



Fig. 1: Ascorbic acid (AA) transport, dehydroascorbic acid (DHA) transport and recycling in human neutrophils. AA, transported by sodium-dependent vitamin C transporters (SVCT), maintains mmol/L concentrations of AA inside neutrophils. Activated neutrophils secrete reactive oxygen species that oxidize extracellular AA to DHA. DHA is rapidly transported into the neutrophil by the glucose transporters GLUT1 and GLUT3 and immediately reduced to AA by glutaredoxin (GRX), producing a 10-fold increase in neutrophil internal AA concentration. Glutathione (GSH), used during DHA reduction, is regenerated from glutathione disulfide (GSSG) by glutathione reductase (GRD) and NADPH. NADPH is a product of glucose metabolism through the pentose phosphate pathway. As NADPH is oxidized to NADP, electrons are transferred to GRD so it can reduce GSSG to GSH. Modified and reproduced with permission of the *Journal of Nutritional Biochemistry* 1998;9:120,⁷ Elsevier Sciences Inc.

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