GENÈSE MULTIFACTORIELLE DES MALADIES CHRONIQUES

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Main Problems of our Time

- Demography
- Environmental changes
- Health
Demography

Uncontrolled growth of population in some parts of the World

Water, food shortages
World Population and Per Capita GDP (PPP) from 1000 to 2005*

* Ivo Štaus and Gary Jacobs, "Human Capital and Sustainability", Sustainability 1, № 3 (2011)
Increase in life expectancy (1850 – 2000)

Source: Christensen et al., Lancet, 2009.
Environmental changes

- Global warming,
- Air and food pollution,
- Electromagnetic fog
Main Domains in Research

- Energy
- Health
- Communication
Health

- Ageing
- Chronic diseases
- New or recurrent epidemics
- Globalization
Emergence or reemergence of new epidemics due to:

- Globalization of exchanges and travels
- Demography: concentration in large cities
- Nutrition (pesticides, water)
- Environmental factors
- Climate changes, electromagnetic radiations
- Contacts with wild and farm animals
- Decline of immune defenses
The most important burden
Chronic Diseases

- Cancers
- Cardiovascular
- Neurodegenerative
- Arthritic
- Autoimmune
- Multifactorial, but in common:
  oxidative stress
  infectious agents (?)
Various environmental factors effects accumulate

Radiations ($\gamma, X, UV, \text{visible}, \text{hertzian}$)

Air chemical pollution

Inadequate Food

Excessive physical exercise

tobacco smoke

alcohol

ischemia

Parasitic infections

Bacterial infections

Viral infections

= DISEASE
Oxidative stress
  Weakens the immune system
  Activates transcription factors (NF-kappa B)
  Activates genes involved in cell division, inflammatory cytokines, lymphocytes activation
  Immune dysfunction, apoptosis (TH1 → TH2)
A newly discovered property of DNA:

Resonance emission of low frequency electromagnetic waves by high water dilutions of DNA.
Detection of Ultra Low Frequencies Waves (ULF 500-2000 hertz) in certain dilutions of filtrates (100nM, 20nM, 15nM) from cultures of micro-organisms (virus, bacteria) or from the plasma of humans infected with the same agents.
The Evolution of Medicine

Toward 4 P Qualities

- P1 Preventive
- P2 Predictive
- P3 Personalized
- P4 Participative