



5G should be Safety-Tested in Animals and Humans

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MTT-S 22 June 2021**



People you should be hearing (instead of me)

dreamstime.

- Martin Pall, PhD, Prof Emeritus, Washington State Univ
- Devra Davis, PhD, Environmental Health Trust
- John R. Goldsmith, PhD, Ben Gurion Univ
- Beverly Rubik, PhD, Institute for Frontier Science, Berkeley



Old Thinking that is still the basis of regulatory exposure guidelines

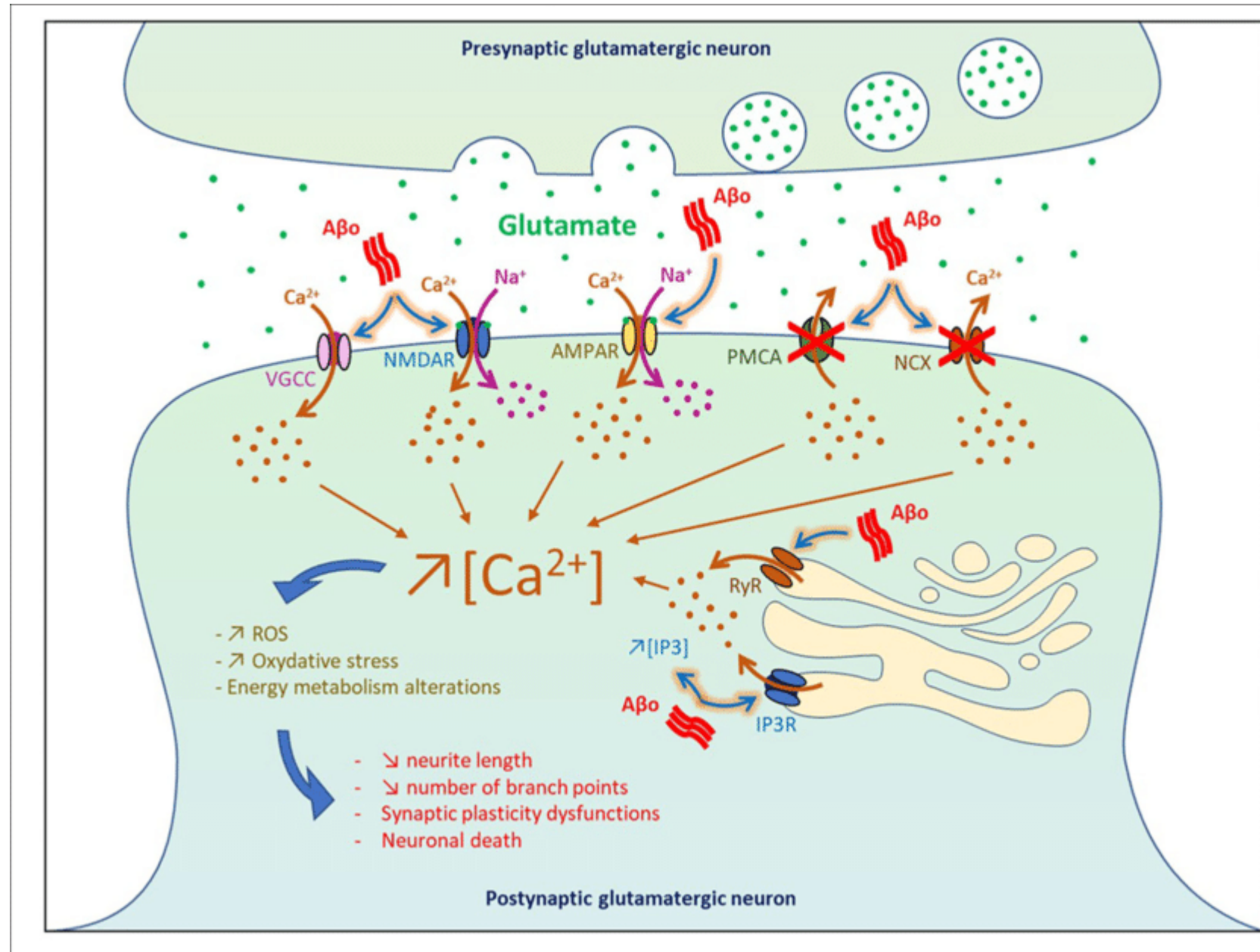
- Life is based on chemistry
- In order for EM radiation to affect chemistry, the energy $h\nu$ has to be \geq energy of a chemical bond
- But RF energies are thousands of times too small to affect chemical bonds.
- So there are good theoretical reasons not to worry about biological effects of RF radiation.

From the laboratory of Michael Levin



Voltage-Gated Calcium Channels (VGCC)

Pall, ML. 2013. Electromagnetic fields act via activation of voltage-gated calcium channels to produce beneficial or adverse effects. *J Cell Mol Med* 17:958-965. doi: 10.1111/jcmm.12088



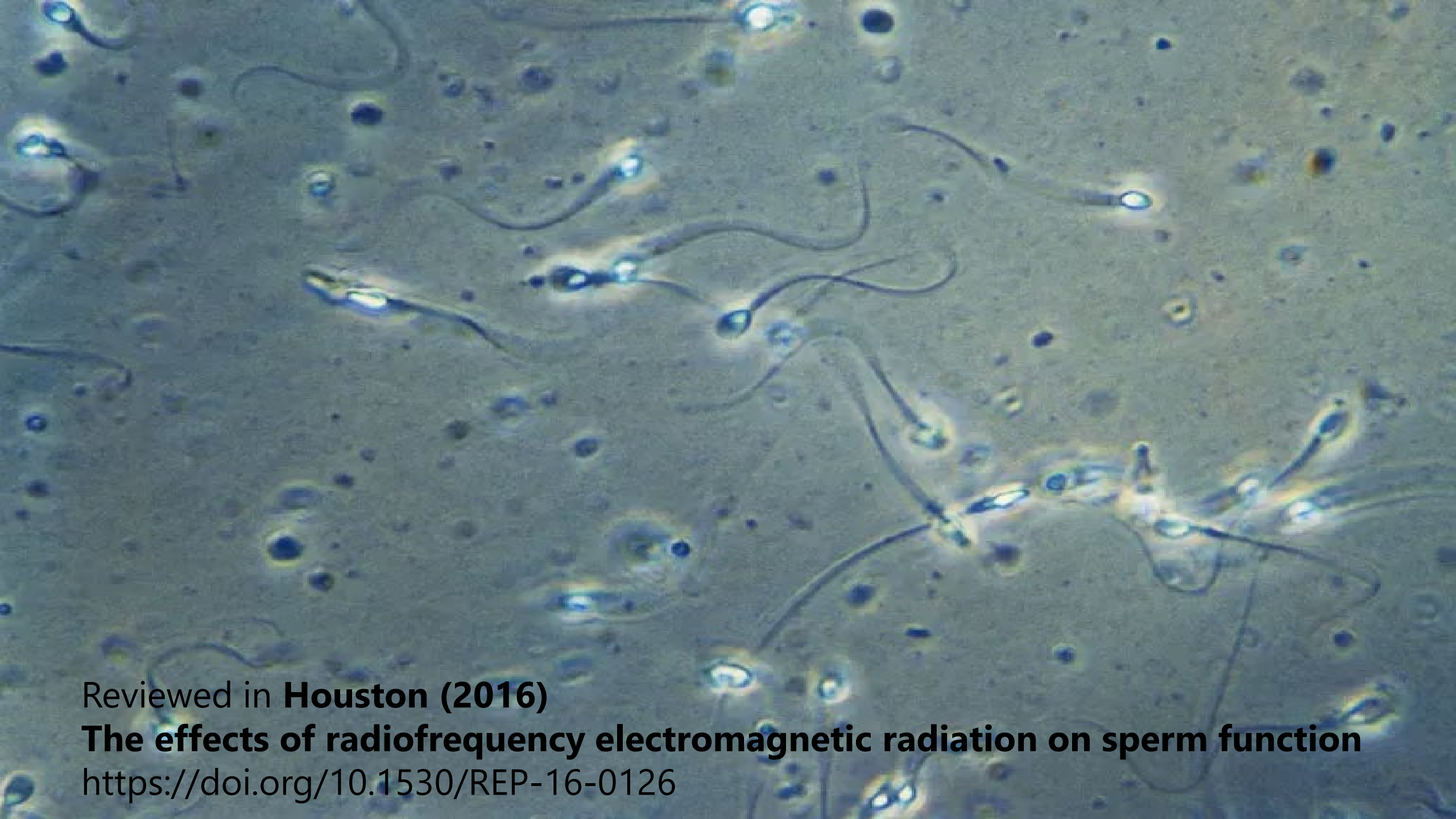


- Calcium activates several different signal proteins, called kinases
- Calcium drives muscle contraction, and is crucial for heart rhythm
- Calcium signaling modulates gene expression (aka epigenetics)
- Calcium signaling modulates nerve signaling, though it is sodium channels that are the primary mechanism for transmitting nerve impulses.



from **Oberfelt (2004)**
 The Microwave Syndrome
 Intl Conference in Kos,
 Greece

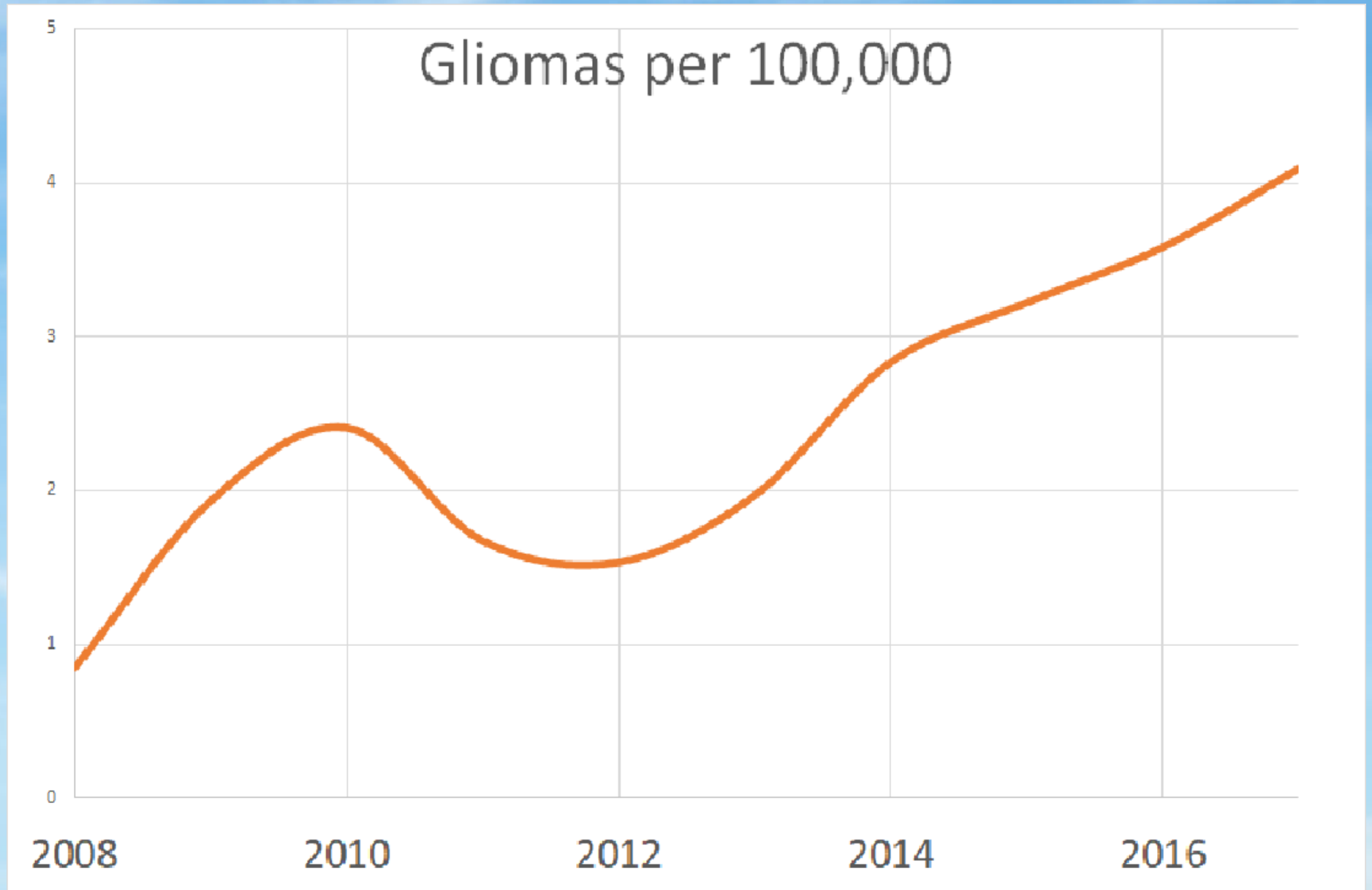
Health Outcome	0.25-1.29 V/m (65-4400 $\mu\text{W}/\text{m}^2$)			
	OR	95% CI	p	p for the trend
Fatigue	33.88	4.16 – 276.04	0.0010	0.0044
Irritability	10.73	3.48 – 33.13	0.0000	0.0002
Headaches	6.56	2.14 – 20.05	0.0010	0.0005
Nausea	14.67	1.77 – 121.49	0.0128	0.0382
Loss of Appetite	24.00	2.94 – 195.94	0.0030	0.0028
Sleeping Disorder	6.64	2.30 – 19.20	0.0005	0.0003
Depressive Tendency	42.66	5.23 – 348.33	0.0005	0.0021
Feeling of Discomfort	12.21	3.72 – 40.12	0.0000	0.0002
Difficulty in Concentration	18.12	5.05 – 64.99	0.0000	0.0000
Loss of Memory	4.69	1.65 – 13.32	0.0037	0.0108
Skin Disorder	5.19	1.08 – 26.21	0.0463	0.1278
Visual Disorder	3.31	1.17 – 9.32	0.0236	0.0707
Hearing Disorder	1.10	0.35 – 3.47	0.8702	0.1534
Dizziness	9.44	2.43 – 36.77	0.0012	0.0053
Gait Difficulties	1.08	0.36 – 3.25	0.8886	0.8321
Cardiovascular Problems	14.67	1.77 – 121.49	0.0128	0.0442

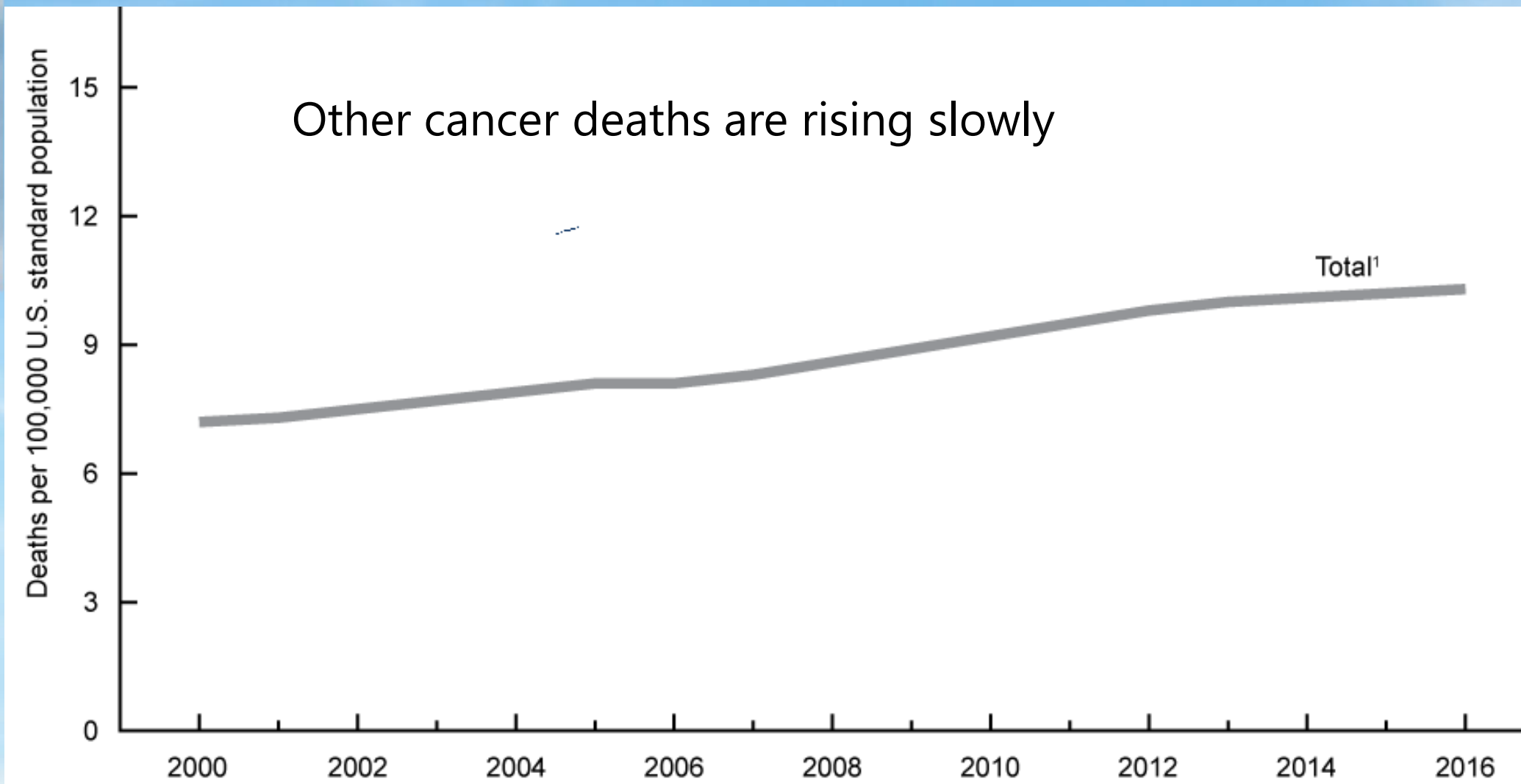


Reviewed in **Houston (2016)**

The effects of radiofrequency electromagnetic radiation on sperm function

<https://doi.org/10.1530/REP-16-0126>







Summary

We are rushing blind into 5G rollout w/o health testing

The telecom industry is avoiding these experiments

Theory is no guide

There is ample reason for concern from lab and epidemiological studies

“Even with present technologies, we’re taking risks that no rational society would ever take.”

— Martin Pall