

# Biochemistry

## Metabolic pathways

02.12.2013 - 20.12.2013

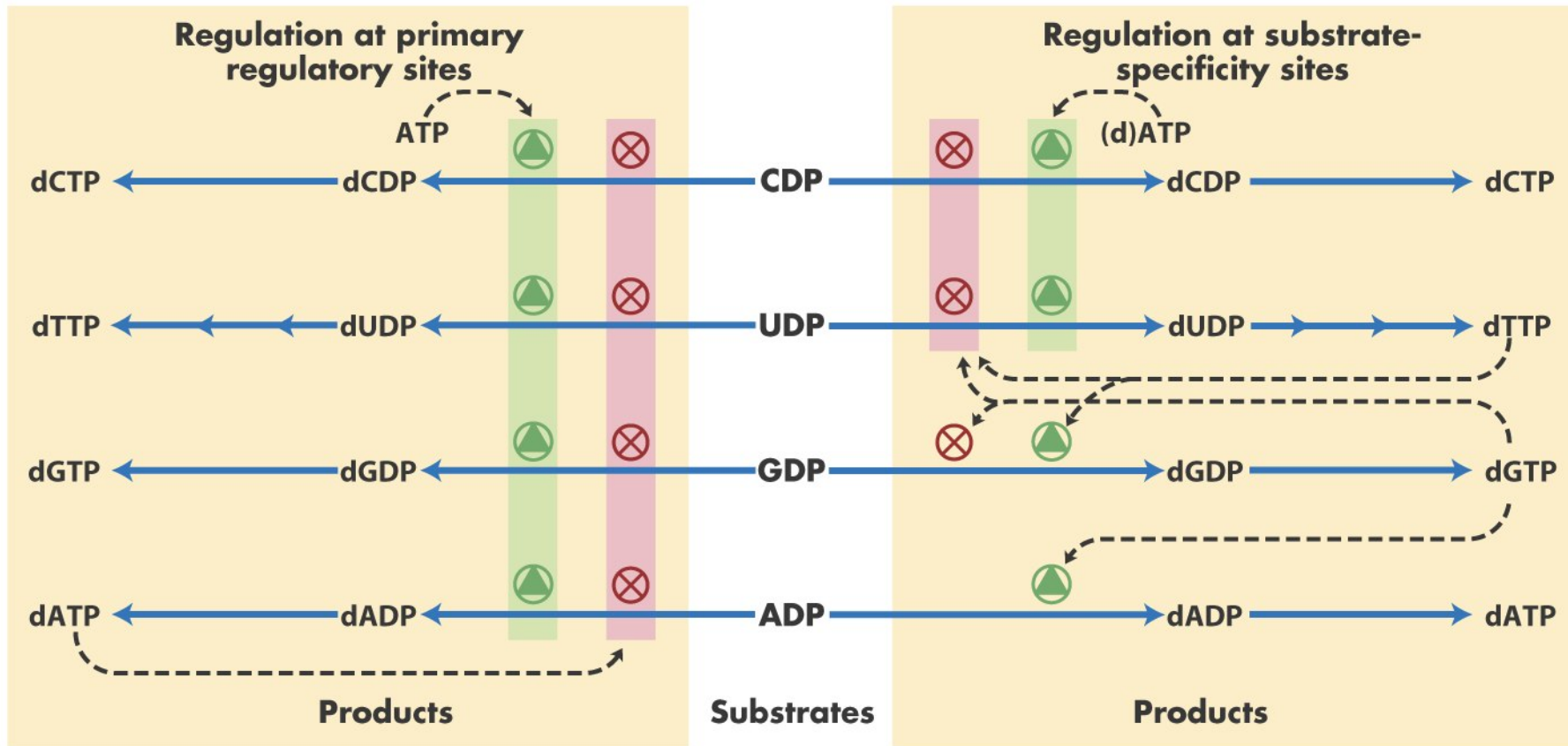
Gerhild van Echten-Deckert

Tel. 73 2703

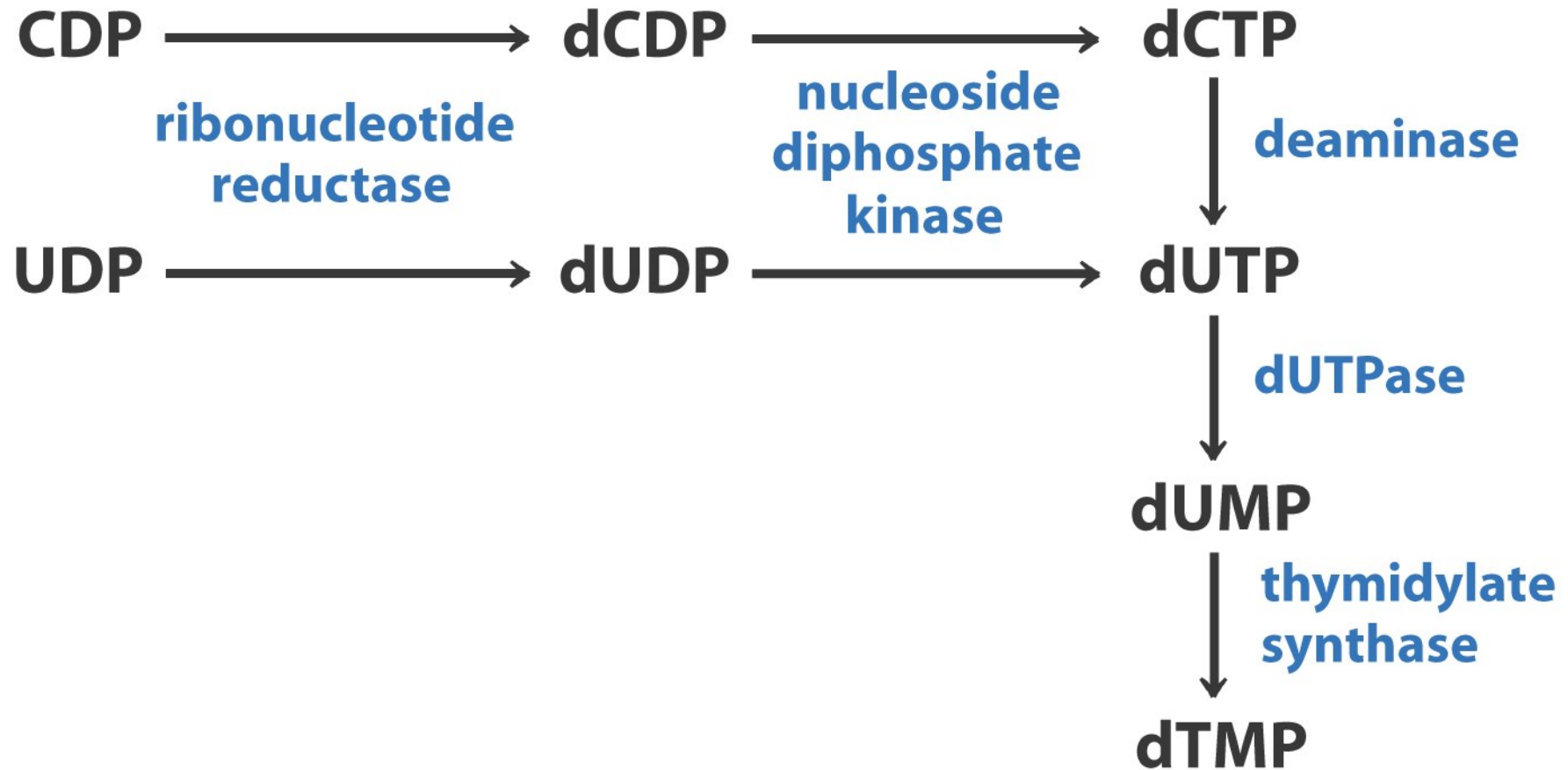
E-mail: [g.echten.deckert@uni-bonn.de](mailto:g.echten.deckert@uni-bonn.de)

<http://van-echten.broeschdesign.de>

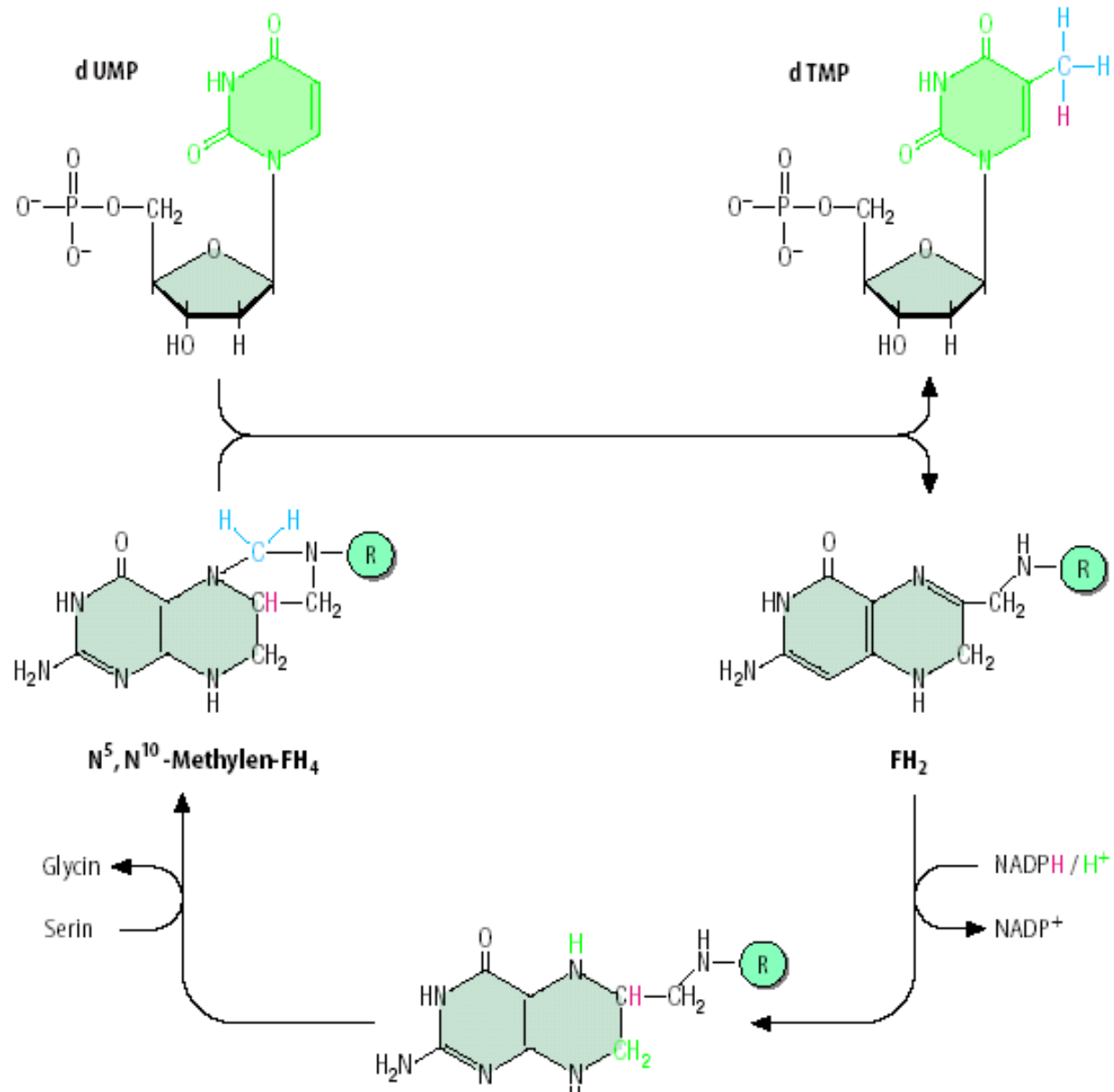
# Complex regulation of ribonucleotide reductase by (d)NTPs



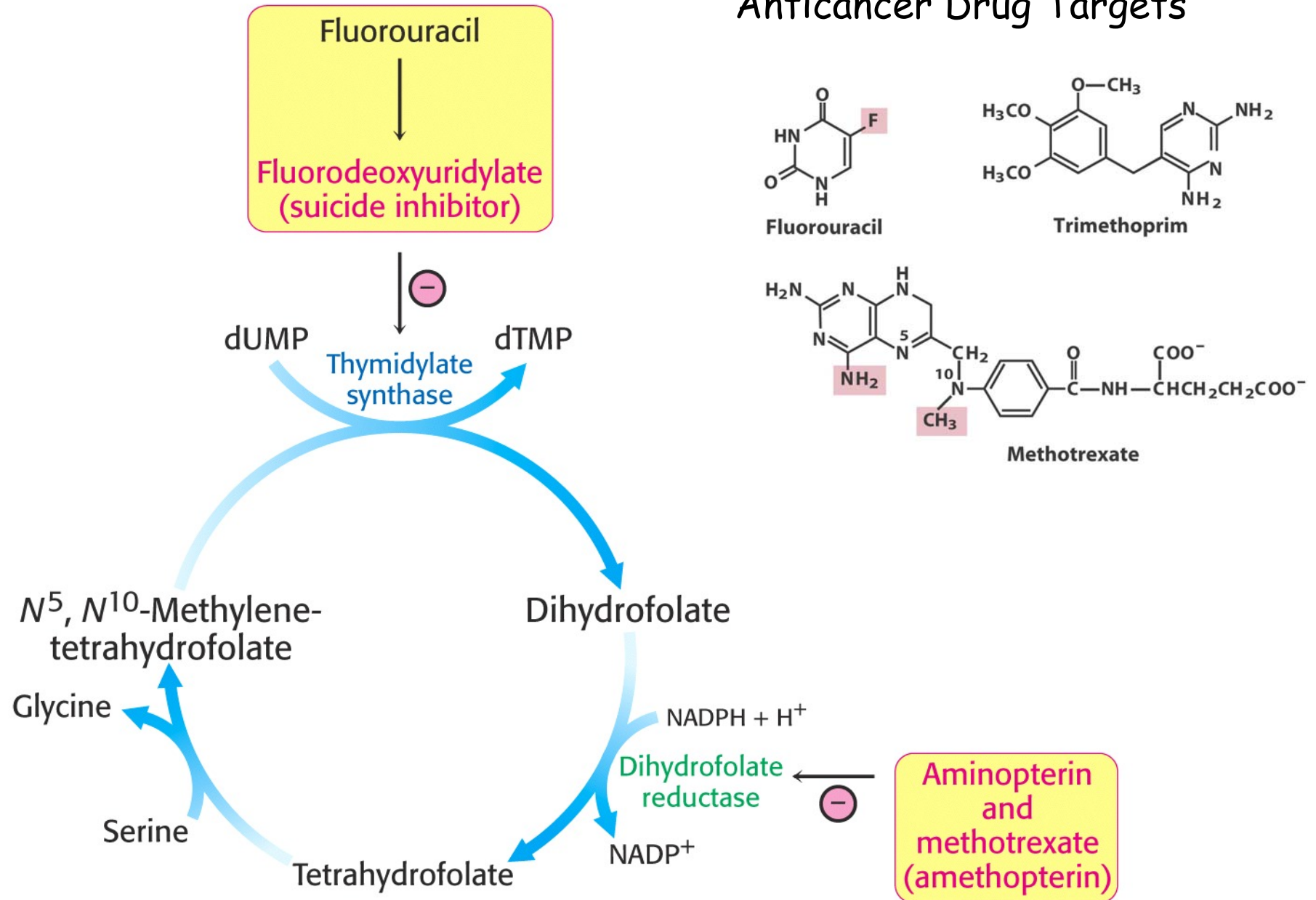
## Biosynthesis of thymidylate (dTMP) via dUTP



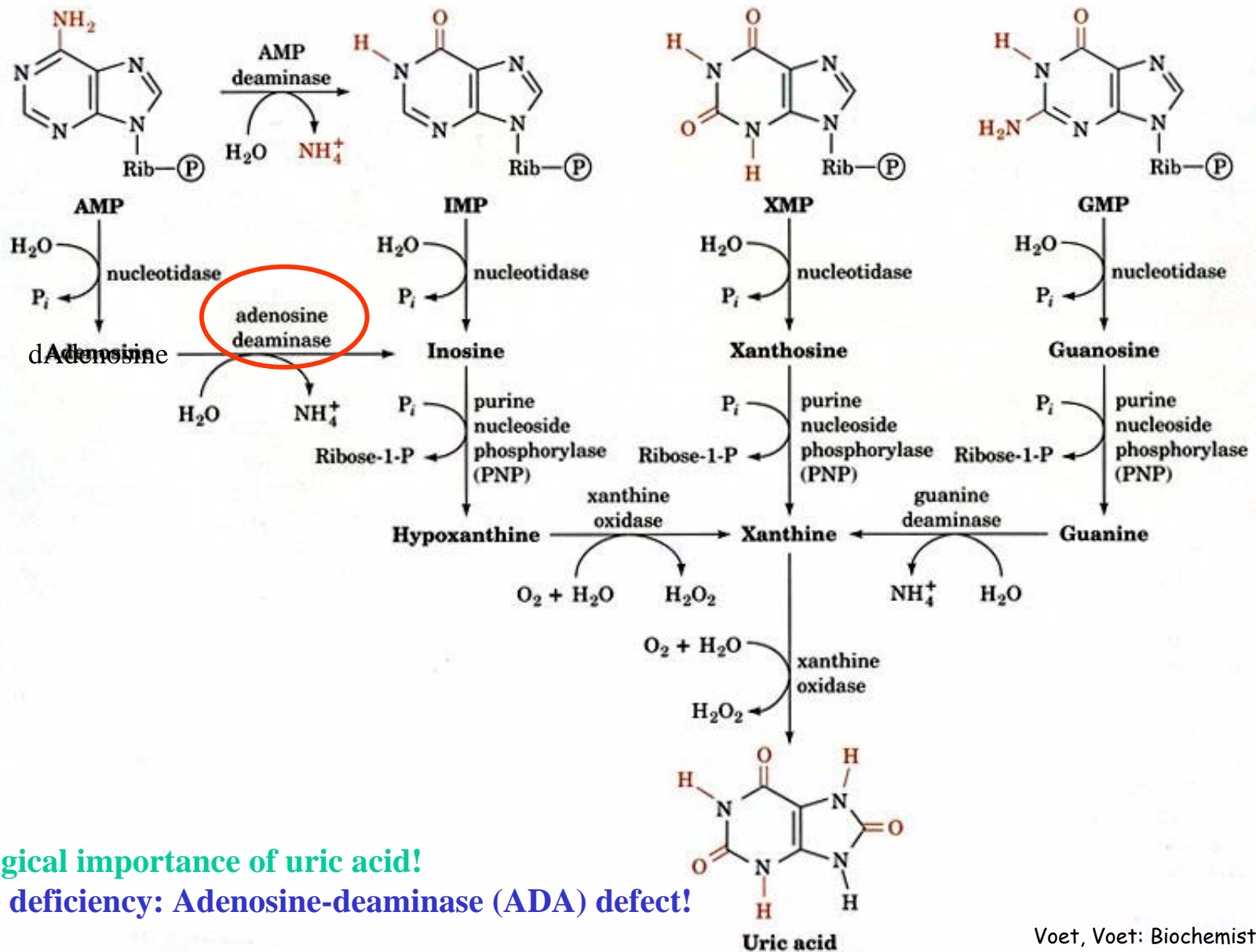
# Thymidylate synthase catalyses conversion of dUMP to dTMP



# Anticancer Drug Targets



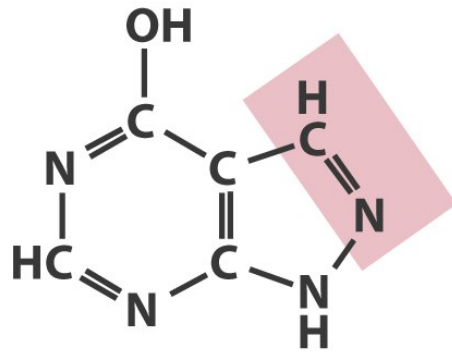
# Catabolism of purine nucleotides



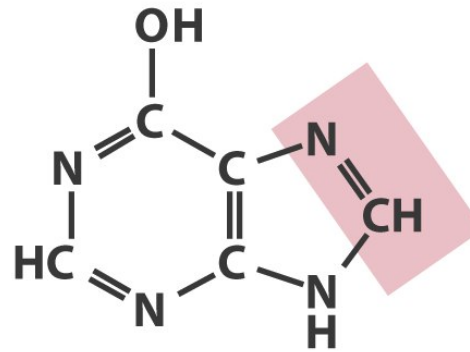
Physiological importance of uric acid!

Immune deficiency: Adenosine-deaminase (ADA) defect!

Allopurinol, an inhibitor of xanthine oxidase prevents crystalline deposits of uric acid (gout)

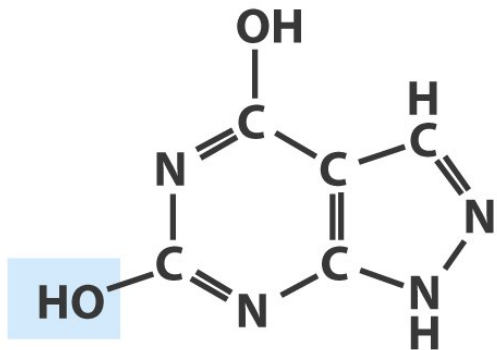


**Allopurinol**



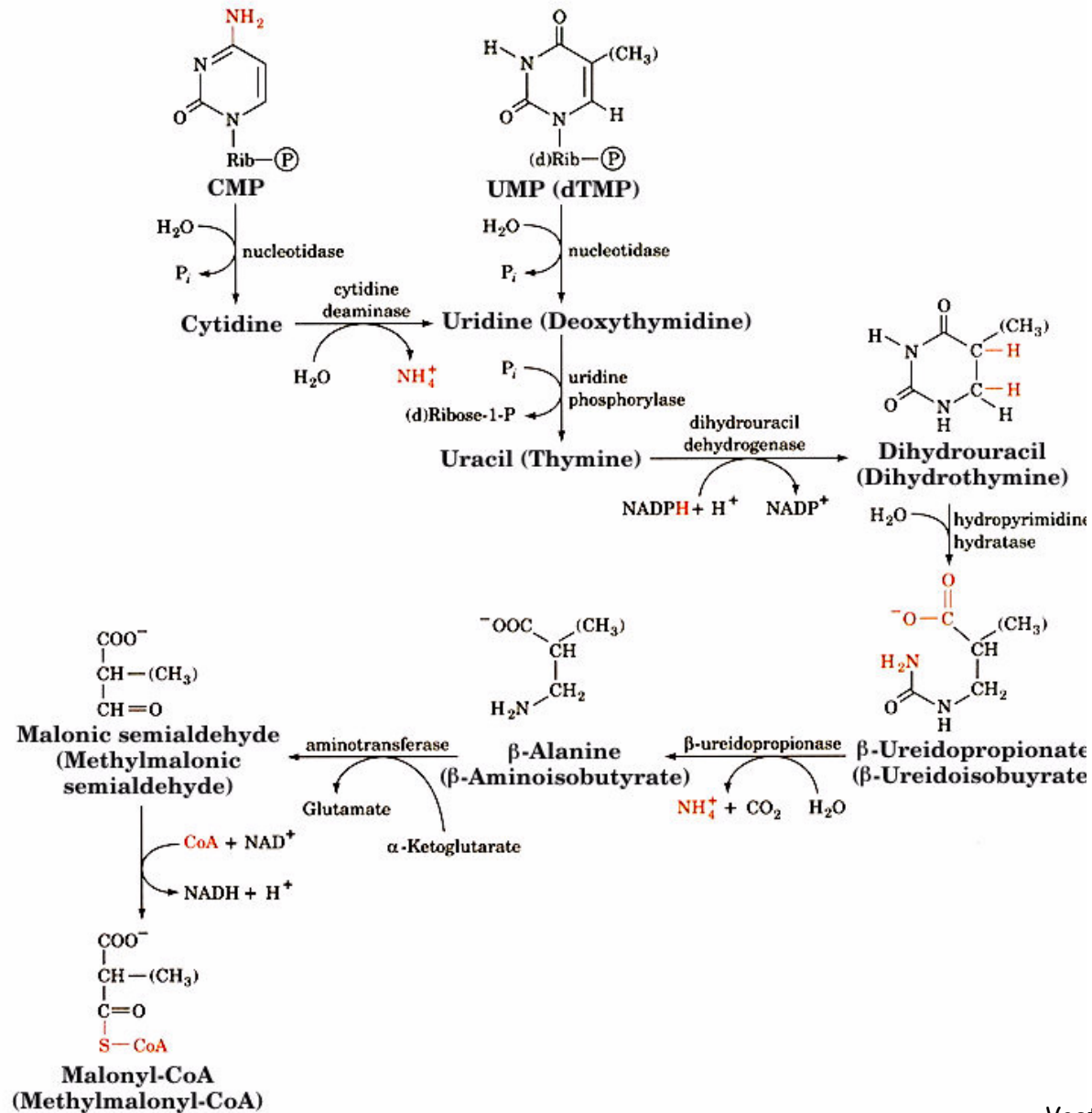
**Hypoxanthine  
(enol form)**

xanthine  
oxidase



**Oxypurinol = Alloxanthine**

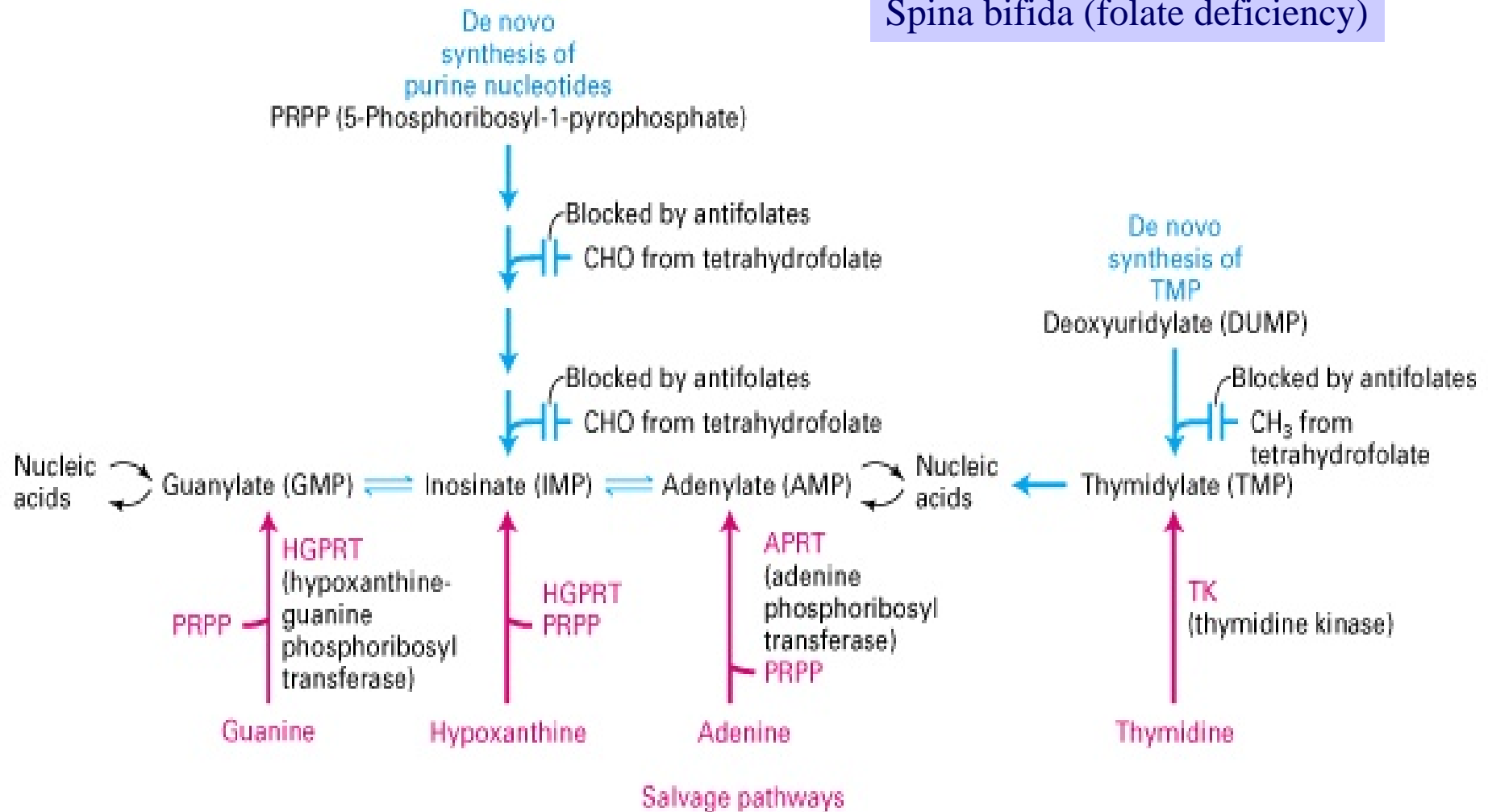
# Catabolism of pyrimidine nucleotides





# De novo and salvage pathways for nucleotide synthesis

Spina bifida (folate deficiency)



Lesch-Nyhan syndrome: hereditary disease (HGPRT-deficiency)

# The purine nucleotide cycle: anaplerotic function in skeletal muscle

Pathology: Myoadenilatdeaminase

