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Subunit composition of native myosin isoenzymes of some striated mammalian muscles.

Native myosin isoenzymes from slow, fast or mixed adult striated mammalian muscles have been isolated by electrophoresis in non-dissociating conditions. Their mobility was measured using an internal standard as a reference point. This value is reproducible and results to be specific of the form but not of the animal species. A correlation exists between isomyosin distribution and proportion and type of muscle.

Three components (SM2, SM1 and IM) are associated with slow muscles and three (FM3, FM2 and FM1) with typical fast muscles. Mixed muscles contain the three fast components and one or two slow forms.

The isoenzymes are further characterized for their subunit composition, by submitting the myosin bands first resolved in pyrophosphate buffer to a second electrophoresis in the presence of SDS.

The slow heavy chain was found associated with the slow light chains (MLC1s and MLC2s) in the SM2 form, and associated with slow and fast light chains (MLC1s, MLC2s and MLC1f) in the SM1 form.

The IM form (intermediate myosin) is constituted by the fast 2A heavy chain and a mixed pattern of light chains (MLC1s, MLC1f, MLC2f).

SM1 and IM myosins represent, therefore, hybrid forms of myosin. The three fast forms FM3, FM2, FM1 differ by their alkali-light chain content but appear to contain both fast heavy chains (MHC2A and MHC2B).
