Human Cell Atlas

B3.2 - Template Consent Form Addendum - Deceased research participant[1]

Important notes on the current version of this template:

Open-access and managed-access: Template proposes language for sharing of datasets under both a fully open-access mechanism and a managed-access mechanism. **Presently, the HCA DCP only supports datasets that have been consented for fully open-access.** However, it is recognized that some datasets may not be releasable under a fully open-access tier (for e.g. due to ethical, legal or institutional limitations). Therefore, the proposed templates contain language for managed-access datasets, to allow such datasets to be deposited in the HCA, once managed-access is supported.

Data protection regulatory requirements: These templates were developed to apply to *consent to participate in a research project*, which may not be equivalent to consent requirements under other types of legislation (e.g. consent to data processing under the GDPR). Therefore, users of these documents should always verify with their institution whether additional information needs to be provided to participants to comply with data protection regulations. For information on points-to-consider regarding the General Data Protection Regulation (GDPR) and genomics researchers, see the Global Alliance for Genomics and Health (GA4GH), GDPR Forum.

Data protection & deceased individuals: Users should also note that data protection requirements regarding the data of deceased individuals may vary from one country/EU member state to another. In case of doubt, please verify what protections apply with your institutional representative (ex. Data protection officer, research ethics committee, legal representative)

Consent requirements: The HCA does not require projects to use the proposed template language. It is only provided for informational purposes, and its use does not guarantee compliance with your local requirements. However, for the purpose of interoperability and harmonization, it is strongly suggested that projects depositing datasets to the HCA DCP include minimal **Core Consent Elements** (see separate document) in their consent documents.

Update to document: This document may be updated in the near future to account for the evolution of the HCA DCP, but this will not affect the management of datasets already submitted to the HCA.

This document is part of the HCA ethics toolkit. It includes consent clauses for projects contributing data from deceased research participants, to the HCA. This template intends to apply in contexts where **research ethics review is required for research involving tissue samples from a deceased participant (ante-mortem consent or next-of-kin consent)**. The language in this document should be modified to reflect local research consent requirements.

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Who is this document useful for?

- This document provides template language to researchers/research studies intending to collect tissue samples in order to generate gene expression data and submit these datasets to the HCA DCP.

How do I use this document?

- The clauses below provide examples of language illustrating core elements to enable contribution of data to the HCA. These can be modified and adjusted to comply with your institutional requirements and existing templates.
- Text in *grey italics* indicates explanation notes for the drafter.
- Sections highlighted are meant to indicate text that should be customized based on drafter's project-specific context.
- These clauses are designed for collection of samples from **deceased research participants, in the context of a research project approved by a research ethics committee,** by projects or institutions contributing to the HCA**.** The clauses may be adapted to obtain consent to the research donation ante-mortem (first-person consent) or post-mortem (in which case, consent is to be obtained from next-of-kin of the deceased participant, in accordance with locally applicable norms).
- Please note that a research consent form generally cannot be used to override an existing directive from the deceased participant (e.g. next of kin consent cannot override the deceased participant's wishes, where they exist), or known objection from the deceased participant to tissue donation.

Who do I contact if I have questions?

- For any questions about this document, you can contact the HCA Ethics Helpdesk at: ethics-help@humancellatlas.org

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**Note: Where applicable the terms "you / your" should be used where the participant is providing first-person consent ante-mortem. The term "the participant" should be used where the legally authorized next of kin is providing consent to sample the participant's tissue post-mortem.*

Informed Consent to Tissue Sample Donation for Research Study

[Optional: Description of [Study]]

[*Optional Section. If tissue gift donation is made for use as part of a local project, in addition to HCA, please insert wording specific to that local project.*]

The project is collecting tissue from participants to help scientists from around the world understand how genes work. Genes carry the information that is passed from parent to child and can affect such things as eye color or susceptibility to disease. The goal of [Study] is to [insert project specific goal].

Donated tissues will be studied by [Study] [*or: if transferring samples to other institution for processing and analysis, please detail how this will be done*] to increase scientific knowledge about the genes in each of their cell types.

Description of the Human Cell Atlas

[*If data derived from tissue is to be used in a Study as well as in the HCA:* In addition to donating [your / the participant's] tissue samples for [Study]], we invite you to provide information about [your / the participant's] tissues to the Human Cell Atlas (HCA).

[*If tissue is sampled specifically and only for the purpose of sending data to the HCA:* We invite you to donate [your / the participant's] tissue sample to [Study], so that [Study] can analyze the sample and send this information to the Human Cell Atlas (HCA).

The HCA is building **a reference map of all the cells in the human body, through the creation of an online database made up of gene expression data (also called "transcriptomic data")**. Genes are the basic 'instruction book' for the cells that make up our bodies. Genes are made out of DNA, and all of the DNA in each cell is called the genome. Different genes are turned on in different types of cells. In order for them to be turned on, another type of molecule called RNA copies certain parts of the DNA. RNA acts as a 'messenger' to send the genetic information that is turned 'on' in different kinds of cells. The HCA will use different types of genetic sequencing technologies to study RNA.

The HCA will study the RNA of cells to look at the patterns of genes that are 'on' or 'off'. This is called "gene expression". Researchers using the HCA will be able to look at why different types of cells do different things (for example, kidney, liver, lung cells, etc.). The HCA database will be available to scientists around the world and will be useful for a broad range of research, including to understand human health and disease.

The HCA is an open science project. Open science aims to make data and research findings as available as possible to researchers all over the world. In doing so, its goal is to help scientists to work together more easily, and to speed up discoveries.

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Nature of participation:

People from various parts of the world are invited to take part in the HCA, through studies like [Study]. Different types of cells will be provided by different people.

[*If inclusion criteria apply to Study, or to a specific type of tissue atlas, please include a clause, e.g.:*]
Example: In order to take part, [you / the participant] must:
[inclusion criteria]

For this project, we will ask to take the following tissues from the deceased participant:
[insert type of tissue collected]

Sample and data collection:

If [you choose to take part in [Study] / you allow us to sample tissues from the participant] and to share [your / the participant's] data with the HCA, we will collect a tissue sample from [you / the participant], when [you / the participant] [have / has] passed away. [*Insert more information on the type of tissue sampled, and procedures involved.*] We will use [your / the participant's] tissue sample to generate gene expression data (information about genes that are "on" or "off" in that particular kind of tissue).

[If specific organs are selected and authorized by the participant / next of kin: [Study] will collect a portion of the tissue from each part of the body that it is authorized to use, as indicated at the end of this form. If authorized, the entire brain may be recovered.]

We will also collect other types of information about [you / the participant] and about [your / the participant's] tissue sample (this is called "metadata"). This can include information about [your / the participant's] sex, age, ethnicity, diseases you may have, the location in [your / the participant's] body where the sample was collected, and the cause of death. On its own, this metadata does not contain information that could be used to identify [who you are / who the participant is]. There is a small chance that metadata could be combined with other information in order to reveal personal or private information about [you / the participant].

[*Optional alternative clause for metadata, consider using this clause if Study is collecting and sharing richer types of participant metadata with the HCA*: [Study] will be collecting some detailed information about [you/the participant] and about your health and lifestyle and about your tissue (this is called "metadata"). This could include, for example, information about [your/the participant's]: [*adjust list as necessary, depending on the type of data Study is collecting]* body measurements (for example, weight and height); ethnicity; sex, age, diseases [you/the participant] may have had, medical history (including for example, medications, treatments, alcohol consumption, smoking history, nutrition information, etc.), and [*include any other participant information that is collected and submitted as metadata]].* On its own, this metadata does not contain identifying information that could be used to identify who [you are/the participant is]. However, there is a small chance that one day this information could be combined with other information in order to reveal personal or private information about [you/the participant] or biological

relatives. Because it contains some information about [your/the participant's] health status and lifestyle, it could reveal some sensitive information.]

[*Optional clause, to add if access to medical charts/records is required to obtain metadata*: You agree to allow [Institution] to access [your / the participant's] medical records after [your / the participant's] death in order to collect needed information. This includes [list types of data fields that need to be collected].]

[Your / The participant's] information (which includes RNA sequencing data, gene expression data and metadata) will be sent to the HCA and stored on the HCA online database, as described in this consent form.

[Your / The participant's] leftover tissue sample will be [indicate what will be done with the tissue sample after processing and analysis, e.g. used in other projects, biobanked locally, biobanked in another institution, destroyed, etc.]

Data Storage in the HCA

[Your / the participant's] information will be stored on the HCA data coordination platform (DCP) that is coordinated by several institutions and can be used by researchers around the world. The HCA database is hosted on commercial cloud servers. The cloud refers to software and services that run on the Internet, instead of on a specific computer. These cloud servers might be located outside your country.

The HCA will receive and store 'coded' data. This means that before [Institution] sends [your / the participant's] information to the HCA, the parts of the information that directly identify [you / the participant], like [your / the participant's] name, will be replaced with a 'code' or 'ID number.' This code is used so that [Institution] does not share information that directly identifies [you/the participant] (like [your/the participant's] name) with the HCA.

Data will be stored indefinitely on the HCA DCP, or until it no longer useful for research.

Broad consent for future, unknown research use of data on an international scale

If you donate [your / the participant's] tissue sample and allow [Institution/Study] to share [your / the participant's] information with the HCA, you agree to allow this information to be used for a broad range of future, unknown research uses. These research uses may be conducted across the world, and may involve a wide range of research topics. These projects can also take place in universities, hospitals, nonprofit groups, for-profit companies, or government laboratories.

Data Sharing

[Option 1: Public data sharing (open access) - *Use this language if your project intends to share all contributed datasets, including raw RNAseq data and all metadata under a fully open access tier. Before doing so, please ensure that depositing raw RNAseq data files and metadata is allowed under your institutional policies and all applicable laws including the local regulatory framework*]:

By giving your consent, you agree that all of [your / the participant's] coded information collected for this project, including all of [your / the participant's] RNA sequencing data, [your/the participant's] gene expression data and metadata, can be stored on the part of the DCP that anyone can access without restriction. The information in this open part of the HCA is available to anyone with internet access, and will be shared freely with anyone who wishes to use it. The HCA will not control the kinds of projects that may use [your / the participant's] information in its pubic (open access) part.

[Option 2: Managed/controlled access

*Important note: Currently, the **HCA DCP does not accept any data that requires managed/controlled access**. Only data meeting open access tier consent language, can currently be submitted. However, some projects collecting data to build next phases of the HCA may not be able to deposit certain datasets in public (open) databases and thus need to obtain consent for managed/controlled access (for example, due to ethical or legal constraints). While these datasets will have to be deposited in other repositories at the present time, they could eventually be included in next phases of development of the HCA DCP.*

*Use this consent language **only** if your project is required to share individual-level raw RNAseq data and metadata under a controlled/managed access tier. This applies if there are regulatory, institutional or other restrictions on sharing raw RNAseq and metadata under a fully open access model. Gene count expression matrices and limited metadata will always be shared publicly, through open access.]*

Some parts of [your / the participant's] coded information, like genetic information and metadata, will be stored on the secured part of the DCP and made subject to access controls. Information in this controlled part of the HCA can only be accessed and used by researchers who have been granted formal approval to access data by the HCA and who have signed agreements to protect the confidentiality of the information. Information in the controlled-access part of the HCA DCP includes things like detailed RNA sequencing data and detailed metadata (for example, health information, geographical region, etc.) The access agreements also require researchers to respect the laws and ethical guidelines for scientific research.

Other parts of [your/the participant's] coded information, including certain types of gene expression data and metadata, will be stored on the part of the DCP that anyone can access publicly, without restriction (open access). This information presents minimal risks of reidentification. It includes things like 'lists' of the genes that were activated in [your / the participant's] cells, and general, minimal risk metadata about [you / the participant] and [your / the participant's] sample (for example, general characteristics such as biological sex and age). It has a low risk of being reconnected to [you / the participant] or to biological relatives.

Finally, the HCA will also use all of [your /the participant's] coded information to create reference maps of different cells in the human body. In some cases, this could be done by combining [your / the participant's] information with the information of other people.

The combined data of many people that makes up these reference maps is also minimal risk, and may be made public (openly accessible) to anyone without restriction.

Withdrawal of information from the HCA

[*If first-person consent is provided ante-mortem by participant*: You can change your mind about participating in this project at any time before the time of your death. However, once the tissue sample has been analyzed and your information has been shared with the HCA database, we will not be able to take your information out of the database, even if your family or next of kin asks us to do so.]

[If consent is provided post-mortem by next of kin: If you choose to provide information from the deceased participant's tissue samples to [Study], you can change your mind and remove the deceased participant's information from [Study] and from the HCA Database at any time by contacting [insert name] at [insert contact information]. Upon notification of this withdrawal, the deceased participant's information will be removed from the HCA database. However, some information about the deceased participant that has been used to create the reference map in the open access part of the HCA may remain in the HCA database even after you leave the study as we are not always able to find individuals in this reference map.]

Also, information in the HCA that has been used by or sent to the other researchers around the world cannot be removed if it has already been used or published.

Benefits

[You / the participant] will not benefit personally from [your/the participant's] information with the HCA. Participating in the study is expected to help researchers in many areas of scientific research, such as health and genetics. In particular, [your / the participant's] information will help develop a reference map of human cells, and how genes are expressed in these cells.

[*If data is placed in open access database*: Because [your / the participant's] information will be made available in a fully public, open access database, this means that it will be rapidly and freely available to a wide range of researchers around the world. This has the potential to speed up and improve the way research is done by scientists working together.]

Risks

The information sent by [Study] to the HCA will be coded, which means it will not be connected to any information that directly identifies [you / the participant] (direct identifiers) (for example, [your / their] name, address, contact information). But, it is very difficult to make genetic information completely anonymous. There is a risk that people that have [your / the participant's] information could try to connect it with [your / the participant's] identity by combining it with other information about [you / the participant], through a process called re-identification. Also, in the future, new technologies could be developed that make it easier to connect [your / the participant's] genetic information to their identity. The risks related to re-identification are difficult to predict at this time.

Though it is unlikely that the genetic information that is sent to HCA will be connected to [your/the participant's] identity, it is not impossible. Because genetic information is shared amongst biological relatives, it is possible that information about family members related to [you / the participant] could also be revealed (e.g. risk of suffering from certain diseases or medical conditions). In some cases, genetic and gene expression data can reveal sensitive information about a person. For example, this could include the risk of getting certain diseases and other medical conditions, or reveal certain lifestyle information (for example, if a person is a heavy drinker or smoker).

Also, there is always a risk that information revealed from genetic studies might be used to make certain statements or conclusions about groups or communities. In some cases, this can lead to discrimination against individuals, families, groups or communities. [You / the participant] and [your / the participant's] family might not always agree with the results of research that has used information from the HCA.

[*If data is placed in public (open access) database*: HCA will share genetic information for unknown future uses. Because the HCA will involve open access to [your / the participant's] information, there is very little control over how researchers will make use of this information. For this reason, it is difficult to know all the risks related to sharing [your / the participant's] information with the HCA. There may be other risks that have not been thought of at this time.]

Privacy

[*Identifying information, if collected by Study*]: To protect [your / the participant's] privacy, information that directly identifies [you / the participant] (direct identifiers), including [name identifying information to be collected], will only be kept by [Study] and be stored in a secure and encrypted database that is held at [Institution of Study]. This information will not be sent to the HCA database.

[*If data is placed in open access database*: To protect [your / the participant's] privacy, only coded information will be available in the open-access area of the HCA. Coded means that direct identifiers are removed by [Study] and replaced with a code. [Your / The participant's] personal information, such as [your/the participant's] name will not be sent to the HCA.].

[*If data is placed in managed-access database, see explanations on managed-access, above*: To protect [your / the deceased participant's] privacy, only coded data will be available in the controlled-access area of the HCA. Coded means that direct identifiers are removed by [Study] from the information and replaced with a code. [Your / The deceased participant's] personal information, such as [your / the deceased participant's] name information will not be sent to the HCA.]

[You / The participant] will not be identified if results from [your / the participant's] information are shared at scientific conferences or appear in scientific publications.

Commercialization

[Study] will pay the costs associated with the recovery of the tissue samples, while [you or your family / the participant's family] will be responsible for costs related to funeral

arrangements after the donation. You will not receive any cash or payment with goods or services for the tissues/information you give to this project.

Some of the research done with [your / the participant's] information stored in the HCA may one day lead to the development of software, tests, drugs, or other commercial products. If this happens, [you / the participant's estate], [your family / the participant's family] and the person giving consent will not receive any of the profits.

[*Optional: Research Results]*
[Clause to be included only for next of kin post-mortem consent]

You will not be told which research projects have used the deceased participant's information in the HCA database. However, there will be general information on the HCA website (www.humancellatlas.org) to learn generally about the kinds of research projects that are being performed using information from the HCA database, and their results.

Who can I contact if I have questions or concerns?

If you have any questions or concerns, please contact [name of person] free of charge at [insert telephone number] or by mail/email at [insert mailing address and/or email address]. If you wish to make a complaint about any part of this study at any time, please contact [name of person] free of charge at [insert telephone number] or by mail/email at [insert mailing address and/or email address].

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Next-of-kin consent (post-mortem)

Please read the information below, and sign if you agree.

I have been provided all the information I need to make a decision. I have been able to ask questions if I did not understand the information. I agree:

- That I am providing consent to collect tissue samples from the deceased participant, as next of kin;
- that [Study] can put the participant's information, including gene expression data and metadata, in the HCA online [public (open access)/managed access] scientific databases;
- that the participant's information be studied by researchers from around the world;
- that the participant will not be identified in scientific publications and at conferences;
- that neither I, nor the participant's estate, nor the participant's family will receive any profits if commercially valuable product(s) result from these studies;
- that some of the participant's information that has already been shared with researchers cannot be withdrawn .

I understand that I may withdraw the donation before the tissue is collected from the participant as described in this consent form, without having to give a reason.

[*Optional, consider adding checkboxes in the case of whole body donation, and if options for sampling of tissues are provided]*
I, _____ [name of authorizing person] [insert legal age required to consent to organ donation] of age and sound of mind, direct [Study], to collect the following organs and tissues from _____ [name of tissue participant] after death for research purposes. I am the _____ [relationship to tissue participant] and legal authorizing person of _____ [tissue participant's name].

1. Body Fluids ☐
2. Skin ☐
3. Adipose (Fat) ☐
4. Heart / Associated Tissues ☐
5. Blood Vessels ☐
6. Upper Airway ☐
7. Lungs ☐
8. Thymus ☐
9. Thyroid ☐
10. Liver ☐
11. Kidney ☐
12. Brain ☐
13. Neurological Tissues ☐
14. Muscle ☐
15. Intestine ☐
16. Spleen ☐
17. Lymph Nodes ☐
18. Mammary Tissue ☐]

Your Signature _____ Date _____
Researcher Signature _____ Date _____
Copy given to next-of-kin: _____Yes

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First-person consent (ante-mortem)

Please read the information below, and sign if you agree.

I have been provided all the information I need to make a decision. I have been able to ask questions if I did not understand the information.

I agree:

- That upon my death, [Study] can collect tissue samples from my body as described in this consent form;
- that [Study] can put my information, including gene expression data and metadata in the HCA online [public (open access)/managed access] scientific databases;
- that my information be studied by researchers from around the world;
- that I will not be identified in scientific publications and at conferences;
- that neither I, nor my estate, nor my family members will receive any profits if commercially valuable product(s) result from these studies;
- that some of the participant's information that has already been shared with researchers cannot be withdrawn from the HCA.
-

I know that participating is my choice. I understand that I may withdraw at any time before I pass away without having to give a reason.

[*Optional, consider adding checkboxes in the case of whole body donation, and if options for sampling of tissues are provided]*

I authorize the collection of the following organs and tissues after death, for research purposes:

1. Body Fluids ☐
2. Skin ☐
3. Adipose (Fat) ☐
4. Heart / Associated Tissues ☐
5. Blood Vessels ☐
6. Upper Airway ☐
7. Lungs ☐
8. Thymus ☐
9. Thyroid ☐
10. Liver ☐
11. Kidney ☐
12. Brain ☐
13. Neurological Tissues ☐
14. Muscle ☐
15. Intestine ☐
16. Spleen ☐
17. Lymph Nodes ☐
18. Mammary Tissue ☐

Your Signature _____ Date _____

Researcher Signature _____ Date _____

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Copy given to participant: _____Yes