

A new approach to cell communication: the impact of light

The presentation starts with a short introduction into cellular fields due to ions, polar molecules and radical reactions. Even though this leads to frequencies from radio waves to UV-light, the basic hypothesis for radiation-based cell communication assumes visible and UV-light as the major frequency band.

The major focus will be on endogenous radiation used for cell communication and the barrier-method as a tool for isolating such radiation from chemical signals. We further classify into radiation-based (i) induction of chemical reactions and (ii) effects on cell division rates (i.e., radiation-based *quorum sensing*).

A third part refers to the general sensitivity of cells to radiation from the environment, hence not only to those from neighbor cells, but as well from technical devices or the solar activity. Two hypothetical examples illustrate, further, the potential of applied research regarding non-invasive technology.

The major conclusion will be that the molecular structures of cells generate electro-dynamic fields (signals) that feed back on cells and, therefore, play an essential role in the self-organization of life.