

MATERIALS TRANSFER AGREEMENT

Provider:

U.S. Environmental Protection Agency (EPA)
Office of Research and Development (ORD)
National Center for Computational Toxicology (NCCT)

Recipient:

The Trustees of the IUF- Leibniz Research Institute of Environmental Medicine
Prof. Ellen Fritsche
IUF- Leibniz Research Institute of Environmental Medicine
Auf'm Hennekamp 50
40225 Düsseldorf

1. Provider agrees to transfer to Recipient's Investigator named below the following Research Material:

Chemicals and Materials

- A list identifying selected chemicals from the ToxCast library to be tested by the IUF.
- A copy of the current ToxCast chemical library consisting of chemical samples prepared as solution in dimethyl sulfoxide at a concentration of 20 millimolar. Additional chemicals may be provided in the future concurrent with expansion of the ToxCast chemical library.
- Samples of nanomaterials and characterization data on said materials

Data and Summary Information

- In vitro assay data derived from the ToxCast Program. This data is derived from chemicals analyzed using a variety of high throughput assay techniques. Below this is referred to as the "ToxCast Data".
- In vivo whole animal toxicology data summary data derived from the EPA Toxicology Reference Database (ToxRefDB). Below this is referred to as the "ToxRefDB Data".
- Summary descriptions of the individual data sets.
- Individual subsets of this data will be delivered to IUF after they have been prepared for use at EPA and cleared for release to IUF.

Recipient agrees to transfer to the EPA Investigator named below:

- All data resulting from chemical screening performed on the ToxCast chemical library.
- Relevant data on these chemicals from non-public sources.

Unique chemicals for the ToxCast chemical library and subsequent testing.

2. This Research Material may not be used in human subjects. The Research Material will be used only for research purposes by Recipient's investigator in his/her laboratory, for the research project described below, under suitable containment conditions. This Research Material will not be used for screening, production or sale, for which a commercialization license may be required. Recipient agrees to comply with all Federal rules and regulations applicable to the Research Project and the handling of the Research Material.

3. Does the Research Material include specimens or data derived or collected from human subjects?

Yes – Go to item #3(a).

No – Skip to item #4.

3(a). Does the Research Material include specimens or data derived or collected from fetuses, children, pregnant women, or nursing women?

Yes *IUF purchases fetal-derived cells from a commercial supplier (Lonza, Verviers, Belgium).*

No

3(b). Was the Research Material obtained under a protocol that was reviewed and approved by an Institutional Review Board (IRB) that operated in accordance with the requirements of EPA Regulation 40 CFR 26, HHS Regulation 45 CFR 46, or any other Federal Regulation for the protection of human research subjects?

Yes (Please indicate the applicable Regulation here _____ and provide copies of the protocol and IRB approval documents.)

No (Please provide explanation with documentary support as appropriate.)

These are purchased by IUF as 'passage one' cells frozen as neurospheres, and thus not fetal 'material' (as tissue) any more. The Ethics Commission of the University of Dusseldorf allows IUF working with these cells for research and not for therapeutic reasons.

3(c). Can the Provider of the Research Material identify the subjects directly or through identifiers (codes) linked to the subjects?

Yes – The Recipient's use of the Research Material may be human subject's research subject to 40 CFR 26. Go to item #3(d).

No – The Recipient's use of the Research Material is not human subjects research subject to 40 CFR 26. Skip to item #4.

3(d). Is the Provider of the Research Material prohibited by this agreement from releasing information to the Recipient that might allow the identification of any of the subjects, including but not limited to the key to any existing code?

_____ Yes – The Recipient's use of the Research Material is not human subjects research subject to 40 CFR 26. Skip to item #4.

_____ No – The Recipient's use of the Research Material may be human subjects research subject to 40 CFR 26. Go to item #3(e).

3(e). Is the Research Material publicly available?

_____ Yes – The Recipient's use of the Research Material is human subjects research that is exempt from 40 CFR 26.

_____ No – The Recipient's use of the Research Material is human subjects research that may be subject to 40 CFR 26 and must be further evaluated accordingly by the EPA Human Subjects Review Official.

4. This Research Material will be used by Recipient's investigator solely in connection with the following research project ("Research Project") described with specificity as follows

Content of collaboration between US-EPA and IUF

The IUF has been establishing a human 3D neurosphere cell culture system consisting of primary human neural progenitor cells (NPCs) – purchased from Lonza (Verviers, Belgium), which have the ability to differentiate into neurons and glia cells (astrocytes and oligodendrocytes). These are 'passage one' cells frozen as neurospheres, and thus not fetal 'material' (as tissue) any more. These cells are to be used for research purposes only. On the basis of this system, the IUF and the EPA want to establish collaboration. Within this collaboration, (i) the IUF wants to utilize the ToxCast data for comparison with their neurosphere data and possible new chemical selection, (ii) the IUF would like to examine the effects of the ToxCast chemicals in their neurosphere assay and high content imaging with the final purpose of modeling e.g. migration of NPCs, and (iii) the EPA and the IUF want to establish an endothelial-glial-neuronal in vitro model for studying the interactions of these cell types during development with the final aim of computational modeling of the system. Thereby, our primary focus will be dynamics of TH transport, metabolism and signaling at the interface in collaboration with the Virtual Tissue Models research team. The results will be used to evaluate and refine quantitative spatial-temporal predictions for agent-based modeling and interpretation of cellular response profile data.

5. In all oral presentations or written publications concerning the Research Project, Recipient will acknowledge Provider's contribution of this Research Material unless requested otherwise. To the extent permitted by law, Recipient agrees to treat as confidential, any of Provider's written information about this Research Material that is stamped "CONFIDENTIAL" for a period of

three (3) years from the date of its disclosure to recipient. The foregoing shall not apply to information that is or becomes publicly available or which is disclosed to Recipient without a confidentiality obligation. Any oral disclosures from Provider to Recipient which Provider wishes to be treated as confidential shall be identified as being Confidential at the time of the disclosure and by written notice delivered to Recipient within thirty (30) days after the date of the oral disclosure. Recipient may publish or otherwise publicly disclose the results of the Research Project, but if Provider has given Confidential information to Recipient, such public disclosure may be made only after Provider has had thirty (30) days to review the proposed disclosure to determine if it includes any Confidential information, to the extent such review period is permitted by law.

6. This Research Material represents a significant investment on the part of Provider and is considered proprietary to Provider. Recipient's investigator therefore agrees to retain control over this Research Material and further agrees not to transfer the Research Material to other people not under his/her direct supervision without advance written approval of Provider. Provider reserves the right to distribute the Research Material to others and to use it for its own purposes. When the Research Project is completed, the Research Material will be returned to the Provider or disposed, if directed by Provider.

7. This Research Material is provided as a service to the research community. It is being supplied to Recipient with no warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose. Provider makes no representations that the use of the Research Material will not infringe any patent or proprietary rights of third parties.

8. Recipient shall retain title to any patent or other intellectual property rights in inventions made by its employees in the course of the Research Project. However, if said inventions contain any portion of the Research Material, are derived from the Research Material, or could not have been produced but for the use of the Research Material, Recipient agrees to contact the Provider to determine what ownership interests, if any, the Provider may have, and, where applicable, to negotiate in good faith the terms of a commercial license. Inventorship for a patent application or a commercialized product based on said inventions shall be determined according to United States patent law.

9. When Provider is the EPA: Recipient agrees not to claim, infer, or imply endorsement by the Government of the United States of America (hereinafter referred to as "Government") of the Research Project, the institution or personnel conducting the Research Project or any resulting product(s). Recipient agrees to hold the Government harmless and to indemnify the Government for all liabilities, demands, damages, expenses and losses arising out of Recipient's use for any purpose of the Research Material.

10. When Recipient is the EPA: Provider will not be liable to EPA for any claims or damages arising from EPA's use of the Research Material.

11. The Provider shall have the right to terminate this Agreement at any time if Recipient breaches any of the terms of this Agreement. Upon termination, Recipient shall return to the Provider all unused portions of the Research Materials.

12. Will EPA develop any products or services from information or materials provided by the Recipient?

Yes – go to item A

No – skip to #13 (next clause)

Item A: The EPA has a long history of applying principles of quality assurance/quality control to all technical work conducted by or for the Agency (CIO 2106: USEPA Quality Policy). Given EPA is receiving metabolomics and screening data and will use the metabolomics and screening data for Agency purposes, the Recipient is required to provide EPA with documentation such as a quality manual, describing their organization's quality system. In lieu of such documentation, Standard Operating Protocols for compound handling and the assays performed are acceptable or documentation showing third party accreditation to a relevant standard and scope is also acceptable for documenting an organization's quality system. EPA requirements for quality management plans can be found at this URL:

http://www.epa.gov/quality/qa_docs.html

13. All notices pertaining to or required by this Agreement shall be in writing and shall be signed by an authorized representative and shall be delivered by hand (including private courier mail service) or sent by certified mail, return receipt requested, with postage prepaid, addressed as follows:

Provider's Contact Information:

Russell Thomas
National Center for Computational Toxicology (NCCT)
US EPA
109 TW Alexander (MD-B-205-01)
Research Triangle Park, NC 27711
Tel: 919-541-5776
Thomas.russell@epa.gov

With a copy to:
Sandra Roberts
National Center for Computational Toxicology (NCCT)
US EPA
109 TW Alexander (MD-B-205-01)
Research Triangle Park, NC 27711
919-541-3850
Roberts.sandra@epa.gov

For commercial courier address use:
4930 Old Page Rd.
Durham, NC 27703

Recipient's Contact Information:

Official's Name & Title
Prof. Ellen Fritsche

Mailing Address
IUF, Auf'm Hennekamp 50, 40225 Düsseldorf, Germany

Phone & Fax Number
0049-211-3388 217; 0049-211-3190910

Email address
ellen.fritsche@uni-duesseldorf.de

14. Paragraphs 2, 7, 9 and 10 shall survive termination.
15. This Agreement shall be construed in accordance with law as applied by the Federal courts in the District of Columbia.
16. The undersigned Provider and Recipient expressly certify and affirm that the contents of any statements made herein are truthful and accurate.
17. This agreement shall enter into force as of the date of the last signature of the parties and shall remain in effect for one year from said date.