

## **ENDOCRINOLOGY**

### **Unit 1**

Hormones- definition, classification, biosynthesis and circulation in blood. Mechanism of hormone action. Plasma membrane receptors. Adenylate cyclase, Role of G-proteins. Protein kinases, tyrosine, kinase, Inositol phosphate. Calcium, calmodulin. Mechanism of steroid hormone receptors- Mechanism of action of steroid hormone.

### **Unit 2**

Hormones of the thyroid Biosynthesis and biological actions of thyroid hormones. Antithyroid agents. Thyroid disease- thyrotoxicosis, Goiter, Grave's disease, Hashimoto's thyroiditis. Parathyroid hormone- Biological actions regulation of calcium and phosphorous metabolism. Calcitonin. Calcitriol- Biosynthesis and functions. Hyper and hypocalcemia. Hyperparathyroidism, hypoparathyroidism, Paget's disease. Ricket's and osteomalacia.

### **Unit 3**

Hypothalamus and pituitary hormones

Vasopressin and oxytocin- synthesis and biological effects. Hypothalamic releasing factors. Anterior pituitary hormones- actions. Growth promoting and lactogenic hormones. Glycoprotein hormones the POMC family. Endorphins, MSH. Gigantism, Acromegaly, Dwarfism and Diabetes insipidus.

### **Unit 4**

Pancreatic hormones- Insulin- Biosynthesis, regulation of secretion and biological actions. Mechanism of action of insulin. Glucagon, somatostatin and pancreatic polypeptide. Insulin like growth factors.

### **Unit 5**

Adrenal hormones- Glucocorticoids, Mineralocorticoids- synthesis and biological effects. Catecholamines: biosynthesis and biological effects. Gonadal hormones- Androgens and estrogens. Ovarian cycle. Abnormal secretion of adrenal hormones- Addison's disease. Cushing's syndrome, congenital adrenal hyperplasia, pheochromocytoma.

### References

1. William's Textbook of Endocrinology – Wilson and Foster 8th edn.
2. Principles of Biochemistry – Mammalian Biochemistry – Smith et al. Mc Graw Hill 7th edn.
3. Mechanisms of hormone action – Autin and short.