Title: Standard Operating Procedure: **Office of Research Subject Protection Auditing of Genomic Sequencing Orders**
Effective Date: January 1, 2016

PURPOSE

The purpose of this standard operating procedure (SOP) is to define and describe the Office of Research Subject Protection (ORSP) process for auditing the regulatory information submitted to Mercury and Walk Up Sequencing systems.

DEFINITIONS

Mercury: The electronic system that was developed by the Genomics Platform (GP) to place sample processing, genotyping and sequencing orders. Authorized users request and track work in the Genomics Platform using this system. This is the system where users record the relevant regulatory information (e.g. ORSP numbers, IRB numbers) for a project they are running through the GP.

Walk-up Sequencing: Walk-up sequencing is a process developed by the GP that allows Broad collaborating labs to generate their own sequencing libraries and submit these libraries directly to the GP for sequencing using the various sequencing machines that the GP has available. Walk-up sequencing is requested via an electronic form at submission stations and part of this form requires submitters to record the relevant regulatory information (e.g. ORSP numbers, IRB numbers) for the samples being submitted for sequencing.

ORSP ID-Number: An automatically generated Broad-specific number provided by ORSP for every project involving human-derived biospecimens or data.

Human Subject (as defined by DHHS): means a living individual about whom an investigator (whether professional or student) conducting research obtains (1) data through intervention or interaction with the individual, or (2) information that is both Private Information and Identifiable Information. For the purposes of this definition:

- **Intervention** – physical procedures by which data are gathered (for example, venipuncture) and manipulations of the subject or the subject's environment that are performed for research purposes.
- **Interaction** – communication or interpersonal contact between investigator and subject.
- **Private Information** – information about behavior that occurs in a context in which an individual can reasonably expect that no observation or recording is taking place, and information which has been provided for specific purposes by an individual and which the individual can reasonably expect will not be made public (for example, a medical record).
- **Identifiable Information** – information that is individually identifiable (i.e. the identity of the subject is or may readily be ascertained by the investigator or associated with the information).

Human Subject, as defined by FDA – means an individual who is or becomes a subject in research, either as a recipient of the test article or as a control. A subject may be either a healthy human or a patient. A human subject includes an individual on whose specimen a medical device is used.

Human Subjects Research –means any activity that is either:

- Research as defined by the Department of Health and Human Services (DHHS) and involves Human Subjects as defined by that agency, or
- Research as defined by the Food and Drug Administration (FDA) and involves Human Subjects as defined by that agency.

Institutional Review Board (IRB) – means an institutional body charged with protecting the rights and welfare of human subjects, which reviews and has authority to approve, require modifications in, or disapprove all research activities. The Broad does not maintain its own IRB, but rather has reliance agreements with our partner institutions.

SCOPE

This SOP applies to all genomic sequencing orders placed for Mercury and Walk Up Sequencing systems involving human derived samples. This policy does not apply to Mercury and Walk Up Sequencing systems orders utilizing animal, bacterial or artificial samples and non-research CRSP projects (i.e clinical diagnostics).

PROCEDURES

1. When submitting samples to the Genomics Platform (GP), submitters must provide appropriate regulatory information (IRB/ORSP number & regulatory type) for their project.
    a. IRB numbers from Broad IRBs of record, or ORSP determination numbers are required for all projects using human derived samples, even if samples are commercially available or established cell lines.
    b. The regulatory type, 'ORSP Not Engaged', 'ORSP Not Human Subjects', 'IRB Protocol', or 'Sample did not originate from humans', is required for all orders.

2. Prior to submission, submitters attest that they are aware of the regulatory requirements for their project, that the requirements have been met, and the information they provide is accurate. Submitters are also notified during the order submission process that disregard of regulatory requirements and/or falsification of information may lead to quarantining of data.

3. ORSP reviews all Mercury and Walk Up Sequencing orders bi-weekly to review regulatory information submitted and confirm that proper/valid IRB/ORSP numbers have been selected.
    a. If a valid IRB/ORSP number is provided and matches ORSP records, no further ORSP action is required.
    b. If a non-valid IRB/ORSP number is provided or the IRB/ORSP number provided does not match ORSP records, ORSP will follow up with order submitter via email up to 3 times to inquire about the sequencing order and the regulatory information provided.
        i. If the submitter does not respond to follow up emails, ORSP will meet with the submitter to discuss. Additional follow-up may include meeting with Chief Compliance Officer, and notification of submitter's supervisor.
        ii. If follow up communication reveals that information provided was falsified, the Chief Compliance Officer is notified and data may be quarantined.

4. GP and ORSP have moved toward universal use of Broad specific ORSP numbers for ordering purposes. ORSP assigns Broad specific ORSP numbers to all projects, including IRB projects, Thus, during bi-weekly reviews of sequencing orders, ORSP also provides order submitters with the corresponding ORSP number for their projects when one is available.
    a. Once an ORSP number has been provided to an order submitter, it is expected that the submitter use the ORSP number for all future sequencing orders. ORSP tracks usage of ORSP numbers for sequencing orders and will remind submitter up to 3 times to use the ORSP number.
        i. If after 3 reminders, the submitter continues to use an IRB number and not the ORSP number provided, ORSP will meet with the submitter in order to provide additional training.

OWNER, CONTACTS, AND SUBJECT MATTER EXPERTS

1. Chief Compliance Officer
2. Office of Research Subject Protection (ORSP)

REFERENCES

APPENDIX

Appendix A: Mercury sequencing system project information input screen
Appendix B: Walk Up sequencing system project information input screen

DOCUMENT CHANGE HISTORY

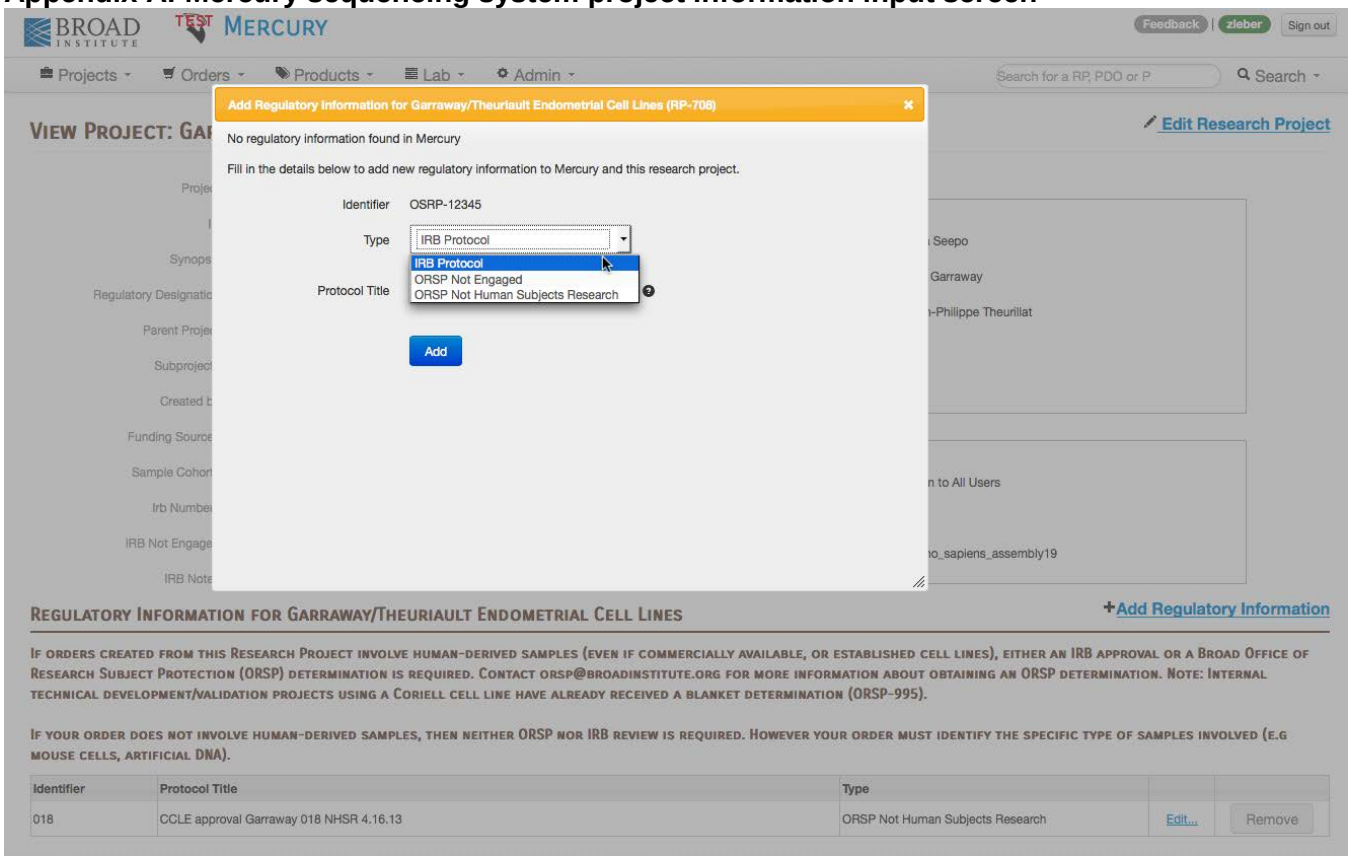
This policy is a living document that will change as the needs at the Broad evolves. When changes are made to this policy, they are documented below.

Date	Change	Who

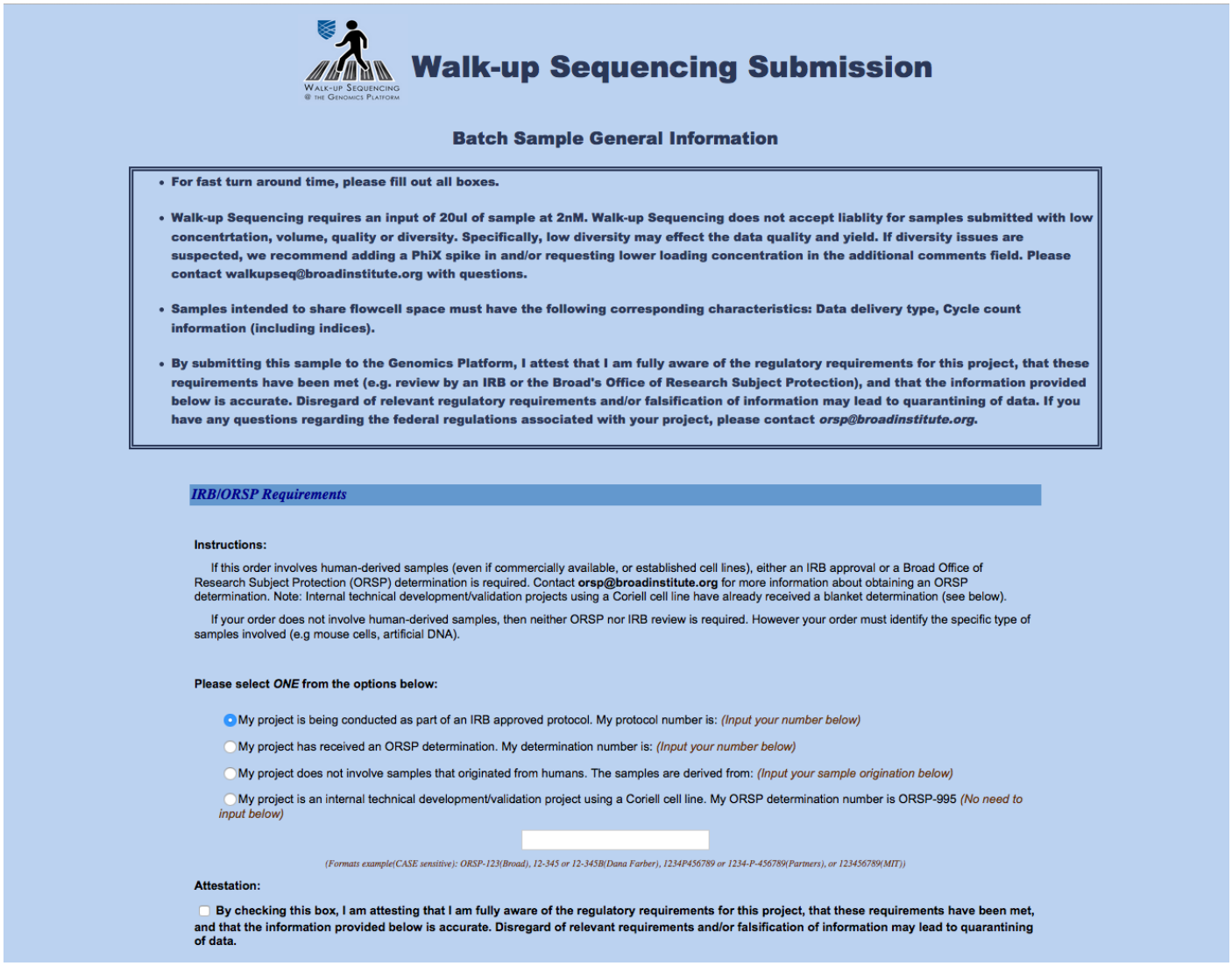
Title: Standard Operating Procedure: **Office of Research Subject Protection Auditing of Genomic Sequencing Orders**

Effective Date: January 1, 2016

Appendix A: Mercury sequencing system project information input screen



Appendix B: Walk Up sequencing system project information input screen



Walk-up Sequencing Submission

Batch Sample General Information

- **For fast turn around time, please fill out all boxes.**
- **Walk-up Sequencing requires an input of 20ul of sample at 2nM. Walk-up Sequencing does not accept liablity for samples submitted with low concentrtation, volume, quality or diversity. Specifically, low diversity may effect the data quality and yield. If diversity issues are suspected, we recommend adding a PhiX spike in and/or requesting lower loading concentration in the additional comments field. Please contact walkupseq@broadinstitute.org with questions.**
- **Samples intended to share flowcell space must have the following corresponding characteristics: Data delivery type, Cycle count information (including indices).**
- **By submitting this sample to the Genomics Platform, I attest that I am fully aware of the regulatory requirements for this project, that these requirements have been met (e.g. review by an IRB or the Broad's Office of Research Subject Protection), and that the information provided below is accurate. Disregard of relevant regulatory requirements and/or falsification of information may lead to quarantining of data. If you have any questions regarding the federal regulations associated with your project, please contact *orsp@broadinstitute.org*.**

IRB/ORSP Requirements

Instructions:

If this order involves human-derived samples (even if commercially available, or established cell lines), either an IRB approval or a Broad Office of Research Subject Protection (ORSP) determination is required. Contact **orsp@broadinstitute.org** for more information about obtaining an ORSP determination. Note: Internal technical development/validation projects using a Coriell cell line have already received a blanket determination (see below).

If your order does not involve human-derived samples, then neither ORSP nor IRB review is required. However your order must identify the specific type of samples involved (e.g mouse cells, artificial DNA).

Please select *ONE* from the options below:

- (•) My project is being conducted as part of an IRB approved protocol. My protocol number is: *(Input your number below)*
- ( ) My project has received an ORSP determination. My determination number is: *(Input your number below)*
- ( ) My project does not involve samples that originated from humans. The samples are derived from: *(Input your sample origination below)*
- ( ) My project is an internal technical development/validation project using a Coriell cell line. My ORSP determination number is ORSP-995 *(No need to input below)*

(Formats example(CASE sensitive): ORSP-123(Broad), 12-345 or 12-345B(Dana Farber), 1234P456789 or 1234-P-456789(Partners), or 123456789(MIT))

Attestation:

☐ **By checking this box, I am attesting that I am fully aware of the regulatory requirements for this project, that these requirements have been met, and that the information provided below is accurate. Disregard of relevant requirements and/or falsification of information may lead to quarantining of data.**