Ouabain-Insensitive Na\textsuperscript{+}-ATPase Activity in Trypanosoma cruzi Epimastigotes

Celso Caruso-Neves\textsuperscript{a}, Marcelo Einicker-Lamas\textsuperscript{b}, Carlos Chagas\textsuperscript{a}, Mecia Maria Oliveira\textsuperscript{b}, Adalberto Vieyra\textsuperscript{c} and Aníbal Gil Lopes\textsuperscript{a}

\textsuperscript{a} Laboratório de Fisiologia Renal
\textsuperscript{b} Laboratório de Biomembranas, Instituto de Biofísica Carlos Chagas Filho
\textsuperscript{c} Departamento de Bioquímica Médica, Instituto de Ciências Biomédicas, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil

Z. Naturforsch. \textbf{54c}, 100–104 (1999); received September 22/October 27, 1998

Na\textsuperscript{+}-ATPase, T. cruzi, ATPase, Epimastigote, Furosemide

In the present paper, the presence of a ouabain-insensitive Na\textsuperscript{+}-stimulated, Mg\textsuperscript{2+}-dependent ATPase activity in T. cruzi epimastigotes CL14 clone and Y strain was investigated. The increase in Na\textsuperscript{+} concentration (from 5 to 170 mm), in the presence of 2 mm ouabain, increases the ATPase activity in a saturable manner along a rectangular hyperbola. The $V_{\text{max}}$ was 18.0 ± 1.0 and 21.1 ± 1.1 nmoles Pi x mg\textsuperscript{-1} x min\textsuperscript{-1} and the half-activation value ($K_{50}$) for Na\textsuperscript{+} was 34.3 ± 5.8 mm and 37.7 ± 5.3 in CL14 clone and in Y strain, respectively. The Na\textsuperscript{+}-stimulated ATPase activity was inhibited by 5-[aminosulfonyl]-4-chloro-2-[(2-furanylmethyl)-amino] benzoic acid (furosemide) in a dose-dependent manner. The half-inhibition value ($I_{50}$) was 0.22 ± 0.03 and 0.24 ± 0.07 mm, and the Hill number ($n$) was 0.99 ± 0.2 and 2.16 ± 0.29 for CL14 clone and Y strain, respectively. These data indicate that both cell types express the ouabain-insensitive Na\textsuperscript{+}-ATPase activity, which might be considered the biochemical expression of the second Na\textsuperscript{+} pump.

Reprint requests to Fax: 55(21)280-8193, e-mail: agilopes@chagas.biof.ufrj.br