Collection, storage, processing, and use of human biological samples: the spirit of the laws

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The Spleen Who Came in from the Cold

It was in Alaska.

At the beginning of 1976.

An engineer working on pipelines was not feeling very well.

As a reasonable man, he finally went to see a doctor.

After medical examinations and laboratory tests, the diagnosis was brutal: this man was suffering from a rare and deadly disease, a hairy-cell leukaemia.

The only chance to slow down or stop the disease progression seemed to be to remove the patient's spleen. A surgical operation was successfully carried out on 20 October 1976. Then the patient continued to meet his Doctor every six months, for medical examinations.

A few years later, the patient discovered that:

- some T cell samples issued from his removed spleen were used without his consent by the doctor to develop a very profitable cell line known as “Mo”,
- the outcome of this work was patented (1983) and licensed to some pharmaceutical companies.

So, duly encouraged by his lawyer, this man decided to file a lawsuit so as to obtain:

- a co-ownership right on the patent 4438032
- a compensation for damages resulting from the violation, by the physician, of his professional duties.

Between 1984 and 1990, this law case was examined by three courts and eleven judges. Six years of proceedings later :

- the complainant’s request was finally denied for his alleged ownership both on the patent (he was not the inventor) and the cells extracted from his removed spleen (the court feared that extending property rights to include organs or cells destined for destruction would have a chilling effect on medical research).

- however, the patient succeeded in his request for violation by the doctor of his professional duties because the physician failed to inform his patient about the economic and personal interest he could have in studying and using the patient’s cells.

- This was the famous case known as John Moore's case, probably the first hacked man in the biotech history.
- Over the years, the situation has perceptibly changed and now a proliferation of ethics committees, bioethicists, consent forms, institutional review boards, religious and philosophical groups, political parties, goverments and international institutions try to regulate these particular activities which consist in the ***collection, storage, processing, and use of human biological samples.***

Does this mean that, like in the famous Candide of Voltaire (a neighbour of Geneva in the old days) *"all is for the best in the best of all possible worlds"* ?

Nothing is less certain and to answer this question in a useful way, we now need to say a few words about :

- the complex and heterogeneous current normative framework of the collection, storage, processing and use of human biological samples **(I)**
- the urgent need to make available to scientists and practitioners a kind of practical manual for carrying out these activities on the basis of concerns (*"the spirit of the laws"*) common to different and heterogeneous rules currently in force **(II)**

- I -

The complex and heterogeneous current normative framework which may apply to the collection, storage, processing, and use of human biological sample

1.1. International rules

1.1.1. *International texts and treaties*

- **1997/04/04**, ES - Oviedo - ***Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine*** (Convention pour la protection des Droits de l'Homme et de la dignité de l'être humain à l'égard des applications de la biologie et de la médecine)

- **1997/11/11**, FR -Paris, UNESCO - ***Universal Declaration on the Human Genome and Human Rights*** (Déclaration universelle sur le génome humain et les droits de l'homme)

- **1998/01/12**, FR -Paris, Council of Europe - ***Additional Protocol to the Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine, on the Prohibition of Cloning Human Beings*** (Protocole additionnel à la Convention pour la protection des Droits de l'Homme et de la dignité de l'être humain à l'égard des applications de la biologie et de la médecine, portant interdiction du clonage d'êtres humains)

- **2002/01/24**, FR -Strasbourg, Council of Europe - ***Additional Protocol to the Convention on Human Rights and Biomedicine, on Transplantation of Organs and Tissues of Human Origin*** (Protocole additionnel à la Convention sur les Droits de l'Homme et la Biomédecine relatif à la transplantation d'organes et de tissus d'origine humaine)

- **2003/06/19**, FR -Strasbourg, Council of Europe - ***Recommendation of the Committee of Ministers to member states on xenotransplantation*** (Recommandation du Comité des Ministres aux Etats membres sur la xénotransplantation)
- **2005/01/25**, FR -Strasbourg, Council of Europe - **Additional Protocol to the Convention on Human Rights and Biomedicine, concerning Biomedical Research** (Protocole additionnel à la Convention sur les Droits de l'Homme et la biomédecine, relatif à la recherche biomédicale)

- **2006/03/15**, FR -Strasbourg, Council of Europe - **Recommendation of the Committee of Ministers to member states on research on biological materials of human origin** (Recommandation du Comité des Ministres du Conseil de l'Europe aux Etats membres sur la recherche utilisant du matériel biologique d'origine humaine).

- **2005/05/16**, PL-Varsovie, Council of Europe **-** ***Convention on Action against Trafficking in Human Beings***, entry in force 2008/02/01 (Convention du Conseil de l'Europe sur la lutte contre la traite des êtres humains, entrée en vigueur le 1er février 2008)

- **2005/10/19**, FR-Paris, UNESCO - ***Universal Declaration on Bioethics and Human Rights*** (Déclaration universelle sur la bioéthique et les droits de l'homme)

- **2008/05/02**, TR-Istanbul - ***Declaration of Istanbul on Organ Trafficking and Transplant Tourism Participants in the International Summit on Transplant Tourism and Organ Trafficking*** convened by The Transplantation Society and International Society of Nephrology in Istanbul, Turkey, April 30–May 2, 2008 (Déclaration d'Istanbul contre le trafic d'organes et le tourisme de transplantation)

- **2008/11/27**, FR-Strasbourg, Council of Europe - ***Additional Protocol to the Convention on Human Rights and Biomedicine, concerning Genetic Testing for Health Purposes*** (Protocole additionnel à la Convention sur les Droits de l'Homme et la biomédecine relatif aux tests génétiques à des fins médicales)

1.1.2. European Union

- **2004/03/31**, FR-Strasbourg, European Parliament and Council of the European Union - ***Directive 2004/23/EC of the European Parliament and of the Council of 31 March 2004 on setting standards of quality and safety for the donation, procurement, testing, processing, preservation, storage and distribution of human tissues and cells*** (Directive 2004/23/CE du Parlement Européen et du Conseil du 31 mars 2004 relative à l'établissement de normes de qualité et de sécurité pour le don, l'obtention, le contrôle, la transformation, la conservation, le stockage et la distribution de tissus et cellules humains)
- **2007/11/13,** FR-Strasbourg, European Parliament and Council of the European Union - ***Regulation (EC) No 1394/2007 of the European Parliament and of the Council of 13 November 2007 on advanced therapy medicinal products*** and amending Directive 2001/83/EC and Regulation (EC) No N°726/2004 (Règlement CE N°1394/2007 du Parlement européen et du Conseil concernant les médicaments de thérapie innovante)

1.2. National rules

Many countries have wanted to develop legal regulation for biotechnology activities, but these regulations are far from uniform consistency or being easy to implement.

For example :

- Switzerland
- France

1.2.1. Currently, in Switzerland, the federal rules that regulate research on human beings exist only in partial areas, with scattered provisions, which can be found in several texts:

a) regulation of clinical trials with medicines and medical products

- RS 812.21 **Federal Law of 15 December 2000 on medicinal products and medical devices** (Law on Therapeutic Products, LPTH)
- SR 812.214.2 **Ordonnance of 17 October 2001 on clinical trials of therapeutic products** (OClin)

b) regulation of clinical trials in transplantation medicine

- RS 810.21 **Federal Law of 8 October 2004 on the transplantation of organs, tissues and cells** (Law on transplantation)

c) regulation of professional secrecy for research in medicine and public health

- SR 311.0 Art. 321bis **Professional secrecy in medical research** (Swiss Penal Code)
- RS 235154 **Ordonnance of 14 June 1993 concerning the authorisation to waive the obligation of professional secrecy in medical research** (OALSP)

d) regulation of data processing

- RS 235.1 **Federal Law of 19 June 1992 on the protection of data** (LPD)

e) regulation of medically assisted procreation

- RS 810.11 **Federal Law of 18 December 1998 on Medically Assisted Procreation** (LPMA)

f) regulation of stem cell research

- RS 810.31 **Federal Law of 19 December 2003 on research on embryonic stem cells** (Law on the stem cell research, LRCS)

g) regulation of human genetic analysis

- RS 810.12 **Federal Law of 8 October 2004 on the human DNA** (LAGHI)

In Switzerland, for the moment most of the regulation is of cantonal competence, generally expressed in the health laws of each Canton. The examination of these local laws shows that statutory provisions can vary greatly from one canton to another. This is probably the reason why two important legal works are currently being done at Confederation level:

- a project of **constitutional article on the research on human beings**, which will amend the Swiss Constitution through an article 118a entitled *"Research on human beings"*, so as to include an extended jurisdiction for the Confederation to legislate in this area;
- a project of **federal law on research on human beings**, designed to complement and unify the regulation of such activities all over Switzerland.

1.2.2. In France, we love to produce laws at an industrial tempo, a sort of permanent legislative inflation, with texts which are often inapplicable or obsolete before they can be effectively applied.

In this country, applicable rules are as follows

a) Issues related to biotechnology are currently in :

- the **Law No. 2004-800 of 6 August 2004** (of which there is an original version and another amended on 20 December 2008)

- and, for now, its following **application decrees** : Décret n° 2004-1024 du 28/09/2004, Décret n° 2005-1342 du 27/10/2005, Décret n° 2005-1391 du 08/11/2005, Décret n° 2005-1618 du 21/12/2005, Décret n° 2005-364 du 18/04/2005, Décret n° 2005-420 du 4/05/2005, Décret n° 2005-443 du 10/05/2005, Décret n° 2005-949 du 02/08/2005, Décret n° 2006-121 du 06/02/2006, Décret n° 2006-1563 du 8/12/2006, Décret n° 2006-1620 du 18/12/2006, Décret n° 2006-1660 du 22/12/2006, Décret n° 2006-1661 du 22/12/2006, Décret n° 2006-626 du 29/05/2006, Décret n° 2007-1110 du 17/07/2007, Décret n° 2007-1220 du 10/08/2007, Décret n° 2007-519 du 05/04/2007, Décret n° 2008-321 du 4/04/2008, Décret n° 2008-588 du 19/06/2008, Décret n° 2008-891 du 2/09/2008, Décret n° 2008-968 du 16/09/2008, Décret n° 2009-217 du 24/02/2009.

Legal texts actually in force in France concern :

- ✓ Ethics and biomedicine.
- ✓ Human rights and genetic characteristics.
- ✓ Donation and use of components and products of the human body.
- ✓ Legal protection of biotechnological inventions.
- ✓ Reproduction and embryology.
- ✓ Ban of reproductive cloning.
- ✓ Prenatal diagnosis and medical assistance to procreation.
- ✓ Research on embryos and embryonic stem cells.
- ✓ Penal provisions applicable.

b) The French government has recently launched (February 4, 2009) the ***«Etats-Généraux de la Bio-éthique»*** (this expression *«Etats-Généraux»* being a clear allusion to the French Revolution of 1789) in order to complement and improve existing rules so as to produce a new law before 2010.

Some other countries have also embarked on this path.

- II -

The urgent need to make available to scientists and practitioners a practical manual for carrying out activities relating to the collection, storage, processing, and use of human biological samples on the basis of concerns common to heterogeneous rules currently in force.

2.1. Difficulties

In fact, beyond these initiatives one problem remains, with several levels and aspects:

- International texts promulgated do not have the same legal value, and often are not accompanied by the sanction that characterizes a law rule. There are treaties, guidelines, recommendations and declarations of good intentions that have not the same binding force;
- National legislation (if any) is not uniform, misunderstood or misapplied and can cause serious practical problems for research and medical cooperation which tends to internationalize;
- beyond the problems of legislative compatibility between regions and countries, we must also take into consideration the many kinds of cultural and religious awareness, which certainly cannot be ignored if we want to seriously participate in the international medical and scientific cooperation in a world that is and will remain characterized by diversity, and which everyone must respect and has great interest taking into account, especially in periods of political and ideological tensions.

Researchers and doctors have to do with a plethora of texts and documents at their disposal.

Of course, they can try to zigzag between many complex standards, procedures for sometimes *“Kafkaesque”* administrative permits, in order to find the best way to comply with the law in their activities.

Certainly, methods of legal work may prove useful here.

But is it really the job of doctors and researchers to engage in this type of work? Have they enough time to do this? Have they ever afforded to hire lawyers to do this work before making any sampling?

Doctors' and researchers' job is to focus their attention on health and research, not to get lost in the legal maze that many lawyers are struggling to understand themselves.

II.2. Practical solution

- Pending a hypothetical world legislation or code of international practice, clear and uniform in such sensitive area as the collection, storage, processing, and use of human biological samples, it may be very useful to create and develop a kind of procedures handbook that would provide a minimum of legal certainty in the activity of doctors and researchers.
- It is precisely the project that I would like to carry out in the context of my collaboration with the GFMER.

The amount of work is important but not insurmountable: all texts more or less intended to govern the collection of materials of human origin have a number of common concerns:

- Patient consent with full information,
- High quality storage and processing so as to ensure high standard of quality and safety of tissues and cells,
- Use (in the exclusive interest of the patient, for purposes of scientific research and exchange across the scientific community),
- The conditions for commercialization of the results (results of studies or pharmaceutical products derived from human cells).

These common concerns can be called ***"The Spirit of Laws"***, in reference to the major work of Montesquieu, published in Geneva in 1748, after 20 years of work.

But this is only an allusive expression: I'm not Montesquieu and I hope the outcome of my project will be more quickly available to the practitioners and researchers who need it.

Thank you for your kind attention.