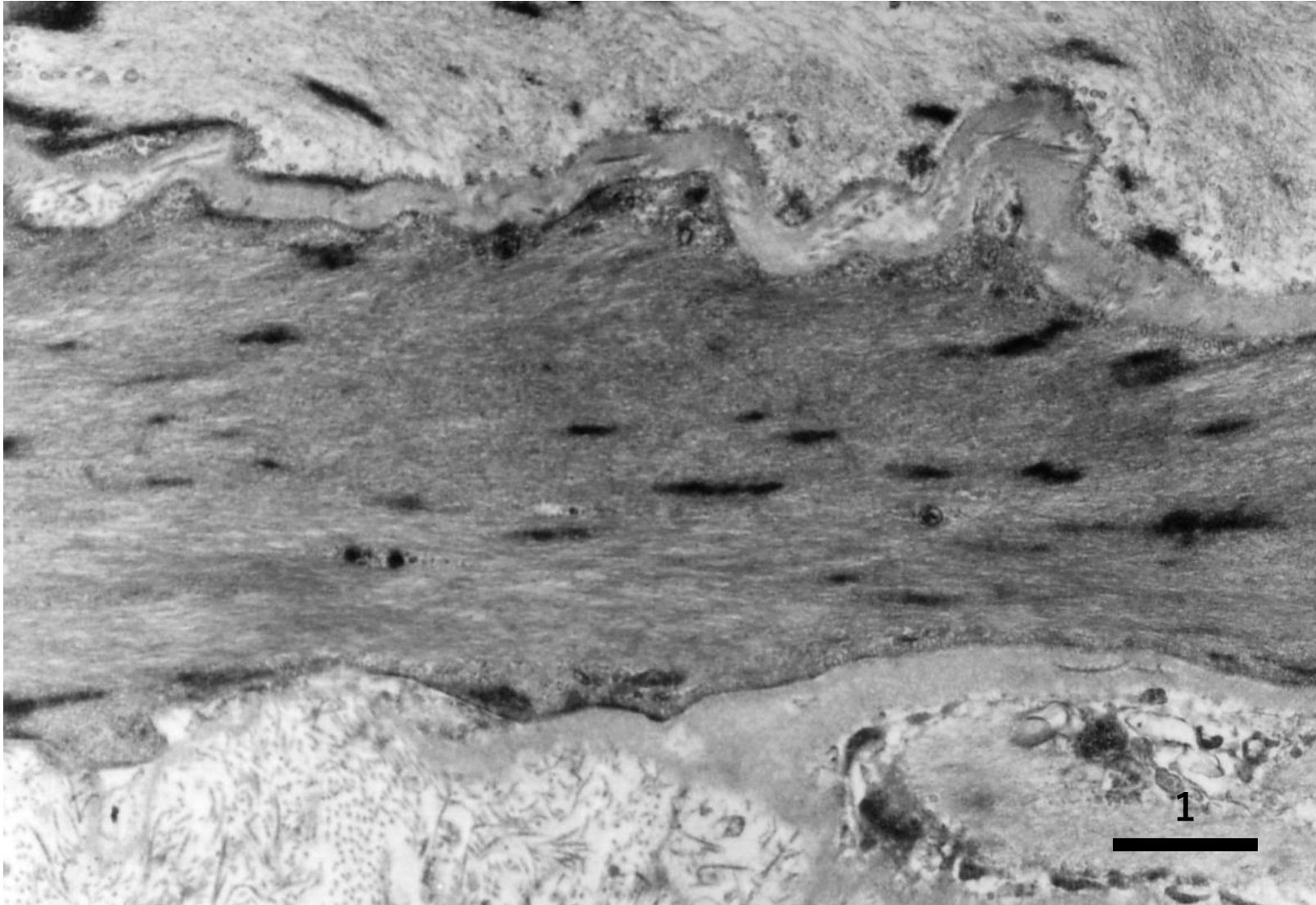
Ultrastructure of the large intestinal mucosa. In the lamina propria mucosae, eosinophils containing irregular-shaped electron-dense granules are focally clustered. Macrophages are also observed. EM-9



Ultrastructure of the large intestinal mucosa. In the capillary lumen in the lamina propria mucosae, a basophil is observed. The basophil granules contain fingerprint-like configurations. The electron density of the granules is not so high. EM-9



Ultrastructure of the large intestine. In the submucosal connective tissue, a mast cell is located. The mast granules are round and electron-dense. Fingerprint-like configurations are focally observed. EM-10



Ultrastructure of the large intestine. A smooth muscle cell in the tunica muscularis mucosae reveals rich microfilaments frequently forming dense patches. Fine microvesicles are seen inside the plasma membrane. The basal lamina is associated. EM-11