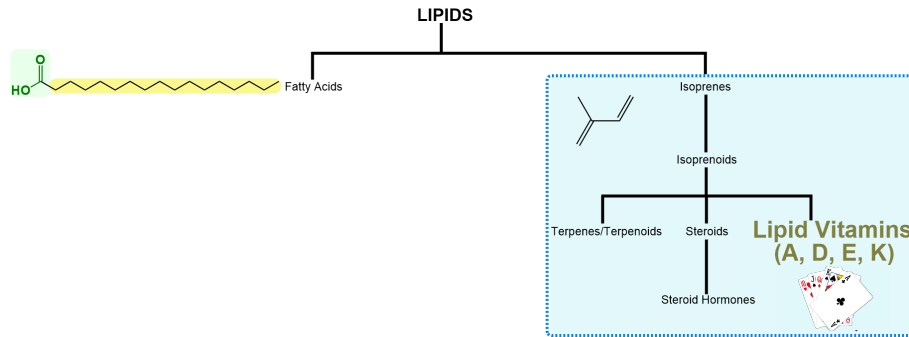


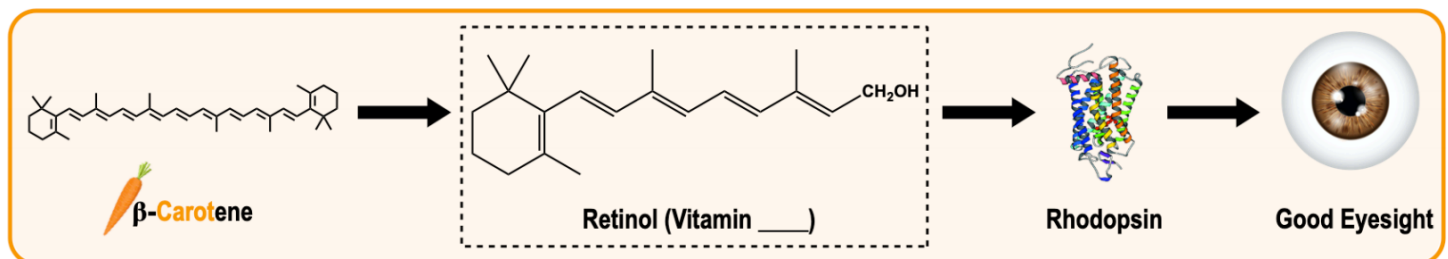
CONCEPT: LIPID VITAMINS

- _____: *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).



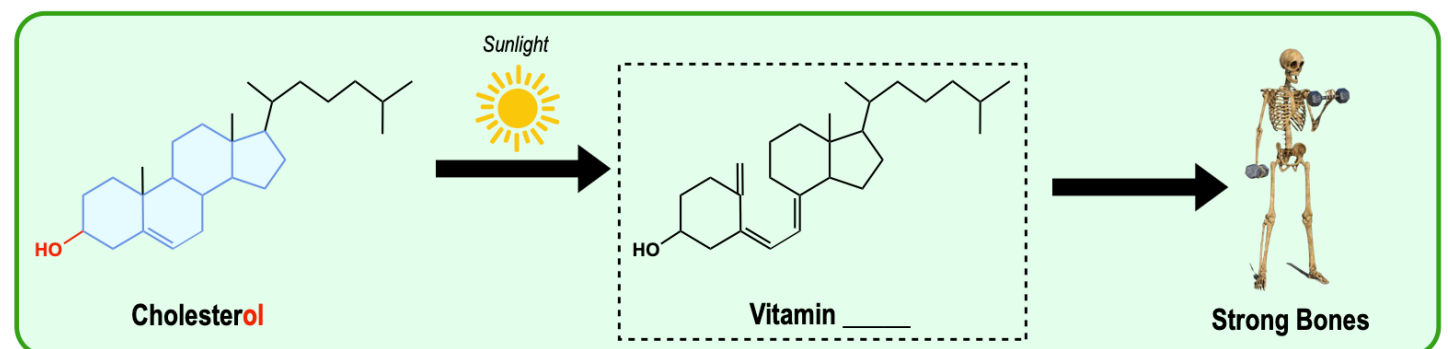
Vitamin A (Retinol)

- 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

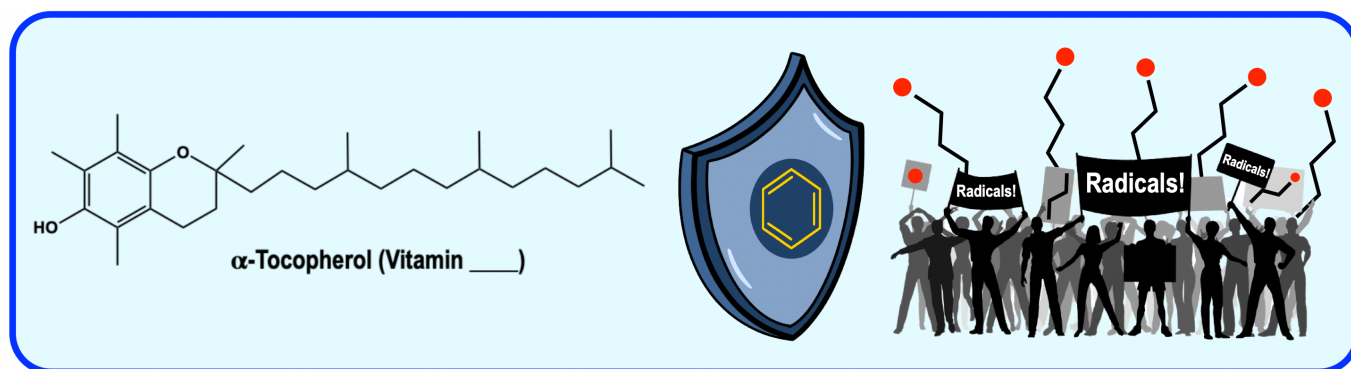
- Vitamin D: isoprenoid lipid vitamins critical for regulating _____ (& phosphorus) metabolism.
 - Requires *ultraviolet light* (usually from the _____) for their formation/activation.
 - Vitamin D₃ *increases* Ca²⁺ absorption leading to Ca²⁺ uptake by bones (_____ bones).
 - Derived from _____.



CONCEPT: LIPID VITAMINS

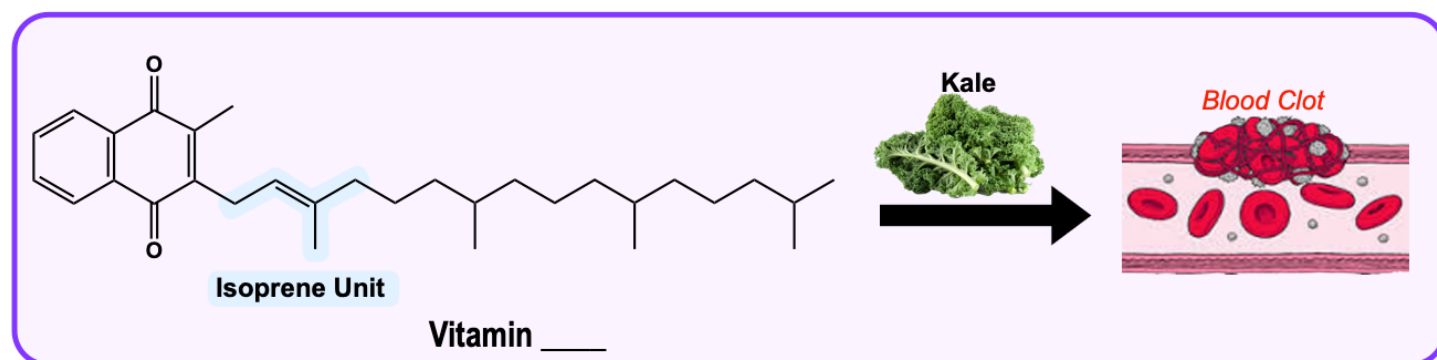
Vitamin E (α -Tocopherol)

- *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. | c) Vitamin A. | e) Vitamin E. |
| b) Vitamin D. | d) Vitamin B. | |

PRACTICE: What is another name for Vitamin A?

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