This document provides guidance on the types of specifications that should be documented in the protocol if the study involves collection of biospecimens. As the majority of the items that follow will be dictated on the protocol level and NOT collected for each and every specimen, CDEs are not associated with these guidelines.

## Specimen Collection Information

1. \*\*Date and time of sample collection:

(MM/DD/YYYY):

(HH:MM, 24 hr clock):

1. Date last had an alcoholic drink:

(MM/DD/YYYY):

[ ]  N/A – has not consumed an alcoholic drink within the past year

1. Date of last tobacco use (cigarette, cigar, chewing tobacco or pipe):\*\*

(MM/DD/YYYY):

[ ]  N/A – has not used tobacco products in the past year

1. Date and time last ate:

(MM/DD/YYYY):

(HH:MM, 24 hr. clock):

1. \*\*Sample source:

[ ]  Biological tissue [ ]  Unknown

[ ]  Biological fluid

1. \*\*Living or Deceased at time of collection:

[ ] Living [ ]  Deceased

1. \*\*Type of sample:

Venous blood: (Further indicate venous type)

[ ]  Whole [ ]  Plasma

[ ]  Serum [ ]  Platelets

[ ]  Buffy coat

Arterial blood: (Further indicate arterial type)

[ ]  Whole [ ]  Plasma

[ ]  Serum [ ]  Platelets

[ ]  Buffy coat

Tissue (Further indicate type and specific area):

[ ]  Clot [ ]  Cardiac

[ ]  Blood vessel [ ]  Other

[ ]  Saliva [ ]  Cerebral Spinal Fluid

[ ]  Buccal swab [ ]  Newborn cord blood

[ ]  Brain tissue [ ]  Placenta

[ ]  Amniotic fluid [ ]  Other, specify:

[ ]  Dura Tissue

1. \*\*Reason(s) sample excluded:

[ ]  Nervous system infection [ ]  Inflammatory conditions

[ ]  Infection at site of sample [ ]  Malignancy

[ ]  Nervous system neoplasm [ ]  Renal failure

[ ]  Paraneoplastic conditions [ ]  Liver failure

[ ]  Demyelinating conditions [ ]  Participant declined to provide specimen

[ ]  Exclusionary medication being taken

1. \*\*Baseline specimen collected:

[ ]  Yes [ ]  No [ ]  Unknown

## Blood Sample Collection Information

1. \*\* Normal/Control samples collected:

[ ]  Yes [ ]  No [ ]  Unknown

1. Patient position during sample collection:

[ ]  Seated [ ]  Lying

[ ]  Standing

1. \*\*Method of blood collection:

[ ]  Routine venipuncture w/ tourniquet [ ]  Routine venipuncture w/o tourniquet

[ ]  Drawn through peripheral venous catheter [ ]  Drawn through central venous catheter

[ ]  Drawn through PICC (peripherally inserted central catheter) [ ]  Drawn through peripheral arterial puncture

[ ]  Drawn through arterial peripheral line [ ]  Drawn through arterial central line

[ ]  Special procedures [ ]  Other, specify:

[ ]  Unknown

1. \*\*Was sample hemolyzed (Gross hemolysis, microscope not required)?

[ ]  Yes [ ]  No [ ]  Unknown

1. \*\*Needle gauge size:

**[ ]** 16 gauge **[ ]** 18 gauge

**[ ]** 20 gauge [ ]  Unknown

[ ]  Other, specify:

1. \*\*Type and volume/number of collection tubes used:

**[ ]** Blood cultures- SPS **[ ]**  Citrate Tube

**[ ]** Serum Tube **[ ]** Vacutainer SST/ Gel Separator Tube

**[ ]** Vacutainer PST **[ ]**  Heparin Tube

**[ ]**  Gel Separator Tube with Heparin **[ ]**  EDTA tube

**[ ]**  Fluoride (glucose) Tube **[ ]**  Polypropylene

**[ ]** Other, specify:

**Cerebral Spinal Fluid (CSF) Sample Collection Information**

1. Normal/Control samples collected:

[ ]  Yes [ ]  No [ ]  Unknown

1. \*\*Method of CSF acquisition:

[ ]  Collection catheter [ ]  Sample collected from bag/reservoir

[ ]  Lumbar puncture [ ]  Other, specify:

1. \*\*Site of CSF acquisition:

[ ]  Ventricular cistern [ ]  Lumbar cistern

[ ]  Other, specify:

1. \*\*Type and volume/number of collection tubes used:

[ ]  Coated with EDTA [ ]  Polystyrene tubes

[ ]  Coated with heparin [ ]  Polypropylene tubes

[ ]  Coated with citrate [ ]  No coating

[ ]  Other, specify:

1. \*\*CSF and serum collected simultaneously?

[ ]  Yes [ ]  No

[ ]  Unknown

\*\*If Yes, laboratory test(s) conducted:

[ ]  Glucose [ ]  Oligoclonal bands

[ ]  IgG [ ]  Other, specify:

1. \*\*CSF and plasma collected simultaneously?

[ ]  Yes [ ]  No

[ ]  Unknown

If Yes, laboratory test(s) conducted:

[ ]  Glucose [ ]  Oligoclonal bands

[ ]  IgG [ ]  Other, specify:

1. \*\*Collection grossly bloody?

[ ]  Yes [ ]  No [ ]  Unknown

**Sample Shipping Information**

1. \*\*Sample shipped?

**[ ]** Yes **[ ]** No (Skip Q2) **[ ]** Unknown(Skip Q2)

1. \*\*Shipping conditions (choose all that apply):

[ ]  Dry ice [ ]  Overnight

[ ]  Other, specify:

## Sample Processing

1. \*\*Sample protected from ambient light?:

[ ]  Yes [ ]  No [ ]  Unknown

1. \*\*Sample kept cooler than room temperature?:

[ ]  Yes [ ]  No [ ]  Unknown

1. \*\*Sample centrifuged?:

**[ ]** Yes **[ ]** No (Skip to Q6) **[ ]** Unknown (Skip to Q6)

1. \*\*Time sample centrifuged

(MM/DD/YYYY):

(HH:MM, 24 hr clock):

1. \*\*Centrifugation methods:

RPM:

Temperature:

Duration:

1. \*\*Date and time of sample freezing:

(MM/DD/YYYY):

(HH:MM, 24 hr clock):

1. Method of freezing:

[ ]  Snap- frozen [ ]  Dry ice-ethanol

[ ]  Slowly cooled [ ]  Storage at -20°C

[ ]  Storage at -80°C [ ]  Other, specify:

1. \*\*Type of sample stored:

Venous blood: (Further indicate venous type)

[ ]  Whole [ ]  Plasma

[ ]  Serum [ ]  Platelets

[ ]  Buffy coat

Arterial blood: (Further indicate arterial type)

[ ]  Whole [ ]  Plasma

[ ]  Serum [ ]  Platelets

[ ]  Buffy coat

Tissue (Further indicate type and specific area):

[ ]  Clot [ ]  Cardiac

[ ]  Blood vessel [ ]  Other

[ ]  Saliva [ ]  Cerebral Spinal Fluid

[ ]  Buccal swab [ ]  Newborn cord blood

[ ]  Brain tissue [ ]  Placenta

[ ]  Amniotic fluid [ ]  Other, specify:

[ ]  Dura tissue

1. Additives used to store sample (Choose all that apply):

[ ]  EDTA [ ]  Heparin

[ ]  Citrate [ ]  None

[ ]  Other, specify:

1. \*\*Sample storage temperature: (Co)
2. \*\*Number of Aliquots:
3. \*\*Volume of Aliquots (µL):
4. \*\*Date of sample expiration:

(MM/DD/YYYY):

[ ]  N/A – no expiration

1. \*\*Date and time of analysis:

(MM/DD/YYYY):

(HH:MM, 24 hr clock):

## Supplemental Data Element Recommendations

1. \*\*Convalescent samples collected:

[ ]  Yes [ ]  No [ ]  Unknown

1. \*\*Serial specimens collected (over time):

[ ]  Yes [ ]  No [ ]  Unknown

1. \*\*Sample storage bar-code system (automated date/time) method used:

[ ]  Yes [ ]  No [ ]  Unknown

1. \*\*Number of freeze/thaw cycles the sample went through prior to biomarker assay:
2. \*\*Selective inhibitors used (depending on target analyte):

[ ]  Yes [ ]  No

 If YES,

[ ]  Protease inhibitor [ ]  RNAase inhibitor [ ]  Unknown

1. \*\*Condition of shipping (if samples shipped prior to biomarker assay):
	1. Potentially hazardous biological materials are triple packaged to withstand leakage, shocks, temperature and pressure changes that occur during handling and transportation:

[ ]  Yes [ ]  No

* 1. Samples surrounded by dry ice to maintain temperature -80C or below throughout shipment:

[ ]  Yes [ ]  No

* 1. \*\*Use insulated bio-shipment box:

[ ]  Yes [ ]  No

1. \*\*\*For cerebral microdialysis specimens:
2. Location of probe placement:
3. Number of probes:
4. Probe molecular weight cut-off:
5. Membrane length:
6. Manufacturer:
7. Model #:
8. Time from ictus to monitoring:
9. Composition and source of the microdialysate:
10. Analyte values (mmol/l):
	1. Glucose:
	2. Pyruvate:
	3. Lactate:
	4. L/P ratio:
11. Any novel target analytes?

[ ]  Yes [ ]  No

1. For multiplex platforms (proteomics, metabolomics, luminex assays):
	1. \*\*\*Normalization techniques:
	2. \*\*\*Presence of batch-effect?

[ ]  Yes [ ]  No

* 1. Statistical methodology used to address multiple hypothesis testing:

## General Instructions

Important note: This case report form (CRF) contains data elements that are recommended for biospecimen methodology. Some of the data elements included on this CRF Module are classified as Core, Supplemental – Highly Recommended or Exploratory, as indicated by asterisks below:

\*\*Element is classified as Supplemental-Highly Recommended for biomarker/biospecimen studies. Tobacco/alchohol/food intake questions are Supplemental-Highly Recommended for observational studies.

\*\*\*Element is classified as Exploratory

All other elements are Supplemental and should only be collected if the research team considers them appropriate for their study. Please see the Data Dictionary for element classifications. Elements that are classified as Exploratory are those emerging molecular targets that may be recommended for more advanced and extended studies directed at a molecular mechanism that the biomarker measures.

## Specific Instructions

Please see the Data Dictionary for definitions for each of the data elements included in this CRF Module.

* Sample source: Biological fluid includes CSF, plasma, microdialysate, urine, etc.
* Reason(s) sample excluded: Certain conditions may alter normal biomarker composition and inclusion/exclusion should be carefully considered.
	+ Infections of the nervous system or the target organ system from which samples are collected
	+ Inflammatory conditions, (e.g., vasculitis, nervous system involvement of systemic autoimmune disorders).
	+ Malignancy: changes serum/plasma analyte composition
* Baseline specimen collected: Collected within 12 hours of initial hospital presentation.
* Site of sample acquisition (for blood/plasma/serum samples): Vascular access includes arterial or central venous catheters.
* Method of CSF acquisition: Collection catheters include external ventricular and lumbar drain catheters. Other methods can include VP shunt tap.
* Date of sample acquisition: relative to disease/event onset
* Type of collection tubes: Recommended to use polypropylene tubes, rather than polystyrene.
* Sample processing:
	+ For RNA, protein, metabolite targets: Sample should be immediately processed and frozen following sample collection. Recommend storage at -80⁰C or below, with minimal freeze/thaw cycles.
	+ CSF samples: Recommend centrifugation for separation of supinate from cellular debri and storage of cell-free supinate.
* Normal/control samples: should be collected and analyzed to establish “normal” level for target biomarker.
* Convalescent samples from study subjects should be collected to establish the changes in biomarker level following acute illness/recovery.
* Collect serial specimens over time to determine the kinetics of the target biomarker of interest.
	+ If serial collections used, the use of consistent method and site acquisition of serial CSF biospecimens is recommended.
* If samples are shipped prior to biomarker assay, report condition of shipping. Recommend samples be shipped frozen with abundant amount of dry ice to maintain temperature of -80 Co or below.
* For cerebral microdialysis specimens:
	+ Probe placement should be in at-risk but viable tissue. Avoid placement in hematoma or infarcted tissue.
	+ Recommendation: use concentric configuration commercially-available probes.
	+ Microdialysate flow rate should be 0.3 uL/min over 1 hr. Avoid sample evaporation.
	+ First hour microdialysate after probe placement should not be used.
	+ Stored samples may be assayed using the batch analysis systems. However, if the low volume samples sit for too long in the analyzer prior to analysis, unacceptable evaporation may occur. Calibration samples should be interspersed in the batch to detect a systematic elevation in analyte levels due to evaporative loss.