Chp 10 Rxns of Organic Functional Groups in Biochemistry

10.1 Role of functional groups in Biochemical Reactions

read p. 342

(2) (2) (3) (3)
22, 23, 24, 25

10

catabolic / Anabolic
Review functional groups

10.2 Oxidation-Reduction Rxns

(2) (1) (1) (1) (1) (1)
26, 27, 28, 29, 30, 31

Combustion

Cellular Respiration

(1) (8) (4) (4) (2)
32, 34, 35, 38, 39

oxidation

reduction

(2) (2) (10) (8) (8)
40, 41, 42, 43, 47

Ox-red of Organic Molecules
- coenzymes
- oxidizing agents / reducing agents

(5) (4)
48, 49

10.1 - 10.2 p. 348

65

Hydrocarbon Ox-Red
catalytic hydrogenation
coenzyme $FAD/FADH_2$

10.3 p. 350

Oxidation alcohols
coenzyme $NAD^+/NADH$

10.4 - 10.5 p. 354

antioxidants
free radicals

10.3 Hydration - Dehydration Rxns

(4) (6) (4) (4)
50, 51, 52, 53

Hydration
- alkenes + H_2O

Dehydration
- alcohol - H_2O

18

10.7 - 10.8 p. 357

10.4 Acyl group transfer Rxns

(9) (6) (12) (6) (8)
54, 55, 57, 58, 60

acyl group R-C(=O)-

Hydrolysis rxns

41

formation of soaps
- saponification

10.9 - 10.12 p. 363

Esterification Rxns
Carboxylic acid + alcohol → ester + water

Thioesters

(2) (2) (3) (6)
61, 62, 64, 66

10.5 phosphoryl Group Transfer Rxns

phosphoanhydride bond
ATP

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Energy Transfer in the Cell

* rxn summary 10-4 p. 373

Chemistry in Med

(8) (3) (2) (4) (2) (4)
68, 69, 70, 71, 72, 73

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