

# The binding specificity of amino acid transport system $\gamma^+L$ in human erythrocytes is altered by monovalent cations

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System  $\gamma^+L$  is a broad-scope amino acid transporter which binds and translocates cationic and neutral amino acids.  $\text{Na}^+$  replacement with  $\text{K}^+$  does not affect lysine transport, but markedly decreases the affinity of the transporter for L-leucine and L-glutamine. This observation suggests that the specificity of system  $\gamma^+L$  varies depending on the ionic composition of the medium. Here we have studied the interaction of the carrier with various amino acids in the presence of  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Li}^+$  and guanidinium ion. In agreement with the prediction, the specificity of system  $\gamma^+L$  was altered by the monovalent cations. In the presence of  $\text{Na}^+$ , L-leucine was the neutral amino acid that interacted more powerfully. Elongation of the side chain (glycine - L-norleucine) strengthened binding. In contrast, bulkiness at the level of the  $\alpha$  carbon was detrimental. In  $\text{K}^+$ , the carrier behaved as a cationic amino acid specific carrier, interacting weakly with neutral amino acids.  $\text{Li}^+$  was found to potentiate neutral a