Anti-cancer therapy using water-filtered broad-spectrum near-infrared

Radiation oncology is a medical specialty that involves treating various types of cancers with radiation. The radiation therapy used in treatment obtains radioactive energy from X-rays, protons or other types of energy. Near-infrared is electromagnetic radiation with wavelengths longer than those of visible light. As actively proliferating cells show increased sensitivity to near-infrared, near-infrared has been extensively investigated for its applications in cancer detection and imaging. I have elucidated that water-filtered broad-spectrum near-infrared has various biological effects including stimulation of collagen production, long-lasting vasodilation, relaxation of dystonic and hypertrophic muscles and anti-cancer effects through our histological and clinical investigation. Water-filtered broad-spectrum near-infrared can significantly suppress proliferation of various types of cancer cell lines and significantly inhibit the growth of transplanted cancer cells. In our previous studies anticancer therapy using water-filtered broad-spectrum near-infrared treatments was equally or more effective than chemotherapy and marked evidence of in vivo tumor apoptosis was observed in near-infrared-treated tumors. We have reported that water-filtered broad-spectrum near-infrared induces drastic non-thermal DNA damage of mitotic cancer cells without damaging non-mitotic normal cells. Furthermore, near-infrared can be easily administered, regulated and precisely delivered only to the targeted areas, which enables the induction of anti-cancer effects with a minimum level of discomfort and side effects. Therefore, I believe that water-filtered broad-spectrum near-infrared treatment may be beneficial for treating cancer. I would like to introduce the various biological effects of water-filtered broad-spectrum near-infrared and a potential application for treating various types of cancers.

Biography

Yohei Tanaka is one of the leading Plastic Surgeons in Japan. He directs his clinic, Society for Near-infrared Rays Research and International Photobiological Society. He conducts many researches as a Visiting Professor of Niigata University of Pharmacy and Applied Life Sciences and Lecturer of Tokyo Women’s Medical University. He has published over 20 peer-reviewed papers in English and has edited 2 international open access books regarding near-infrared. His goal is to discover the most effective near-infrared wavelengths for rejuvenation and anti-cancer therapy and to further study solar near-infrared and how best we can protect ourselves against its photoaging.