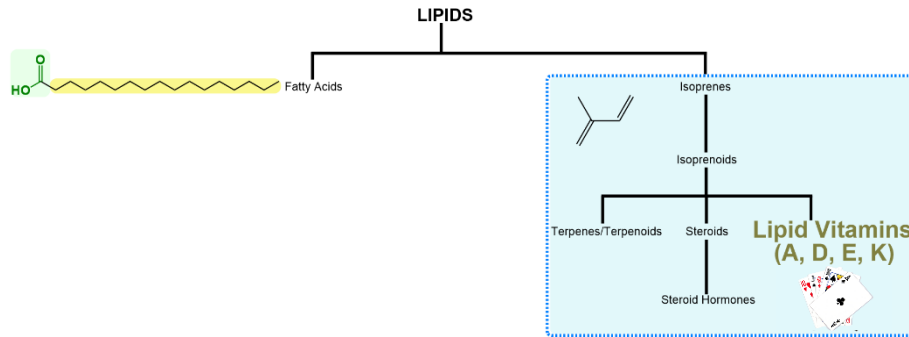


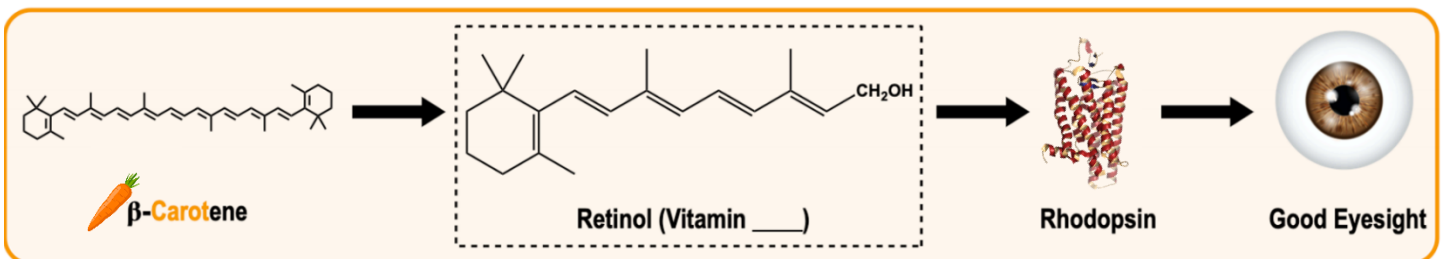
CONCEPT: LIPID VITAMINS

- _____: *essential* compounds required in the *diet* in small amounts since the organism *can't* synthesize them.
- _____ general classes of vitamins: 1) *Fat-Soluble* Vitamins (_____ Vitamins). & 2) *Water-Soluble* Vitamins.
 - *Lipid Vitamins*: Vitamins _____, _____, _____ & _____, which are all *isoprenoids*.
 - These perform a wide variety of functions (not related to membrane structure).



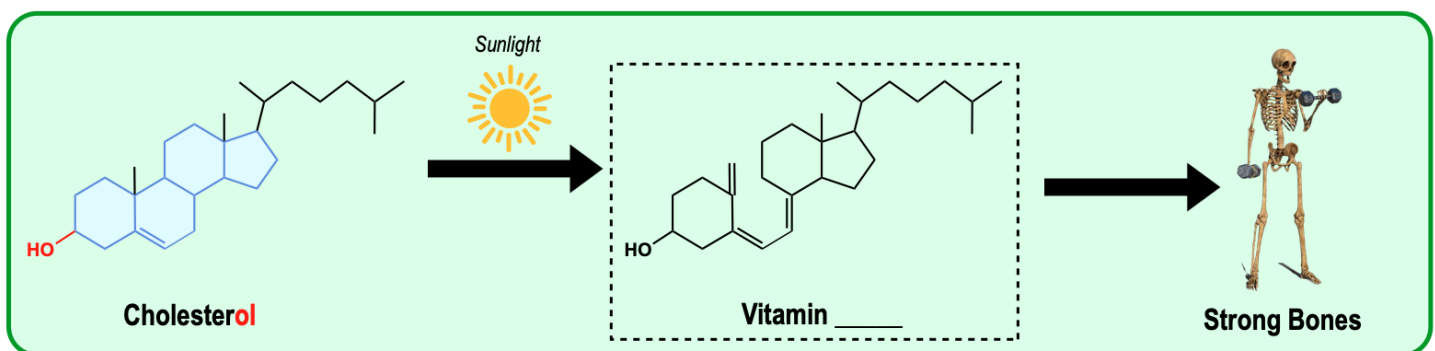
Vitamin A (Retinol)

- Vitamin _____: isoprenoid lipid vitamin critical for proper _____.
- Required to form *light receptor protein* (_____) in rod-cells of the eye.
- Derived from the precursor molecule β -*carotene* (which is a terpenoid abundant in _____).



Vitamin D

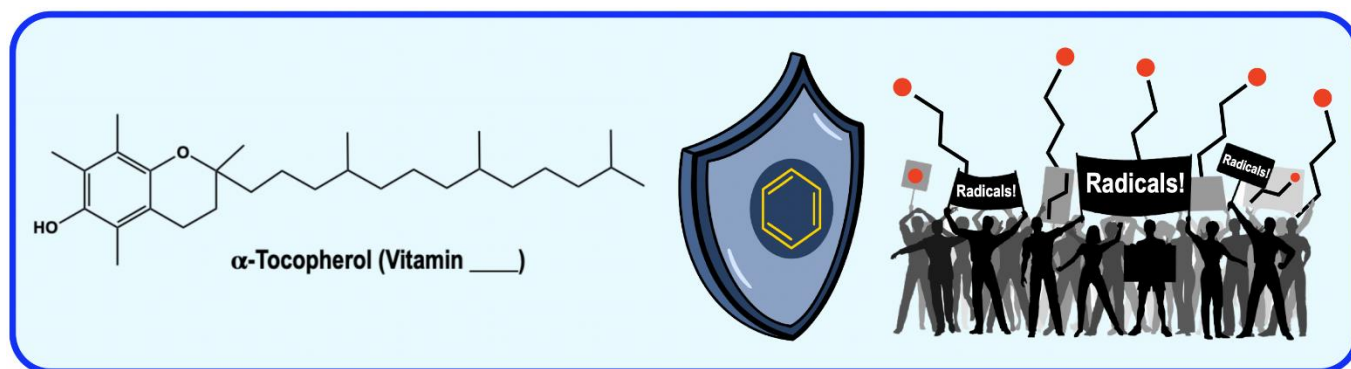
- Vitamin D: isoprenoid lipid vitamins critical for regulating _____ (& phosphorus) metabolism.
- Requires *ultraviolet light* (usually from the _____) for their formation/activation.
- Vitamin D₃ *increases* Ca²⁺ absorption leading to Ca²⁺ uptake by bones (_____ bones).
- Derived from _____.



CONCEPT: LIPID VITAMINS

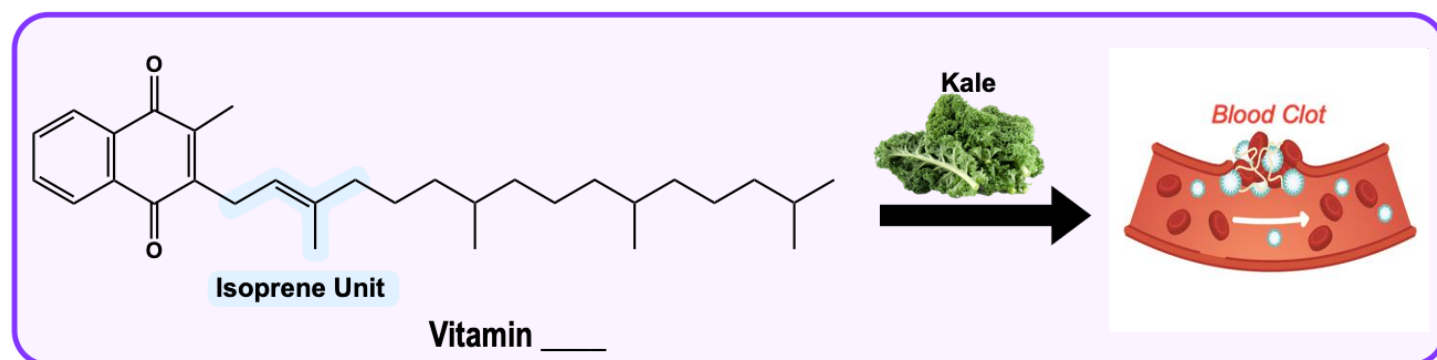
Vitamin E (α -Tocopherol)

- *Vitamin E*: isoprenoid lipid vitamins that serve as _____, removing highly reactive/dangerous *free radicals*.
 - As an *ant*“____”*oxidant*, it _____ other important compounds in the cell & helps *prevent cancer*.











Vitamin K

- *Vitamin K*: isoprenoid lipid vitamins critical for regulating *blood* _____ to heal an injury.
 - Named from the Danish word “____*oagulation*” = coagulation = clumping/clotting.



Recap of Lipid Vitamins



Lipid Vitamin	Function
Vitamin ____	Site of the primary photochemical reaction in _____.  
Vitamin ____	Regualtes _____ (and phosphorus metabolism).  
Vitamin ____	Serves as an _____ preventing cancer.  
Vitamin ____	Has a regulatory funtion in blood _____ / clumping.  



CONCEPT: LIPID VITAMINS

PRACTICE: Which of the following is not a fat-soluble lipid vitamin?

- a) Vitamin K.
- b) Vitamin D.
- c) Vitamin A.
- d) Vitamin B.
- e) Vitamin E.

PRACTICE: What is another name for Vitamin A?

- a) Vitamin B.
- b) Carotene.
- c) Retinol.
- d) α -Tocopherol.
- e) Rhodopsin.
- f) Isoprene.

PRACTICE: Severe deficiency in which vitamin could lead to blindness?

- a) Vitamin H.
- b) Vitamin C.
- c) Vitamin K.
- d) Vitamin E.
- e) Vitamin A.

PRACTICE: Severe deficiency in which vitamin could lead to rickets, a disease characterized by weakened, brittle bones?

- a) Vitamin C.
- b) Vitamin D.
- c) Vitamin A.
- d) Vitamin K.
- e) Vitamin E.

PRACTICE: Two well-known anticoagulants, dicumarol & warfarin, inhibit function of which of the following vitamins?

- a) Vitamin K.
- b) Vitamin E.
- c) Vitamin C.
- d) Vitamin A.
- e) Vitamin B.