User Guide

SMC® Human pTau231 High Sensitivity Immunoassay Kit

Microparticle Assay

Human pTau231 Immunoassay Kit for the Quantitative Determination of pTau231 in Human Serum, Plasma, and Cerebrospinal Fluid

03-0211-00

Introduction

Tau protein is primarily a structural protein in neurons of the central nervous. Found as at least six different isoforms, these proteins are thought to provide structure, enable signaling, and regulate transport. In disease states, Tau proteins can become hyperphosphorylated and create tauopathies in the form of neurofibrillary or gliofibrillary tangles commonly associated with Alzheimer's or Parkinson's disease. Tau protein phosphorylated at threonine-231 is referred to as Phospho-Tau231 (pTau231). pTau231 is thought to be a promising marker for Alzheimer's disease as it can be detected in serum or plasma and is strongly associated with physiological brain changes.

The SMC® Human pTau231 High Sensitivity Immunoassay uses a quantitative fluorescent sandwich immunoassay technique to measure pTau231 in human serum, plasma, or CSF samples. A capture antibody specific for human pTau231 has been pre-coated onto paramagnetic microparticles (beads). The user pipettes beads, standards, and samples into uncoated microplate wells. During incubation, the pTau231 present in the sample binds to the capture antibody on the coated beads. Unbound molecules are washed away during the subsequent wash steps. Fluor-labeled detection antibody is added to each well and incubated. This detection antibody recognizes and binds to pTau231 that has been captured onto the beads, thus completing the immunosandwich. Elution buffer is then added and incubated. The elution buffer dissociates the bound protein sandwich from the beads surface releasing the labeled antibodies. The eluted antibodies are transferred to a SMC® 384-well Read Plate. The plate is loaded into the SMCxPRO® Immunoassay System where the labeled molecules are detected and counted. The number of fluor-labeled detection antibodies counted is directly proportional to the amount of pTau231 present in the sample when captured. The amount of pTau231 in unknown samples is interpolated from a standard curve.

Supplies

The SMC® Human pTau231 Immunoassay Kit includes all reagents listed below; these components are lot matched and not intended to be used separately. Additional reagents and supplies are required to run this immunoassay, as listed in the next section; Additional Supplies Required (Not provided).

This kit and all reagents supplied are for research use only.

Reagents Included with the Kit

All items are shipped with a cold pack unless otherwise stated.

Description	Storage Conditions	Packaging Details	Component Number
Assay Buffer	2-8 °C	2 x 20 mL	02-9951-00
pTau231 Coated Beads	2-8 °C	1 x 550 µL	02-2211-00
Standard Diluent	2-8 °C	2 x 20 mL	02-0225-02
pTau231 Detection Antibody	2-8 °C	1 x 270 µL	02-1211-00
pTau231 Standard	2-8 °C	1 lyophilized vial	02-8211-00
10X Wash Buffer	2-8 °C	2 x 50 mL	02-0001-03
Buffer D	2-8 °C	1 x 6 mL	02-0446-00
Elution Buffer B	2-8 °C	1 x 5 mL	02-0211-02
SMC® Commercial Plate	2-8 °C	1 plate	02-1PCP-00

Storage Instructions

The SMC® Human pTau231 High Sensitivity Immunoassay Kit should be stored at 2-8 °C.

Discard standards after one use.

Supplied 10X Wash Buffer does not contain preservative. After dilution, the 1X Wash Buffer may be filter sterilized with Stericup® Filter for storage of up to 1 month at 2-8 °C. If not filter sterilized, all remaining 1X Wash Buffer should be discarded upon experiment completion.

Proper kit performance can only be guaranteed if the materials are stored properly.

Additional Supplies Required (Not provided)

Catalogue numbers provided may be purchased from SigmaAldrich.com or through sales quote, unless otherwise noted.

Equipment

- SMCxPRO® Ultrasensitive Immunoassay System for sample acquisition (95-0100-00)
- Orbital microplate shaker for assay plate incubation (for example, Boekel Scientific Jitterbug™ Shaker)
- BioTek® 405 TSUVS Microplate Washer for assay plate washing (95-0004-05)
- Sphere Mag Plate for performing microparticle capture (90-0003-02)
- Rotisserie tube rotator for microparticle suspension
- Benchtop centrifuge with bucket rotors capable of reaching 1,100 x *g* for sample/plate centrifugation
- Microcentrifuge capable of reaching 13,000 x *g* for reagent/sample centrifugation
- Single channel manual pipettes to accurately dispense 10-20 µL and 20-250 µL
- 12-channel manual pipettes to accurately dispense 10-20 µL and 20-250 µL
- Plate roller for complete plate sealing (Fisher Scientific, NC9185793)

Supplies

- Micro-centrifuge tubes for sample preparation and storage
- 1 L Container with cap for Wash Buffer dilution
- Stericup® Quick Release Vacuum Filtration System, 0.22 µm, 1 L; for filter sterilizing 1X Wash Buffer (S2GPU11RE)
- MultiScreen®$_{HTS}$ 96-well Plate, hydrophilic PVDF membrane (MSBVN1210)
- 15 mL conical tube with cap for capture bead and detection antibody dilution
- 96-well V-bottom plate for assay setup (AXYP96450VCS)
- Axygen™ Microplate Sealing Film and Tapes (Fisher Scientific, 14-222-344)
- Universal plate cover to minimize plate well contamination (Fisher Scientific, 253623)
- 12-Channel reagent reservoir (sterile) for standard serial dilution (Argos/Cole Parmer, 04395-33)
- VistaLab® 25 mL Reservoirs for addition of reagents (Fisher Scientific, 21-381-27C)
- Millex® Syringe Filter, 0.2 µm for detection antibody filtration (SLGPR33RS)
- Luer-Lok® Syringe, 5 mL; for Detection Antibody Filtration (Fisher Scientific, 14-829-45)
- Nunc™ Aluminum adhesive plate seals (Fisher Scientific, 276014)

Reagents

- 10X Wash Buffer for automated assay plate washing, 1 L (02-0111-00)
- De-ionized or distilled water for dilution of 10X Wash Buffer

Assay Best Practices

To obtain reliable and reproducible results, the operator should carefully read this entire manual and fully understand all aspects of each assay step before running the assay. In addition, proper training as well as instrument maintenance is critical for obtaining optimal results in performing SMC® assays. The following notes should be reviewed and understood before the assay is set up.

- Wipe down bench and pipettes with 70% isopropanol before use.
- It is important to allow all reagents to warm to room temperature (RT), 20-25 °C.
- Use sterile filter pipette tips and reagent trays to avoid contamination.
- Pre-wet tips (aspirate and dispense within well) twice before each transfer.
- The standards prepared by serial dilution must be used within 10 minutes of preparation.

  Note: It is recommended that the standards are prepared as the last step prior to plate setup.
- All washing must be performed with the Wash Buffer provided.
- An orbital microplate shaker for assay plate incubation (Jitterbug™ Shaker, settings #3-5) provide maximal orbital mixing without splashing liquid or causing cross-contamination.

  Jitterbug™ Shaker setting #3 ~ 750 rpm

  Jitterbug™ Shaker setting #4 ~ 875 rpm

  Jitterbug™ Shaker setting #5 ~1000 rpm

  Note: If using different orbital shaker, refer to recommended rpm ranges provided for each incubation step, and adjust speeds as necessary to ensure maximal orbital mixing without splashing liquid or causing cross-contamination.
- As the SMC® assay is extremely sensitive to dust particles, do not perform the assay or plate washing under direct airflow.
- Plate must also be protected from light after adding detection.
- After the assay is complete, seal the plate before reading immediately or storing temporarily at 2-8 °C. The SMCxPRO® Immunoassay System requires the use of aluminum adhesive plate seal.
- It is not recommended to store eluted products from SMC® assays overnight at 4 °C or frozen at –80 °C for later reading as performance cannot be guaranteed.
- If SMC® Read Plate has been stored at 4 °C, plate should be left at RT for 30 minutes to 1 hour on the benchtop before reading to avoid a rapid increase in temperature within SMC® Read Plate wells. Bring to RT then centrifuge the plate at 1,100 x *g* for 1 minute prior to reading.
- For optimal SMCxPRO® Immunoassay System performance, perform ASSIST testing daily (ideally at beginning of the day before assay is prepared).

Precautions

Use caution when handling biological samples. Wear protective clothing and gloves. Components of this reagent kit contain sodium azide as a preservative. Sodium azide is a toxic and dangerous compound when combined with acids or metals. Solutions containing sodium azide should be disposed of properly.

Ingredient	Catalogue Number	Full Label	
pTau231 Standard	02-8211-00		**Warning.** Harmful if swallowed, in contact with skin or if inhaled. May cause damage to organs Brain through prolonged or repeated exposure if swallowed. May cause damage to organs Respiratory Tract through prolonged or repeated exposure if inhaled. Harmful to aquatic life with long lasting effects. Do not breathe dust. Wash skin thoroughly after handling. Do not eat, drink, or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/ protective clothing. IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth. IF ON SKIN: Wash with plenty of water. Call a POISON CENTER/ doctor if you feel unwell. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell. Get medical advice/ attention if you feel unwell. Wash contaminated clothing before reuse. Dispose of contents/ container to an approved waste disposal plant.
pTau231 Coated Beads	02-2211-00	No Label Required	Harmful to aquatic life with long lasting effects. Avoid release to the environment. Dispose of contents/ container to an approved waste disposal plant.

Ingredient	Catalogue Number	Full Label	
Assay Buffer	02-9951-00	No Label Required	Harmful to aquatic life with long lasting effects. Avoid release to the environment. Dispose of contents/ container to an approved waste disposal plant.
Standard diluent	02-0225-02		**Warning.** May cause damage to organs Respiratory Tract through prolonged or repeated exposure if inhaled. Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. Get medical advice/ attention if you feel unwell. Dispose of contents/ container to an approved waste disposal plant.
10X Wash Buffer	02-0001-03		**Warning.** Causes serious eye irritation. Harmful to aquatic life with long lasting effects. Avoid release to the environment. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Assay Preparation

Reagent Preparation

1. Warm all reagents to RT prior to use.
2. Store the detection antibody away from light until ready to use.
3. Prepare 1X Wash Buffer (from 10X Wash Buffer) as follows:
   - Pour both bottles of 10X Wash Buffer (containing 50 mL each for 100 mL total) into a container capable of holding at least 1 L. Add 900 mL of deionized water.
   - Mix thoroughly by gentle inversion or with a clean, sterile stir bar.

   Note: 1X Wash Buffer may be filter sterilized (refer to Storage Instructions).
4. Mix pTau231 Antibody Coated Beads on a rotisserie spin rotator, or manually by repeat inversion, for ≥ 20 minutes until all beads are resuspended.

Sample Preparation

1. Prepare samples by one of the following methods:

   - Preferred Method: Stack the filter plate on top of a 96-well receptacle plate.

     Place 250 µL of sample into a filter plate well and spin for ≥ 10 minutes at 1,100 x *g*.
   - Optional Method: Centrifuge samples at > 13,000 x *g* for 10 minutes immediately prior to use. Carefully pipette the supernatant into a clean microcentrifuge tube, avoiding particulates and slowly aspirating below the lipid layer.

2. Sample Dilution

   - For serum samples, no dilution is required.
   - Dilute the clarified plasma samples 1:2 using the standard diluent (for triplicates, transfer 200 µL of clarified sample to the sample preparation plate and add 200 µL standard diluent).
   - Dilute the clarified CSF samples 1:4 using the standard diluent (for triplicates, transfer 100 µL of clarified sample to the sample preparation plate and add 300 µL standard diluent).
   - If further sample dilution is required, samples can be diluted with the provided standard diluent.

Initial Standard Stock Preparation

1. Reconstitute lyophilized standard in 250 µL of deionized water. Invert the vial several times to mix. Gently pulse vortex the vial for 10 seconds. Allow the vial to sit for 5-10 minutes.

2. Refer to the standard value assignment on the Certificate of Analysis for the starting concentration of the pTau231 Standard in the vial.

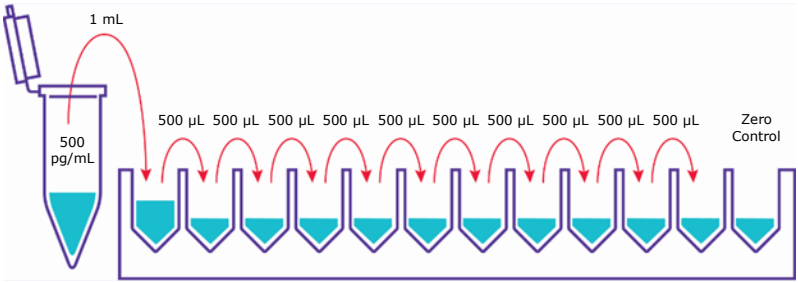
3. Perform the necessary dilutions in Standard diluent to achieve the final working concentration of 500 pg/mL in a 1.0 mL final volume.

   Note: In the SMC® Human pTau231 High Sensitivity Immunoassay Kit, we utilize a 100% phosphorylated peptide in picogram per milliliter (pg/mL) that is representative of but not equivalent to native pTau231. The 500 pg/mL top point standard is a 120.04 pM solution of pTau231.

Standard Curve

Prepare the standard curve in a 12-channel reagent reservoir. Perform 1:2 serial dilutions of the 500 pg/mL standard 1 for standards 2 through 11 to achieve a curve from 500 pg/mL to 0.49 pg/mL. Standard 12 is the Blank (Standard Diluent only).

Run the standards in triplicate.



1	2	3	4	5	6	7	8	9	10	11	12
500	250	125	62.5	31.3	15.6	7.81	3.91	1.95	0.98	0.49	0

Note: Pipette gently into wells to avoid creating bubbles.

1. Add 500 µL Standard Diluent to wells 2 through 12 of a 12-channel reservoir dilution plate.
2. Transfer 1,000 µL of 500 pg/mL working stock (Standard 1) into well 1.
3. Transfer 500 µL from well 1 into well 2, mixing thoroughly. Continue serial dilutions from well 2 stopping at well 11, mixing thoroughly each time. Use a fresh tip with each transfer.

Assay Procedure

Target Capture

1. Pipette 100 µL per well of Standards or neat Serum or 1:2 diluted Plasma or 1:4 diluted CSF Samples to assay plate.
2. Following mixing of the Coated Beads, immediately before adding to the assay plate, add the entire vial of Coated Beads to 11.0 mL of supplied Assay Buffer. Rinse bead vial with 0.55 mL of Assay Buffer and ensure that all beads have been transferred. Mix by gentle inversion. There should be a total volume of 12.1 mL of diluted Coated Beads.
3. Pipette 100 µL per well of the Coated Beads into assay plate.
4. Seal the assay plate with clear adhesive plate seal, applying pressure to the seal to prevent leaking and cross-contamination.
5. Incubate for 2 hours at 25 °C on microplate incubator/shaker set (Jitterbug™ Shaker Setting #4).
6. A minimum of 10 minutes prior to the end of target capture incubation, prepare the pTau231 Detection Antibody working stock:

   Prepare 1X Detection Antibody by adding 250 µL of 20X Detection Antibody into 4,750 µL of assay buffer and filter the diluted Detection Antibody using the syringe with a 0.2 µm filter into a clean tube.
7. When incubation is complete, centrifuge the assay plate at 1,100 x *g* for 1 minute and carefully remove clear adhesive plate seal to avoid splashing.

Post-Capture Wash

Wash plate once with a plate washer (BioTek® 405 TSUVS; Post Capture Wash (POSTCAP)). If using automation, please contact your technical service representative for the appropriate automation procedure.

Detection

1. After removal from plate washer, dispense 20 µL per well of Detection Antibody without disturbing the bead pellet (It is recommended to change tips).
2. Seal assay plate with clear adhesive plate seal.
3. Incubate for 1 hour at 25 °C on microplate incubator/shaker (Jitterbug™ Shaker setting #5). Ensure plate is protected from light during this incubation.
4. After incubation, carefully remove clear adhesive plate seal to avoid splashing.
5. When incubation is complete, centrifuge at 1,100 x *g* for 1 minute then carefully remove the clear adhesive plate seal to avoid splashing.

Post-Detection Wash

Wash the assay plate 4 times with Wash Buffer using the 4 cycle Pre-Transfer (4CYCPRE) program on the BioTek® 405 TSUVS washer. If using automation, please contact your technical service representative for the appropriate automation procedure.

Post-Detection Shake

1. After 4 cycle Pre-Transfer wash, visually verify that each well contains ~200 µL of Wash Buffer.
2. Seal the assay plate with a new clear adhesive plate seal. Apply pressure to the seal to prevent leaking and cross-contamination.
3. Place the plate on the microplate/incubator shaker set (Jitterbug™ Shaker Setting #3) for 2 minutes. Ensure plate is protected from light during this incubation.
4. Remove the plate from the shaker, and centrifuge at 1,100 x *g* for 1 minute. Carefully remove clear adhesive plate seal to avoid splashing and place it on the plate washer to perform Final Aspiration.

Final Aspiration

Perform Final Aspiration using BioTek® 405 TSUVS; Final Aspirate (FINASP). If using automation, please contact your technical service representative for the appropriate automation procedure.

Elution

1. After removal from the plate washer, place the assay plate onto the sphere mag plate and allow beads to form a tight pellet at the well corners for 2 minutes.
2. Dispense 10 µL Elution Buffer B per well using reverse pipetting without disturbing the bead pellet.
3. Seal assay plate with a new clear adhesive plate seal. Apply pressure to the seal to prevent leaking and cross-contamination.
4. Incubate the plate for 10 minutes at 25 °C on microplate incubator/shaker (Jitterbug™ Shaker Setting #5). Ensure plate is protected from light during this incubation.
5. When incubation is complete, centrifuge at 1,100 *x g* for 1 minute.

Assay Reading

To read on the SMCxPRO® Immunoassay System

1. Place the assay plate with Elution Buffer B onto the sphere mag plate and allow beads to form a tight pellet for 2 minutes.
2. Keeping the assay plate on the magnet, carefully remove the adhesive plate seal. Using a multichannel pipette, add 10 µL of Buffer D to center of wells containing Elution Buffer B. Use a fresh tip with each dispense.
3. Set a manual 12-channel pipette (1-20 µL) to 18 µL and put 12 tips onto the pipettor. Transfer 18 µL of neutralized eluate solution per well to corresponding wells of the SMC® Read Plate, placed over the included plate holder by aspirating directly from the v-bottom of the plate, avoiding the pelleted beads, and changing tips with each dispensed row.
4. Seal SMC® Read Plate with new clear adhesive plate seal. Centrifuge plate for 1 minute at RT, approximately 1,100 x *g*. Remove the seal, inspect SMC® Read Plate wells and remove bubbles if they are present.
5. Firmly seal the SMC® Read Plate with aluminum plate seal using the recommend plate roller.
6. Remove the plate holder from the sealed SMC® Read Plate and load it onto the SMCxPRO® Immunoassay System. Start read.

   Note: There is a warmup period of up to 30 minutes to wait for the SMC® Read Plate to be close to the internal instrument temperature. Once achieved the read will start automatically.

SMC® Assay Overview

1. Prepare all reagents, standard curve, and samples as instructed.
2. Add 100 µL of Standard/neat Serum, 1:2 Plasma, or 1:4 CSF samples and 100 µL of Coated Beads to assay plate.
3. Seal and incubate for 2 hours at 25 °C on appropriate microplate incubator/shaker.

2 hours 25 °C

4. After capture incubation, centrifuge assay plate at 1,100 *x g* for 1 minute.
5. Perform Post-Capture Wash.
6. Remove from washer magnet and add 20 µL of Detection Antibody per well.
7. Seal assay plate and incubate for 1 hour at 25 °C on microplate incubator/shaker.

1 hour at 25 °C

8. Perform Post-Detection Wash.
9. Seal the assay plate and perform the post-detection shake for 2 minutes on microplate incubator/shaker.
10. Perform the Final Aspiration.
11. Remove from washer magnet and add 10 µL of Elution Buffer B to each well.
12. Seal assay plate and incubate for 10 minutes at 25 °C on microplate incubator/shaker.

10 minutes at 25 °C

13. Add 10 µL of Buffer D to neutralize the eluted antibody.
14. Transfer 18 µL of neutralized eluate to the SMC® Read Plate.
15. Seal SMC® Read Plate aluminum adhesive plate seal for SMCxPRO® System.
16. Load on SMCxPRO® System.

Assay Characteristics

Sensitivity

Assay sensitivity measures the true limit of quantitation of an analyte and is often defined by the Lower Limit of Quantification (LLOQ). LLOQ is calculated as the lowest concentration that can achieve CVs of < 20% and the percent recovery of the standard point is still between 80%-120%. The LLOQ of pTau231 is 1.95 pg/mL. The reported value is the average of multiple assays. Please note that the published LLOQ is data generated during kit verification and can have minor variation between kit lots. For lot specific LLOQ data, please see the Certificate of Analysis.

Precision

The assay variations of SMC® Human pTau231 Immunoassay kits were studied using fifteen normal serum and plasma samples run in triplicate by 3 different operators on 3 different days.

- Mean intra-assay variation was < 10%
- Mean inter-assay variation was < 20%

Specificity/Cross-Reactivity

Cross-reactivity to the following analytes were tested with the following results:

- pTau217 – not cross-reactive
- pTau181 – not cross reactive

Specificity to the following species samples were tested with the follow results:

- Mouse – 4 of 4 individuals quantifiable
- Rat – 2 of 4 individuals quantifiable
- Baboon – 3 of 4 individuals quantifiable
- Cow – 4 of 4 individuals quantifiable
- Pig – 4 of 4 individuals quantifiable

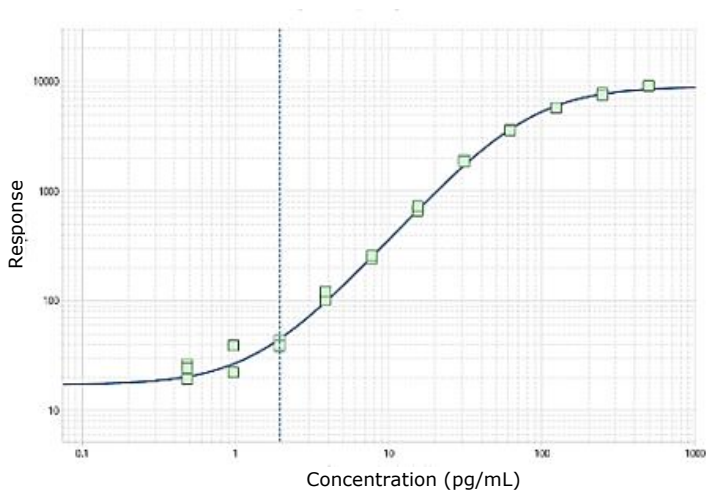
Spike Recovery

The data represent mean percent recovery of three different concentrations of standard spiked into samples (n = 5 serum samples, 5 plasma samples, 5 CSF samples).

Sample ID	Serum Recovery %	Plasma Recovery %	CSF Recovery %
Sample 1	70	62	108
Sample 2	78	68	94
Sample 3	68	44	112
Sample 4	87	44	42
Sample 5	100	68	125
Average	**81**	**57**	**96**

Graph of Typical Reference Curve

Typical SMCxPRO® pTau231 Immunoassay Standard Curve, not to be used to calculate data.



Troubleshooting

Problem	Probable Cause	Solution
Background is too high	Background wells were contaminated	Avoid cross-well contamination by using seal appropriately. Pipette with multichannel pipets without touching reagent in plate. Change tips when adding reagents if cross contamination is expected.
		Ensure reagents (including Wash Buffer) are not contaminated.
		Insufficient washes—washer may need to be cleaned or reprogrammed.
	Plate was over-incubated	Confirm plate incubation times are as recommended, particularly for the Detection incubation.
Sample variability is high	Multichannel pipet may not be calibrated	Calibrate pipets.
	Plate washing was not uniform	Confirm that there is no residual left in the wells following post-capture wash step and Final Aspirate. Ensure that you have < 2 µL or residual remaining in the well.
	Samples may have high particulate matter or other interfering substances	Samples should be filtered according to the Assay Preparation section. Unprocessed samples could lead to higher imprecision.
	Plate agitation was insufficient	Plate should be agitated during all incubation steps using an orbital plate shaker at a speed where beads are in constant motion without causing splashing (See Jitterbug™ Shaker setting in Assay Best Practices section).
	Cross-well contamination	Ensure that the plate is sealed well at each incubation step. If splashing occurs on plate seal, centrifuge plate at 1,100 *x g* for 1 minute to remove material prior to removing the seal. A new plate seal should be used every time the plate is sealed.
		Care should be taken when using same pipet tips that are used for reagent additions and that pipet tip does not touch reagent in plate.

Problem	Probable Cause	Solution
Beads are lost during the wash	Plate washer needs optimization/cleaning	Contact Tech Support or local Specialist to schedule washer programming. Refer to user guide for cleaning procedure.
	Insufficiently primed washer	Washer should be primed with wash buffer prior to running the post capture wash protocol.
	Beads came in contact with water	Washer should be primed with Wash Buffer sufficiently prior to plate wash. Viscosity of water changes the performance of the magnetic particles.
	Proper magnet was not used	Ensure that the SMC® magnetic plate shipped with the BioTek® 405 TSUVS Plate Washer was present on plate wash stage prior to running wash protocol.
Published LLOQ was not achieved	Improper dilution/reconstitution of the standard reference material	Confirm appropriate kit protocol was followed when preparing standard curve.
		Check plate washer to confirm no beads were lost during washes and that plate contains < 2 µL following the post-capture and final aspiration protocols.
		Ensure standards are prepared before starting capture incubation.
Microparticles do not resuspend into homogenous solution	Beads were not properly stored and may have been frozen	Labelled microparticles should be stored at 4 °C. If microparticles are frozen, they will not resuspend properly.
	Samples may be causing interference due to excess particulate matter	Samples should be properly processed prior to testing to remove particulate matter or lipids.

	1	2	3	4	5	6	7	8	9	10	11	12
A	Standard 1	Standard 2	Standard 3	Standard 4	Standard 5	Standard 6	Standard 7	Standard 8	Standard 9	Standard 10	Standard 11	Standard 12
B	Standard 1	Standard 2	Standard 3	Standard 4	Standard 5	Standard 6	Standard 7	Standard 8	Standard 9	Standard 10	Standard 11	Standard 12
C	Standard 1	Standard 2	Standard 3	Standard 4	Standard 5	Standard 6	Standard 7	Standard 8	Standard 9	Standard 10	Standard 11	Standard 12
D	Sample 1	Sample 1	Sample 1	Sample 2	Sample 2	Sample 2	Sample 3	Sample 3	Sample 3	Etc.	Etc.	Etc.
E												
F												
G												
H												

Terms of Sale

THIS PRODUCT IS INTENDED FOR USE BY AN ACADEMIC OR NOT-FOR-PROFIT INSTITUTION TO BE USED FOR ACADEMIC AND/OR NOT-FOR-PROFIT RESEARCH, WHICH IS FURTHER DEFINED BELOW. FOR COMMERCIAL USE PLEASE CONTACT US AT THE E-MAIL ADDRESS BELOW. BY OPENING THIS PRODUCT, YOU ("PURCHASER") HEREBY REPRESENT THAT YOU HAVE THE RIGHT AND AUTHORITY TO LEGALLY BIND YOURSELF AND/OR YOUR EMPLOYER INSTITUTION, AS APPLICABLE, AND CONSENT TO BE LEGALLY BOUND BY THE TERMS OF THIS ACADEMIC USE AGREEMENT. IF YOU DO NOT AGREE TO COMPLY WITH THESE TERMS, YOU MAY NOT OPEN OR USE THE PRODUCT AND YOU MUST CALL CUSTOMER SERVICE (1-800-645-5476) TO ARRANGE TO RETURN THE PRODUCT FOR A REFUND.

"PRODUCT" means SMCxPRO® Immunoassay Instrument, Cat. No. 95-0100-00, 70-0100-00, 95-0100-00-JPN.

"Commercial Product" means any product intended for: (i) current or future sale; (ii) use in a fee-for-service; or (iii) any diagnostic, clinical, or therapeutic use.

"Academic or Not-For-Profit Research" means any internal in vitro research use by individuals employed by an academic or not-for-profit institution. Such research specifically excludes the following uses of whatever kind or nature:

- Re-engineering or copying the PRODUCT
- Making derivatives, modifications, or functional equivalents of the PRODUCT
- Obtaining patents or other intellectual property rights claiming use of the PRODUCT
- Using the PRODUCT in the development, testing, or manufacture of a Commercial Product
- Using the PRODUCT as a component of a Commercial Product
- Reselling or licensing the PRODUCT
- Using the PRODUCT in clinical or therapeutic applications including producing materials for clinical trials
- Using the PRODUCT to provide a service to any third party
- Using the PRODUCT in collaboration or to enable a commercial entity
- Commercial Use of the PRODUCT to make a "home brew" assays, which includes a LDT (Lab Developed Test) assay(s) or any related commercial testing.

Transfer of PRODUCT to a site that is not the site where the Product was originally installed

These use restrictions will remain in effect for as long as PURCHASER possesses the PRODUCT.

COMMERCIAL OR NON-ACADEMIC ENTITIES INTERESTED IN PURCHASING OR USING THE PRODUCT MUST CONTACT limitedcommercial@milliporesigma.com AND AGREE TO SEPARATE TERMS OF LIMITED COMMERCIAL USE PRIOR TO USE OR PURCHASE.

Notice

We provide information and advice to our customers on application technologies and regulatory matters to the best of our knowledge and ability, but without obligation or liability. Existing laws and regulations are to be observed in all cases by our customers. This also applies in respect to any rights of third parties. Our information and advice do not relieve our customers of their own responsibility for checking the suitability of our products for the envisaged purpose.

The information in this document is subject to change without notice and should not be construed as a commitment by the manufacturing or selling entity, or an affiliate. We assume no responsibility for any errors that may appear in this document.

Technical Assistance

Visit the tech service page at SigmaAldrich.com/techservice.

Terms and Conditions of Sale

Warranty, use restrictions, and other conditions of sale may be found at SigmaAldrich.com/terms.

Safety Data Sheets (SDS)

Safety Data Sheets are available on the product page at SigmaAldrich.com.

Contact Information

For the location of the office nearest you, go to SigmaAldrich.com/offices.