

To what extent is stem cells research allowed in Cosmetics Laboratories Under French Law ?

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21st Century = Stem Cells (Dr Jacques Galipeau)

- 20th Century = DNA
- 21st Century = Stem Cells
- Stem cells = Captivate the society & encourage deep hopes.
- Stem cells represent extraordinary prospects for the future.

Hopes in the Medical Field

Ability to repair the ravages of many degenerative diseases :

- Alzheimer
- Parkinson
- Diabetes
- etc

Hopes in the Cosmetic World

- Cosmetic Industry is undergoing a revolution in order to satisfy a population in search of eternal youth
- From « Cold Cream » to research on stem cells and the impact of cosmetics on them



COSMETICS

Legal Definition of Cosmetics

Art L.5131-1 Public Health Code :

« any substance or preparation intended in being in contact with various parts of the human body (epidermis, hair system, nails, lips and external genital organs) or with the teeth and oral mucosa with a view exclusively or mainly to clean them, perfume them, change their appearance and/or correcting the body smells and/or protecting it or keeping it in good condition »

Cosmetics Products

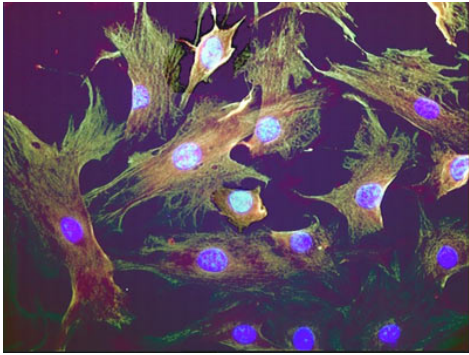
- Hygiene Products : cleanser, toothpaste, shower gel, soap, etc
- Hair Products : shampoo, hair conditioner, hair straightener, etc
- Make-up Products : concealer, eyeliner, lipstick, etc
- Solar Products : cream, oil, after-sun lotion, etc
- ETC

Consumer' s Expectations

- All these products meet many of the consumer' s expectations as they are at the not only at the level of hygiene but also of prevention, health, appearance and well-being
- Nowadays many people not only claim the right to health but also the right for well-being.

Well-being = Identity & Personality

- Taking care of oneself is no longer a luxury or pointlessness but as demonstrated by research in psychology a way to build one's identity and personality
- Consequently, cosmetic laboratories are paying more and more importance to analyse all the parameters that will make a product become successful.



STEM CELLS & COSMETOLOGY

Stem Cells

General Definition

- A Stem Cell is a cell capable of giving rise to several different cell species.
- Several kinds of stem cells can be differentiated depending on their regenerative potential and capabilities :
 - Totipotent stem cells
 - Pluripotent stem cells
 - Multi-potent stem cells
- The ability of stem cells varies with the age of the embryo: enormous at the beginning they specialize as they develop

2 kinds of Stems Cells in Ethical Debates

- Adult Stem Cells
- Embryonic Stem Cells

Adult Stems Cells

- **1950' s : Discovery & Understanding** that the mechanisms of tissue regeneration probably existed in all structures of the body: bone marrow, skin, muscle, intestine, liver, lungs, kidneys ... heart, eyes.
- Their existence is to fulfill **several functions:**
 - Regenerative Potential which allows us to develop and preserv our body until death.
 - Body : SKIN

Embryonic Stem Cells

- Can be found : embryo, fetus and umbilical cord blood or placenta at birth.
- These are very early embryo cells : the pluripotent stem cells i.e having the property of being the source of all tissues and organs of the individual
- Cannot ALONE ensure the development of a complete and viable individual
- But the removal of these cells induced embryo destruction

Ability

1990' s :

- Discovery of the unique properties of the embryonic stem cells
- Demonstration in the rhesus monkeys that researches in the USA began to consider their use in a context of regenerative medicine.
- After 3 years : demonstration the presence of the same stem cells in the humans

INTEREST OF COSMETICS INDUSTRIES IN STEM CELLS

WHAT KIND OF STEM CELLS?

The Situation in France

- Research on stem cells by cosmetic industries do NOT apply to embryonic stem cells.
- Research on embryonic stem cells is reserved to the medical world.
- Cosmetic Industries = interest in adult stem cells.

Adult Stem Cells

- Particularly those present in the epidermis which have in their genetic program all the youthfulness of the skin.
- They ensure the renewal of the skin daily, their continuity and act for example in case of injury or other damage of the skin.
- However, their activity change with time
- Become dormant with time

Research

- Symposium on Sept 20th 2007 in Paris « Stem Cells and Skin:Present and Future » organized by LVMH Group
- 200 researches
- 7 experts presented their latest findings on stem cells, their potential applications in therapeutic medicine and in skin care
- Research is going on in cosmetics laboratories since adult stem cells represent an interesting research tool for exploring the process of aging.

Actions of Cosmetic Industries on Adult Stem Cells

- Help them to function well.
- Protect them by preserving the integrity of the « layers » in which they live.
- Anticipate aging before it occurs
- Repair some of the damage that has already been installed

Targets of Cosmetics Products

- Youthful skin:
 - fewer wrinkles
 - brightening skin, etc
- Having an eternal youth
- Betting on stem cells : reduce aging with millions of euros of benefits.

Cosmetic products derived from research on stem cells

- « **Capture XP** » with research team led by LVMH
- « **Universal Youth Serum** » of Jean Estrés designed for all types of skins and all ages and which contains a derivative of vitamine E that protect the environment of the stem cells
- « **Amatokin** » which allows the activation of dormant stem cells in the skin to renew skin tissue

**Refusal of embryonic stem cells in
cosmetics laboratories**

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Justification

1. Adult stem cells are directly accessible from samples of healthy skin from plastic surgery – research on embryonic stem cells obtained from embryos involves the destruction of the embryos.
2. More ethical to carry out research in the medical field than for aesthetic considerations
3. Embryonic stem cells research is **STRICTLY** regulates under French Law

1st Bioethical Act(s) July 29th 1994

Research on embryos was banned except research which did not affect the embryo and (autorisation on a temporary basis) as long as they had a medical purpose.

Research on surplus of embryos obtained through in-vitro fertilisation in medically assisted procreation

Bioethical Act August 6th 2004

- Autorisation of the importation of embryonic stem cells for research purposes, research protocols and the conservation of embryonic stem cells (on a temporary basis)
- Decree of Feb 6th 2006 which implemented the Bioethical Act Aug. 6th 2004, which provided a definition of the purposes of embryo research so that they meet the criteria for « major therapeutic advances »

Research on Embryonic Stem Cells for Medical Purposes

- Research on embryos which are no longer subject to parental wishes i.e surplus embryos
- Research on Embryos which cannot be transferred in utero or which would not be conserved because of quality problems which they are assigned
- Research on embryos diagnosed as carriers of diseases in case of pre-implantation diagnosis
- Consent of the couple for each situation

New Bioethical 27th June 2011

- Embryonic Stems Cells Research – strictly regulated and allowed on a temporary basis
- Still reserved for medical reasons.

**Justification of non-autorisation of
embryonic research in cosmetics
laboraties**

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Avoid abuses

Scandals in Ukraine & in Russia using embryonic stem cells in beauty Shops

- In 2005, the Guardian Observer stated that exported aborted fetuses from Ukraine were used illegally in beauty shops in Russia
- Young Ukrainian women received 150 euros to terminate their pregnancies & give their unborn child (more money for late abortion i.e after 12 weeks)
- The embryos were sold up to 7500 each

- Custom Officers at the border intercepted a train from Ukraine to Russia and arrested a man carrying 25 frozen fetuses who claimed to have purchased them in a medical center.
- After investigation Ukrainian police there was a traffic of fetuses sold to private clinic offering illegal therapies

Summary

Under French Law, cosmetic laboratories can only carry out research on ADULT stem cells.

Cautions

- Not enough time has passed to know the long term consequences regarding the stimulation of stem cells.
- Stimulating the stem cells too much can lead to cancer;
- Stem cells are made to operate at a slow pace. In medicine there may be a justification, it may not be reasonable.

**THANK YOU
FOR
YOUR ATTENTION**