

Oxidative Stress

**ELECTROMAGNETIC
BIOLOGY
AND MEDICINE**

http://informahealthcare.com/ebm
ISSN: 1536-8378 (print), 1536-8386 (electronic)
Electromagn Biol Med, Early Online: 1-16
© 2015 Informa Healthcare USA, Inc. DOI: 10.3109/15368378.2015.1043557

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REVIEW ARTICLE

Oxidative mechanisms of biological activity of low-intensity radiofrequency radiation

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Abstract

This review aims to cover experimental data on oxidative effects of low-intensity radiofrequency radiation (RFR) in living cells. Analysis of the currently available peer-reviewed scientific literature reveals molecular effects induced by low-intensity RFR in living cells; this includes significant activation of key pathways generating reactive oxygen species (ROS), activation of peroxidation, oxidative damage of DNA and changes in the activity of antioxidant enzymes. It indicates that among 100 currently available peer-reviewed studies dealing with oxidative effects of low-intensity RFR, in general, 93 confirmed that RFR induces oxidative effects in biological systems. A wide pathogenic potential of the induced ROS and their involvement in cell signaling pathways explains a range of biological/health effects of low-intensity RFR, which include both cancer and non-cancer pathologies. In conclusion, our analysis demonstrates that low-intensity RFR is an expressive oxidative agent for living cells with a high pathogenic potential and that the oxidative stress induced by RFR exposure should be recognized as one of the primary mechanisms of the biological activity of this kind of radiation.

Keywords

Cellular signaling, cancer, free radicals, oxidative stress, radiofrequency radiation, reactive oxygen species

History

Received 10 January 2015
Accepted 12 April 2015
Published online 7 July 2015

- Reviewed 100 currently available peer reviewed studies of oxidative effects of low intensity RFR
- 93/100 confirmed that RFR induces oxidative effects in biological systems
- Conclusion: Low intensity RFR is an oxidative agent for living cells with a high pathogenic potential

Yakymenko, I., Tsybulin, O., Sidorik, E., Henshel, D., Kyrylenko, O., & Kyrylenko, S. (2016). Oxidative mechanisms of biological activity of low-intensity radiofrequency radiation. *Electromagnetic Biology and Medicine*, 35(2), 186-202.