Role of the Na/H exchanger NHE1 in cell migration.

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Source

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Abstract

Cell migration plays a basic role in many physiological and pathophysiological processes such as embryogenesis, immune defence, wound healing or metastasis. The activity of the ubiquitously expressed NHE1 isoform of the plasma membrane Na+/H+ exchanger is one of the requirements for directed locomotion of migrating cells and also contributes to cell adhesion. The mechanisms by which NHE1 is involved in cell migration are multiple. NHE1 contributes to cell migration by affecting the cell volume, by regulating the intracellular pH and thereby the assembly and activity of cytoskeletal elements, by anchoring the cytoskeleton to the plasma membrane, by signalling, by regulating gene expression and by controlling cell adhesion. The present article gives a review of the different ways in which NHE1 is involved in and contributes to cell migration. These different mechanisms complement one another forming an intricate, integrative process.

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