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DNA BETWEEN PHYSICS AND BIOLOGY. DNA WAVES AND WATER

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http://montagnier.net/montagnier/index.php/publications/

[1] adattamento grafico, sintesi e note aggiuntive di Andrea Valeri, resp. ricerca Soc. Italiana Medicina Omeopatica

Over the last 60 years, the development of basic knowledge in biology as well as many medical applications owes much to the discoveries made in DNA..

...my presentation, composed of three parts:
the facts
the theories
the medical applications...

I. THE NEW FACTS

A new property of DNA: the induction of electromagnetic waves in water dilutions.

The story started ten years ago when I studied the strange behaviour of a small bacterium, a frequent companion of HIV, *Mycoplasma pirum*, and like HIV a lover of human lymphocytes.

I was trying to separate the bacterium, which is about 300 nm in size from viral particles about 120 nm by filtration using filters of 100 nm and 20 nm.

Starting with pure cultures of the bacterium on lymphocytes, the filtrates were indeed sterile for the bacterium when cultured on a rich cellular medium..

However, when the filtrate was incubated with human lymphocytes, (previously controlled for *not being infected* with the mycoplasma) we regularly recovered the mycoplasma with all its characteristics!

Then I asked myself what kind of information was transmitted in the aqueous filtrate (Fig.1)..

..we found a new property of *M. pirum* DNA: the emission of low frequency waves in some water dilutions of the filtrate, soon extended to other bacterial and viral DNAs.

Here is a brief description of the apparatus used to detect the electromagnetic signals:

..a solenoid *capturing* the magnetic component of the waves produced by the DNA solution in a plastic tube converting the signals into electric current.

- this current is then *amplified*

..finally *analysed* in a laptop computer using specific software (Fig 2)...

1) We detect Ultra Low Frequency Electromagnetic Waves (ULF 500-3000 hertz)

in certain dilutions of filtrates (100nm, 20 nm)

from cultures of micro-organisms (virus,bacteria)

from the plasma of humans infected with the *same agents*

Same results are obtained from their extracted DNA.

2) The electromagnetic signals (EMS) are not linearly correlated with the initial number of bacterial cells before their filtration.

In one experiment we showed that the EMS were similar in a suspension of E. coli cells varying from 10^9 down to 10.

It is an *all or none* phenomenon.

3) EMS are only observed in some high water dilutions of the filtrates.

For example, from 10^{-9} to 10^{-18} dilutions in some preparations of E. coli filtrates (Fig.3)

4) In the case of *M. pirum*, an isolated single gene (adhesin, previously cloned and sequenced) could induce the EMS [2]..

Similarly, we shall show later that a short HIV DNA sequence ..was sufficient to produce the EMS.

[2]"As the gene was cloned in two fragments, each of the isolated fragments was able to generate EMS, suggesting that a short DNA sequence was sufficient to induce the signals."

5) Some bacteria are not producing EMS [3]..

6) We have extended our studies to viruses.. We could detect similar EMS

from some exogenous retroviruses (HIV,FeLV)

hepatitis viruses (HBV, HCV)

influenza A (*in vitro* cultures)..

[3] this is the case of probiotic bacteria such as Lactobacillus and also of some laboratory strains of *E. coli* used as cloning vector.

In the case of bacteria, EMS are produced by 100 nm filtrates and *not* by 20 nm filtrates, indicating that the size of the structures producing EMS is ranging between 20 and 100 nm. This justifies the name of *nanostructures*..

The following studies are highly suggestive that we are dealing with nanostructures made of *water*...[4]

[4]"The EMS production by the nanostructures is resistant to: Rnase treatment, Dnase (while this will destroy the DNA at the origin of EMS), Protease (proteinase K), Detergent (SDS). However, they are sensitive to heat (over 70°C) and freezing (-80°C). This sensitivity is reduced when dealing with purified short DNA sequences"

..technical conditions for EMS induction:

- Filtration:450/100 nm for bacterial DNA
450/20 nm for viral DNA

- High dilutions in water

- Mechanical agitation (Vortex) between each dilution

- Excitation by the electromagnetic background ELF, starting very low at 7Hz (prevented by μmetal absorption)..

sul punto 3, agitazione meccanica:

Montagnier L. Electromagnetic Signals Are Produced by Aqueous Nanostructures Derived from Bacterial DNA Sequences. Interdiscip Sci Comput Life Sci (2009) 1: 81–90

"Each dilution is done in 1.5 mL Eppendorf plastic tubes, which are then tightly stoppered and *strongly* agitated on a Vortex apparatus for 15 seconds . This step has been found critical for the generation of signals" (ibidem, page 82)

Therefore, this is a resonance phenomenon.The stimulation by the electromagnetic background of very low frequency. is **essential.** The background is either produced from natural sources:

the Schumann resonances are starting at 7.83Hz

or from human activities: the main source of which is electric power (50 – 60Hz or 16 2/3)...

Our work is interdisciplinary, involving biologists, physicists, and medical doctors.

There are of course many unresolved questions raised by our findings, which deserve more work and more interactions.

DNA signalling is stimulated by 7Hz naturally occurring waves on earth.

Waves produced by the human brain are also in the

range of 7Hz.

I submit to you that this may not be just a coincidence…

References

1. Electromagnetic Signals Are Produced by Aqueous Nanostructures Derived from Bacterial DNA Sequences. Luc Montagnier, Jamal Aïssa, Stéphane Ferris, Jean-Luc Montagnier, Claude Lavallee. Interdiscip Sci Comput Life Sci (2009) 1: 81-90

2. Electromagnetic detection of HIV DNA in the blood of AIDS patients treated by antiretroviral therapy. Luc Montagnier, Jamal Aïssa, Claude Lavallee, Mireille Mbamy, Joseph Varon, Henri Chenal. Interdiscip Sci Comput Life Sci (2009) 1: 245-253

3. Del Giudice E., Tedeschi A., (2009). Water and the autocatalysis in living matter,Electromagnetic Biology and Medicine, 28, 46