

# Chemistry of Natural Products (CHEM-479)

## Online Lectures (Vitamins)

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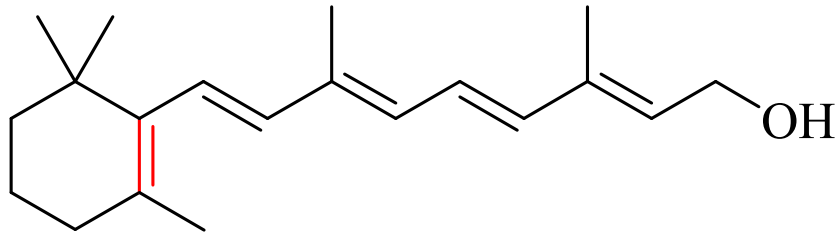
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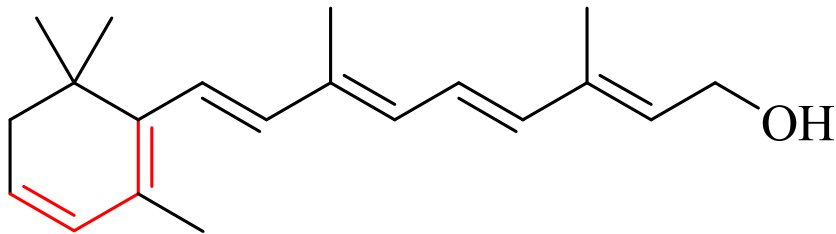
# Classification of Vitamins

1. Vitamin A
2. Vitamin B
3. Vitamin C
4. Vitamin D
5. Vitamin E
6. Vitamin K

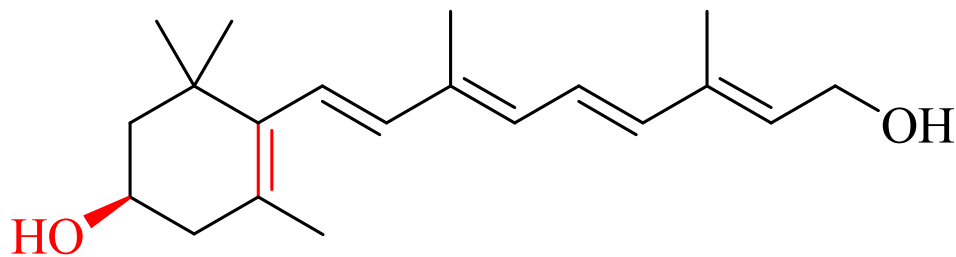
# Vitamin-A



Vitamin A<sub>1</sub> (Retinol) → liver of marine fish

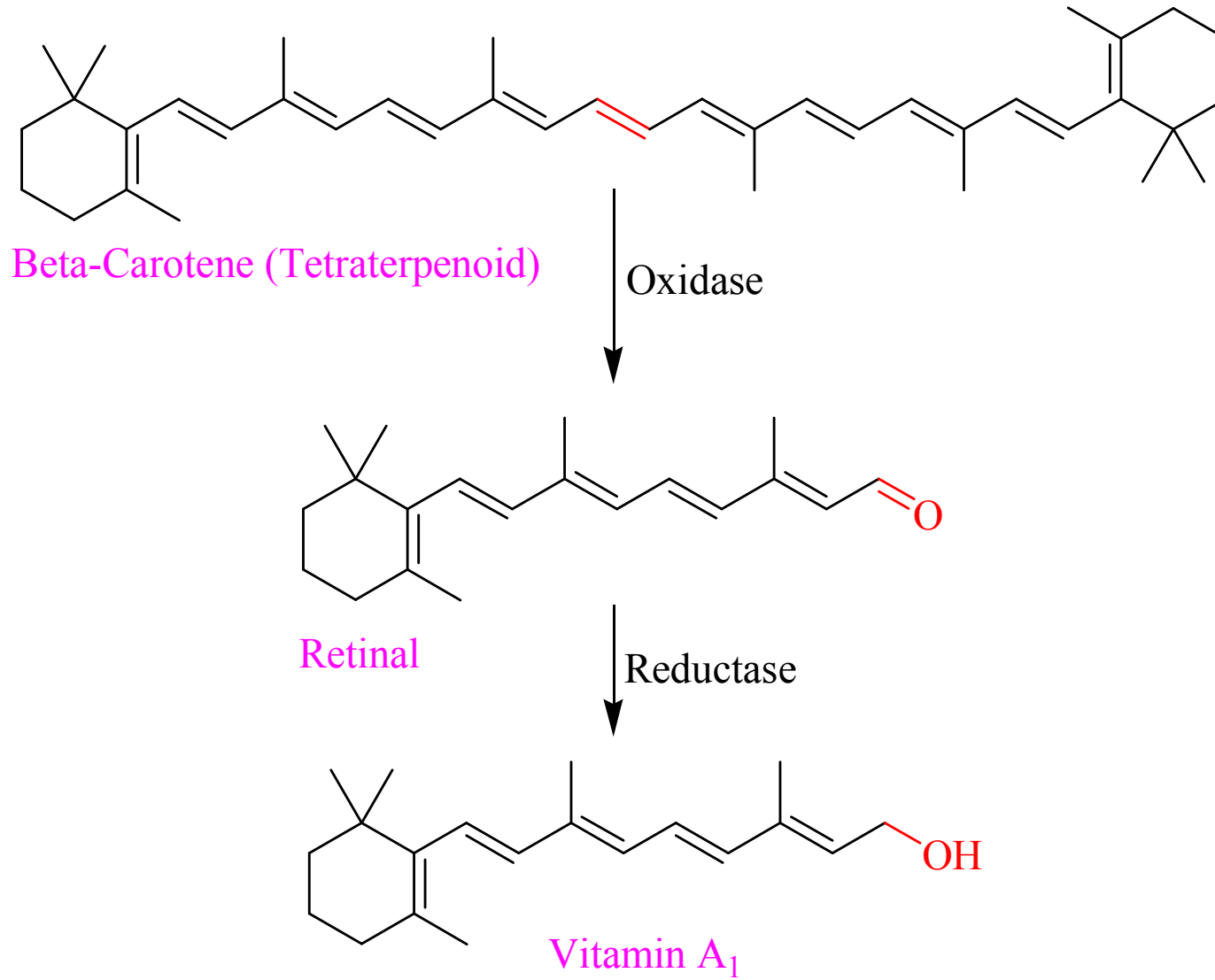


Vitamin A<sub>2</sub> (3-dehydroretinol) → liver of fresh water fish

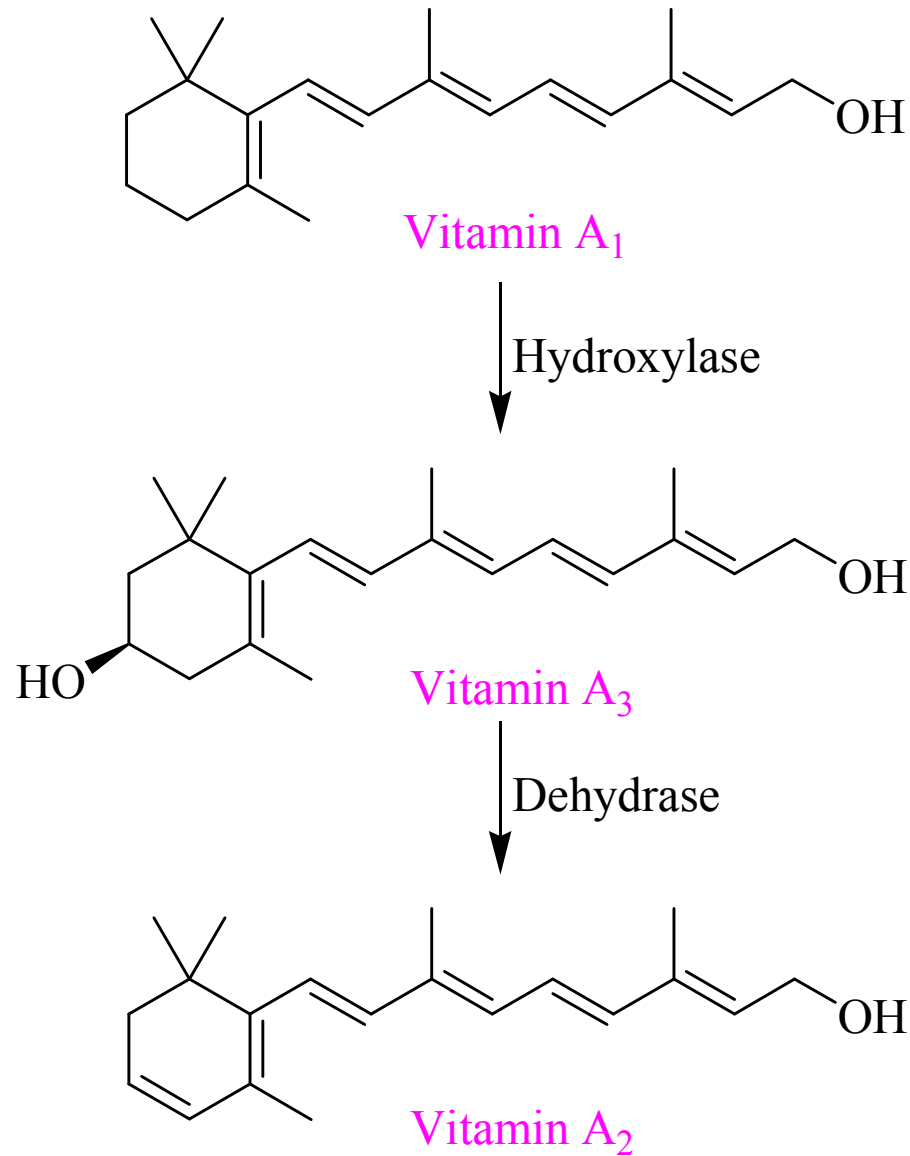


Vitamin A<sub>3</sub> (3-hydroxyretinol)

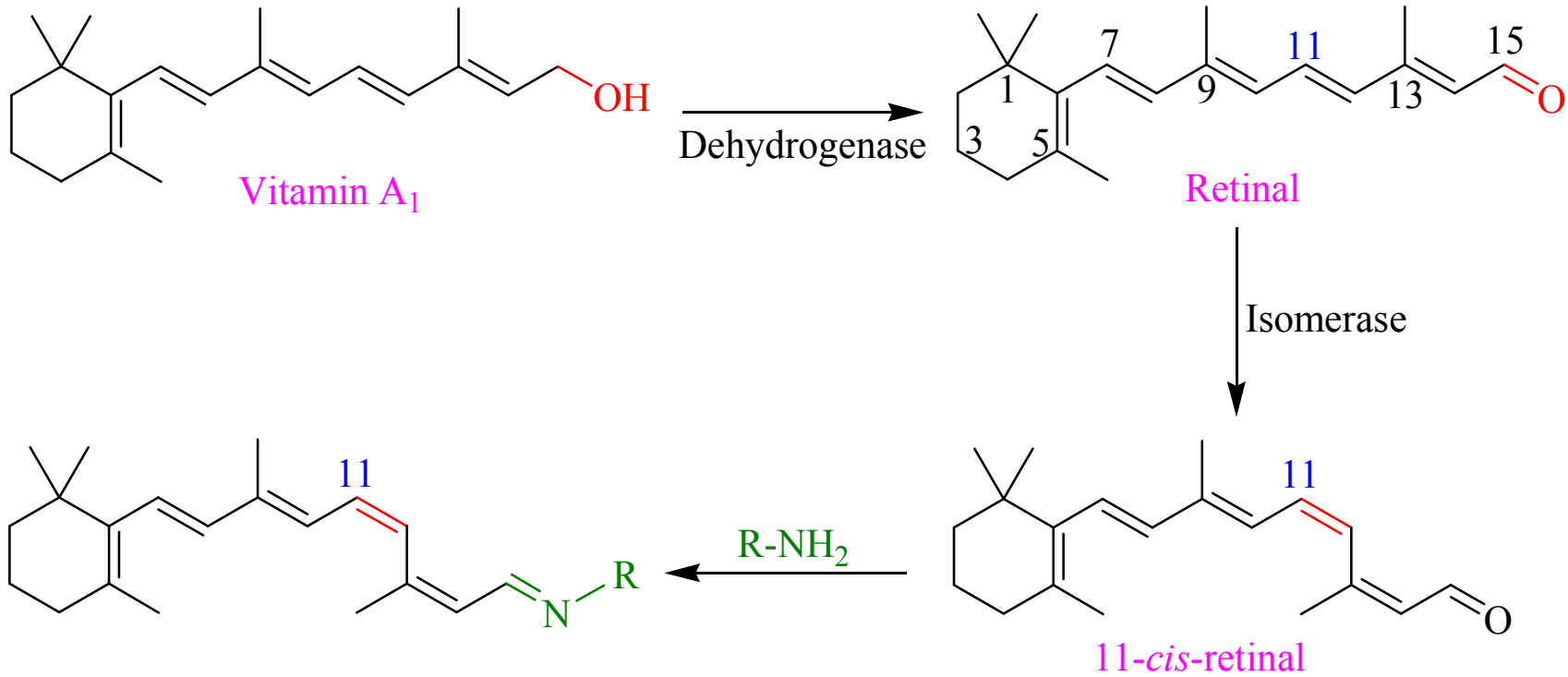
# Biosynthesis of Vitamin-A



# Biosynthesis of Vitamin-As



# Mechanism involved in vision

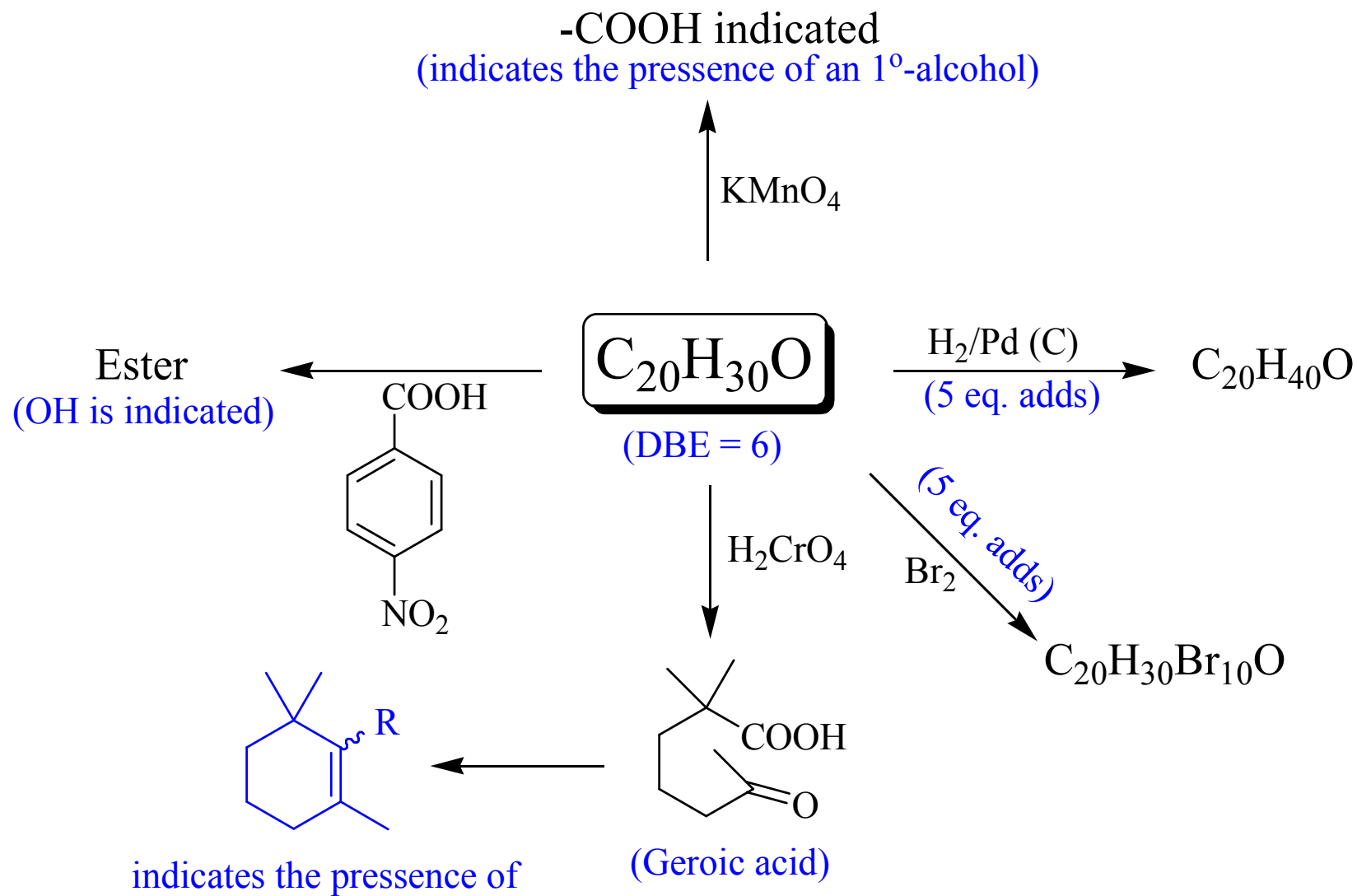


**R-NH<sub>2</sub>** = Rhodopsine / Iodopsine (*different proteins isolated from retina*)

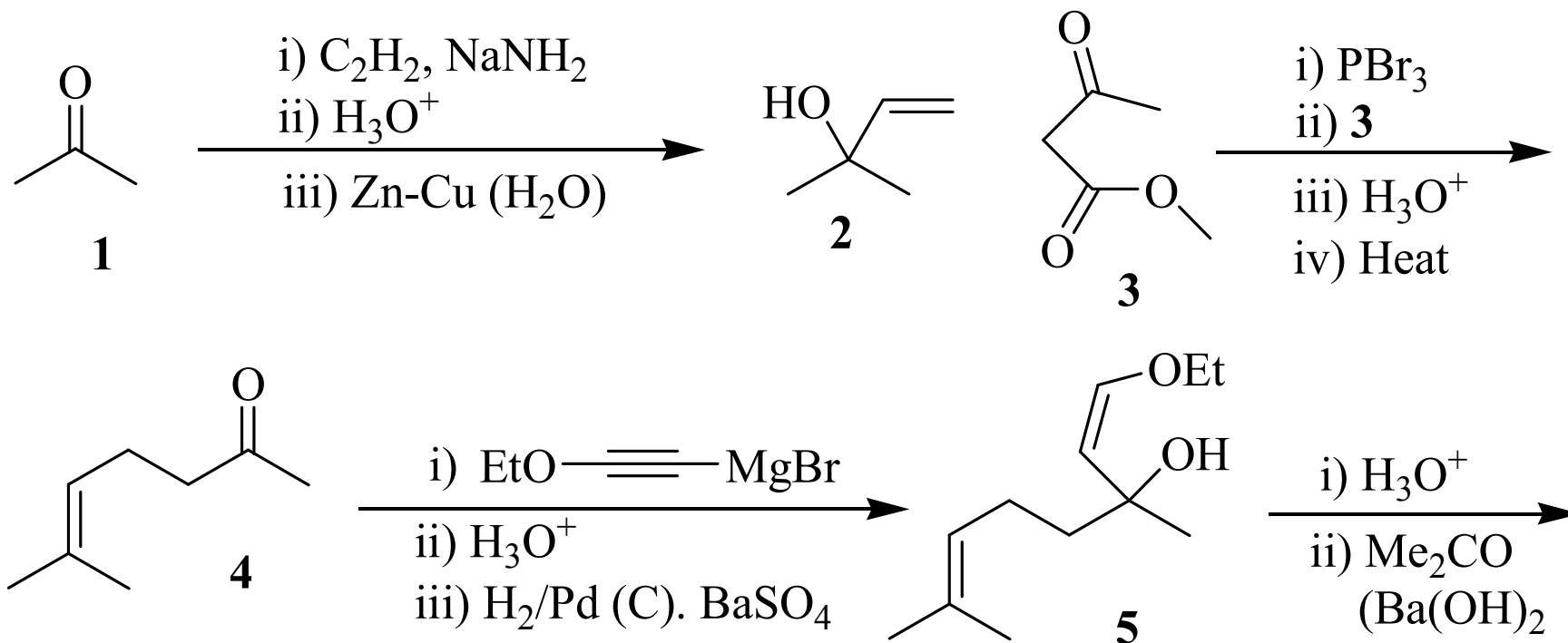
**Rhodopsine**, large in number, isolated from rod photoreceptor cells, is active in night (dim) light

**Iodopsine**, less in number, isolated from cone photoreceptor cells, is active in day (intense) light

# Chemical Method of Analyses

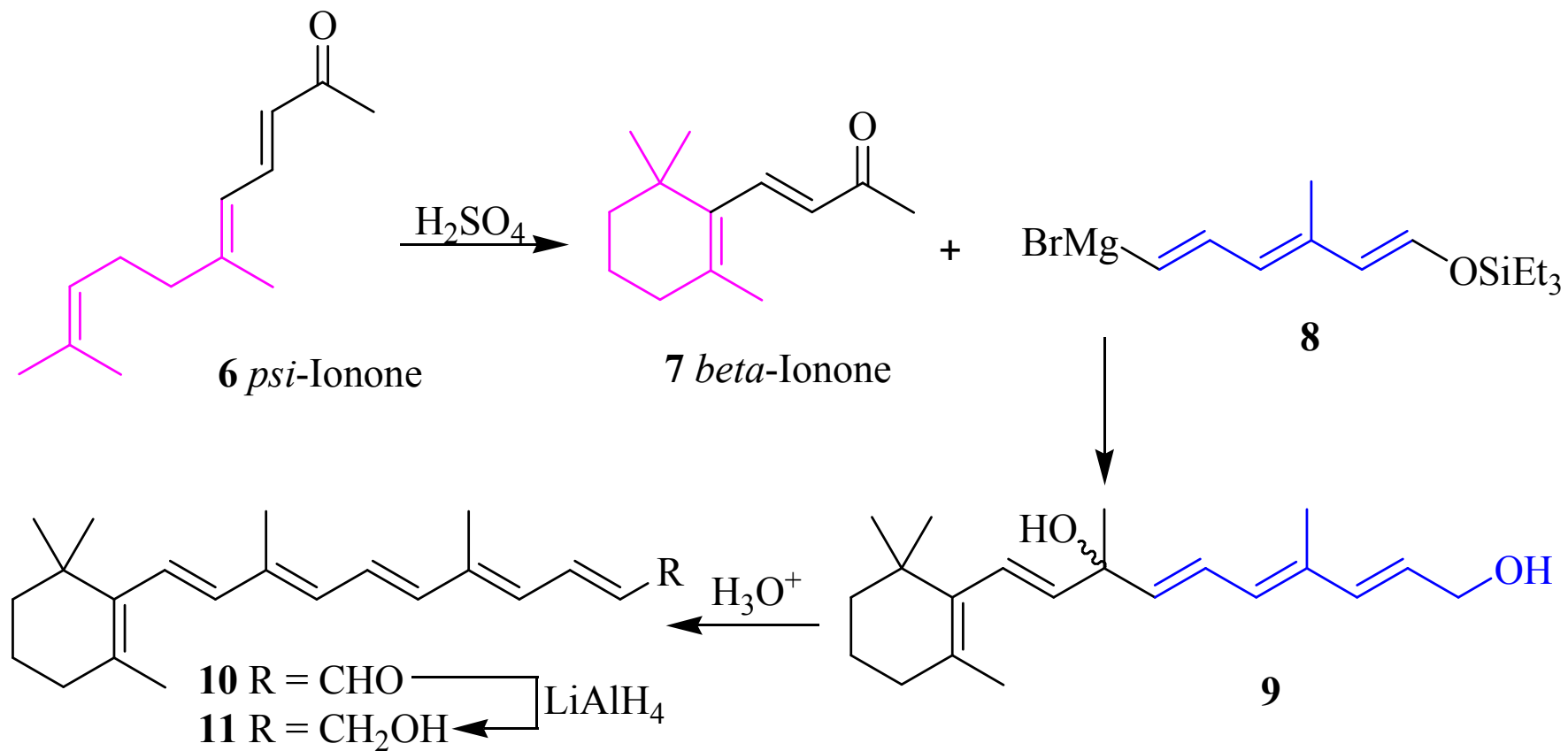


# Synthesis of Vitamin-A





# Synthesis of Vitamin-A



# RDA of Vitamin-A

RDA (Recommended Dietary Allowance) = 900  $\mu\text{g}$  (100%)

	Food	Dietary Value	%age
1	Cod liver	30,000 $\mu\text{g}$	3,333
2	Turkey liver	8,058 $\mu\text{g}$	892
3	Fish/beef liver	6,500 $\mu\text{g}$	722
4	Red capsicum	2,081 $\mu\text{g}$	231
5	Sweet potato	961 $\mu\text{g}$	107
6	Carrot	835 $\mu\text{g}$	93
7	Cheddar cheese	265 $\mu\text{g}$	29
8	Egg	140 $\mu\text{g}$	16