

CFS Sampling

PRA Health Sciences understands how cerebrospinal fluid (CSF) sampling benefits our clients' early phase trials. We regularly conduct CSF sampling to collect key PK and PD information necessary for clients' go/no-go decisions and to determine appropriate dosing ranges in Phase II studies.

Drugs that have their site-of-action in the central nervous system (CNS) must pass through the blood-brain barrier after systemic administration. After that, the CNS drugs reach the CSF, which partly flows down the spinal cord. Because CSF concentrations correlate reasonably well with unbound drug concentration in brain parenchyma, sampling the CSF during clinical studies provides an excellent opportunity to study penetration of drugs into the brain.

PRA performs CSF sampling to gather:



PK information: provides proof of CNS penetration and helps establish the relationship between plasma and CSF concentrations. This process also enables the translation of effective animal doses to effective patient dose levels.



PD information: allows measurement of biomarkers reflecting CNS disease state and/or efficacy of active CNS drugs in early clinical trials.

Successful Experience - Attention to Safety

With a proven background in CSF sampling, PRA delivers effective solutions and minimal risk for our clients' early phase clinical trials. In the past 5 years, PRA has performed 19 studies with CSF sampling that involved 206 participants, including patients with Alzheimer's disease, cognitive impairment, depression, and schizophrenia. We have also conducted studies with healthy volunteers.

None of the study participants in PRA's CSF sampling trials has experienced a serious adverse event, such as an infection.



To decrease the participants' risk for an event or infection, our expert team follows specific procedures for the prevention of complications and provides dedicated (clean) rooms at all PRA early phase clinics. Our attending staff is highly trained in the procedures needed to support the anesthesiologist during aseptic CSF sampling and in monitoring the patients after lumbar puncture.

PRA's CSF sampling experts provide clients with the following benefits:



Substantial experience in studies with CSF sampling



Established working relationships with anesthesiologists and neurologists who are highly trained and experienced in CSF sampling



In-depth support of study design and interpretation of results neurologists who are highly trained and experienced in CSF sampling

Why You Need PRA for CSF Sampling

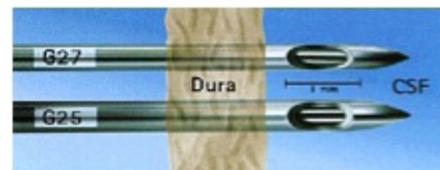
At PRA, board-certified anesthesiologists and neurologists with significant therapeutic experience perform CSF sampling. Our staff has experience with single needle stick CSF sampling as well as continuous CSF sampling through an indwelling catheter. The choroid plexus produces 20mL CSF each hour and a daily total of 500mL. The total CSF volume at any given time is about 150 ml, which compares to a sample volume of typically 2-4 mL.

We typically conduct single lumbar puncture CSF samples 2-3 times per subject on different days. Our clinicians use "pencil-tipped," a-traumatic needles (Pencan Needle B Braun) to avoid leakage of CSF fluid after the lumbar puncture, which diminishes the incidence of post-spinal headaches.

For continuous CSF sampling, the techniques used to insert the catheter are either the Tuohy needle or the Spinocath®. The Tuohy needle is slightly curved at its tip and guides the catheter in the subarachnoid space. The Spinocath® has a catheter-over-the-needle design that causes the dura to tightly seal around the catheter, which reduces CSF leaking.

Next Steps

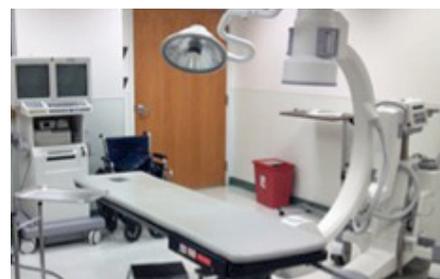
For further information, please contact either Thijs van Iersel at IerselThijsvan@prahealthsciences.com (Europe), or Dr Lynn Webster at WebsterLynn@prahealthsciences.com (US).



Braun Pencan pencil point needles



Drawing a sample during continuous CSF Sampling



Clean room at Salt Lake City site