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The embryology of the intestine is developed from the foregut, midgut and hindgut. The bronchus and lungs are also developed from the foregut. Throughout these tissues are APUD neuroendocrine cells. In the stomach they were described by Kulchitsky and are recognised as neuromodulating cells with serotonin (5-hydroxytryptamine [5-HT]) as their main neurotransmitter. These cells play a crucial role in intestinal motility and secretion. Within the gastric pits are enterochroma ffi n-like (ECL) cells that secrete histamine. Together with gastrin, these cells are critical in the regulation of gastric acid secretion. All cells of the system secrete di ff erent neuroendocrine markers, such as synaptophysin, chromogranin A and neurone-specific enolase, and produce peptide hormones that are stored in granules, e.g. serotonin, somatostatin, PP (pancreatic polypeptide) or gastrin. In clinical practice chromogranin A is utilised as a tumour marker. The main functional test for NETs of the jejunum and ileum (the NETs that are most often encountered) is measurement of the serotonin metabolite 5-hydroxyindoleacetic acid (5-HIAA) in urine. Gastrointestinal neuroendocrine tumours (GI-NETs) were formerly divided into foregut (stomach, duodenum and pan creas), midgut (small intestine, appendix and caecum) and hindgut carcinoids (large bowel except caecum and r Nowadays, the definition of NET does not consider the organ of origin; instead, a common definition is used that is based on the tissue of origin and histological factors such as the Ki-67 index or mitotic index and size according to the WHO criteria (Table 57.5).

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