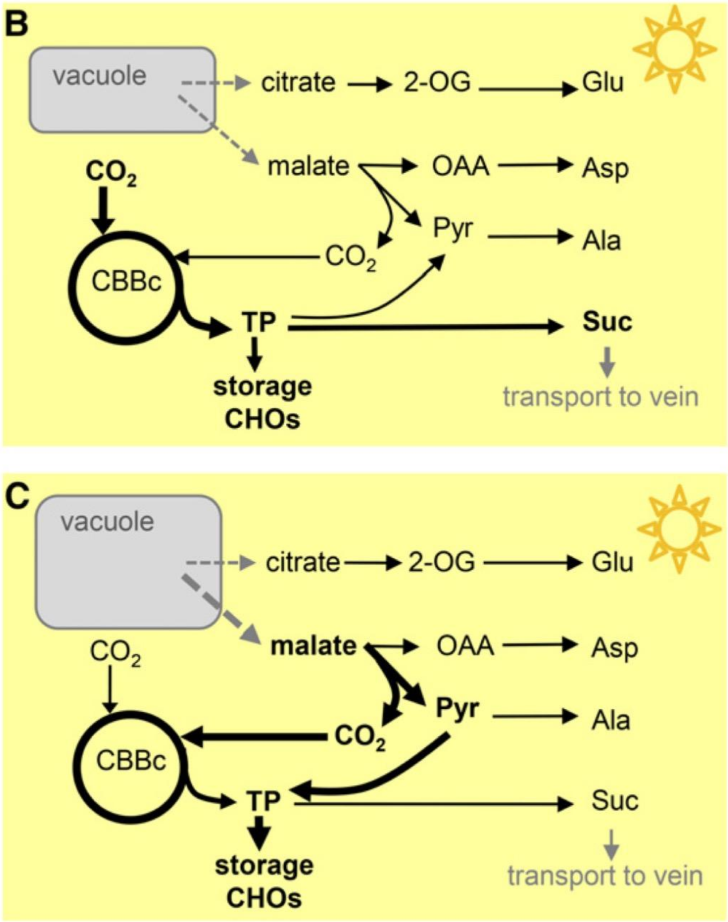

Plant Physiology, June 2017, Vol. 174, pp. 473–477,

Figure 1. Daytime metabolism of organic acids in C_3 and CAM plants; arrow thickness denotes flux. A, Organic acids are directly derived from photosynthesis during the day. This model is obsolete for many C_3 species due to the results of flux analyses. B, In many C_3 plants, the use of organic acids is based on organic acids produced and stored during the night according to flux analyses. C, Daytime metabolism of organic acids in CAM plants. 2-OG, Oxoglutarate; CBBc, Calvin-Benson-Bassham cycle; CHOs, carbohydrates; OAA, oxaloacetate; Pyr, pyruvate; TP, triosephosphate.

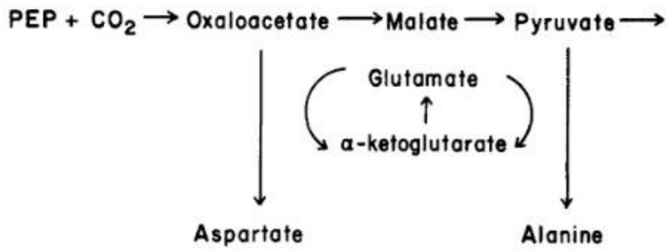

Fig. 3.12. Main reactions of CAM resulting in the primary product, malic acid, and secondary products aspartate, alanine, and pyruvate. Tertiary and other products are formed by the usual reactions of intermediary metabolism

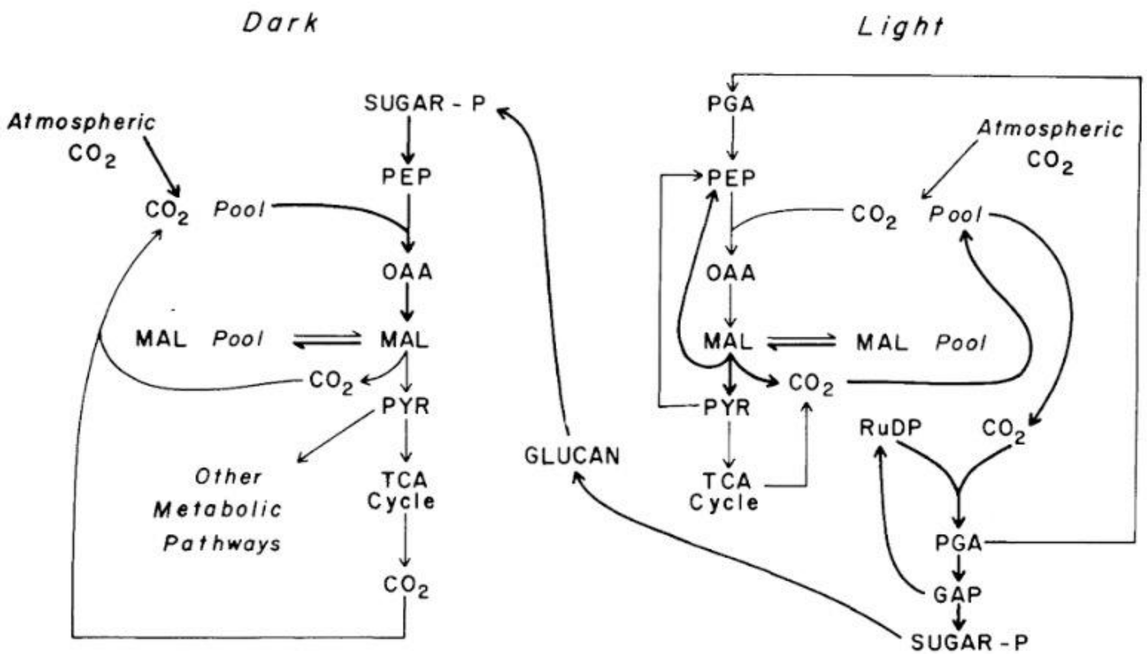

Fig. 3.13. The proposed metabolic pathway from storage carbohydrate to malic acid in the dark, and then to storage carbohydrate once again during the subsequent light period. Malic acid acts as a night storage molecule for CO_2 which is donated to the reductive pentose phosphate cycle during the subsequent day. The proposed gluconeogenesis starting from PEP in the light is not given in this scheme

Crassulacean Acid Metabolism: Analysis of an Ecological Adaptation

M. Kluge, I. P. Ting
Springer Science & Business Media, 1978

Страсбургер стр148 там на одной картинке все три варианта

Phosphoenolpyruvate carboxykinase

C4

Amino Acids (2001) 20: 225–241

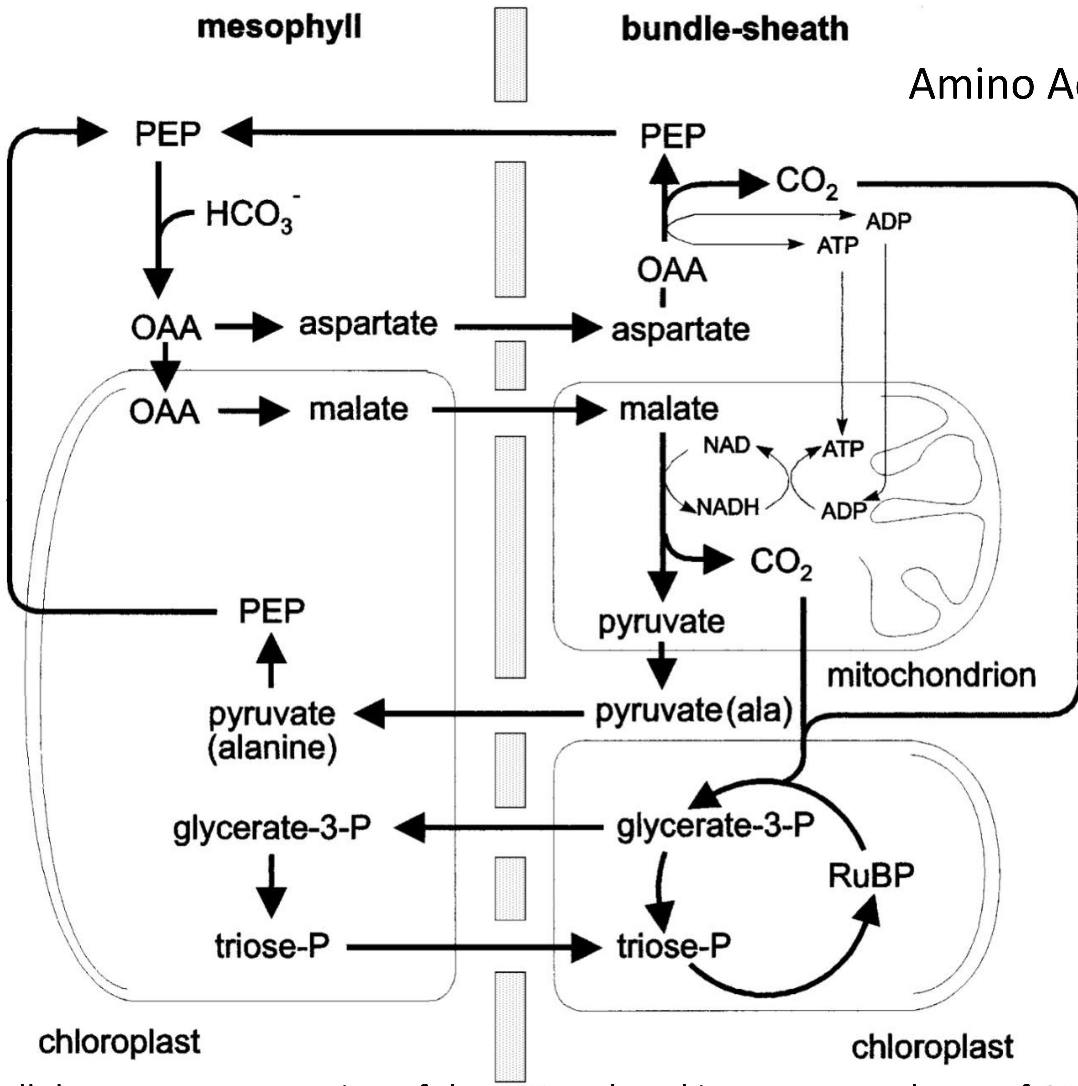

Fig. 1. The intracellular compartmentation of the PEP-carboxykinase type pathway of C4 photosynthesis. Note that both PEPCK and NAD-ME carry out the decarboxylation reactions. NADH formed by NAD-malic enzyme is used to generate the ATP required for PEPCK. Alanine and aspartate are shuttled between the mesophyll and bundle sheath cells, in order to maintain a balance of amino groups between the two compartments (Leegood, 1997)