Blocking of human T lymphocyte activation by channel antagonists

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It has been established that early events in lymphocyte activation involve a rise in intracellular Ca++ as well as changes in the flux of other ions. Although a Ca++ channel has been postulated to participate in the early Ca++ rise, its presence in lymphocytes remains controversial. Also although yet undetected, electrophysiological data suggest the presence of a Ca++ activated K+ channel on human peripheral blood lymphocytes (HPBL). Here we report on the effect of specific channel blockers as an approach to the identification of these channels on HPBL. At 40 nM nifedipine, an inhibitor of voltage?gated Ca++ channels, fully inhibits the PHA?promoted activation of HPBL. This effect is concentration dependant with a half maximum effect at approximately 10 nM and is demonstrable whether the drug is added at the same time as or up to 18 h after the addition of the mitogen. This inhibition of activation is not seen if the lymphocytes are activated using IL?2 instead of PHA. Charybdotoxin a