Cell biology studies including light and electron microscopy, immunocytochemistry and in vitro cell culture experiments have demonstrated that leptin, a hormone known to regulate appetite and food intake, is synthesized, packaged in secretory granules and discharged through regulated secretion into the gastric lumen by the chief cells of the gastric mucosa. Leptin is secreted into the gastric juice not as a single molecule but rather in a complex form tightly associated with the soluble isoform of its receptor. The leptin-leptin receptor complex allows the leptin molecule to survive the harsh conditions of the gastric juice. Leptin is then vehiculated from the gastric cavity towards the duodenal lumen where it interacts with membrane-bound leptin receptors located on the apical membrane of the duodenal epithelial cells. Leptin is then internalized and channeled to the Golgi apparatus where it binds again to its soluble receptor before being released at the basal pole of the cells towards the submucosa. It then penetrates the blood stream. Leptin travels in the blood in its complexed form, bound to its soluble receptor. Once in circulation, the leptin-leptin receptor complex reaches its hypothalamic target cells where regulation of food intake takes place. Since leptin is normally present in the gastric juice, we decided to evaluate the efficiency of an oral administration of exogenous leptin for the control of food intake. Experiments were performed on normal and obese rodents as well as on large mammals such as pigs and dogs. Exogenous leptin given orally is able to reduce food intake in all animals as well as to trigger weight loss. Compared to adipose tissue leptin, gastric leptin appears as an important and favorable target for clinical application.

Biography

Moise Bendayan did PhD in 1976 from University of Montreal, postdoctoral trainings from University of Geneva till 1979 and Cancer Institute of VilleJuif France in 1982 Full professorat the Department of Pathology and Cell Biology, University of Montreal, Chairman 1989-1997. He has 295 original publications in peer-reviewed journals and 305 congress presentations. He is Editor, Associated Editor and Member of the Editorial board of several journals. He is a recipient of several awards.

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