**MECHANISM OF ACTION OF HORMONES. STEROID HORMONES.**

The hierarchy of the regulatory systems in the human organism. Hormone’s place in the hierarchy of the metabolism regulation and physiological functions.

Classification and mechanisms of hormone’s action. The hormone-receptor interaction. The receptor-adenylate cyclase complex: 3’,5’-cyclic AMP function, cyclic AMP-dependent protein kinase and phosphorylation of the cellular proteins. Diacylglycerol and inositol-1,4,5-triphosphate – the second messengers of the hormones. Role of protein kinase and Ca2+ in hormonal function.

Calmodulin – structure and role. General mechanisms of hormones biosynthesis, release and their regulation. Central regulation of the hormone functions: role of hypothalamus (neurohypophysis) and adenohypophysis.

Thyroid hormones: T3and T4, structure, biosynthesis, mechanism of action, release, transport, metabolic effects, disorders.

Pancreatic hormones: insulin and glucagon, structure, biosynthesis, mechanisms of action, release, transport, metabolic effects.

Mechanism activation and inactivation of insulin. Diabetes mellitus: causes, types (I and II), metabolic changes in the patients and their correction.

Catecholamine hormones (adrenalin, noradrenalin): structure, biosynthesis, release, transport, metabolic effects, disorders.

Glucocorticoids hormones: structure, biosynthesis, release, transport, metabolic effects, disorders. Steroid diabetes, metabolic disorders.