

# Modulation of the activity of the transverse tubule $Mg^{2+}$ -ATPase from frog skeletal muscle by a monoclonal antibody in vitro

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We have established several hybridoma lines that produce monoclonal antibodies against transverse tubule (t-tubule) proteins from frog skeletal muscle. The specificity of these antibodies was characterized by ELISA and Western immunoblotting with purified t-tubule, sarcoplasmic reticulum and partially purified sarcolemmal membranes. One of the monoclonal antibodies (2/34.4) recognizes a band of 109 000 Da in immunoblots. When purified frog t-tubule vesicles were preincubated with this antibody we observed an increase in the rate of the  $Mg^{2+}$ -ATPase enzyme (up to six fold) which was dependent on antibody concentration. Immunocytological experiments done on cryostat sections of frog muscle indicate that the antigen recognized by this antibody is localized mainly at the level of the t-tubules (I band) and to a lesser extent at the sarcolemma. These results indicate that monoclonal antibody 2/34.4 recognizes the t-tubule  $Mg^{2+}$ -ATPase and modulates its activity. This antibody should be useful