



European Cancer and Environment Research Institute

ECERI NEWSLETTER

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EDITO

The ECERI is growing further in Europe. Research areas mainly regard methylglyoxal as a marker of cancer, epigenetic mechanisms in relation with physical, chemical and microbial agents of our environment. So far, up to fifteen European teams with collaborative links with the United States joined the ECERI to work with on different projects. Our next congress will be organised in Brussels on epigenetics and environment-related diseases, October 2018. As regards research on electrohypersensitivity, our last meeting in the Royal Belgium Academy of Medicine, on the 18-19th May 2015 was the first step enabling ECERI researchers to lead active collaboration all along 2016. Consequently to this meeting, the Brussels Appeal for the recognition by WHO of electrohypersensitivity and multiple chemical sensitivity as new emerging disorders was launched. <http://appel-de-paris.com>

In this letter

- Edito
- Epigenetics : 2018 Congress
- Methylglyoxal patent
- ECERI's Executive Committee

In the name of the ECERI team, we wish for all of you and your families a Happy New Year !

Epigenetic revolution and public health: from scientific reality to political awareness

The following text is the allocution given by Dominique Belpomme, ECERI Executive Director, on the 19th of October, 2016 at the European Parliament.

Like most high-income countries, the European Union has faced since the post-war period unprecedented and uncontrolled public health issues: cancers, type 2 diabetes, obesity, cardiovascular diseases, allergies, Alzheimer's disease, autism, neuropsychiatric conditions all weigh heavily on our societies. Thus epidemiologically, every year, there are 3.2 million new cases of cancer and 1.3 million men and women who die. As for Alzheimer's disease, 2.5 million new cases occur each year.

It was once believed that these public health problems mainly affected the elderly, this is no longer the case. Today one dies of cancer mostly before the age of 65 and of Alzheimer's disease at an earlier age than before.

Likewise, we could have thought that children would be spared. This is not the case. Today, in Europe, one child in 65 is born with autism, one in seven suffers from allergic or toxic asthma, and about one in 10 is born with a birth defect or a rare disease, called orphan disease; while each year 1% more of children suffer from leukemia or cancer.

Although risk factors related to our lifestyle, such as diet, lack of physical exercise, smoking and alcohol are involved and act as contributing factors, they are not the only culprits.

Following the warning of many scientists (including Nobel Prize winners) who signed the **Paris Appeal**, there have been hundreds of scientific papers which have now proven beyond doubt that the real cause of these disabling conditions or chronic diseases is the degradation of our environment, whether physical (radiation and dust), chemical (aromatic hydrocarbons, pesticides and other products on the market) and / or microbial. See the International declaration on health dangers of chemical pollution, 2014, www.appel-de-paris.com.

Thus scientific evidence demonstrating the harmful impact on health of CMR substances, particularly pesticides and more generally of *endocrine disruptors*, has now become irrefutable, not to mention the emergence of a probable deleterious effect of the abusive use of wireless technology (mobile phones, DECT, WiFi, and so on).

« *Comment naissent les maladies* » (Ed. Les Liens qui Libèrent, 2016) is a popular book, based on purely scientific data. This book reports not only the role of pollution in the occurrence of current conditions, but also the molecular mechanisms involved that explain the onset related to the environment and that fall within *epigenetics*, ie the gene regulation modes which, under the pressure of environmental conditions, allow them to express themselves.

But it is now clear that the vast majority of pollutants (endocrine disruptors, pesticides, aromatic hydrocarbons, and so on) can alter these mechanisms and thus disrupt normal gene expression, which leads to the genesis of diseases.

The case of children is extremely worrying, owing to the severity of effects related to pollution. Indeed, to the increasing environmental pollution we need to add the contamination of parents and therefore, the possibility that, during pregnancy, the disruption of these genes is passed on to the child, as well as the susceptibility to these disorders or diseases, or even these conditions and diseases themselves; and this as part of heredity, which is not only genetic, innate as we previously thought, but epigenetic, meaning acquired.

Although the REACH Regulation, Prof. Belpomme being one of the experts appointed by the Commission to represent all physicians and scientists of the Union, constituted a significant step forward, we can only deplore the absence of a true European health policy, the current policy not being up to the challenge that comes to us. We are actually paying a two-fold human and economic bill, and from now on, we will have to pay more and more as there is no political awareness. May this new scientific message from numerous international teams of researchers, in particular that of ECERI, in line with the Paris Appeal, inspire appropriate political decisions, and lead to a revival of a European policy, which has currently fallen into disuse in that particular area of health.

The **next ECERI international scientific congress** will be devoted to Epigenetics and will take place **October 2018** at the Royal Academy of Medicine, **Brussels**.

Entitled « **Environmental Epigenetics and human diseases** », it will be organized on two days, dealing with cancer on the first day, the second day being divided into two parts : neurological and mental diseases in a 1st session, and other diseases, in particular metabolic syndromes (diabetes, obesity) in a second one.

Please let us know as soon as possible what your contribution to this congress might be.



Research and patent : Methylglyoxal and cancer

Methylglyoxal is a waste of glycolysis which is proposed to be used as a marker of cancer. The patent was initially filed in 2012, with a request for protection worldwide.

The patent is still in the application process. It is already partially recognized by the European Patent Office. However as far as the American Patent Office is concerned, the difficulty arises from the fact that patenting living molecules is prohibited; a new presentation of the patent has thus been drafted, specifying that this concerns the dosage of one of its artificially derived-methylglyoxal molecules and not the natural molecule itself.

The scientific results that we obtained to date confirm the patent:

- Methylglyoxal is present in higher amounts in the tumor only, and not in healthy tissue
- It is present in higher amounts in cancers studied in man,
- It is also present in higher amounts in cancers in animals.

A first scientific paper, resulting from the Vincent Castronovo's team, in collaboration with Dominique Belpomme has just been published : Nokin MJ, Durieux F, Peixoto P, Chiavarina B, Peulen O, Blomme A, et al **Methylglyoxal, a glycolysis side-product, induces Hsp90 glycation and YAP-mediated tumor growth and metastasis**. *Elife* 2016 Oct 19;5. pii: e19375. doi: 10.7554/eLife.19375.

Some recent publications of ECERI members and associated members

Hardell L, Koppel T, Carlberg M, Ahonen M, Hedendahl L. **Radiofrequency radiation at Stockholm Central Railway Station in Sweden and some medical aspects on public exposure to RF fields**. *Int J Oncol*. 2016 Aug 12. doi: 10.3892/ijo.2016.3657.

Carlberg M, Hedendahl L, Ahonen M, Koppel T, Hardell L. **Increasing incidence of thyroid cancer in the Nordic countries with main focus on Swedish data**. 2016 Jul 7;16:426. doi: 10.1186/s12885-016-2429-4. **BMC Cancer**

Belyaev I, Dean A, Eger H, Hubmann G, Jandrisovits R, Kern M, Kundi M, Moshammer H, Lercher P, Müller K, Oberfeld G, Ohnsorge P, Pelzmann P, Scheingraber C, Thill R. **EUROPAEM EMF Guideline 2016 for the prevention, diagnosis and treatment of EMF-related health problems and illnesses**. *Rev Environ Health*. 2016 Sep 1;31(3):363-97. doi: 10.1515/reveh-2016-0011.

Havas, M. **When theory and observation collide: Can non-ionizing radiation cause cancer?** *Environmental Pollution* (2016).

MJ Mortazavi, M Taheri, M Darabian, Izadbakhsh, F Nouri, Masoud Haghani, SAR Mortazavi, Ghazal Mortazavi, SMJ Mortazavi, M Moradi. **Exposure to Visible Light Emitted from Smartphones and Tablets Increases the Proliferation of S. aureus: Can this be Linked to Acne?** *Journal of Biomedical Physics and Engineering (JBPE)*, September 24, 2016

Shekoohi-Shooli F, Mortazavi SM, Shojaei-Fard MB, Nematollahi S, Tayebi M. **Evaluation of the Protective Role of Vitamin C on the Metabolic and Enzymatic Activities of the Liver in the Male Rats After Exposure to 2.45 GHz Of Wi-Fi Routers**. *J Biomed Phys Eng*. 2016 Sep 1;6(3):157-164.



ECERI meetings

The **ECERI Executive Committee** gathered on the 14th of December in Paris. Dominique Belpomme, President, Christine Campagnac, General Secretary, Jean Huss, Vice President, Gérard Ledoigt, Philippe Irigaray and André Vander Vorst attended the meeting.

The discussion first regarded the members' renewal ; proposals for new members will be submitted to the next General Assembly in 2017.

The second point was devoted to the evolution of the patent on methylglyoxal as a marker of cancer (see previous subject in this letter).

The third point considered research on electrohypersensitivity. Different members of the Scientific Committee of ECERI reacted to ANSES' (French Agency for Food, Environmental and Occupational Health & Safety) preliminary report on electro-hypersensitivity by drafting a second expert opinion. It was proposed that this report be validated and signed by a group of ECERI experts prior to release. Besides, a collective book on electromagnetic fields and health is underway, that should be released by the end of this year, to which many of our members should be contributing.

The fourth point discussed was the funding of new research projects. So far, ECERI costs have been mainly covered by ARTAC (French Association for Research on Treatment Against Cancer), this should be still the case in 2017. One way of gaining visibility would be to communicate more through the ECERI website and Newsletter. Each member team of the ECERI is then invited to share its scientific studies and results in this Newsletter.

It was suggested that 2 or 3 members of the Kompetenz Initiativ in Germany be associated with ECERI, as they produce many high standard scientific papers about subjects ECERI is interested in.

Finally, Dominique Belpomme submitted the idea of a treaty of environmental medicine which may be the fruit of a collaboration of all ECERI teams and that may gather all the different therapeutical approaches on this subject.

If you have any suggestion regarding the content of this Newsletter, please share them with us and **send us regularly your scientific studies and publications** so that they can be spread through the ECERI Newsletter.

