Regulation of stem cell research in the United Kingdom

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EuroStemCell- Legal update

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I- Research on human stem cells

A) Current legal position

1) Tissues and cells for research not to be transplanted into humans

An ethical approval for specific research projects
Human tissue held for a specific research project approved by a recognised Research Ethics Committee (REC) (or where approval is pending). (Section 1 (9) of the Human Tissue Act 2004 [1])

The ethical approval is delivered by a Research Ethics Committee (REC) and it must be applied for using the guidance provided by National Research Ethics Service (NRES) at the Health Research Authority[2]

Tissue banks that have been approved by a REC can provide human tissues to researchers, whom do not need to store them under a Human Tissue Authority licence during the period of the research project, subject to certain requirements. However, specific project approval by a recognised REC will be required, or the samples will need to be stored under a Human Tissue Authority licence, if the research is not carried out in accordance with these requirements.

A Human Tissue Authority establishment licence for human tissue stored outside a specific research project
An establishment licence delivered by the Human Tissue Authority is required to remove and store human material for research in England, Wales and Northern Ireland.

The Human Tissue Authority provides a detailed list of what is to be considered as 'relevant material' under the Human Tissue Act 2004, and as such regulated

[1] http://www.legislation.gov.uk/ukpga/2004/30/contents
[2] http://www.hra.nhs.uk/

by the Human Tissue Authority for research notably: https://www.hta.gov.uk/policies/list-materials-considered-be-%E2%80%98relevant-material%E2%80%99-under-human-tissue-act-2004

The Human Tissue Authority's licensing role covers licensing premises to store tissue from the living and licensed establishments for tissue to be removed from the deceased for research.
However, exceptions exist and the Human Tissue Authority licensing is not required where the relevant material is:
- From a person who died prior to 1st September 2006 and at least one hundred years have elapsed since their death
- Being held 'incidental to transportation' for a period no longer than a week
- Being held whilst it is processed with the intention to extract DNA or RNA, or other subcellular components that are not relevant material (i.e. rendering the tissue acellular) for a period no longer than a week
-If research is undertaken under REC approval from a recognised REC at an establishment that does not operate as a research tissue bank

- And other cases (See Part 2. 16 of the Human Tissue Act 2004[3] and point 84 of the Human Tissue Authority, Code E: research[4])

A Designated Individual (DI) has to be appointed in each licensed establishment. The DI has a statutory responsibility under the HT Act to supervise activities taking place under the licence.

The HTA's licensing Standards are grouped under four headings:
- Consent (C);
- Governance and quality systems (GQ);
- Traceability (T);
- and Premises, facilities and equipment (PFE)

Complementarity between the Human Tissue Authority establishment licence and ethical approval

Specific research ethics committees (RECs) can give broad ethics approval for research tissue banks. The latter will consequently be required to work under NRES standard operating procedures (SOPs).
In that case, there is no need for further individual project specific approvals as long as a broad specified remit of work is permitted. But Human Tissue Authority licensed premises/establishments are always required for tissues to be stored in these research-based tissue banks.

2) Tissues and cells for research to be transplanted into humans

As long as tissues and cells, including cell lines, may be transplanted into humans, they must be licensed by the Human Tissue Authority under the Human

[3] http://www.legislation.gov.uk/ukpga/2004/30/contents
[4] https://www.hta.gov.uk/sites/default/files/Code%20E%20-%20Research%20Final_0.pdf

Tissue (Quality and Safety for Human Application) Regulations 2007 (Q&S Regulations)[5].

The Human Tissue Authority regulates the following activities: procurement, testing, processing, storage, distribution and import/export of tissues and cells, including cell lines, which may be transplanted into humans, even where it is for research.
These activities, apart from storage, can also be carried out under a third party agreement when:
- The establishment carrying out the activity is acting on behalf of a licensed establishment; and
- The third party agreement meets the standards set out in the Guide to Quality and Safety Assurance of Human Tissues and Cells for Patient Treatments .[6]

When a cell therapy is deemed to be a Medicinal Product (MP), including an Advanced Therapy Medicinal Product (ATMP) or Investigational Medicinal Product (IMP), the Q&S regulations will apply for the donation, procurement and testing of tissues and cells. The Medicines and Healthcare products Regulatory Agency (MHRA)[7] will regulate the subsequent stages, including manufacture, storage and distribution. Moreover, a clinical trial authorisation and a positive opinion from an ethics committee are required for research. For further information, see: https://www.gov.uk/government/collections/clinical-trials-for-medicines

B) Ethical and regulatory oversight

The Human Tissue Authority[8] regulates under the Human Tissue Act the removal and storage of human tissues for a range of activities (scheduled purposes), including research (establishments/premises licensing in the Research sector).
The Human Tissue Authority also regulates under the Q&S Regulations the procurement, testing, processing, storage, distribution and import/export of tissues and cells, including cell lines, intended for human application: which may be transplanted into humans, even where it is for clinical research (establishments/premises licensing in the Human Application sector).
The Medicines and Healthcare products Regulatory Agency (MHRA)[9] regulates when a cell therapy is deemed to be a Medicinal Product (MP) or Investigational Medicinal Product (IMP).
Research Ethics Committees (RECs) deliver approvals for research projects and guidance for applications are provided by National Research Ethics Service (NRES) at the Health Research Authority.[10] The West London and Gene Therapy

[5] https://www.hta.gov.uk/sites/default/files/Q&S_Human_Application_Regs_2007.pdf
[6] https://www.hta.gov.uk/sites/default/files/Guide%20to%20Quality%20and%20Safety%20Assurance%20for%20Tissues%20and%20Cells%20for%20Patient%20Treatment.pdf
[7] https://www.gov.uk/government/organisations/medicines-and-healthcare-products-regulatory-agency
[8] https://www.hta.gov.uk/
[9] https://www.gov.uk/government/organisations/medicines-and-healthcare-products-regulatory-agency
[10] http://www.hra.nhs.uk/

Advisory Committee[11] and its equivalent in Oxford, York and Edinburgh provides ethical opinions for clinical trials authorisation regarding gene therapy and cell therapy using stem cell lines.

II- Research on human embryonic stem cells

The Human Fertilisation and Embryology Authority (HFEA)[12] regulates the creation and use of human embryos in the derivation of human embryonic stem cell lines. However, its remit ceases at the point the embryo is dissociated. After that, the Human Tissue Authority's remit begins (see above).

A) Current legal position

Research on embryo and human embryonic stem cells is authorised by the Human Fertilisation and Embryology Act 1990, Schedule 2.[13]
The Human Fertilisation and Embryology Authority (HFEA)[14] regulates the storage of gametes (eggs and sperm) and embryos. It also grants licences for research projects involving human embryos where the following conditions are met:
- The research project is carried out in suitable premises
- The use of human embryos is necessary and the research fulfils at least one of the purposes set out in the Act:
    - Increasing knowledge about serious disease or other serious conditions.
    - Developing treatments for serious diseases or other serious medical conditions.
    - Increasing knowledge about the causes of congenital diseases.
    - Promoting the advances in the treatment of infertility.
    - Increasing knowledge about the causes of miscarriages.
    - Developing more efficient techniques of contraception.
    - Developing methods for detecting gene, chromosome or mitochondrion abnormalities in embryos before implantation.
    - Increasing knowledge about the development of embryos.
- The people donating their eggs, sperm or embryos for research provided consent to do so
- The embryos must not be allowed to develop in the laboratory beyond 14 days after fertilisation
- No embryo created or used in research can be transferred to a woman
- When a derived human embryonic stem cell line is fully characterised and cultured to ensure uniform characteristics it is a condition of all Human Fertilisation and Embryology Authority research licences that the cell line is deposited in the UK Stem Cell Bank.[15]

The majority of embryos used in research projects are donated by patients undergoing fertility treatment. But embryos can also be created for research

[11] http://www.hra.nhs.uk/resources/applying-to-recs/gene-therapy-advisory-committee-gtac/
[12] http://www.hfea.gov.uk/
[13] http://www.legislation.gov.uk/ukpga/1990/37
[14] http://www.hfea.gov.uk/
[15] http://www.nibsc.org/ukstemcellbank

purposes. Indeed, they can be created from sperm and eggs donated either by people undergoing fertility treatment or non-patient donors who wish to support a research project involving the creation of embryos as part of the study.

More information at: http://www.hfea.gov.uk/161.html

B) Ethical and regulatory oversight

The Human Fertilisation and Embryology Authority (HFEA)[16] grants licences and monitors clinics that carry out in vitro fertilisation, donor insemination and human embryo research. It also regulates the storage of gametes (eggs and sperm) and embryos.

III- Selected bibliography

A) Laws, regulations, guidelines

Human Fertilisation and Embryology Act 1990
http://www.legislation.gov.uk/ukpga/1990/37

Human Fertilisation and Embryology (Research Purposes) Regulations 2001
http://www.legislation.gov.uk/uksi/2001/188/pdfs/uksi_20010188_en.pdf

Human Fertilisation and Embryology Act 2008
http://www.legislation.gov.uk/ukpga/2008/22/contents

Human Tissue Act 2004
http://www.legislation.gov.uk/ukpga/2004/30/contents

Human Tissue (Quality and Safety for Human Application) Regulations 2007
https://www.hta.gov.uk/sites/default/files/Q&S_Human_Application_Regs_2007.pdf

Guide to Quality and Safety Assurance of Human Tissues and Cells for Patient Treatments
https://www.hta.gov.uk/sites/default/files/Guide%20to%20Quality%20and%20Safety%20Assurance%20for%20Tissues%20and%20Cells%20for%20Patient%20Treatment.pdf

Human Tissue Authority, Code A: Guiding principles and the fundamental principle of consent, 3 April 2017
https://www.hta.gov.uk/sites/default/files/Code%20A%20-%20Principles%20and%20consent%20Final_0.pdf

Human Tissue Authority, Code E: research, 3 April 2017
https://www.hta.gov.uk/sites/default/files/Code%20E%20-%20Research%20Final_0.pdf

[16] http://www.hfea.gov.uk/

B) Literature

Mahalatchimy A, Rial-Sebbag E, Tournay V, Faulkner A. The legal landscape for Advanced Therapy Medicinal Products: material and institutional implementation of European Union rules, Journal of Law and Society, Volume 39, N°1, March 2012, pp.131-149.
https://www.ncbi.nlm.nih.gov/pubmed/22530249

Stacey G, Hunt CJ. The UK Stem Cell Bank: a UK government-funded, international resource center for stem cell research. Regen Med. 2006 Jan;1(1):139-42.

Richarson G. The banking of embryonic stem cells: the legal and ethical framework in the UK. Rev Derecho Genoma Hum. 2004 Jan-Jun;(20):147-60.

Herder M. The UK model: setting the standard for embryonic stem cell research? Health Law Rev. 2001;10(1):14-24.

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