

CROSS CALIBRATION PROTOCOL - PRODUCTION SHEET TO BE PERFORMED MONTHLY

Date: _____

1. 500 μCi ^{18}F request.

^{18}F Activity delivered: _____ μCi **Time:** _____

2. Pre-weigh to the nearest milligram:

- a. **Weight of empty 25 ml vial:** _____ g
- b. **Weight of empty centrifuge tube #1:** _____ g
- c. **Weight of empty centrifuge tube #2:** _____ g
- d. **Weight of empty centrifuge tube #3:** _____ g

3. Withdraw $\sim 100\mu\text{Ci}$ of ^{18}F with a 300 μl syringe.

a. **Activity in Syringe:** _____ μCi **Time:** _____

4. Inject activity into the 25 ml vial. Add water and shake and mix well, fill vial completely. Record the residual activity in the syringe.

a. **Residual activity:** _____ μCi **Time:** _____

5. Post-weigh the 25 ml vial to the nearest milligram

a. **Weight of water-filled 25 ml Vial:** _____ g

6. Scan 25 mL in both Inveon and F220.

7. Data acquisition should be as follows: acquire data for 30 minutes. Histogram the listmode file with a single frame using the maximum allowed ring difference, a span of 3 and the default number of projections. Reconstruct first image with a 2D FBP without attenuation correction and scatter correction. Forward project the image to create an attenuation file. Re-reconstruct the image using this attenuation correction file this time, attenuation correction and scatter correction. Draw a region of interest

and graph across planes. Deselect the planes that do not contain the scintillation vial and record the activity concentration.

8. With the 500 μ l pipette transfer 200 μ l from the scintillation vial into each of the three centrifuge tubes.

9. Post-weigh to the nearest milligram:

a. **Weight of centrifuge tube #1:** _____g

b. **Weight of centrifuge tube #2:** _____g

c. **Weight of centrifuge tube #3:** _____g

10. Take the filled centrifuge tubes, two blanks and the Ge-68 reference source. Measure the counts on both gamma counters for the 6 samples using setting #4. Record the start time of the gamma counters. Save data files on PC when performing the gamma counting. (This will save you from typing. Use copy and paste to avoid typos.)

a. **Scan start time (Inveon):** _____

b. **Scan start time (F220):** _____

c. **Mean Activity Concentration From Images Inveon:** _____ nCi/cc

d. **Mean Activity Concentration From Images F220:** _____ nCi/cc

These numbers must then be entered in the excel spreadsheet *cross calibration spreadsheet.xls* (G:\radsci\micropet folder).

A copy of this spreadsheet must be created for each time this protocol is executed.

Signature of the person preparing the sample and perform gamma counting:

Signature: _____

Signature of the person imaging the vials and post-processing the images:

Signature: _____

