

**Shortcomings of Health Canada's  
Safety Code 6:  
Guidelines for human exposure to radiation from  
wireless transmitting devices**

**The Toronto Association of Systems  
and Software Quality**

**Canadians for Safe Technology**

**May 31, 2016**



# Agenda

- Canadians for Safe Technology (C4ST) overview
- Overview of peer-reviewed, published studies on
  - Brain cancer
  - Salivary gland tumors
  - Sperm damage
  - Developmental issues
  - Early reports on breast cancer
- Why we should NOT rely on current federal guidelines
- Situation Update – International
- Situation Update – Canada
- Potential actions moving forward

# C4ST: Canadians for Safe Technology

- Not-for-profit, completely volunteer-based, national coalition of parents, citizens and experts
- To educate and inform Canadians about the dangers of the exposures to unsafe levels of radiation from wireless technology
- To work with all levels of government to create healthier communities for children and families from coast to coast.

# Industry behaviour is not exemplary

- **Manufacturer's warnings are not known**
  - iPad - "... to be sure that human exposure to RF energy does not exceed the FCC, IC, and European Union guidelines, always follow these instructions and precautions: **Orient the device in portrait mode with the Home button at the bottom of the display.**"
  - i-Phone5: "**carry i-Phone at least 10 mm away from your body** to ensure exposure levels remain at, or below, the as-tested levels."  
**Go to Settings – General – About – Legal – RF Exposure**
  - Blackberry - "Use hands-free operation if it is available and **keep the device at least 0.98 in. (25 mm) from your body** (including the abdomen of pregnant women and the lower abdomen of teenagers) (Torch 9800) > **User Manual > Page 21**
  - Samsung - "For body-worn operation, this phone has been tested and meets FCC RF exposure guidelines when used with an accessory that contains no metal and that **positions the mobile device a minimum of 1.5cm from the body.**" (Galaxy II) > **User Manual > Page 164**
  - See handout for baby monitor, game console and tablet warnings

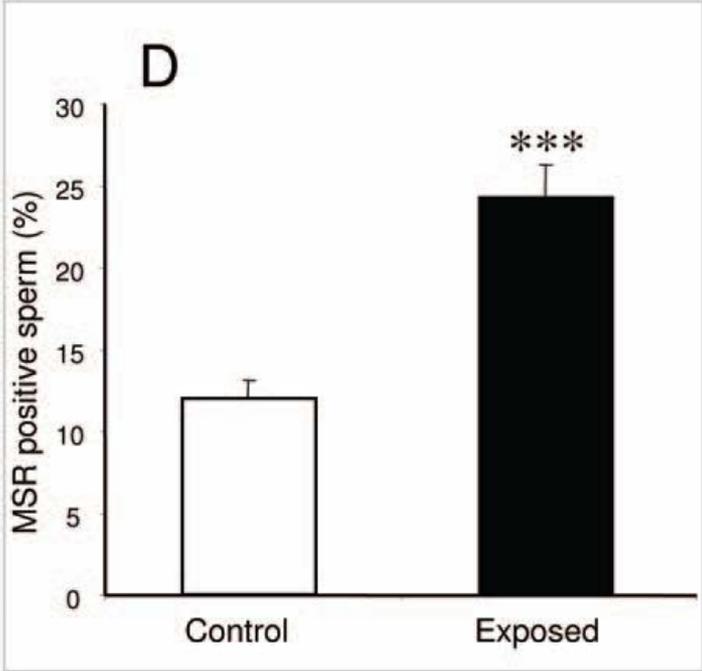
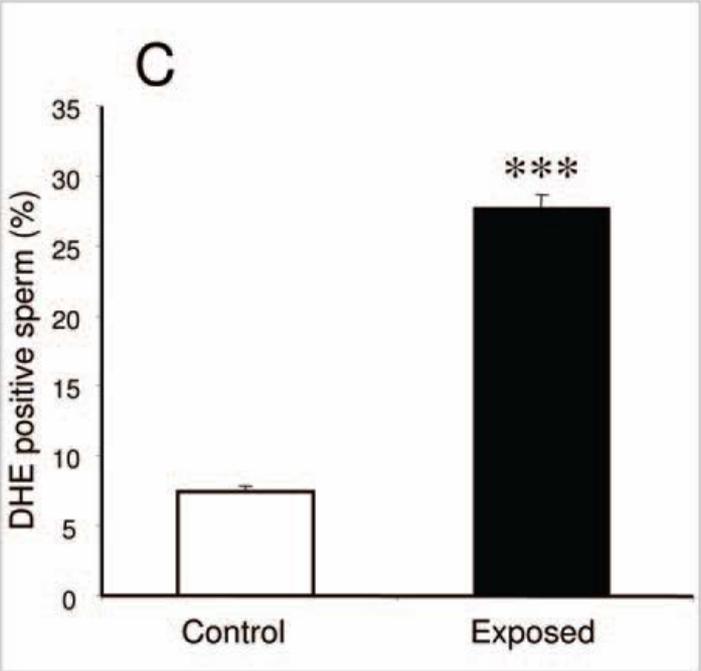
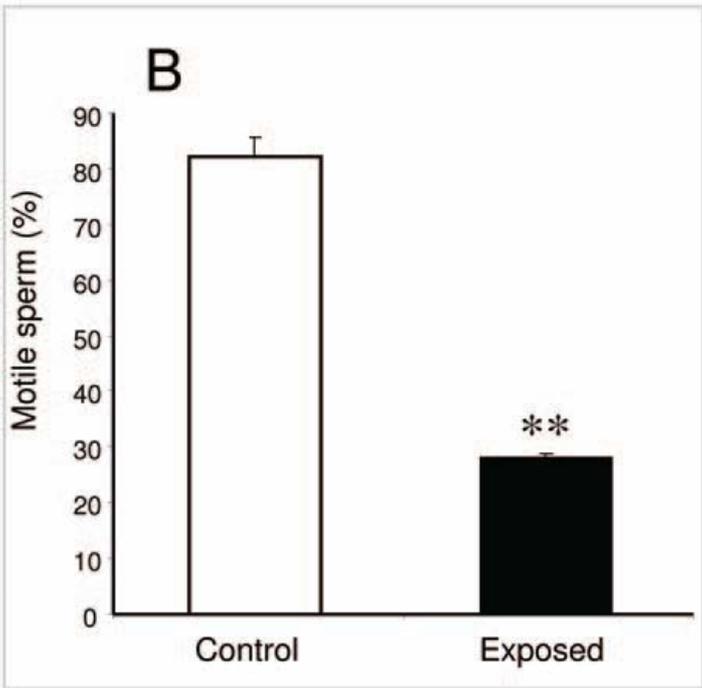
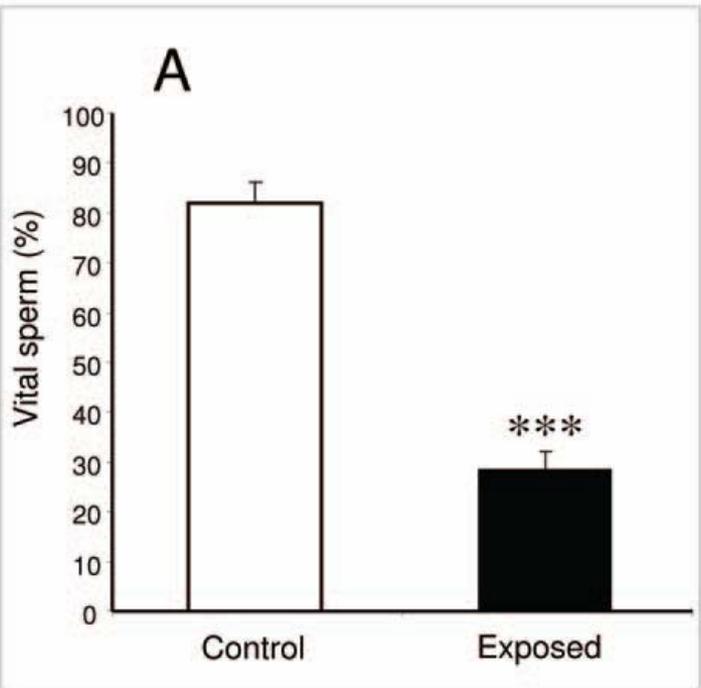
# Peer review published studies

- Hardell et. al re glioma, an aggressive form of brain cancer
  - This was the basis for the World Health Organization's May 2011 decision to classify wireless radiation as a Class 2B possible human carcinogen
  - Lead and DDT are in this category
  - His team has recently published an argument the classification should be 1, carcinogenic, similar to tobacco
- Hardell's work has been confirmed by the CERENAT 2014 study
- May 27, 2015 National Toxicology Program study:
  - \$25 million, largest, most complex studies ever conducted by NTP
  - Rats were exposed for 10-minute on, 10-minute off increments, totaling just over 9 hours a day from before birth through 2 years of age
  - Found low incidences of tumors in the brains and hearts of male rats
  - Complete results from all the rat and mice studies will be available for peer review and public comment by the end of 2017
  - This challenges all the assumptions Health Canada guidelines are based on

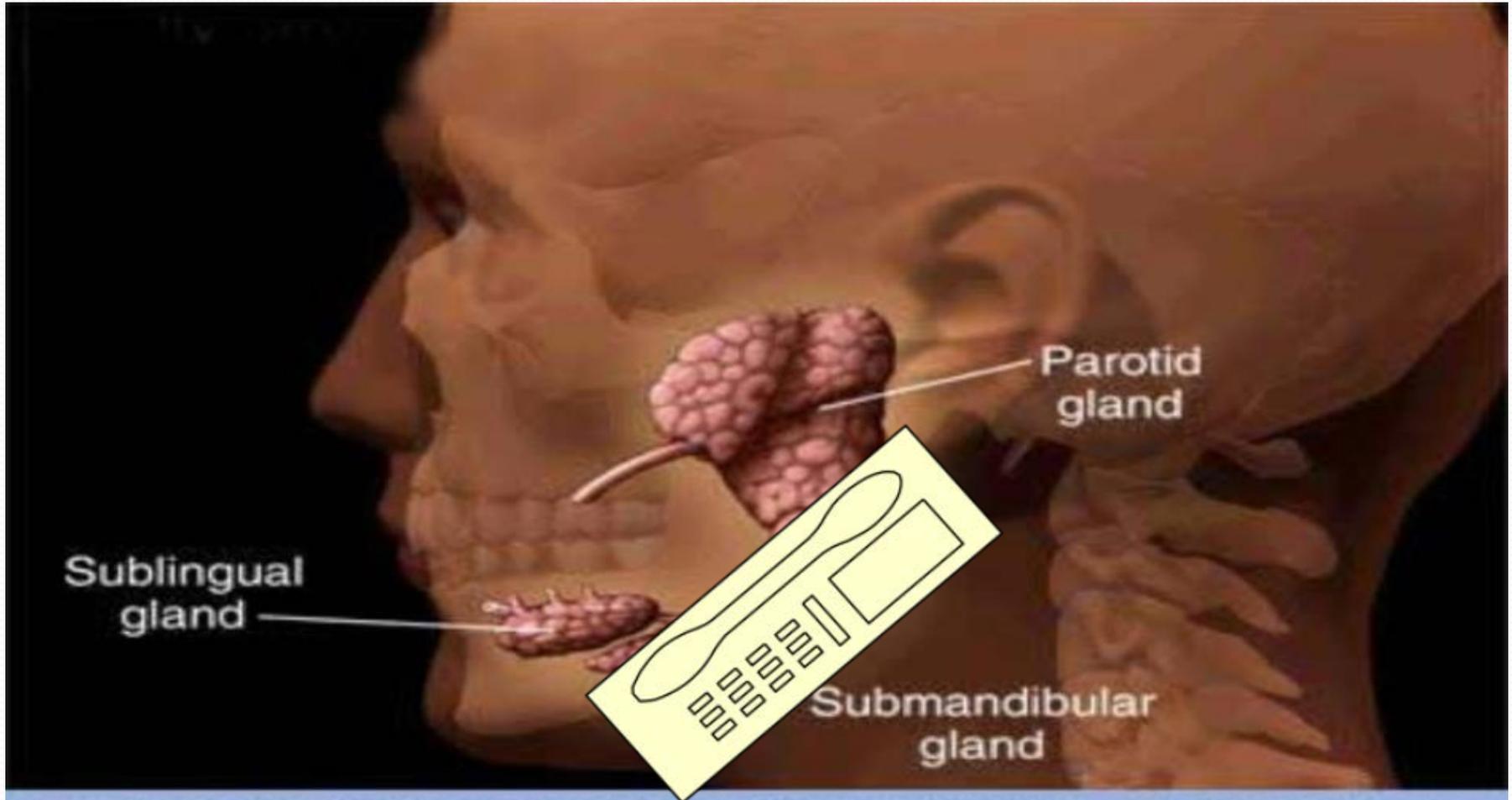
Laureate  
Professor  
John Aitken

Exposed  
Sperm were  
Significantly  
Reduced  
& damaged

<http://www.ncbi.nlm.nih.gov/pubmed/15910543>

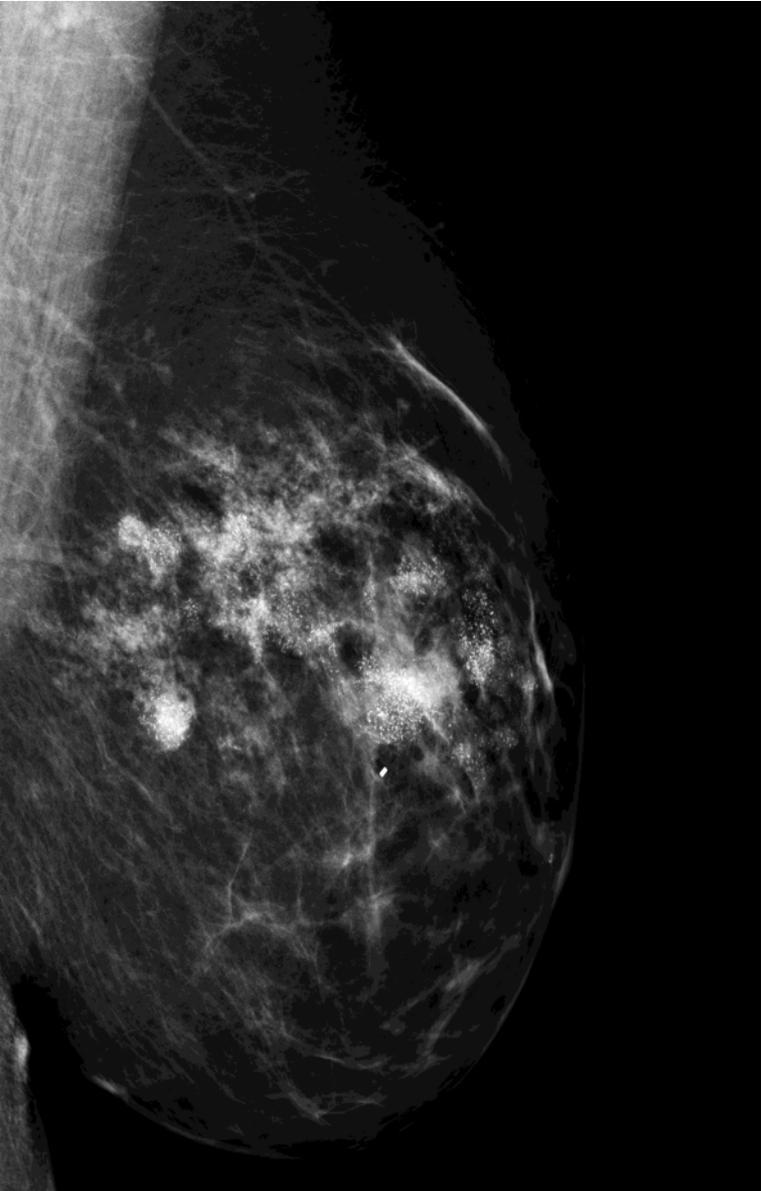


# Parotid or Salivary Gland Tumors Tripled in Israel: 1 in 5 under age 20



<http://aje.oxfordjournals.org/content/167/4/457.full>

# Breast Cancer (Greater than 38 cases reported)



First case report, 2009.

Nagourney, MD, PhD

- Invasive multiple primary tumors in 34 year old woman, avid runner; used cell phone 4 hours a day; kept in her bra for 10 years.
- no family history or other risk factors
- Unusual location of multifocal tumors where phones were kept with mix of tubular/solid patterns of *identical nuclear morphology & grade*
- With metastases

# Fetal radiofrequency radiation exposure from cellular telephones affects neurodevelopment and behavior in mice

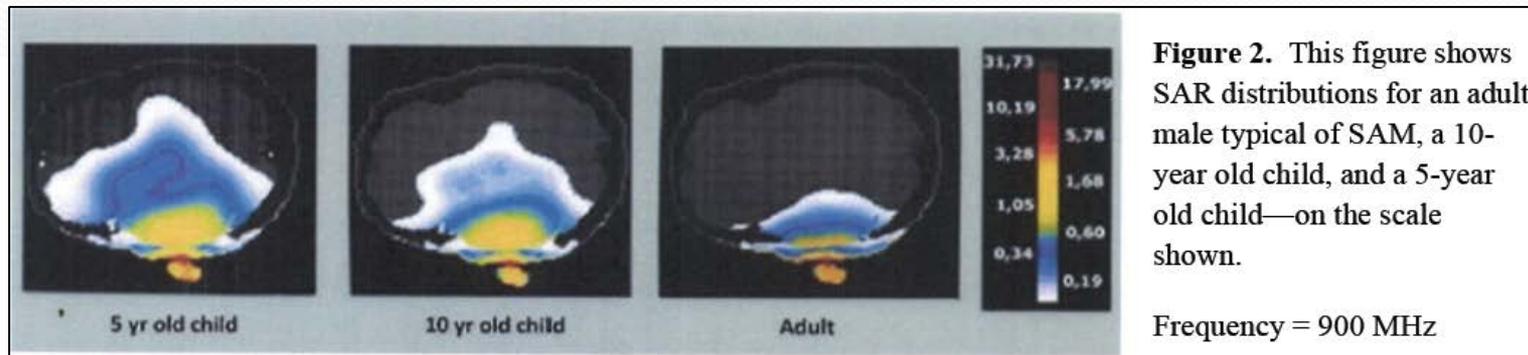
Hugh S. Taylor, M.D., Chair of Obstetrics, Gynecology and Reproductive Sciences, Yale School of Medicine

- We have shown that behavioral problems in mice that resemble ADHD are caused by cell phone exposure in the womb.
- The rise in behavioral disorders in human children may be in part due to fetal cellular telephone irradiation exposure.

<http://www.ncbi.nlm.nih.gov/pubmed/22428084>

# CHILDREN ARE NOT “LITTLE ADULTS”

- Radiation from cell phones and other sources penetrates deeper into the head of children<sup>1</sup> (see figure below)
- Starting to use a cell phone before the age of 20 results in a 5 fold increase in glioma and acoustic neuroma<sup>2</sup>



**Figure 2.** Gandhi, O.P. et al., Exposure Limits: The Underestimation of Absorbed Cell Phone Radiation, Especially in Children, *Electromagnetic Biology and Medicine*, Early Online, 1-18 (2011).

1. Wiart, J., Hadjem, A., Wong, M.F., and Bloch, I. 2008. Analysis of RF exposures in the head tissues of children and adults. *Phys. Med. Biol.*

2. Dr. Lennart Hardell, MD, PhD and Professor at University Hospital in Orebro, Sweden

# Why we should NOT Rely on current Safety Code 6 guidelines

- Created in the 1970's for federal employees and visitors to federal facilities
  - Expanded to include Wi-Fi, smart phones and cell phone towers and antennae
  - Without a major update in the last 30+ years
- No additional safety allowance for children, pregnant women or sensitive individuals
- Statement acknowledging sensitive individuals was removed from the 2009 update. Health Canada has no explanation why
- Do not consider the multi-hour, multi-day exposure of today; nor the cumulative effects from multiple devices
- China, Russia, Italy and Switzerland have exposure limits 100 times safer than Canada;
- Our track record in North America is not stellar:
  - Tobacco, asbestos, BPA, thalidomide, DDT and urea formaldehyde insulation

# Situation Update - Canada

- In testimony before the Parliamentary Committee, Health Canada:
  - Admitted there are studies that show harm below Safety Code 6 limits.
  - Stated the studies are linked to cancer, brain and nervous system and development and/or learning behaviour
  - Suggested provinces can implement their own safety guidelines
  - Referenced Weight of Evidence criteria which have not been made public
- Parliamentary Committee on Health (HESA)– 41<sup>st</sup> Parliament
  - Report was presented to the House of Commons June 17, 2015
  - 12 Recommendations
    - Education and Awareness;
    - Electrosensitivity
    - Health Canada's process
    - Research
  - Standard process of a response from the Minister was cancelled when the Governor General dissolved Parliament on August 2.
  - The current HESA committee has requested a response from the Minister
  - C4ST has presented another 60 peer-reviewed studies published since 2015 and 2016 showing harm at levels below Safety Code 6

# Suggested Actions

- Educate yourself
- Educate your family and friends
- Any offers of assistance are welcome

# Situation Update - International

March., 2016 - City of Berkeley requires cell phone warnings on packaged materials

May 11, 2015. International EMF Scientist Appeal to the UN, UN member states and the WHO

- 220 scientists from 42 nations
- Requesting they adopt more protective exposure guidelines for electromagnetic fields (EMF) and wireless technology in the face of increasing evidence of risk.

January, 2015. France passed the following articles into law:

- A ban on the use of Wi-Fi in day care centres and nurseries
- Restrictions on Wi-Fi in schools with children less than 11 years of age
- A campaign on the responsible and rational use of mobile devices

January, 2015. Taiwanese lawmakers passed new legislation in which:

- Parents face fines who allow children under 2 to use tablets and smartphones
- Youth under 18 years are only allowed devices for a 'reasonable length of time'

March, 2014. It is illegal to market cell phones to children less than 7 in Belgium

May 2011, WHO classifies wireless radiation as Class 2B *possible* human carcinogen

# Parliamentary Health Committee Testimony

Dr. Devra Davis, member Al Gore 's Nobel Prize team; Director of National Research Council

- Damaged and reduced sperm
- ADHD-like symptoms in offspring when pregnant mice exposed to cell phones
- Co-author “The underestimation of cell phone radiation, especially in children”

Dr. Anthony Miller, visiting senior scientist WHO, U. of Toronto; peer-reviewer of RSC Report

- Links to brain cancer referencing Swedish and French studies; recent breast cancer info
- Co-author paper defending argument for a 2A, probable carcinogen designation<sup>1</sup>

Dr. Riina Bray, Women's College Hospital, Dr. Magda Havas, Trent University

- Electrosensitivity statistics, symptoms and actions in other countries

Dr. Martin Blank Columbia University; peer-reviewer of Royal Society Report

- Proof of DNA damage

Dr. Martha Herbert Ph.D., M.D. Harvard Medical School

- Plausible links to autism

Dr. Meg Sears, Children's Hospital of Eastern Ontario, Ottawa Hosp. Research Inst.

- Health Canada's review of Safety Code 6 fails all major criteria for the evaluation of scientific evidence based on international best practices

Dr. Leszczynski, Adj. Prof. Biochemistry, University of Helsinki, Finland; member of 2011 IARC

- Unbiased scientific debate, where all scientific opinions are represented and evaluated
- The opinions of committees such as ICNIRP, ICES/SC4, SCENIHR, BioInitiative, ICEMS and Health Canada should be dismissed by decision makers as insufficient.

<sup>1</sup><http://www.ncbi.nlm.nih.gov/pubmed/25738972>