

Epithelial cells isolated from chicken jejunum: An experimental model for the study of the functional properties of amino acid transport system b₀,+

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The transport of lysine has been investigated in epithelial cells isolated from chicken jejunum. The kinetics of lysine transport and the pattern of interaction with zwitterionic amino acids were consistent with system b₀,+ activity, the broad-spectrum and Na⁺-independent amino acid transporter. The half-saturation constant for lysine entry ($K_m \pm S.E.$) was 0.029 ± 0.002 mM and the flux was not affected significantly by Na⁺ replacement with choline. Lysine influx was inhibited by L-leucine both in Na⁺ and choline medium with inhibition constants ($K_i \pm S.E.$) 0.068 ± 0.006 mM (in Na⁺) and 0.065 ± 0.009 mM (in choline). Other inhibitory amino acids ($K_i \pm S.E.$) were (mM): L-tyrosine (0.073 ± 0.018), L-methionine (0.15 ± 0.015), L-cystine (0.42 ± 0.04), L-cysteine (1.1 ± 0.07), L-isoleucine (1.1 ± 0.09), L-glutamine (1.8 ± 0.16) and L-valine (2.5 ± 0.13). Lysine exit was trans-accelerated (approx. 20 fold) by 2 mM L-lysine and L-leucine. The flux was resistant to pretreatment of the cells with p-chloromercuriphenylsu