

ROLE OF THE C-TERMINAL PORTION OF LMM IN ITS POLYMERIZATION: A CALORIMETRIC STUDY

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Myosin is an important motor protein in both muscular and non-muscular cells. It is composed of six polypeptide chains, two heavy chains, and two pairs of light chains. The structure of the heavy chains is divided in two regions, globular (head) and rod. LMM, the C-terminal portion of the rod, is composed by two α -helix in a coiled-coil structure. LMM polymerizes and forms paracrystals at low ionic strength, being soluble at higher ionic strengths. DSC studies of both polymerized (77 mM NaCl) and soluble (600 mM NaCl) forms show a broad transition characterized by two distinct peaks. The first peak presents a T_m at 47.0 °C for both states, and it is probably due to the disruption of the polymers. The second one, possibly due to the monomerization process, occurs in distinct temperatures for the polymerized (55.1 °C) and dimeric (50.8 °C) forms of LMM. The reversibility of the thermal transition was determined by downscan and rescan of the samples with ~92% recovery of the peaks. Although a C-terminal truncated form of LMM is soluble at low ionic strength, DSC studies show that oligomers are present. The shape of the DSC traces of the latter are very similar to that observed with soluble full length LMM.