

# The Role of Extra- and Intracellular Water in Signal Transduction in Living Cells

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Although, the vital function of water is well known an adequate attention is not paid by the investigators to the role of water in signal transduction in living cells. As the water molecule dissociation is the most variable water property and it could be changed by the influences of extremely weak chemical and physical signals, it is suggested that the products of water dissociation could serve as messengers for transferring the signals to metabolic cascades regulating the cell volume. The aim of my lecture is to present the experimental results proving these statements. My talk will consist of the following four sections:

1. The effect of very low concentration of synaptic transmitters (less than  $10^{-10}$ M), background radiation, weak electromagnetic fields and infrasound on water dissociation and its physicochemical properties
2. The metabolic regulation of cell hydration,
3. The effect of water dissociation products on cell hydration,
4. Hydration and cell functional activity

The obtain data will be discussed from the point of the “Membrane” and “Sorption” theories.