



## TRANSPORT OF PYRIDINE NUCLEOTIDES ACROSS THE PLASMA MEMBRANE IN MAMMALIAN CELLS

Emanuela Ercolano, Richard A. Billington, Fabrizio Condorelli, Pier Luigi Canonico,  
Armando A. Genazzani

DiSCAFF, Università del Piemonte Orientale, Novara

It is becoming clear that the pyridine nucleotides NAD and NADP, once considered simply as co-factors for redox reactions, are also involved in a variety of cell signalling pathways. Surprisingly, it has emerged that these nucleotides are not restricted to the cytosol and organelles but that they are present and active extracellularly. Furthermore, nucleotide targets and nucleotide-using enzymes are found on the extracellular surface of the plasma membrane. Data from a number of labs has demonstrated the presence of pyridine nucleotide transport mechanisms across the plasma membrane of mammalian cells. In particular, bidirectional NAD and cADPR fluxes have been shown in a variety of cell lines mediated by CD38, Connexin 43 hemichannels or nucleoside transporters. In addition, unidirectional (inward) NAADP flux has been shown in a small number of mammalian cell lines via an as yet unidentified mechanism. Here we show uptake of picomolar concentrations of pyridine nucleotides and of their Ca<sup>2+</sup>-releasing second messenger derivatives.