

## FORMATTED EMAIL ON HEALTH IMPACTS OF EMFs, 5G, AND CELL TOWERS

(Dear Policy Maker)

There are two main types of radiofrequency radiation (RFR) adverse health impacts. First are the direct 'stand-alone' impacts, where RFR is applied in relative isolation from other potentially toxic stimuli. These types of adverse impacts from 'stand-alone' RFR are reported mainly in laboratory experiments, where relatively pristine conditions can be maintained, and RFR can be applied in relative isolation. Increased cancer incidence, DNA breaks, and many other serious effects have been reported from the stand-alone RFR, as some of the references in the Appendix show.

The second type of RFR adverse health impact occurs when RFR is combined with one or more potentially toxic stimuli to produce synergistic adverse health effects. In this role, RFR acts like a promoter, where it enables adverse effects from other toxic stimuli to occur or worsen. For example, RFR can increase the permeability of the blood-brain barrier, thus allowing toxic material from the bloodstream to enter the brain, and cause severe damage.

This second type of RFR impact models real-world exposures, where people are subjected to myriad toxic stimuli where they work, where they live, where they vacation, and through the less-than-perfect lifestyles they choose. The synergies resulting from these combinations of toxic stimuli with RFR produce adverse health effects greater than those resulting from any of the constituents in isolation.

For example, in an experiment where RFR and a carcinogen (ethylnitrosourea, ENU) were administered separately and in combination, the addition of RFR essentially doubled the incidence of Bronchiolo-alveolar adenoma, Hepatocellular carcinoma, and Lymphoma, and increased the incidence of Bronchiolo-alveolar carcinoma more moderately, but still statistically significant [1]. Many similar examples of non-ionizing radiation combined with other toxic stimuli to produce synergistic effects can be found in reference [2].

In real-world cell tower studies, increased cancer incidence and myriad other serious health effects have been demonstrated at levels of RFR intensity 1) orders of magnitude below the isolated RFR laboratory results and 2) many orders of magnitude below the allowable FCC exposure limits. Because of their increased proximity to the public relative to the tall cell towers, the proposed small cell towers will produce the worst of all possible worlds: continual long-term chronic exposure at power intensity levels approaching those of the isolated laboratory experiments.

Of the more than 20,000 studies on the health effects of wireless radiation, we have selected a few compilations, and discussions on 1) millimeter wave frequencies, 2) the health impacts of living near cell towers, 3) the effects of RFR on some specific systems, 4) the effects of RFR on wildlife, and 5) synergistic effects from RFR exposure with other toxic stimuli. We have also included a link to a discussion of the recent \$25 million National Toxicology Program study which was commissioned by the FDA, and the Ramazzini Study which corroborates the NTP findings. These are included in the Appendix below.

Finally, a discussion of the science would be incomplete without including the following two links that give an overview of the politics and money *behind* the science.

**How Big Wireless Made Us Think That Cell Phones Are Safe: A Special Investigation  
The disinformation campaign—and massive radiation increase—behind the 5G rollout**

March 29<sup>th</sup>, 2018 | Mark Hertsgaard and Mark Dowie |The Nation

This article details how the wireless industry, for over 20 years, has war-gamed the science in an effort to obfuscate the findings of independent research that show health impacts from wireless.

<https://www.thenation.com/article/how-big-wireless-made-us-think-that-cell-phones-are-safe-a-special-investigation/>

**Captured Agency. How the Federal Communications Commission is Dominated by the Industries it Presumably Regulates** Norm Alster | Edmund J. Safra Center for Ethics, Harvard University

This documents details the rather unseemly and very cozy relationship between Telecom and the FCC.

“A detailed look at FCC actions and non actions shows that over the years the FCC has granted the wireless industry pretty much what it has wanted...the FCC has again and again echoed the lobbying points of major technology interests.” “Money -- and lots of it -- has played a part.”

[https://ethics.harvard.edu/files/center-for-ethics/files/capturedagency\\_alster.pdf](https://ethics.harvard.edu/files/center-for-ethics/files/capturedagency_alster.pdf)

References

[1] Lerchl, Alexander, et al. “Tumor promotion by exposure to radiofrequency electromagnetic fields below exposure limits for humans.” Biochemical and Biophysical Research Communications 459.4 (2015): 585-

90. <https://www.sciencedirect.com/science/article/pii/S0006291X15003988>

[2] Kostoff, R.N. and Clifford G.Y. Lau. 2017. “Modified health effects of non-ionizing electromagnetic radiation combined with other agents reported in the biomedical literature.” Microwave Effects on DNA and Proteins (2017): 97-158. [http://stip.gatech.edu/wp-content/uploads/2017/03/371048\\_1\\_En\\_4\\_Chapter\\_OnlinePDF.pdf](http://stip.gatech.edu/wp-content/uploads/2017/03/371048_1_En_4_Chapter_OnlinePDF.pdf)

Sincerely,

(Sign your name)

The material appended was written and/or assembled by leading experts, including Dr. Martin L. Pall, (Ph.D.), Dr. Joel Moskowitz (Ph.D.) and Dr. Devra Davis, on the health effects of wireless radiation.

**Appendix - References showing adverse effects of non-ionizing radiation from cell towers and other sources**

5G: Great risk for EU, U.S. and International Health! Compelling Evidence for Eight Distinct Types of Great Harm Caused by Electromagnetic Field (EMF) Exposures and the Mechanism that Causes Them

<https://einarflydal.files.wordpress.com/2018/04/pall-to-eu-on-5g-harm-march-2018.pdf>

Cell Tower Health Effects

April 30th, 2018

<https://www.saferemr.com/2015/04/cell-tower-health-effects.html>

National Toxicology Program: Peer & public review of cell phone radiation study reports

April 10, 2018

Experts Find "Clear Evidence" of Cancer from Cell Phone Radiation in NTP Study

<https://www.saferemr.com/2018/01/national-toxicology-program-peer-public.html>

Ramazzini Institute Cell Phone Radiation Study Replicates NTP Study

Mar. 22nd, 2018

<https://www.saferemr.com/2018/03/RI-study-on-cell-phone.html>

Recent Research on Wireless Radiation and Electromagnetic Fields

April 18th, 2018

<https://www.saferemr.com/2018/04/recent-research.html>

5G Wireless Technology: Is 5G Harmful to Our Health?

May 4th, 2018

<https://www.saferemr.com/2017/09/5g-wireless-technology-is-5g-harmful-to.html>

The Co-Carcinogenic And Synergistic Effects Of Electromagnetic Field Radiation Exposures

Recent Studies Showing Synergistic Effects

<https://ehtrust.org/science/co-carcinogenic-synergistic-effects-emfs/>

Brain Development, Cell Phones And Wireless: Scientific Research On The Neurotoxic Effects Of Wireless Radiation

<https://ehtrust.org/brain-development-cell-phones-wireless-scientific-research-neurotoxic-effects-wireless-radiation/>

Scientific Research On Wireless Health Effects Peer Reviewed Scientific Research on Wireless

Radiation Published Research Links Cell Phone and Wireless To Health Effects

<https://ehtrust.org/science/research-on-wireless-health-effects/>

Cell Towers And Cell Antennae

<https://ehtrust.org/science/cell-towers-and-cell-antennae/>

5G And The IOT: Scientific Overview Of Human Health Risks

<https://ehtrust.org/key-issues/cell-phoneswireless/5g-networks-iot-scientific-overview-human-health-risks/>

Bees, Butterflies And Wildlife: Research On Electromagnetic Fields And The Environment

Electromagnetic fields from powerlines, cell phones, cell towers and wireless impacts the birds, bees, wildlife and our environment. Below is just a small example of the critical research that has been done on this issue.

<https://ehtrust.org/science/bees-butterflies-wildlife-research-electromagnetic-fields-environment/>

Cardiac Effects of Radiofrequency Radiation

<https://mdsafetech.org/cardiac-effects-of-radiofrequency-radiation/>

Reproductive Health Effects

<https://mdsafetech.org/science/reproductive/>

**Following are specific studies pertaining to health impacts of either 5G or cell towers**

The Modeling of the Absorbance of Sub-THz Radiation by Human Skin Noa Betzalel, Yuri Feldman, and Paul Ben Ishai

[https://www.researchgate.net/publication/319300629\\_The\\_Modeling\\_of\\_the\\_Absorbance\\_of\\_Sub-THz\\_Radiation\\_by\\_Human\\_Skin](https://www.researchgate.net/publication/319300629_The_Modeling_of_the_Absorbance_of_Sub-THz_Radiation_by_Human_Skin)

The human skin as a sub-THz receiver – Does 5G pose a danger to it or not? Noa Betzalel, Paul Ben Ishai, Yuri Feldman

<https://www.sciencedirect.com/science/article/pii/S0013935118300331>

Impact of radiofrequency radiation on DNA damage and antioxidants in peripheral blood lymphocytes of humans residing in the vicinity of mobile phone base stations

[https://www.researchgate.net/publication/318916428\\_Impact\\_of\\_radiofrequency\\_radiation\\_on\\_DNA\\_damage\\_and\\_antioxidants\\_in\\_peripheral\\_blood\\_lymphocytes\\_of\\_humans\\_residing\\_in\\_the\\_vicinity\\_of\\_mobile\\_phone\\_base\\_stations](https://www.researchgate.net/publication/318916428_Impact_of_radiofrequency_radiation_on_DNA_damage_and_antioxidants_in_peripheral_blood_lymphocytes_of_humans_residing_in_the_vicinity_of_mobile_phone_base_stations)

Radiofrequency radiation from nearby base stations gives high levels in an apartment in Stockholm, Sweden: A case report Lennart Hardell, Michael Carlberg, and Lena K. Hedendahl

[https://www.researchgate.net/publication/323810944\\_Radiofrequency\\_radiation\\_from\\_nearby\\_base\\_stations\\_gives\\_high\\_levels\\_in\\_an\\_apartment\\_in\\_Stockholm\\_Sweden\\_A\\_case\\_report](https://www.researchgate.net/publication/323810944_Radiofrequency_radiation_from_nearby_base_stations_gives_high_levels_in_an_apartment_in_Stockholm_Sweden_A_case_report)