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Molecular Cloning and Characterization of Mouse Cardiac Triadin Isoforms

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Triadin is a ryanodine receptor and calsequestrin binding protein located in junctional sarcoplasmic reticulum of striated muscles. In the present study, mouse cardiac triadin cDNAs have been identified by cDNA library screening and RT-PCR. The deduced aa sequences show that the three isoforms consist of 277, 293 and 305 aa giving rise to the molecular weights of approximately 31,414, 33,066, and 34,328 respectively. The isoforms have identical 262 aa N-terminal sequences, whereas they have distinct C-terminal sequences. Northern blot analysis using a cDNA probe representing the N-terminal common region of triadin revealed that the mouse triadins were present both in heart and skeletal muscles. The estimated sizes of the transcripts were approximately 1.3, 4.3 and 5 kb in heart and 5, 5.5 and 7 kb in skeletal muscle. Endo H treatment and Western blot analysis using isolated mouse cardiac SR shows that all of the three proteins having molecular weights of 37, 41 and 42 kDa are glycosylated. In the present study, we show evidence that 3 distinct triadin isoforms exist in mouse heart.