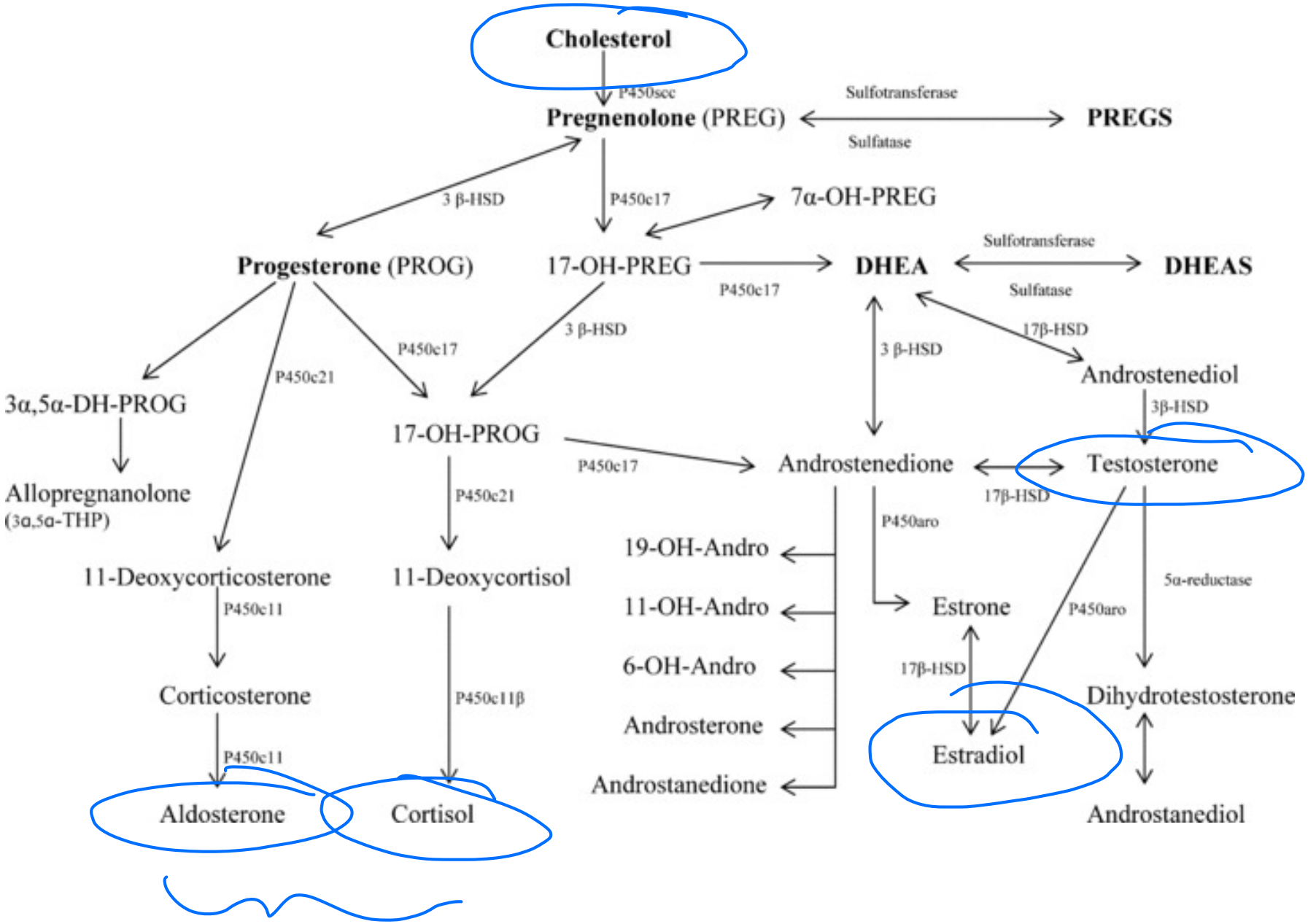
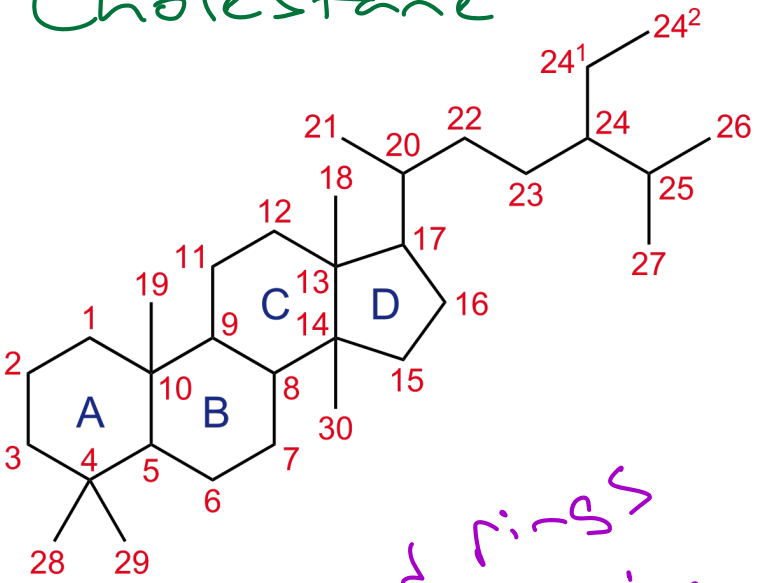
# Adrenocorticoids

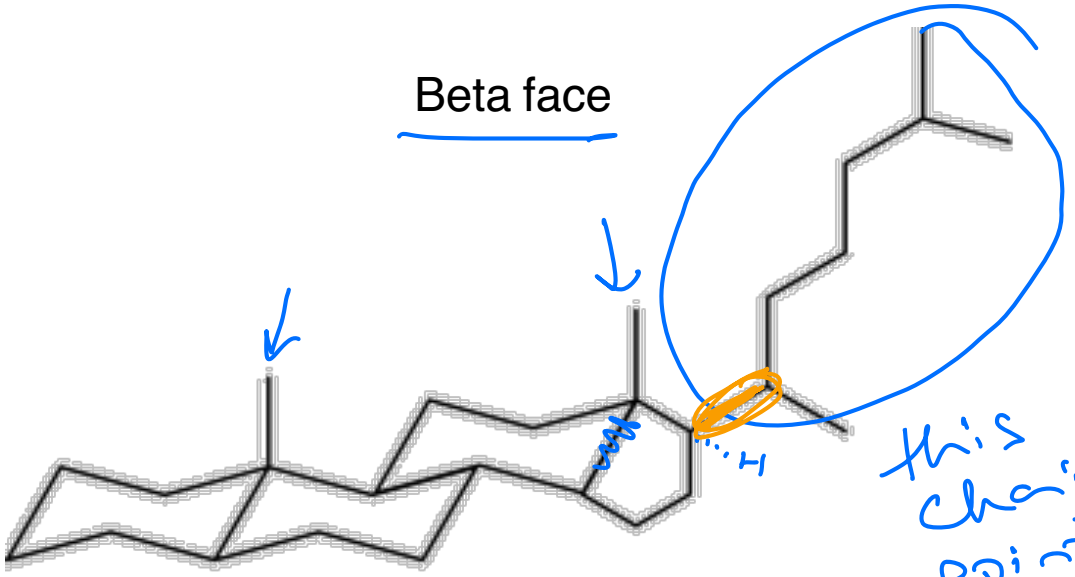



Adrenocorticoids

Cholestane

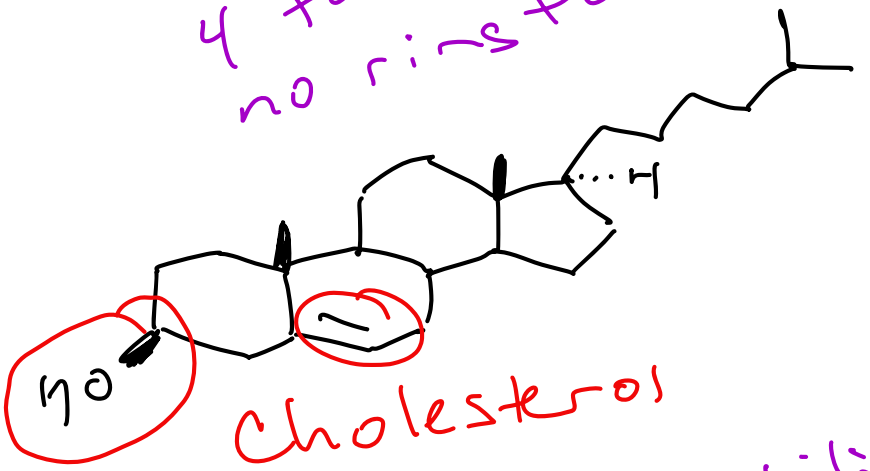



Beta face



this chain points to β face

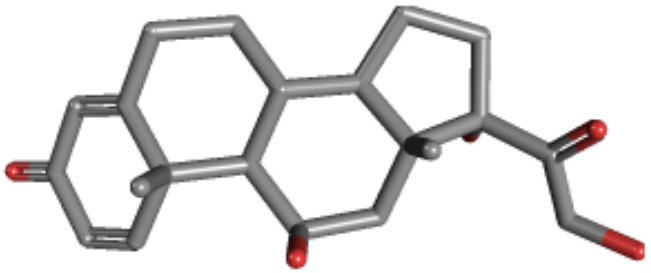
4 fused rings
no ring flipping



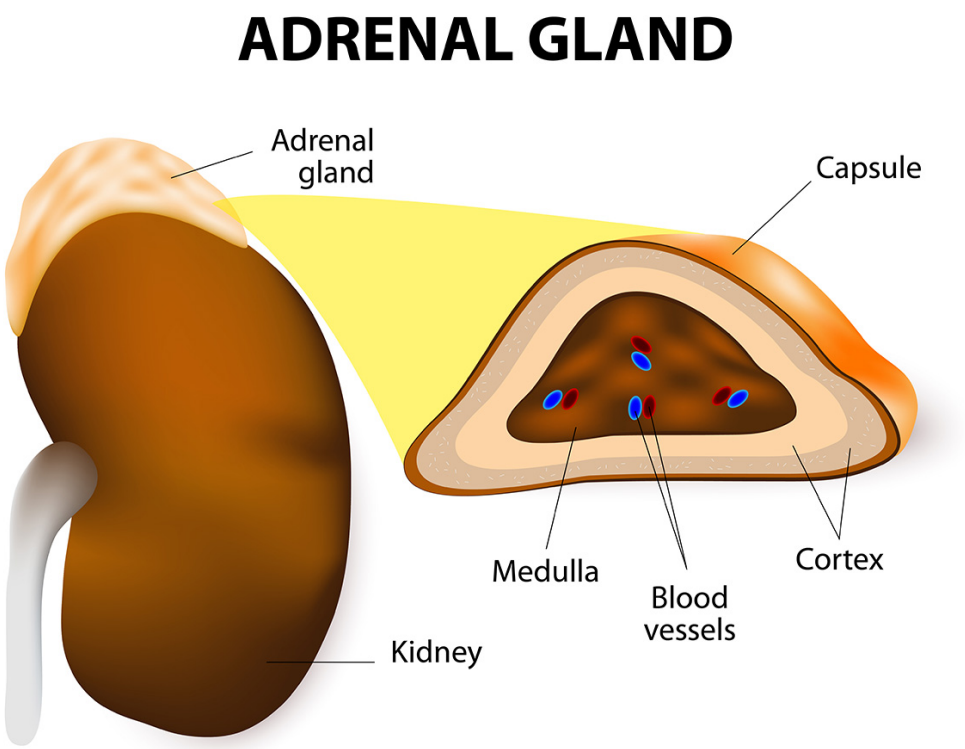

Alpha face

Cholesterol

weakly amphiphilic



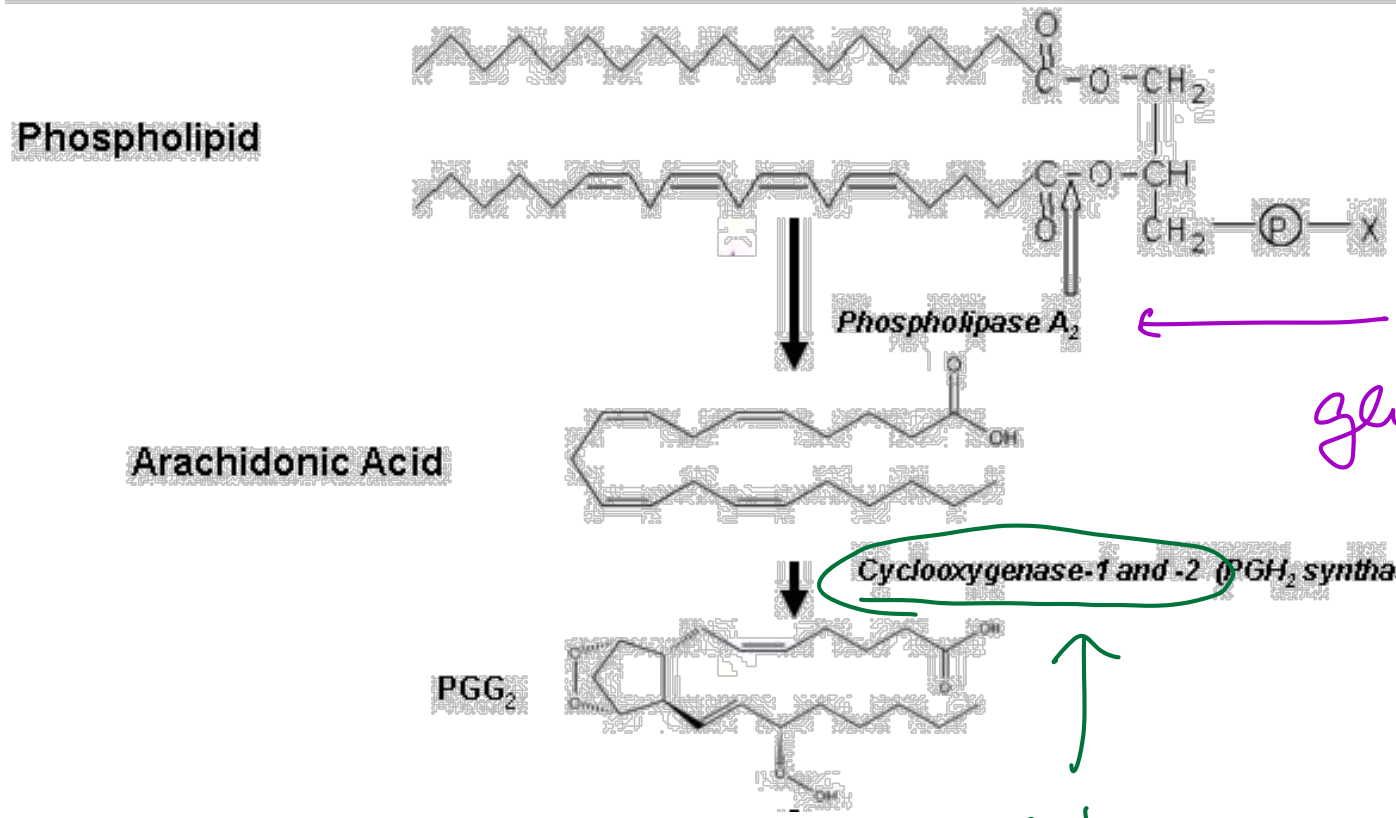
hypothalamus → CRF → pituitary → ACTH → A
Co




Adrenocorticoids

Cortisol - glucocorticoid

aldosterone - mineralocorticoid




where glucocorticoids acts inhibit PLA

also inhibit expression of Cox

Inhibit Collagenase production

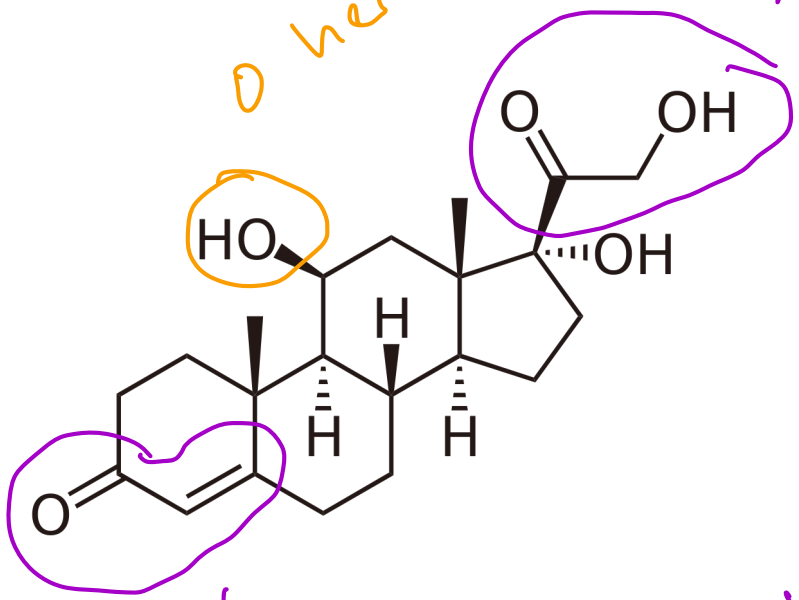
When making anti-inflammatory drugs — maximize glucocorticoid behavior

- minimize mineralocorticoid

Glucocorticoids:

used for chronic inflammatory diseases
arthritis
asthma

Cortisol




O here

need β ketol side chain

needs this conjugated piece

$t_{1/2}$ = 60-90 min

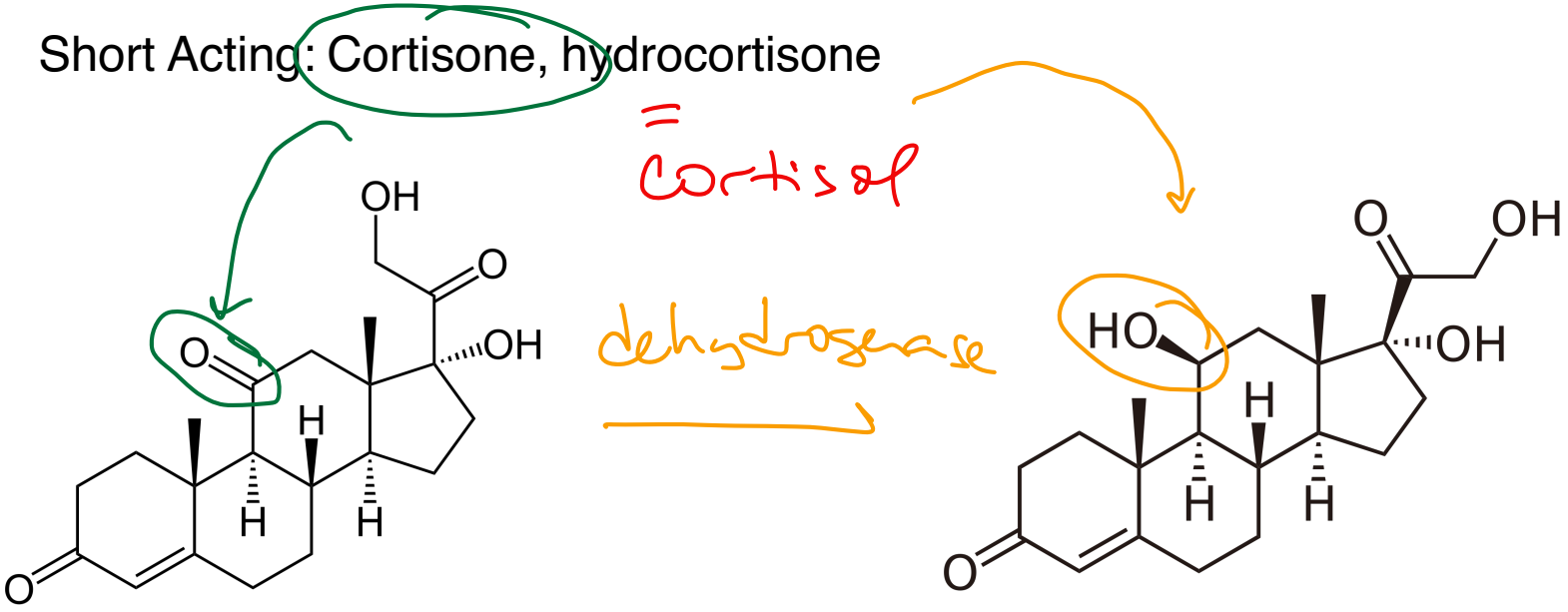
At high doses

Nat retention
edema

Long term treatment

Side effects → dyslipidemia, diabetes

Short Acting: Cortisone, hydrocortisone



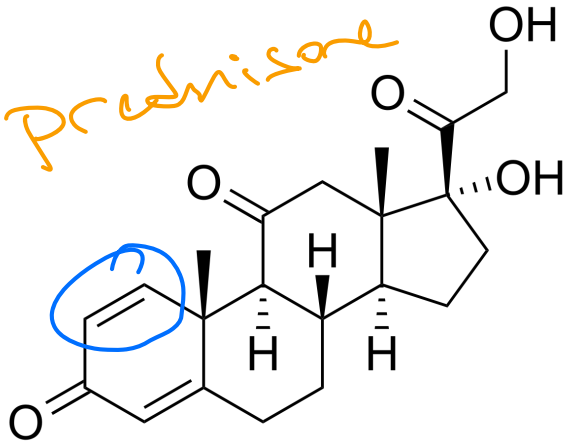

1) add =

2) add halogens

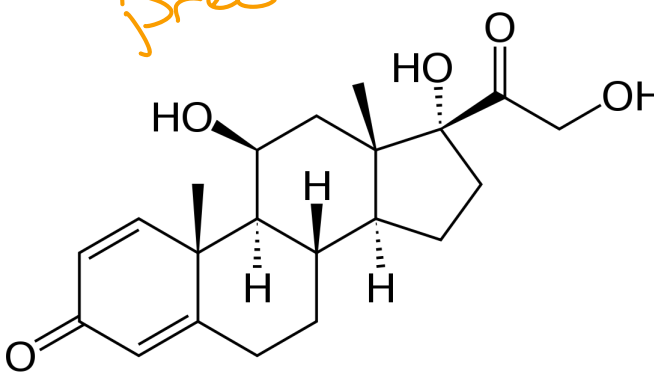
3) make prodrugs

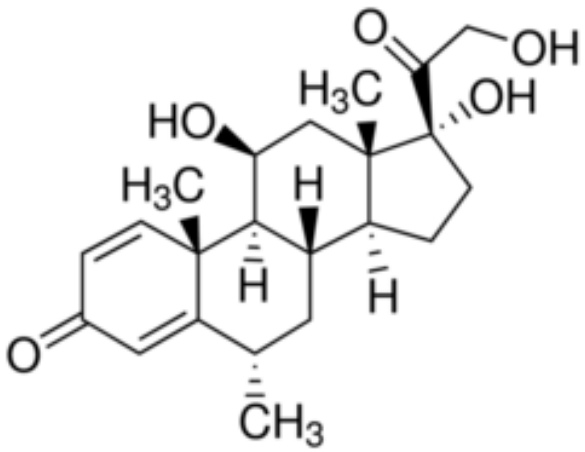
Intermediate acting : Prednisone, prednisolone, methylprednisolone

Prednisone




Prednisolone



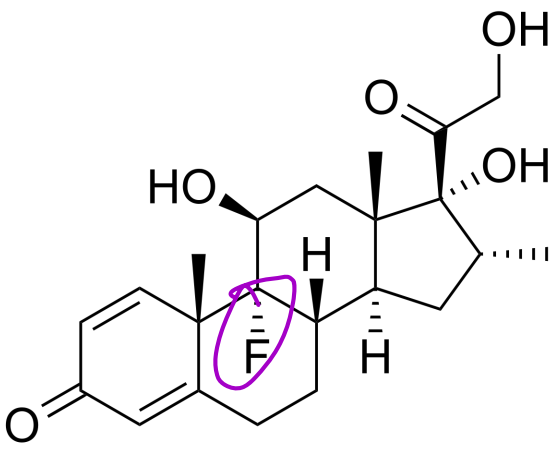

adding = increases t1/2 = increases anti-inflammatory activity ~4x

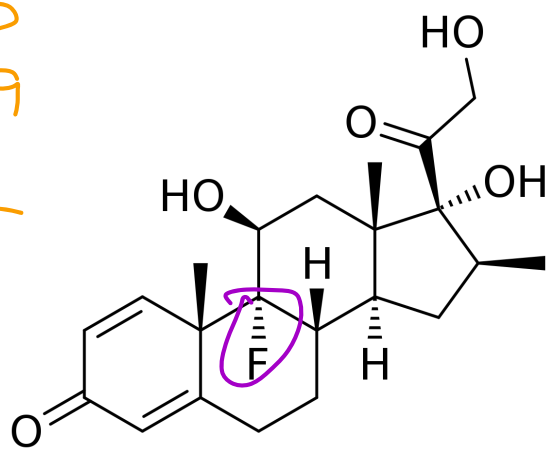
Δ - corticoids

decreases mineralocorticoid activity

Long Acting: dexamethasone, betamethasone

Add F's usually 6 or 9 position




fluorocort

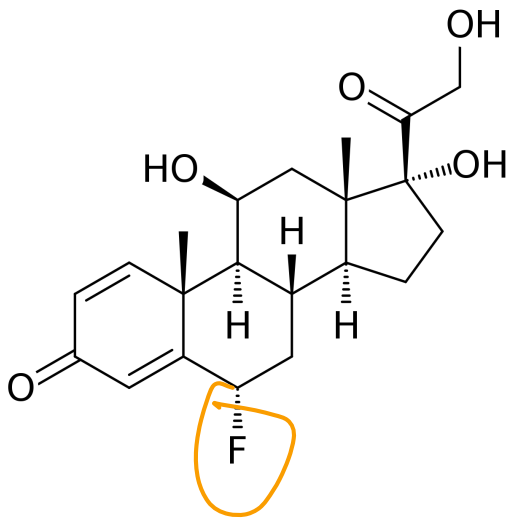
10 x more potent glucocorticoid

30x more potent mineralocorticoid

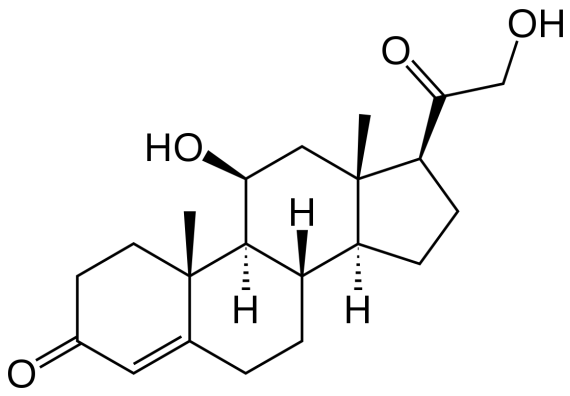
used for Addison's disease

Other

Fluprednisolone




Corticosterone




also found in humans

main one in rats

Prolonged use of these

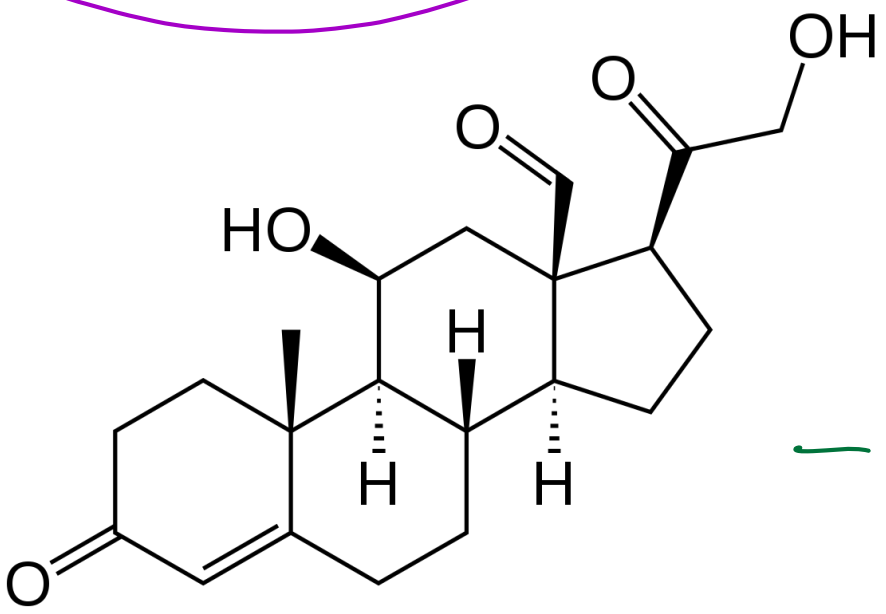
→ Iatrogenic Cushing

caused by medical treatment

hyper adrenalism

Mineralocorticoids — help control water salt balance

Aldosterone




primary site of action is the kidneys

- increase reabsorption of Na+ in kidneys
→ retain more water
→ increased blood volume
→ increased BP

Antagonists are used as diuretics