

High Yield Hints – Endocrine Glands

ENDOCRINE SYSTEM

1. Hormones are “ Informational molecules “ produced from the endocrine cells. These may be proteins, amines or steroids.
2. Thyroxin is an iodine-containing hormone (4 iodine per molecule). It is a derivative of Tyrosine amino acid. Thyroxin is the “ General metabolic hormone”. Thyroxin regulates Basal metabolic rate (BMR). Myxoedema or Hypothyroidism is also called “ Gulls disease “. Exophthalmic goiter or Hypothyroidism is also called as “ Graves disease “. Thyroid is the largest endocrine gland. Tetany is caused due to Hypo-parathyroidism.
3. Thymus is present in the chest region and is known as “ Infantile gland “. It secretes a hormone called Thymosine.
4. The hormones of Adrenals are Cortisone, Cortisol, Corticosterone, Aldosterone and sex steroids. Cortisone is called as “ Anti-stress hormone and is used as drug. Deficiency of Gluco - and Mineralo-corticoids leads to Addison’s disease. Hyper secretion of Cortisol leads to Cushing’s disease. Conn’s syndrome is caused due to the over secretion of Aldosterone. Adrenal virilism is due to the excess secretion of sex corticoids. Adrenaline is the “ Emergency hormone “ responsible for “ Flight and Fight mechanism “. It is also called 3F Hormone.
5. Pancreas is the second largest digestive gland. It contains endocrine cells called Islets of Langerhans. Alpha cells of islets secrete Glucagon, and Beta cells secrete Insulin (Hypoglycemic factor). Diabetes mellitus is caused due to the deficiency of insulin. Over secretion of Insulin leads to Insulin shock. Type I diabetes is the Insulin dependant or Juvenile diabetes. Type II diabetes, also known as insulin independent diabetes, occurs in adults due to life style. Banting and Best (1922) discovered insulin. Subsequently Sanger analyzed the structure of insulin which is a protein containing 51 amino acids. Incidentally this was the first protein to be sequenced.
6. Ovary secretes Estrogen, Progesterone and Relaxin. Relaxin is the only protein hormone form ovary. It takes part in parturition. Progesterone is the “ Pregnancy hormone “ secreted from ovary.
7. Human chorionic gonadotrophin (HCG) is the first hormone that release from placenta just after implantation. Its presence in the urine is taken as an index to confirm pregnancy.
8. Adenohypophyses (Anterior lobe) is the only endocrine part of pituitary. Neurohypophyses (Posterior lobe) is a Neuro-haemal organ storing the hormones (Oxytocin and Vasopressin) secreted from the hypothalamus. Oxytocin is called as “ Birth hormone “

Additional points

1. Herring bodies of posterior pituitary store Neurohormones from hypothalamus.
2. Endostyle of Amphioxus is homologous to Thyroid gland.
3. T3 is the potent thyroid hormone. It contains 3 iodine molecules.
4. Pheromones are exocrine secretions used for communication (Bombykol, Musk etc)
5. Deficiency of Dopamine leads to Parkinson’s disease.