Aldosterone	
Fun	-acts on renal distal tubules **(excretes: Na, K & H2O)**
Regulation	-by renin-angiotensin system (also involved in BP regulation)
Renin	-is a prolytase -synth by: juxtaglomerular cells (cells in afferent renal arterioles) -released in response to: hypovolemia, hyponatremia & less renal perfusion pressure

Addison		
Is	AGC hypofun (lessens all hormones - especially aldosterone)	
Etiology	**Primary** "Addison" -Ai -inf (TB) -infiltrating lesions (amyloidosis)	**Secondary** "not Addison" -PG tumors -head trauma -vascular lesions -HT diseases -latrogenic (surgery, steroids/radio therapy)
Symptoms	(symptoms only appear if the body gets stressed, normally Addison patients are asymptomatic) -hyperpigmentation (buccal) (+ skin creases & scars) -hyperkalemia & hyponatremia -weakness & lethargy (fatigability) -postural hypotension (standing up) -GC & MC def -hyperurinemia -hypoglycemia -weight loss -nasuea	
Hyper-pigmen-tation	-happens due to melanocytes over-stimulation -normally: MSH stimulates melanocytes "melanocyte stimulating hormone" -ACTH & MSH share the same mother (precursor), <u>POMC</u> "pro-opiomelanocortin", therefor excessive ACTH can stimulate melanocytes -in Addison (primary AGC hypofun): ACTH will be high & skin pigmentation occurs -in secondary AGC hypofun, ACTH will be almost zero, and no skin pigmentation is to be seen	
POMC	-gives: <u>beta-lipotropin</u>, <u>gamma-MSH</u> & <u>ACTH</u> -ACTH gives: **alpha-MSH** (which is the most active)	

Diagnoses		
Addison Diagnosis	Screening	basal measurement of:- (just once, at a random time) -serum: Na, K, urea, glc & cortisol -plasma: ACTH
		Continuous measurement of cortisol & ACTH (multiple scheduled times - should show:- -low serum cortisol (<200) -high plasma ACTH (>200)
	Confirm.	-short tetracosactrin test -AG Ig -radiology (the presence of normal levels of serum & urine cortisol does NOT exclude Addison)
Secondary AG hypofun diagnosis	Screening	-low serum cortisol -low plasma ACTH -no response to (short tetracosactrin test) -insulin induced hypoglycemia -PG radiology
	Confirm	Depot synacthen test

Tests	
Addison conf. tests	
short tetracosactrin test	-a synthetic ACTH -commercial name: synacthen -MOA: shortly stimulating ACTH receptors -normally: hypercortisolemia (>500) -addison: no response -results alterors: stress, GC therapy & estrogen contraceptives
AG Ig	-detecting Ai Addison -checking the serum
Radiology	-AG: US or CT -to detect Addison
Secondary AG hypofun conf. test	
Depot synacthen test	-long procedure -by giving IM ACTH 3 days in a row & measuring cortisol 5 hours after each injection -addison: no response -secondry: inc serum cortisol -limitation: hypotsm must be corrected before doing the test & prolonged steroid therapy

SUMMARY		
	Addison	**Secondry**
Serum cortisol	Low	Low
Plasma ACTH	High (or normal)	Low
Short ACTH stimulating test	No response	No response
Depot test	No response	High cortisol
GC & MC	Def	Normal
Pigmentation	Yes	No