EFFECT OF ALTERED pH\textsubscript{in} ON PROPERTIES OF M\textsubscript{2} ION CHANNEL OF INFLUENZA A VIRUS.

Yajun Tang, Jared Knopman, Robert A Lamb, Lawrence H Pinto: Northwestern University

We studied the currents and pH\textsubscript{in} of oocytes that either expressed the M\textsubscript{2} protein (Udorn and Rostock subtypes) or were treated with the protonophore FCCP using two electrode voltage clamp and intracellular pH microelectrodes. Previous studies of M\textsubscript{2}-expressing cells have shown that lowered pH\textsubscript{out} increased conductance of the amantadine-sensitive currents, but that upon entering low pH solutions the amplitude of the inward current declined after about 2 min of bathing. We studied the mechanism for this decrease by measuring the pH\textsubscript{in} and conductance for the same value of pH\textsubscript{out} and several values of pH\textsubscript{in} at three times, 10 sec after lowering pH\textsubscript{out} (prior to acidification of the oocyte), ca. 2 min after lowering pH\textsubscript{out} (prior to acidification measured with an intracellular pH electrode, but after acidification of the sub-membrane cytoplasm) and 5-7 min later (when pH\textsubscript{in} of the oocyte had decreased uniformly to a steady low value that was not lower than pH\textsubscript{out}). We confirmed that pH\textsubscript{in} of both M\textsubscript{2}-expressing and FCCP-treated oocytes decreased while bathed in low pH solutions, thereby decreasing the driving force for H\textsuperscript{+}. However, we did not find any evidence for inactivation of the channel for either Udorn or Rostock subtypes due to lowered pH\textsubscript{in} for pH\textsubscript{in} as low as pH\textsubscript{out}. Supported by PHS grants AI-31882 (LHP) and AI-20201 (RAL) and HHMI.