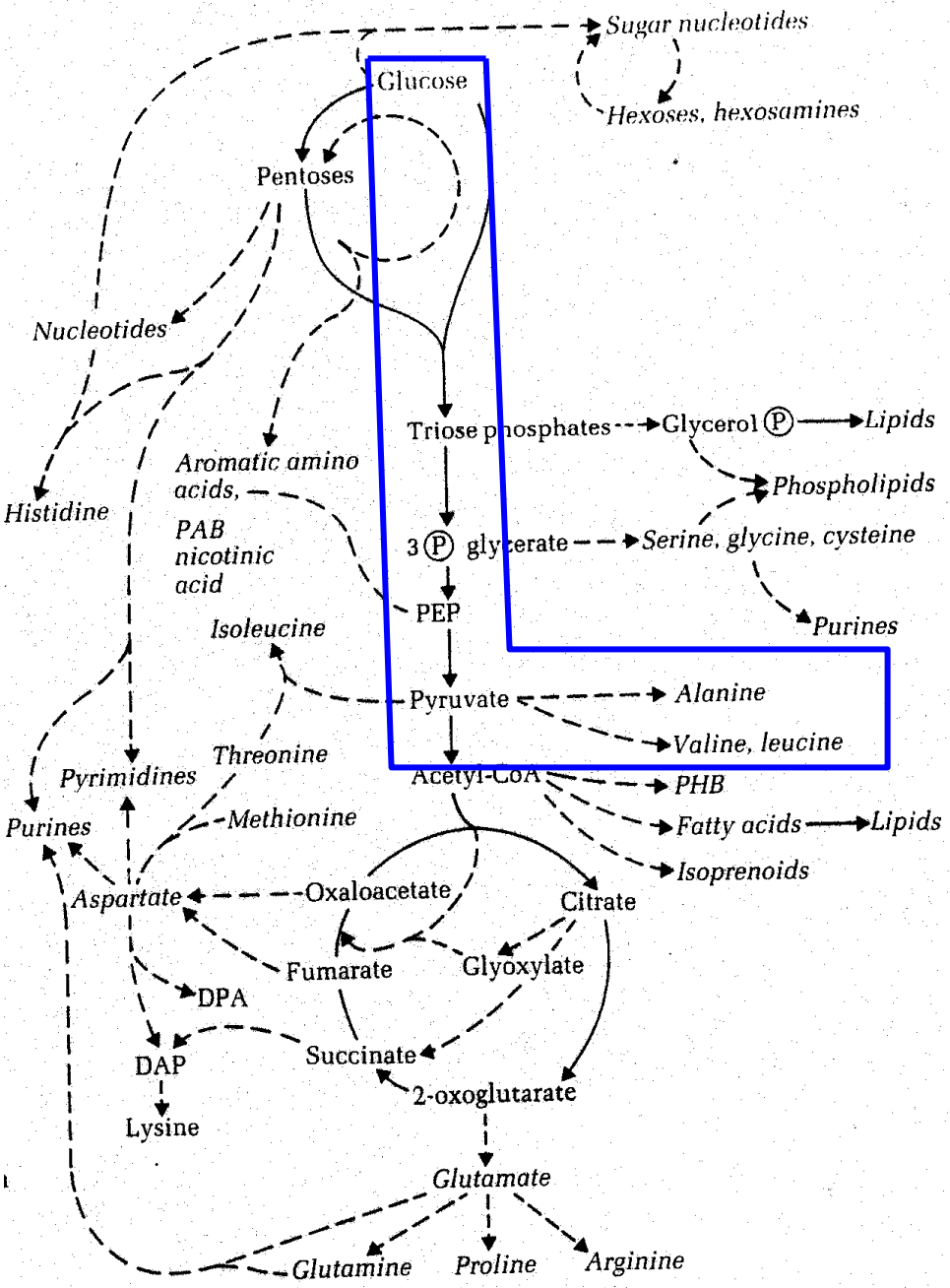
Sugar nucleotides
Glucose
Hexoses, hexosamines
Pentoses
Nucleotides
Triose phosphates
Glycerol Ⓟ
Lipids
Phospholipids
Aromatic amino acids,
PAB
nicotinic acid
Histidine
3 Ⓟ glycerate
Serine, glycine, cysteine
Purines
PEP
Isoleucine
Pyruvate
Alanine
Valine, leucine
Threonine
Pyrimidines
Acetyl-CoA
PHB
Fatty acids
Lipids
Methionine
Purines
Isoprenoids
Aspartate
Oxaloacetate
Citrate
Fumarate
Glyoxylate
DPA
DAP
Succinate
2-oxoglutarate
Lysine
Glutamate
Glutamine
Proline
Arginine

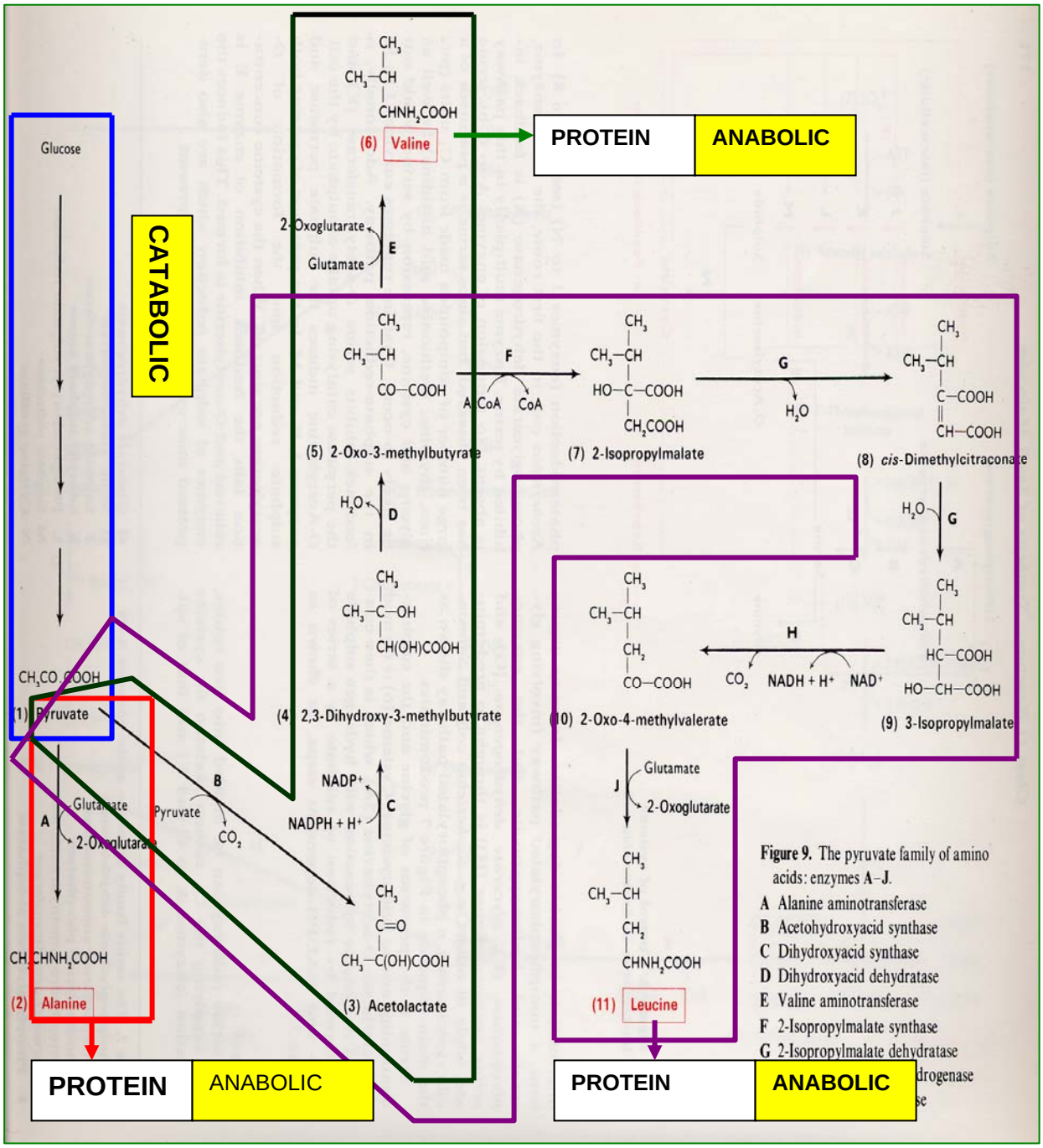

Figure 9. The pyruvate family of amino acids: enzymes A–J.

A Alanine aminotransferase
B Acetohydroxyacid synthase
C Dihydroxyacid synthase
D Dihydroxyacid dehydratase
E Valine aminotransferase
F 2-Isopropylmalate synthase
G 2-Isopropylmalate dehydratase
drogenase
se

0 ATP PRODUCED
0 ATP USED
0 NAD(H)PRODUCED
0 NAD(H) USED

0 ATP PRODUCED
0 ATP USED
1 NAD(H) PRODUCED
1 NAD(H) USED

0 ATP PRODUCED
0 ATP USED
0 NAD(H) PRODUCED
1 NAD(H) USED

THE METABOLIC REACTIONS BETWEEN WHAT IS CLEARLY CATABOLIC AND CLEARLY ANABOLIC NEED TO BE CAREFULLY CONSIDERED SINCE THEY MAY PRODUCE OR USE ATP AND/OR PRODUCE OR USE NAD(H).

GIVEN THIS, A CONSISTENT CONVENTION NEEDS TO BE DEFINED.

PRACTICALLY, IT IS BEST TO CONSIDER THESE REACTIONS AS PART OF THE CATABOLIC PATHWAYS SINCE THE MONOMER STARTING POINT CAN BE MORE UNAMBIGUOUSLY DEFINED.