DireWaves: Disarming resistant microbes with resonant waves

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Abstract

Can we identify non-chemical methods to disarm antibiotic resistant microbes?

Can weak, resonant electromagnetic fields (EMF) interfere with and disrupt antibiotic resistant microbes?

We here report on the status of the VILLUM Experiment project Direwaves. The aim of the project is to validate and further explore if biophysical means, such as resonant EMFs, can act as a complimentary approach in finding new treatment regimens against antibiotic resistant bacteria. Several studies have shown effects in *Pseudomonas aeruginosa* biofilm formation and growth of MRSA (1,2). Resonance-based treatments of antibiotic resistant infections may be a viable future therapy that is not based on pharmaceutical compounds.

We have set up a bioresonance lab, including a shielded mu-metal chamber and an adjustable frequency generator system capable of generating weak (microTesla range), low-frequency (1-20 Hz) electromagnetic fields. A *Pseudomonas aeruginosa* biofilm assay is used to monitor physiological effects of resonant fields. *P. aeruginosa* is a serious pathogen in patients suffering from cystic fibrosis (CF) and a novel approach to disarm this organism could relieve CF patients from much suffering.

Our data suggests that frequencies corresponding to the ion cyclotron resonance (icr) of Mg++ and K+ can inhibit biofilm formation up to 40% compared to untreated (ambient field). In addition, we see an effect up to 25% reduction of a "zero field", meaning total shielding from the ambient electromagnetic

Ongoing studies aim to establish which frequency ranges and amplitudes that might be effective in disarming resistant microbes and work synergistically with existing antibiotics.

References

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