Adrenal gland medullary and Zona reticularis

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Mechanism of secretion Adrenal Medulla

- Chromaffin cells

cell bodies of postganglionic motor neurons of sympathetic nervous system

Thoracolumbar output(T1-L2) (intramural ganglion)

short time stress (acute stress)

Fight or flight

Hypothalamus (hypothalamic spinal tract)

- Posterior hypothalamic nucleus to Preganglionic of sympathetic neurons (cell bodies in the lateral gray horn of spinal cord)

Preganglionic long and Moving through chain ganglion (Exception for sympathetic)

Ach, nicotinic receptors

tyrosine,

L- DOPA,

DOPAMINE,

20% Norepinephrine, 80% Epinephrine (Phenol ethanolamine and methyl transferase)

epinephrine

Liver

EPI to G protein , …….P.K.A increasing the sensitivity cortisol

Glycogenolysis

Gluconeogenesis (hyperglycemia) odd chain F.A, glycerol, A.A, Lactic Acid

Adipocyte

Lipolysis G protein, hormone sensitive lipase,

glycerol (Liver) , fatty acids (beta oxidation in muscle a lot of ATP)

HEART

Increase blood pressure

Beta adrenergic receptors on SA node

- Increase heart rate
- Increase contractility

Alpha adrenergic receptors

- Vasoconstriction

Lung

Resp rate

dilate bronchioles Beta 2 adrenergic receptors

Constrict blood vessels of GIT ,kidneys, skin

Pheochromocytoma

- Cancer of adrenal medulla
- Excessive amount of epinephrine and nore epinephrine

Gonadocorticoids

- Paraventricular nucleus CRH, ACTH, G – coupled receptors, G stimulatory protein, GDP OFF, GTP On , ADENYLATE CYCLASE ACTIVATES ATP_ C AMP ACTIVATES PROTEIN KINASE A (P.K.A)

- P.K.A phosphorylate different enzymes

- Steroid hormones

Cholesterol

Pregnenolone

Progesterone and 17-OH pregnenolone

17_OH PREG,

DHEA(dehydroepiandrosterone) and 17 –OH progesterone

Progesterone , 17 –OH progesterone , Androstenedione

DHEA to Androstenedione (Gonad corticoids)

Very weak sex hormones

DHEA and Androstenedione

Male (testes) converted into testosterone (minimum)

Female estrogen (minimum)

Secondary sex characteristics

Hair growth

Facial (male)

Axillary

Pubic

Sebaceous secretion

Libido (sex drive)

Mammillary gland (female)

Clitoris (female)

androgens

Adrenal genital masculinization (high level of **DHEA and Androstenedione)**

Increase libido in male and fascial hair in female

- Very weak
- Acts as precursors

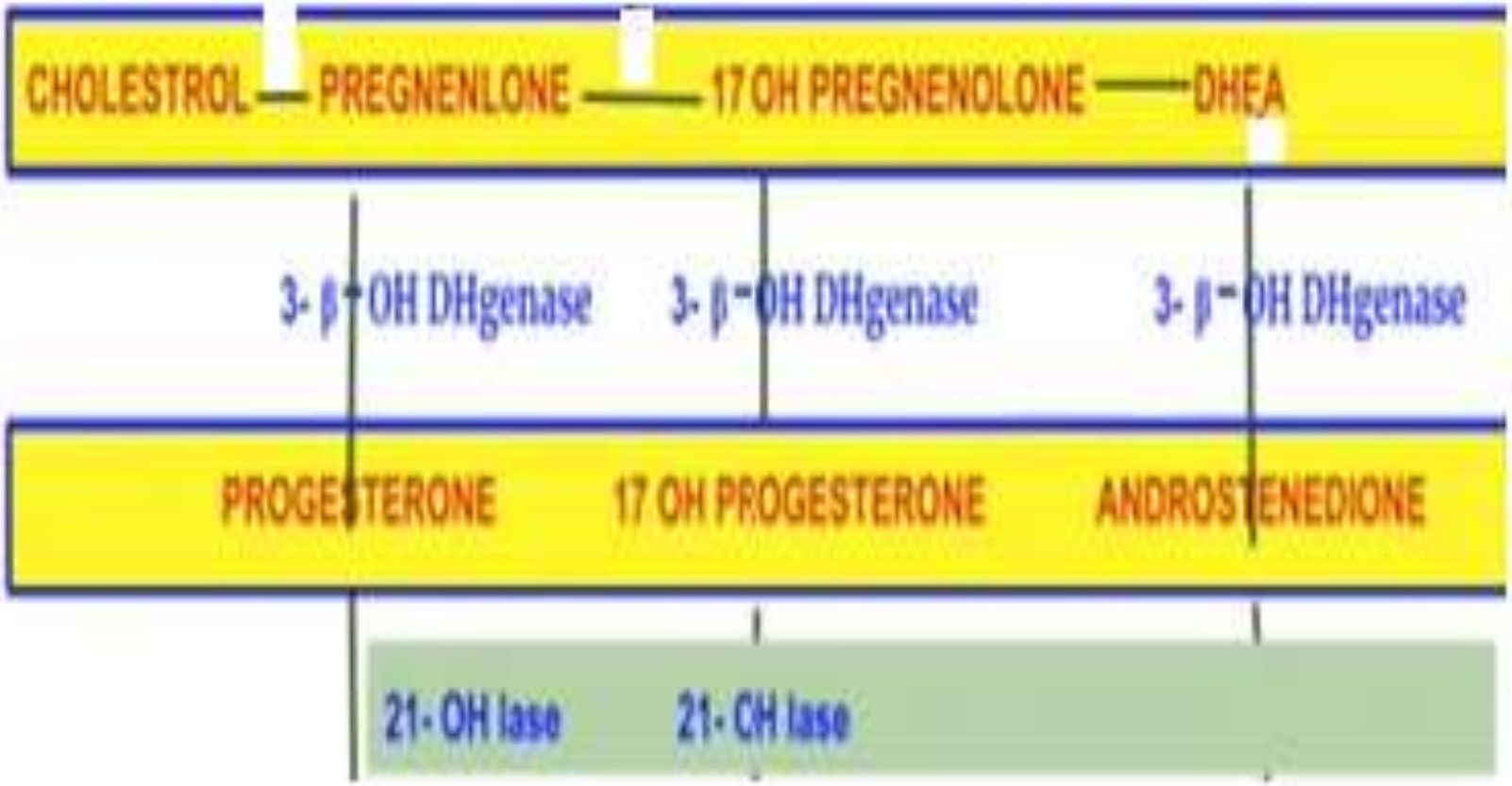
Male testosterone

Female estrogen

Secondary sex characteristics

Deficiency of 21 hydroxylase

- Adrenogenital syndrome 95%
- Excess of adrenal androgens
- Deficiency cortisol and aldosterone
- Ambiguous genitals and hypospadias
- Partial or complete
- Partial with or without aldosterone deficiency more common
- Precious puberty in male children


CHOLESTROL
PREGNENLONE
17 OH PREGNENOLONE
DHEA
3- β - OH DHgenase
3- β - OH DHgenase
3- β - OH DHgenase
PROGESTERONE
17 OH PROGESTERONE
ANDROSTENEDIONE
21- OH lase
21- OH lase