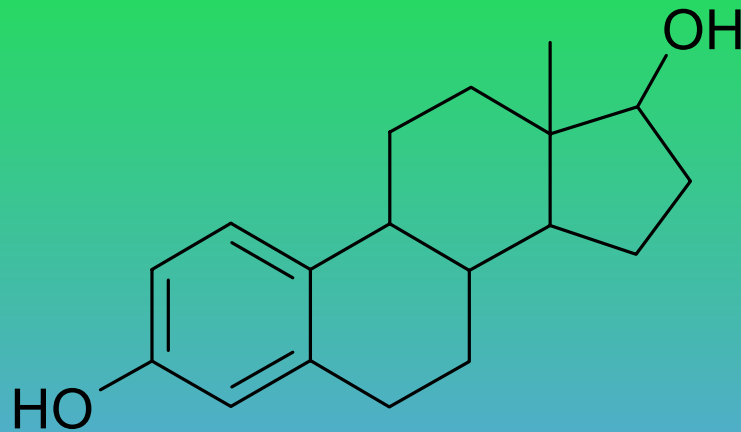


Biosynthese von Estradiol



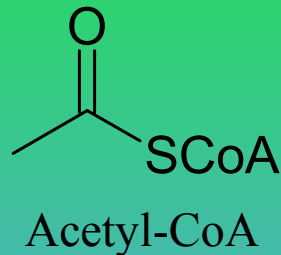
Thomas Albuzat

23. Juni 2003

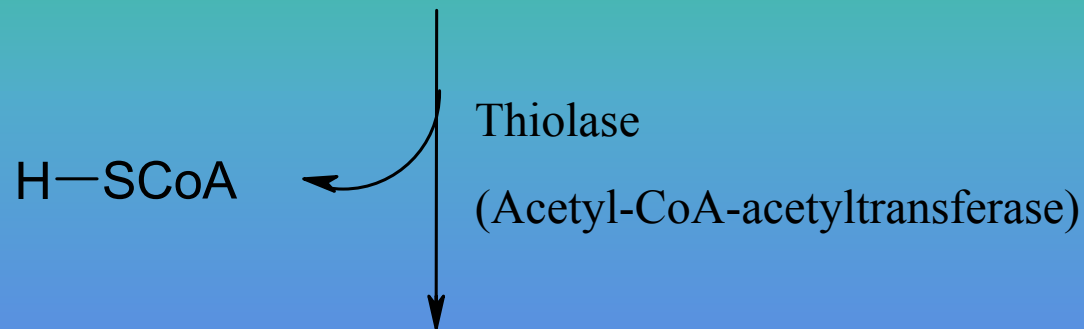
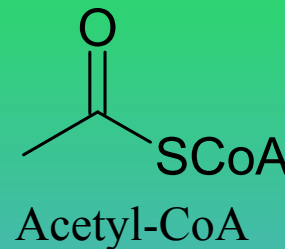
Biosynthese von Estradiol

Ausgangsstoff:

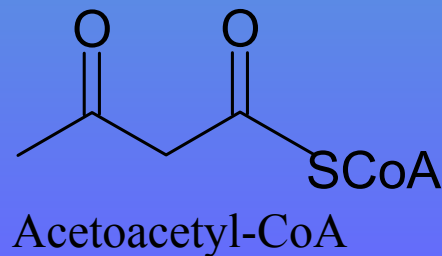
Acetyl-CoA (z.B. aus Glucose-Abbau)



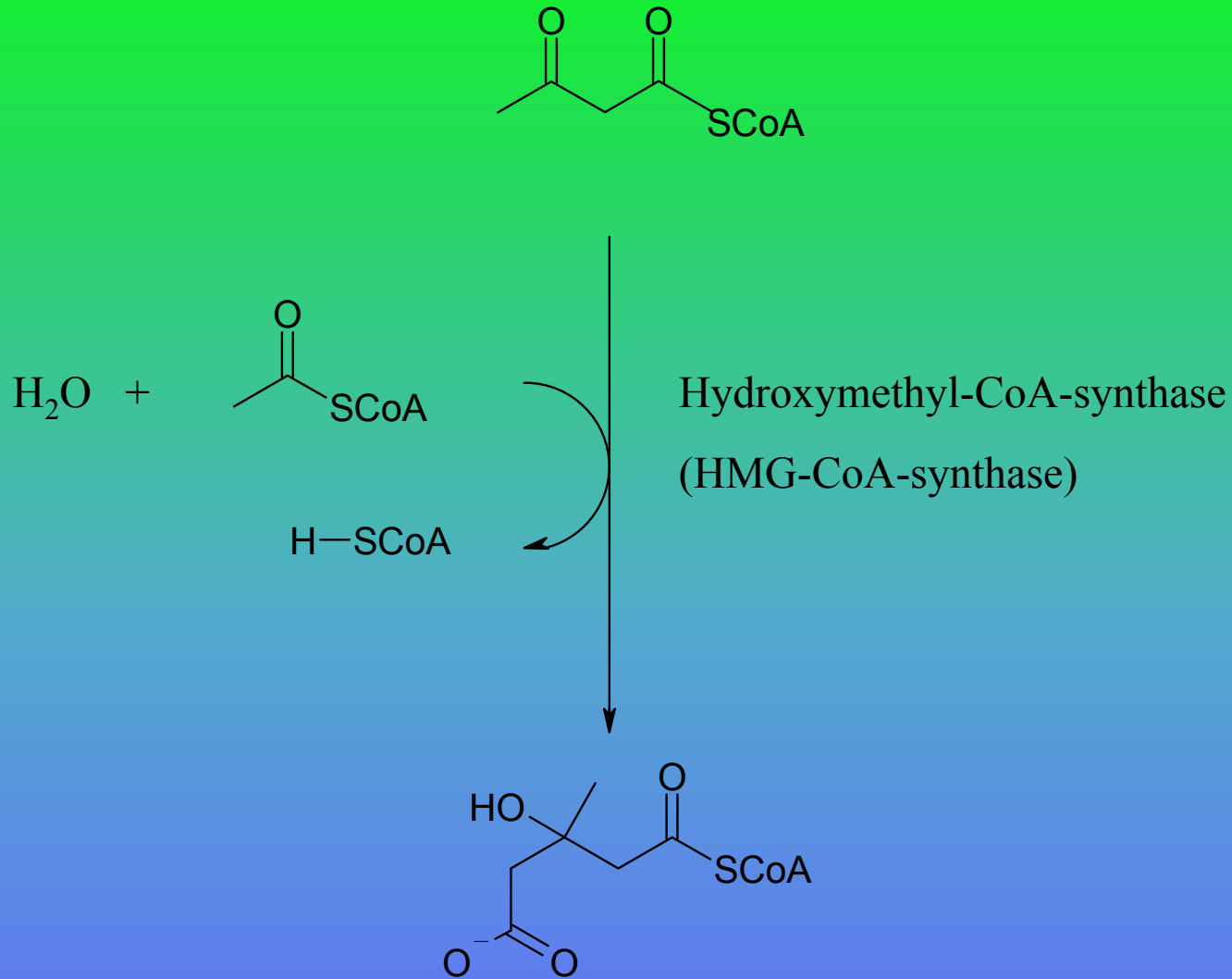
+



H-SCoA

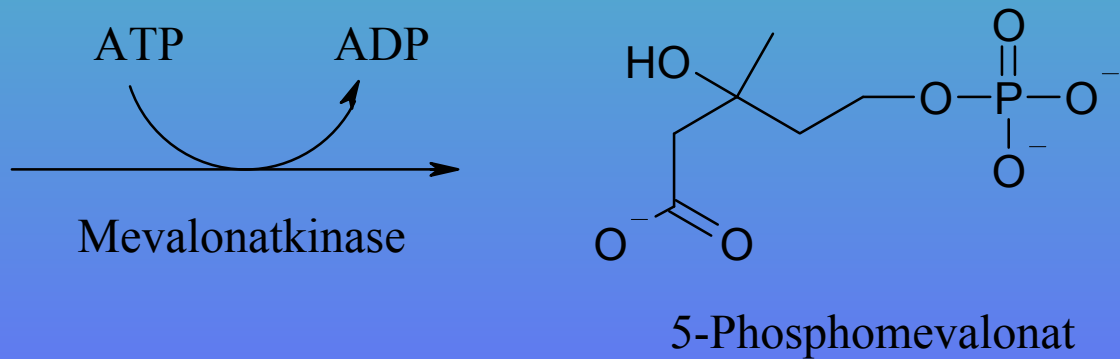
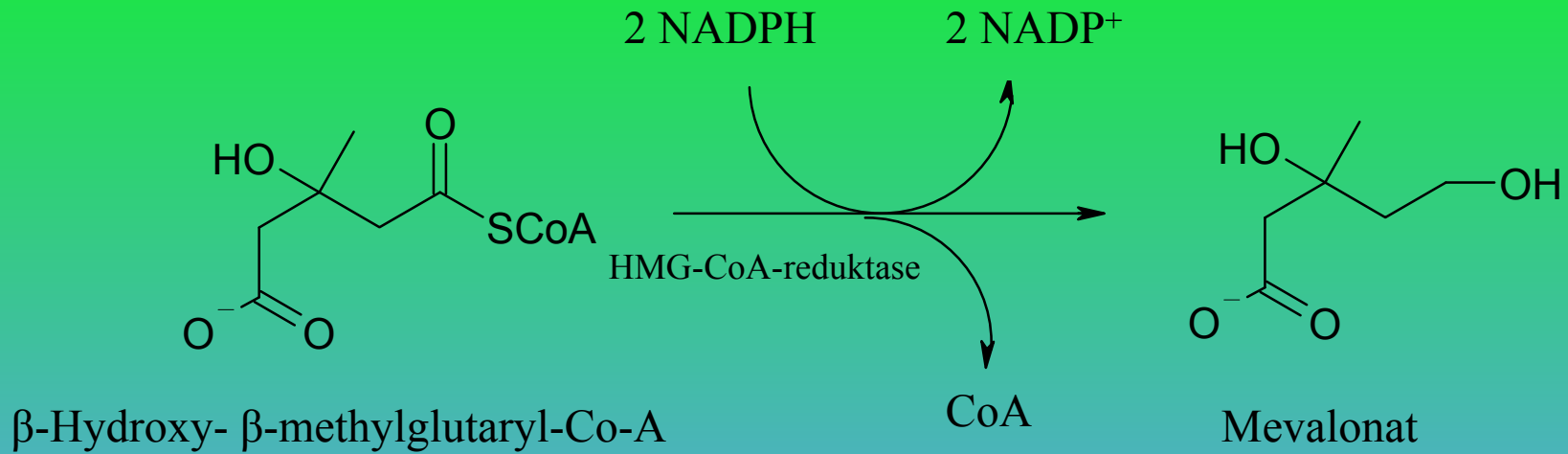


Biosynthese von Estradiol

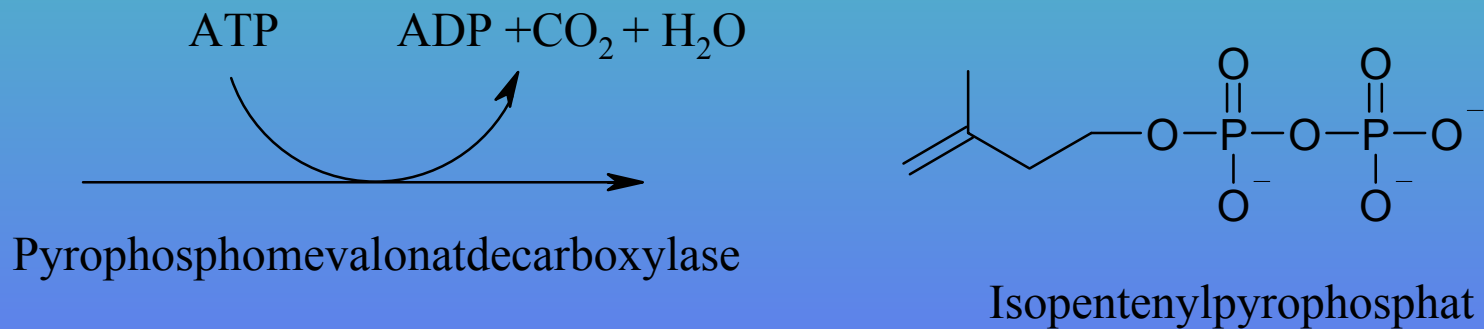
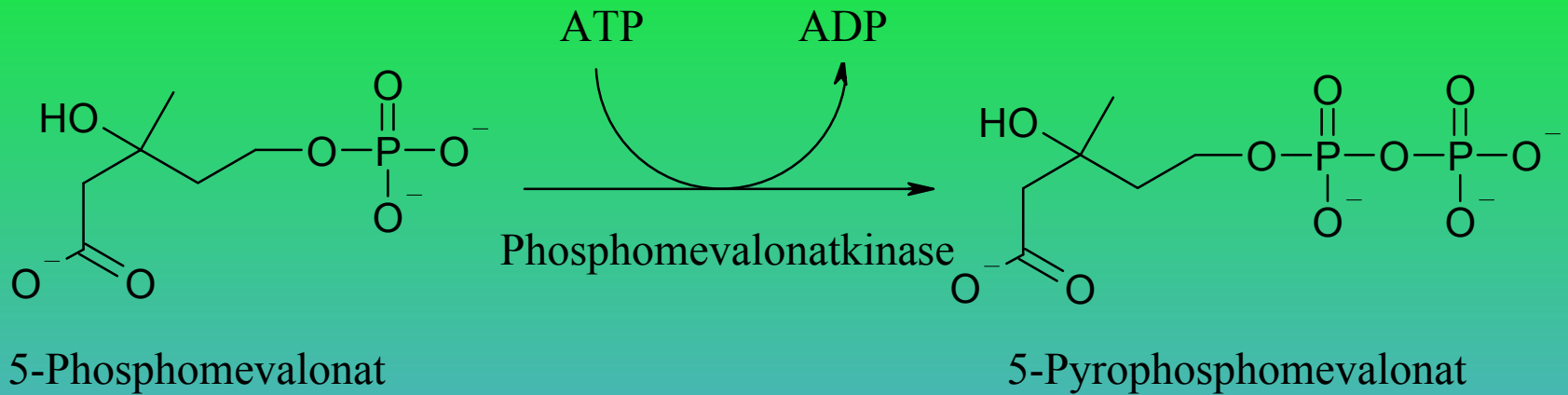


β -Hydroxy- β -methylglutaryl-Co-A = HMG-CoA

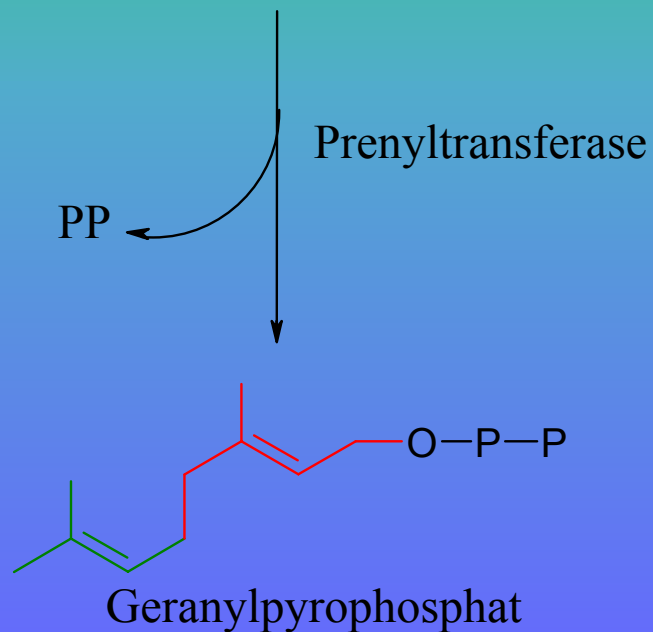
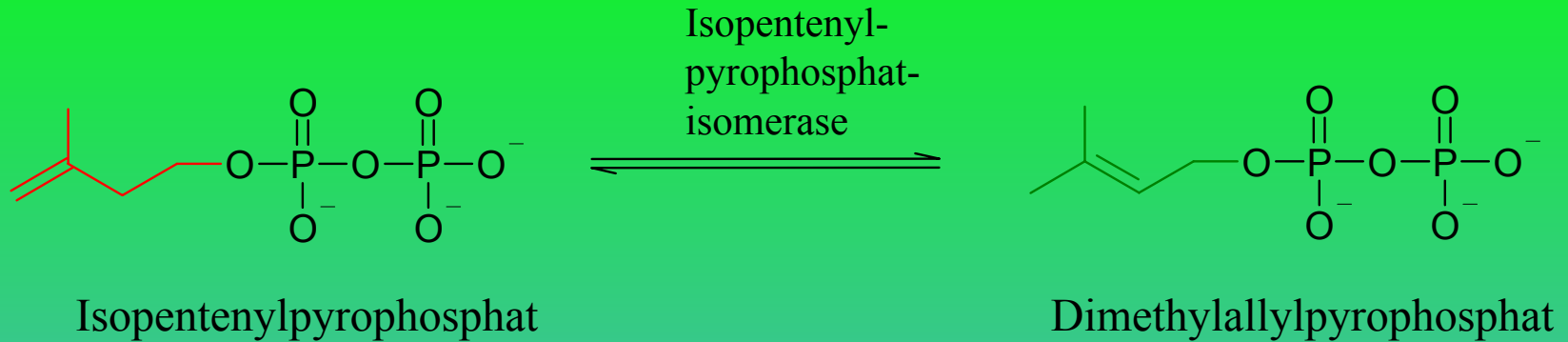
Biosynthese von Estradiol



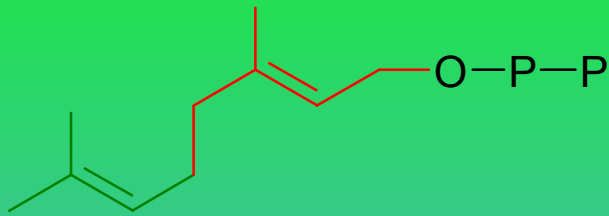
Biosynthese von Estradiol



Biosynthese von Estradiol

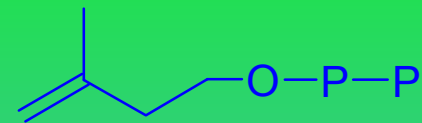


Biosynthese von Estradiol

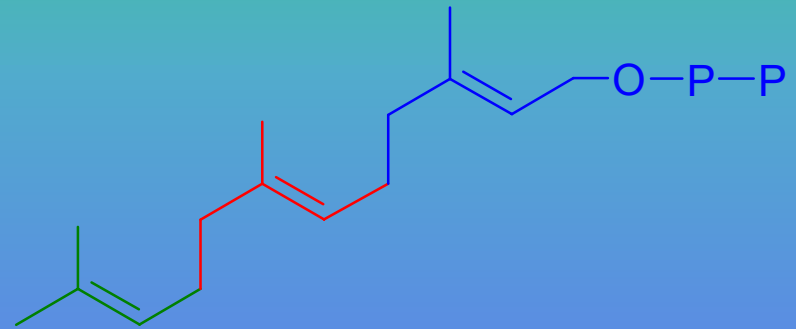
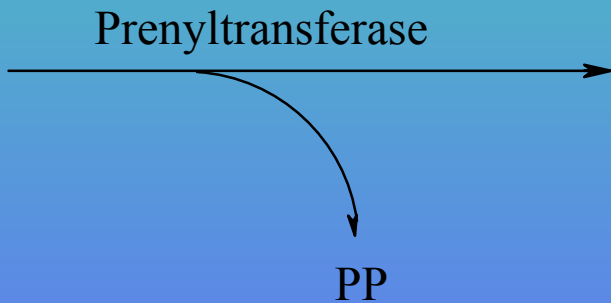


Geranylpyrophosphat

+

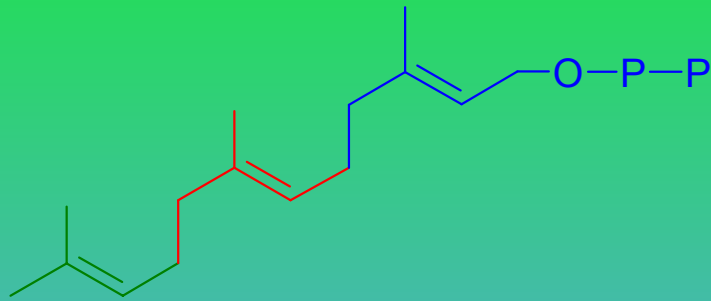


Isopentenylpyrophosphat

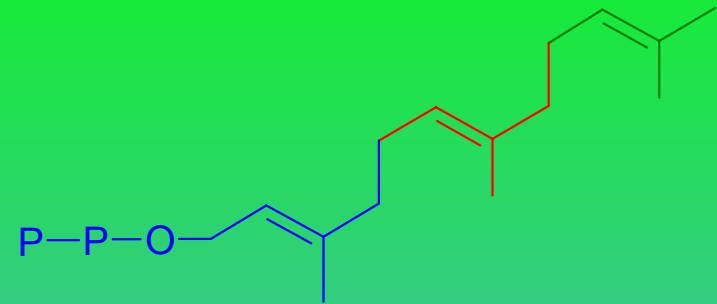


Farnesylpyrophosphat

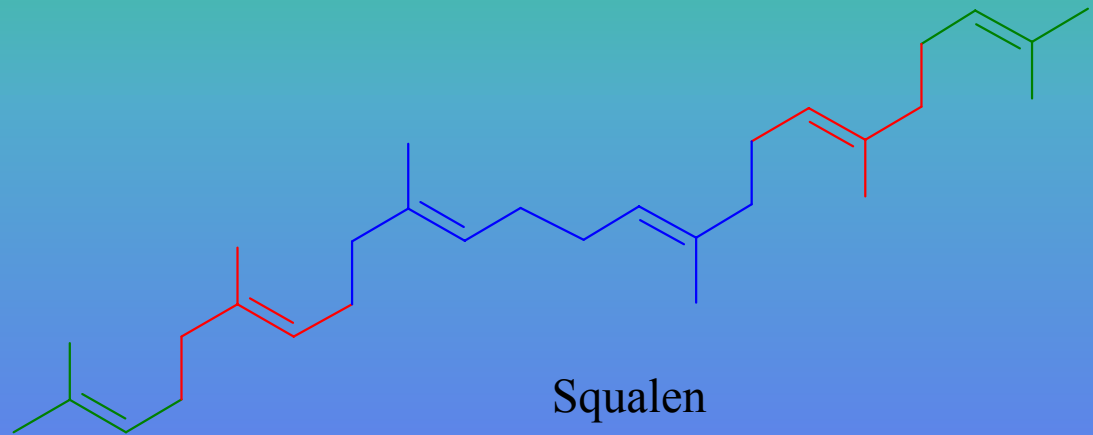
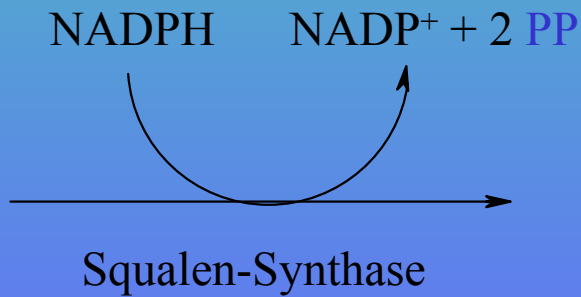
Biosynthese von Estradiol



Farnesylpyrophosphat

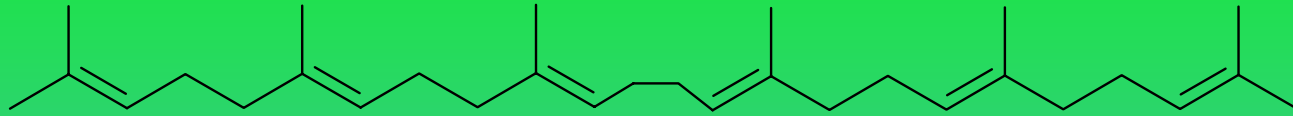


Farnesylpyrophosphat

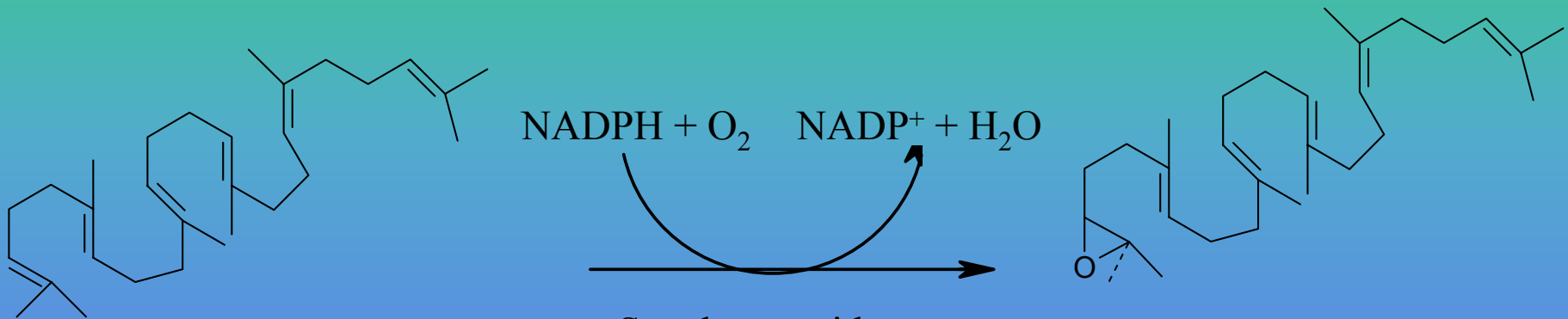


Squalen

Biosynthese von Estradiol



Squalen

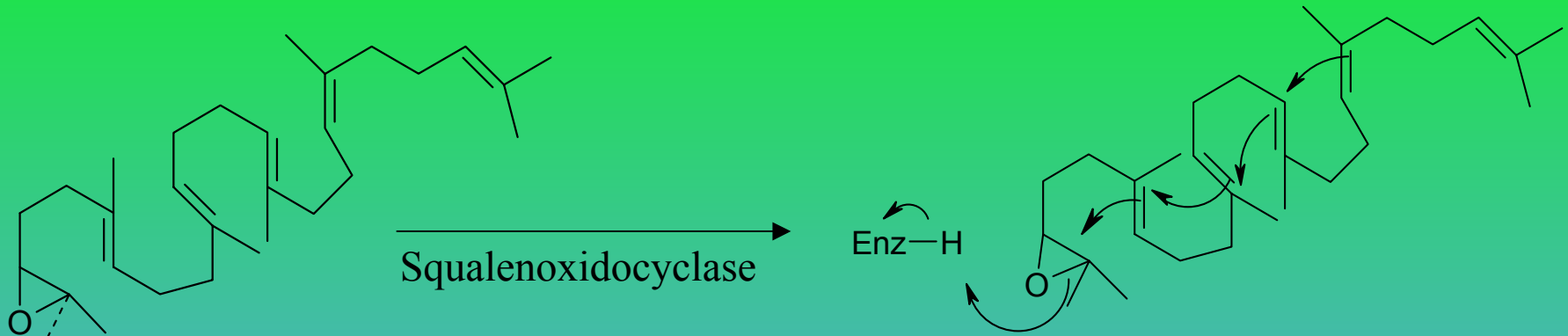


Squalen

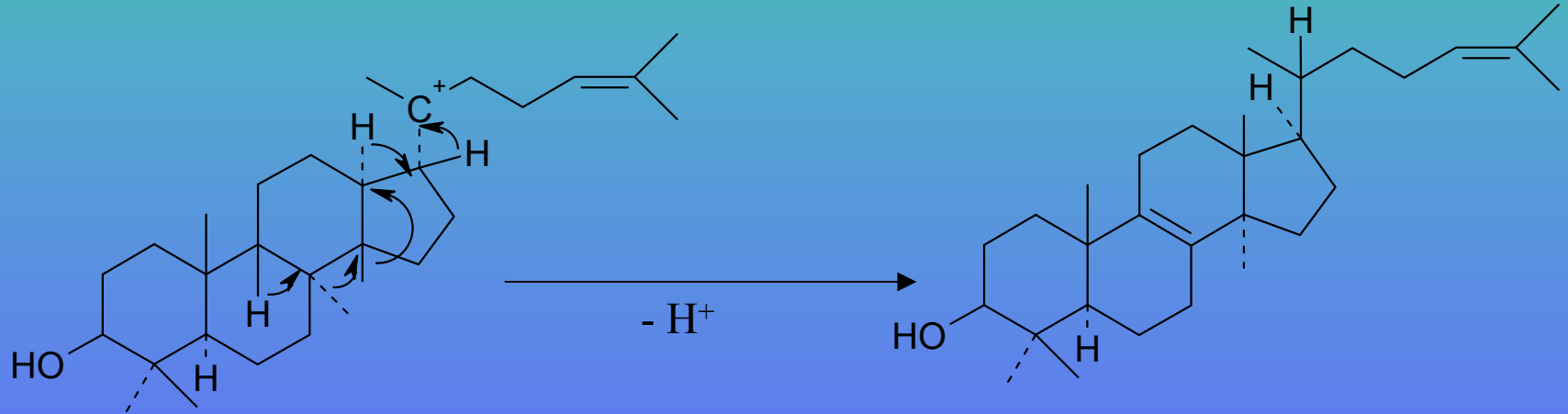
Squalenepoxidase

Squalenepoxid

Biosynthese von Estradiol



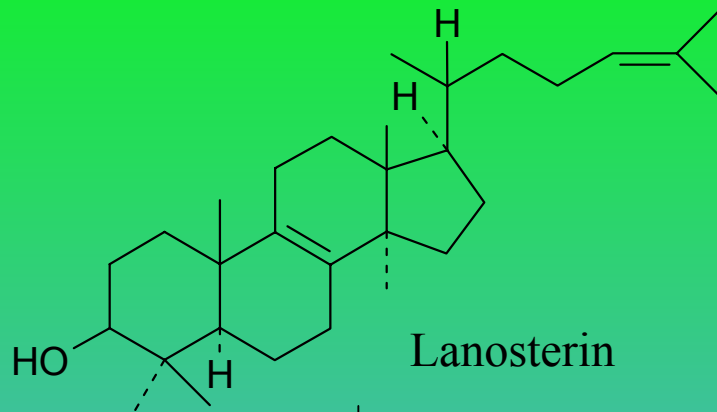
Squalenepoxid



Protosterol-Kation

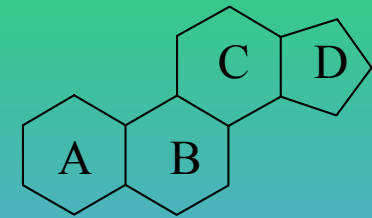
Lanosterin

Biosynthese von Estradiol

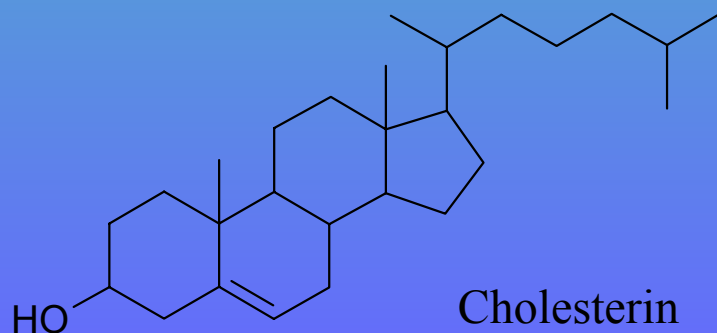


Lanosterin

↓
Demethylierung,
↓
Sättigung der
↓
Seitenkette,
↓
Wanderung der
↓
Doppelbindung im
↓
Ring B

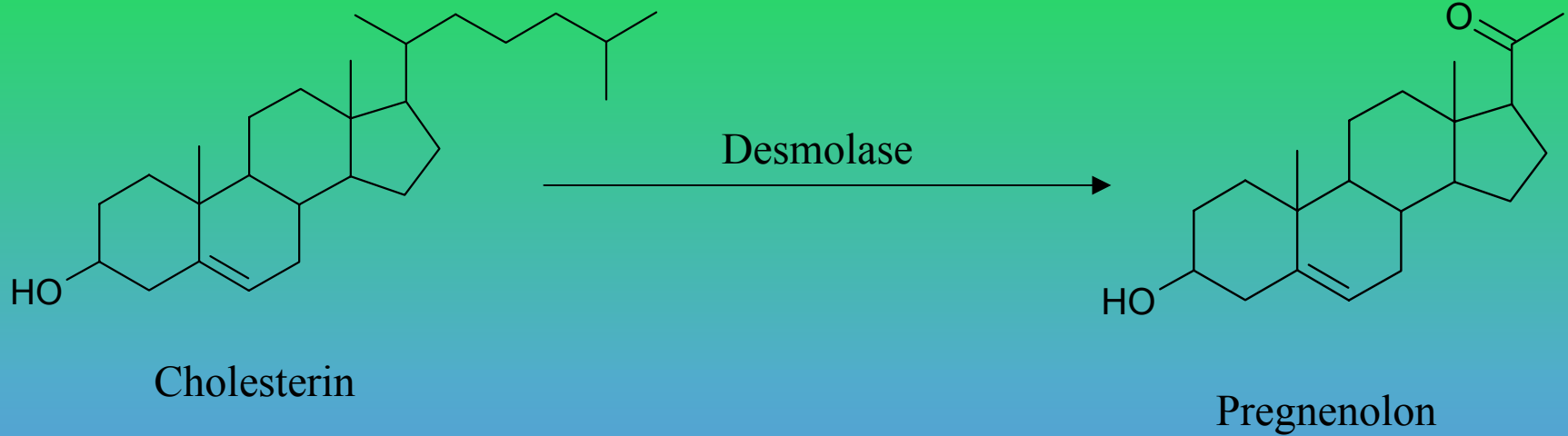


Sterangerüst



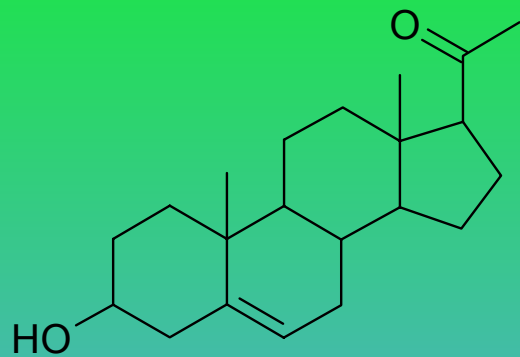
Cholesterin

Biosynthese von Estradiol



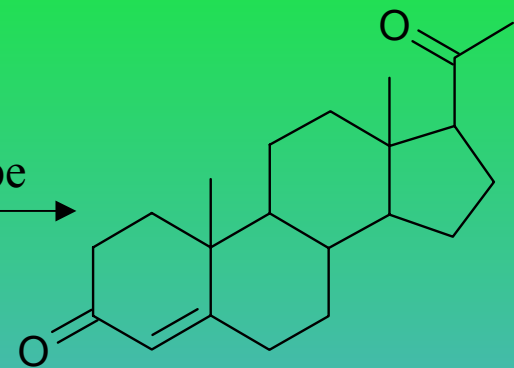
Desmolase : Cholesterol-Side-Chain-Cleavage Enzym

Biosynthese von Estradiol



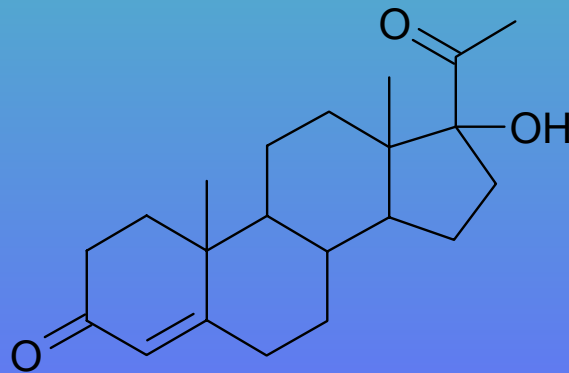
Pregnenolon

Oxidation der OH-Gruppe



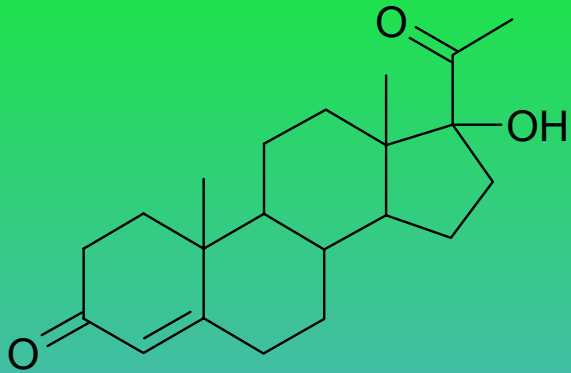
Progesteron

Hydroxylase



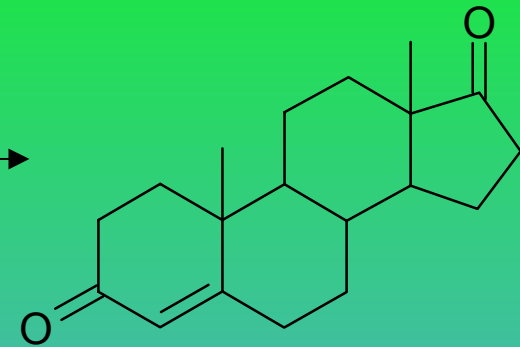
17-Hydroxy-Progesteron

Biosynthese von Estradiol



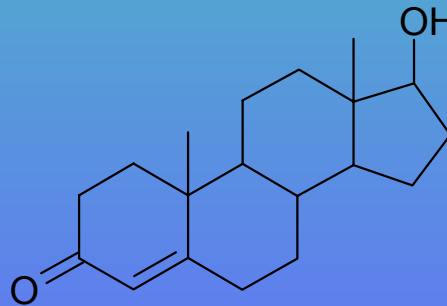
17-Hydroxy-Progesteron

Acetatabspaltung



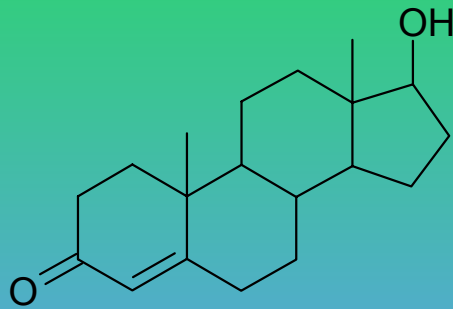
Androstendion

Reduktion



Testosteron

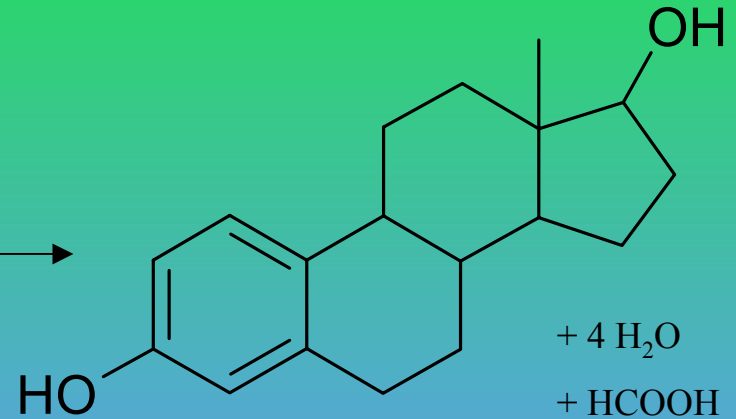
Biosynthese von Estradiol



Testosteron

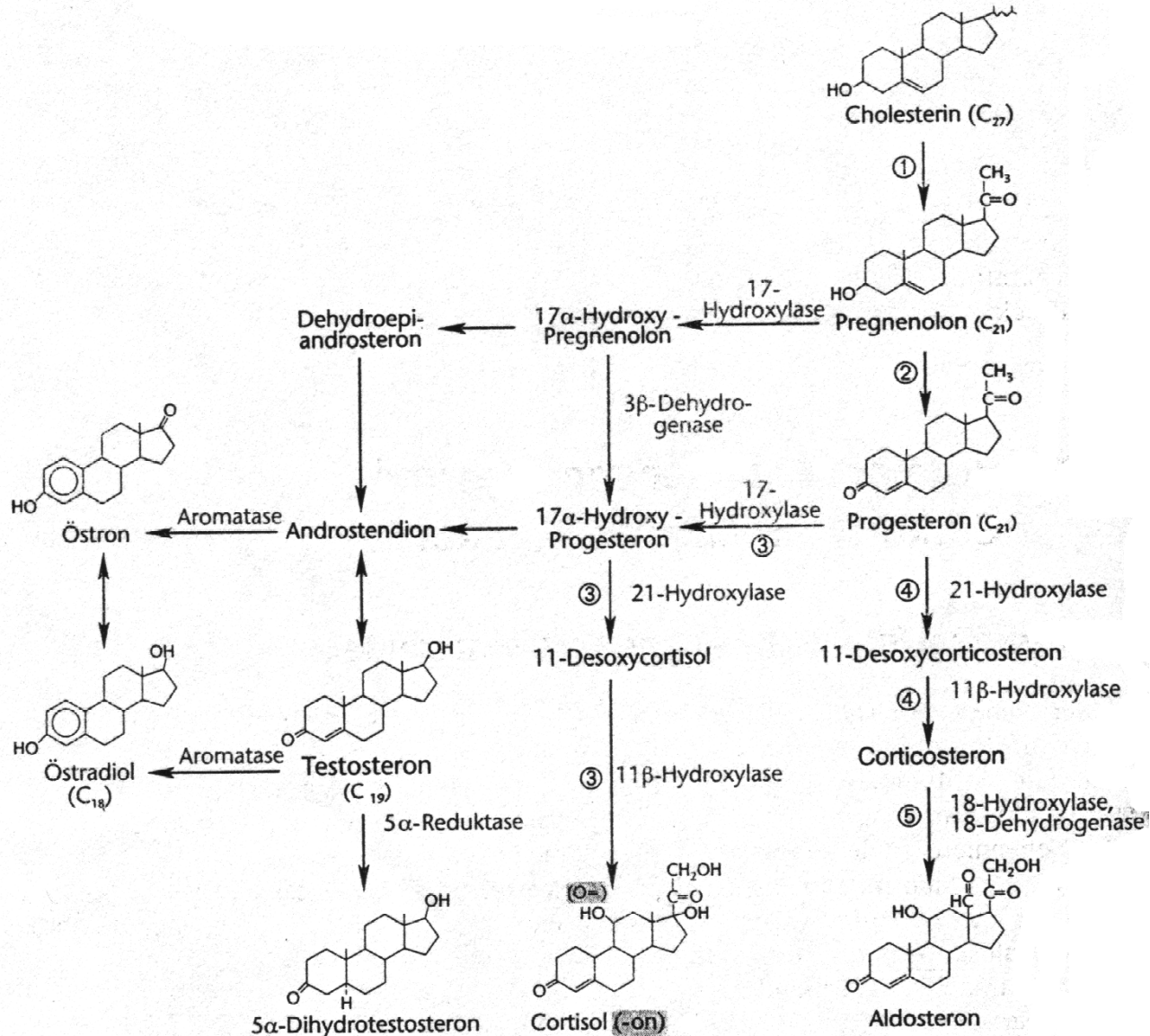


Aromatase
(Estrogensynthetase)



Estradiol

Biosynthese von Estradiol



Zwischenreaktionen und Coenzyme sind nicht mit aufgeführt, nur die wichtigsten Enzyme sind bezeichnet.