

3-3-6. Lipid Transfer Particle Mediates the Delivery of Diacylglycerol from Lipophorin to Fat Body in Larval *Manduca sexta*.

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This work analyzed the process of lipid storage in fat body of larval *Manduca sexta*, focusing in the role of lipid transfer particle (LTP). When fat bodies were incubated *in vitro* with diacylglycerol-labeled lipophorin ([³H]-DAG-Lp), a significant amount of the label was transferred to the tissue over time. The label was found in diacylglycerol (DAG) and triacylglycerol (TAG) fat body lipids. The transfer of DAG from lipophorin to fat body and its storage as TAG was significantly inhibited (60%) by preincubation of the tissue with antibody against LTP. Lipid transfer was restored to control values by the addition of purified LTP to fat body that had been treated with anti-LTP antibody. Incubation of fat body with dual labeled-DAG lipophorin or the tissue treatment with ammonium chloride showed that neither a membrane-bound lipoprotein lipase nor lipophorin endocytosis are relevant pathways to transfer or to storage lipids into fat body, respectively. The treatment of fat body with lipase after its incubation with [³H]-DAG-Lp significantly reduces the amount of [³H]-DAG associated with the tissue, suggesting the lipid is still on the external surface of the membrane. Whether this lipid represents irreversibly adsorbed lipophorin or lipid that has been transferred from lipophorin to the cell membrane is unknown. Regardless, these results indicate that the main pathway for the transfer DAG from lipophorin to fat body is via a LTP mediated process.