Simplified Diagram of Cellular Metabolism

Published by Garland Publishing, a member of the Taylor & Francis Group.

STAGE 1: BREAKDOWN OF LARGE MACROMOLECULES TO SIMPLE SUBUNITS

proteins → polysaccharides → fats

STAGE 2: BREAKDOWN OF SIMPLE SUBUNITS TO ACETYL COA ACCOMPANIED BY PRODUCTION OF LIMITED AMOUNTS OF ATP AND NADH

amino acids → simple sugars → fatty acids and glycerol → glucose → pyruvate → acetyl CoA

STAGE 3: COMPLETE OXIDATION OF ACETYL COA TO H₂O AND CO₂ ACCOMPANIED BY PRODUCTION OF LARGE AMOUNTS OF NADH AND ATP IN MITOCHONDRIUM

mitochondrial membranes

cytosol

NADH → mitochondrial membranes → oxidative phosphorylation → ATP

mitochondrial membranes → plasma membrane of eucaryotic cell

waste products

H₂O → O₂

NH₃ → CO₂