

Recent progress in understanding aldosterone secretion

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1. The synthesis and secretion of aldosterone in the adrenal zona glomerulosa in physiologic conditions is controlled by adrenocorticotropin (ACTH), angiotensin II (All), and extracellular (K⁺). 2. ACTH effects on aldosterone output are explained by cyclic AMP- (cAMP)- and Ca²⁺-dependent mechanisms. 3. All effects on aldosterone secretion are initiated by an increase in Ca²⁺ influx through hormoneoperated Ca²⁺ channels and G- protein- and phospholipase C- (PLC) dependent hydrolysis of phosphoinositides leading to the generation of inositol 1,4,5 trisphosphate (IP3) and DAG that induce intracellular Ca²⁺ release and PKC activation, respectively. 4. ACTH increases DAG formation with marginal or undetectable IP3 generation. The effect of ACTH on DAG levels is discussed. 5. The requirement of external Ca²⁺ in PLC activation and aldosterone secretion also is discussed.