R H W Funk, J Cytol Histol 2016, 7:4(Suppl)
http://dx.doi.org/10.4172/2157-7099.C1.008

conferenceseries.com

International Conference on

Histochemistry & Cell Biology

September 14-15, 2016 Phoenix, USA

R H W Funk

Dresden University of Technology, Germany

Electromagnetic fields and information processes in molecules and cells

In the last decade, many new techniques of molecular biology as well as new imaging techniques could well confirm that in many situations like embryogenesis, wound healing and regeneration endogenous electric fields exist and that they are the first and decisive measurable cue for later ongoing cell biological processes. These fields are clearly measurable and can be well integrated into classical cell biological pathways leading to typical cell responses like shape change, migration, proliferation and differentiation. Other open fields for research are fast information processes which are ongoing within the brain cortex like fast ripples of pyramidal cells possibly mediated by gap junctions and very fast binding phenomena spreading over many cortical areas. So, many authors propose a layered structure with interlacing quantum computing and classical read out processes. The mentioned problems and hypothesis show that we are nowadays at the verge and in the transition from mere particle and energetic molecular- and cell biology to information driven matter interactions. In the scale of molecules and organelles we have to respect not only the collective and often coherent behavior of such active matter but also the quantal information which is exchanged. At least, everyone is accustomed to tunneling electrons within enzymes and other biomolecules. Another example is the new finding of spin triplet modulation in radical pair reactions within the retina in birds. These examples should encourage us to look upon molecular biology with the eyes of modern physics and to search for analogue processes.

Biography

R H W Funk has completed his MD from University Erlangen-Nürnberg (1979). He habilitated and got a Professorship in 1988 in the same university. In 1994, he became the Chair of Anatomy the Dresden University of Technology (TUD). For years, he was the Dean of Science in the Medical Faculty. Since 8 years, he is also in the Senate of TUD. He has published more than 220 papers in reputed journals and has been serving as Board Member of repute.

richard.funk@tu-dresden.de