



# Institute for Health and Consumer Protection

Science for a healthier life



## **Mission of the IHCP**

**The mission of the IHCP is to provide scientific support to the development and implementation of EU policies related to health and consumer protection.**

**The IHCP carries out research to improve the understanding of potential health risks posed by chemical, physical and biological agents from various sources to which consumers are exposed.**

## The IHCP Scientific Units

- **TCS (ECB)** Toxicology and Chemical Substances
- **PCE** Physical and Chemical Exposure
- **B&GMOs** Biotechnology and GMOs
- **ECVAM** European Centre for the Validation of Alternative Methods
- **NMI** Nanotechnology and Molecular Imaging



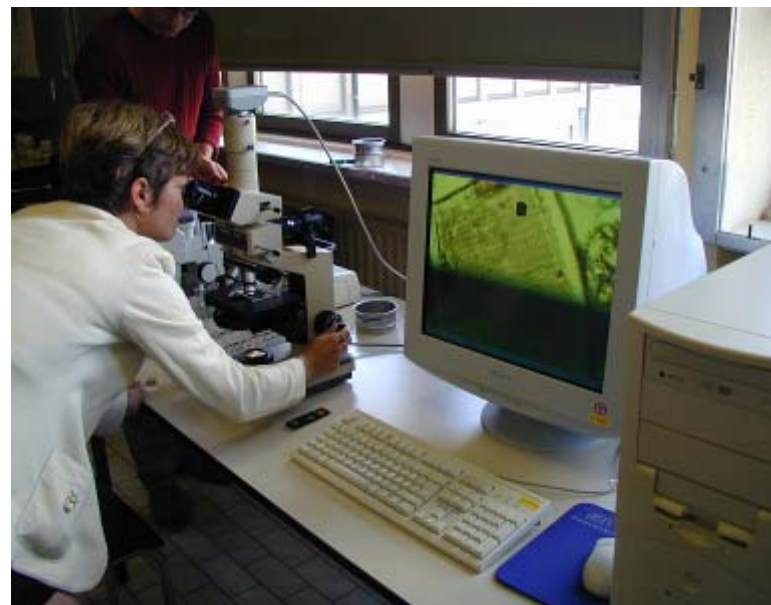
## Risk Assessment (mainly on Chemicals)

- **Classification and Labelling**
- **Support to set up the upcoming European Agency on Chemicals (Helsinki, started in June 2007)**
- **Evaluation and validation of alternative testing**
  - Computational models
  - In-vitro testing methods (3 R methods)
- **Exposure Assessment**



## Development and Validation of Methods

- **Validation of alternative test methods (in-vitro)**
- **Method validation for GMOs, food contact materials, textiles, food authenticity control**
- **Sampling protocols**
- **Traceability**



## Databases and Material Banks in IHCP

- Database service on alternative procedures, IUCLID, Database on wine, general exposure assessment data on consumer products
- Material banks (food contact materials, wine, chemicals)

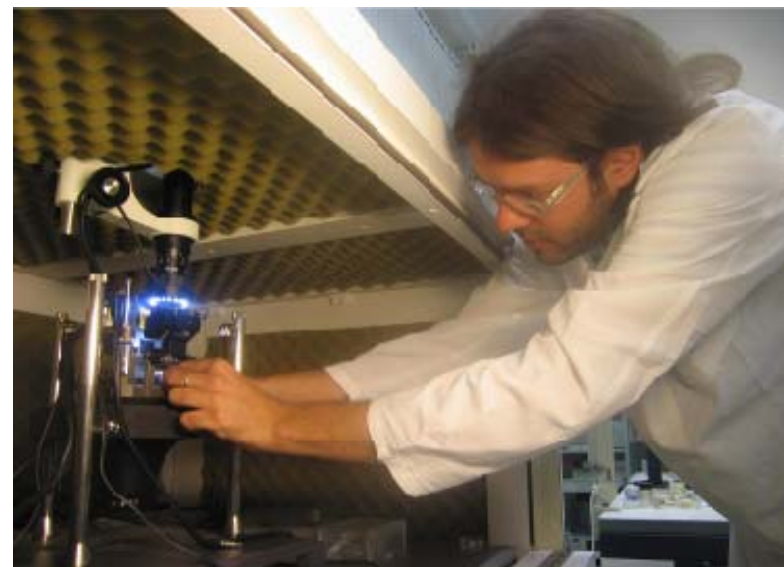




## Activities on Environment and Health in IHCP

### Evaluation and quantification of human exposure and risk assessments from environmental stressors

- **Chemical and biological agents from indoor and outdoor exposure**
- **Physical factors, e.g. noise**



## Provision of robust analytical data

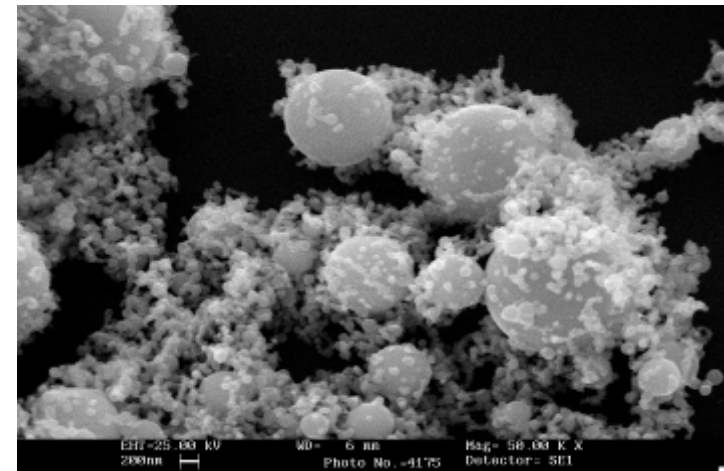
Analysis in support to implementation of legislation (*complementary to work carried out in IRMM*)

- Genetically modified organisms
- Food contact materials
- European wine
- Chemicals from consumer products



# Nanotechnology/Nanotoxicity in the IHCP

- Study of interfaces and interactions between biological and non biological systems
- Development of biosensors
- Toxicity of nano-particles



## Large-scale Instrumentation in the IHCP

- **2 Nuclear Magnetic Resonance (NMR) Spectrometers – need to be updated**
- **2 Automated testing facilities for in vitro cell-based toxicity assays (High-throughput system)**
- **Indoortron (In-door air pollution measurements)**
- **Cyclotron (50 MeV – production of nano and molecular radio-tracers)**



## Community Reference Laboratories in the IHCP



**GMO - Community Reference Laboratory for Food and Feed**

Community Reference Laboratory



Food Contact Materials

**FCM - Community Reference Laboratory  
for Food Contact Materials**

***Complementary to work carried out in IRMM (Geel): 4 CRLs***

***Complementary to work carried out in EFSA (Parma)***

**Research-based policy support in the GMO area is a Pan-JRC activity:  
three Institutes are involved:**

***Institute for Health and Consumer Protection;***

S/T support for the implementation of GMO legislation

Community Reference Laboratory for GM Food and Feed

***Institute for Reference Materials and Measurement;***

World leader in GMO Certified Reference Materials  
and biometrology

***Institute for Prospective Technological Studies;***

Biotechnology foresight;

Model simulations and expert opinions on the co-existence of GM  
and non-GM crops in European agriculture



## Salient points of the EU Regulation: a strict regulation with strong consumers' involvement



- **Labelling of GMOs and derived food and feed products at all stages (when present above 0.9%);**
- **Traceability from the point of production or import down to the table and vice versa;**
- **Co-existence between organic, traditional and GM plant from the seed throughout the production chain;**
- **Post-market monitoring;**
- **Extensive exchange of information on GMOs cultivated among MS and the EC and GMOs transported among MS and Third Countries (“Biosafety Clearing House”)**





## The Community Reference Laboratory

- Operations are carried out, aligned with the European Food Safety Authority
- It has a crucial role in (dis)approval of methods that are “fit for the purpose of regulatory compliance”
- It has a role in disputes and in response to crises
- It carries out extensive training
- Today already >25 validations have been completed, >50 dossiers are in the pipeline (most crop plants; one yeast strain used in milk fermentation)
- It chairs the “European Network of GMO Laboratories” (ENGL)



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## The role of the JRC in response to crises: the case of US GM-rice LLRice601



**LLRice601 has been engineered to tolerate herbicides**

**The product, developed by Bayer, has never been commercialised**

**The USA exports 50% of its rice produced**

**GMO rice LLRice601 is neither authorised in the EU nor in the USA but it has contaminated imports from the USA**

## **GM-rice LLRice601**



**The JRC collaborated with the USDA and within one week after issuing the EU emergency measures, it tested and published two detection methods on its web site**

**The JRC distributed immediately control samples to the national control laboratories**

## GM-rice LLRice601



**The European Federation of rice millers tested its rice stocks with the detection methods published on the JRC web site and found approximately 20% positive samples**



**Rice sampling for the presence of LLRice601 in the harbor of Rotterdam**

## The case of Chinese GM-rice



- **Greenpeace reported that GM rice from Chinese origin had been found in the EU in Chinese supermarkets**
- **The JRC, through database searches, could identify the rice varieties involved. These varieties represent more than 60% of rice cultivated in China**
- **The JRC, through contacts with a private test company and with the Chinese observer in the “European Network of GMO Laboratories”, obtained the detection method and control samples**
- **The method was validated by the JRC**

## **Collaboration with Polish Institutions**

- **Medical University of Warsaw – alternative tests**
- **National Veterinary Research Institute – alternative**
- **Polish Academy of Sciences – alternative tests**
- **6 Scientific Staff Members, 1 from Wroclaw University (A. Bednarkiewicz)**
- **1 Collaboration Agreement with Wroclaw University on novel chemical and biochemical sensors**

**Thank you for your attention !**

