

Low intensity ultrasound for selective cancer therapy

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Technology

Prof. Kost developed a non-invasive method for selective killing of cancer cells without damage to health tissue. Ultrasound administrated at low intensity, as low as 12W/cm² intensity for 1 minute duration can eliminate cancerous and metastatic cells while placing an ultrasonic transducer in contact with the surface of the patient body optionally through a coupling medium. This cutting-edge use of ultrasound as selective treatment for cancer cells and not healthy cells is based on the evidence that cancer cells naturally change their biomechanical properties, become softer as they progress from normal to cancer cells. In collaboration with Prof. Elkabets Moshe, the effect of low-frequency ultrasound treatment on cells viability was examined in different Squamous cell carcinoma (SCC) cells lines and transformed keratinocyte cell lines as a control. Moreover, they demonstrated that anti-tumor effect of ultrasound on the progression and mortality of different tumors such as breast, Head and neck, and skin cancer *in vivo*. In the in-vivo experiment, when the tumors of the mice reached 3-5 mm in diameter, mice were treated with different protocols to find the ideal protocol. The tumors shrank averagely in at least 70%.

Application

Using ultrasound for treatment of cancer and proliferative diseases.

Advantages

- Non-invasive
- Accessible
- Fast and easy to operate
- Uses low intensity of US that increase specificity for cancerous cells or hyper proliferating cells with minimal damage to healthy tissue, cells, or organs
- Can be easily adapted to other cancers using adjusment of US intensities for optimal results

Patent

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