Focal adhesion plaques (known also as focal contacts) are the areas where cells contact with extracellular matrix. Many molecules participate in physical linkage of cytoskeleton (microfilaments) to membrane receptors. This complex of interacting proteins includes: talin, vinculin, paxillin, filamin, α-actinin, which play a key role in coupling F-actin (cytoskeleton) to cytoplasmic domains of integrins. Numbers of enzymes including: focal adhesion kinases (FAK), calpain II and protein kinase C (PKC) regulate processes connected with rearrangement of focal adhesion components. In our investigations we are especially interested in changes in the structure of focal contacts during differentiation of satellite cells. Satellite cells are the stem myogenic cells found between the basal membrane and the plasmalemma of fibers in adult skeletal muscles. They are responsible for ability of skeletal muscle to regeneration. Satellite cells dissociated from adult muscle and grown in culture: proliferate, fuse and form multinucleate myotubes. Some important differences exist in satellite cells from fast twitch (musculus EDL), and slow twitch muscles (musculus Soleus). We focused the present study on the role of phosphorylation and distribution of talin during differentiation of satellite cells isolated from m. EDL and m. Soleus. Talin (235-270kDa) is one of the adhesion proteins, which play a key role in anchoring actin filaments to integrins and plasma membrane. The phosphorylation of talin (also by PKC) is the one of the main mechanisms which regulate it distribution in cells. Using techniques of confocal microscopy we have demonstrated colocalization of talin and phosphoserine residues during differentiation of satellite cells. We have demonstrated that subcellular distribution of talin and phosphoserine residues changes dramatically in cells treated by phorbol ester (TPA, PKC activator). Some changes in number and organization of focal contacts were observed. Very important differences were observed between satellite cells from m. EDL and m. Soleus (specially in myotubes). We have also examined that expression of talin during differentiation, both in control and treated cells, is constant. But after long time TPA treatment global level of proteins phosphorylated at serine residues is lower. It suggested very important role of talin phosphorylation in it distribution during differentiation of satellite cells.