Physiology

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In response to a meal, the pancreas secretes digestive enzymes in an alkaline (pH /uni00A0 8.4) bicarbonate-rich fluid. Spontaneous secretion is minimal; the hormone secretin, which is released from the duodenal mucosa, evokes a bicarbonate-rich fluid. Cholecystokinin (CCK) (synonym: pancreozymin) is released from the duodenal mucosa in response to food. CCK is responsible for enzyme release. Vagal stimulation increases the Camillo Golgi , 1844–1926, Professor of Anatomy and Histology at Pavia, and later at Siena, Italy , developed silver staining of neural tissue and received the Nobel Prize in 1906 (with Ramón y Cajal). Göran Lundh , 1926–1999, surgeon, Södersjukhuset, Stockholm, Sweden. (per gram of tissue) in the pancreas than in any other tissue, with the possible exception of the lactating mammary gland. About 90% of this protein is exported from the acinar cells as a variety of digestive enzymes. Approximately 6–20 /uni00A0 g of diges - tive enzymes enters the duodenum each day . Nascent proteins are synthesised as preproteins and undergo modification in a sequence of steps. The proteins move from the rough endo - thelial endoplasmic reticulum to the Golgi complex, where lysosomes and mature zymogen storage granules containing proteases are stored, and then to the ductal surface of the cell, fr om which they are extruded by exocytosis. During this phase, the proteolytic enzymes are in an inactive form, which is important in preventing pancreatitis.

TABLE 72.2 Investigation of the pancreas. Serum enzyme levels Pancreatic function tests Morphology Ultrasonography Computed tomography Magnetic resonance imaging Endoscopic retrograde cholangiopancreatography Endoscopic ultrasonography Plain radiography Chest Upper abdomen

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