Tutorial for running Bruker Molecular Imaging Camera to measure red fluorescent protein fluorescence in mice



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Bruker MI SE

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Captured Images

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**REP Tumor** 

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Computer Shortcut

## Double click on Bruker MI icon

11:08 AM

2/27/2015

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Bruker MI program opens up and will look like this. Click on Protocol.



To measure red fluorescent protein (RFP) for 5 mice, use the Tumor-RFP protocol. If this protocol does not come up automatically when you click on Protocol (described in previous slide), click the arrow in the drop down box for Protocol name.

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We have found that the easiest way to get mice asleep and to put their snouts in nozzles in the camera image cage is use the following steps (also described in slides 6-11):

- 1) Make sure image cage in camera box is closed and sealed.
- 2) Make sure enough anesthesizing drug is in anesthesiologist machine.
- 3) Turn on oxygen to anesthesiologist machine.
- 4) Unlock drug control by pushing down black button on control and set drug delivery control to 5.
- 5) Wait a couple of minutes for camera image cage to fill with drug.
- 6) Add mice and close cage so that it is sealed as soon as mice have been placed in cage. We have found that it is easiest to add 3 mice, let them fall asleep then add the other two mice.
- 7) Once all mice have fallen asleep, open cage and position mice in desired order with their snouts in nozzles. Tumors should be closest to the floor. The camera is below the floor. Try to do this quickly so mice do not wake up, but you may have to close up and seal cage and let mice fall asleep again before you can finish this step.
- 8) Once mice are asleep with snouts in nozzles and tumors closest to the floor of the cage, close door of camera cage. Make sure door to camera does not say "Door open" when you close door. If the door message does say "door open", open door and close it again until the message does not appear.
- 9) Turn drug control down to 3.5.
- 10) Click the execute button in the protocol.

1) Make sure image cage in camera box has drug delivery connected and cage is closed and sealed.



←Drug delivered through this tubing. Make sure it is connected to nozzle manifold in cage.

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Quickly open cage and put in mice. Let mice fall asleep before trying to position them.

8) Once mice are asleep with snouts in nozzles and tumors closest to the floor of the cage, close door of camera cage. Make sure door to camera does not say "Door open" when you close door.



If the door message does say "door open", open door and close it again until the message does not appear.



9) Turn drug control down to 3.5.

10) Click the execute button.





Step 2, shown below, is automatically performed after step 1. Step 2 captures the XRAY image. Make sure the program has completed downloading both images before opening the door of the camera.

B) Bruker MI	
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Step 2 captures the XRAY image→	Field 2:       Field 4:         Protocol Steps         Step 1 'Step 2 \+            • Capture New Images         • Use Existing Images         • Capture Setting: Standard XRay         • Lock: F-Stop Zoom Fgcus Shutter         Seting Details: 1.2 ec(i) Std. Exposure   1x1 Binning   X-Ray Modelky   Fiker(s): Xri 0.4mm Exi None-Open Emi None-Open         After Image Capture: -Do Nothing -         • OD No



When you are through taking images and mice have been removed and placed back in their housing cages, don't forget to turn off the oxygen and set the drug delivery to zero. To look at images using the Bruker program, click on the Windows Explorer folder icon at the bottom of the computer screen.



Windows Explorer Folder icon

Locate the folder using the path that you used for "Saved images to". In our case, we used "Tumor\_trial". Double click on folder.

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The folder contains folders that were generated with each execute command from the protocol. The folders are dated, numbered, and include the protocol used. Double click on a folder to see images in folders titled step 1 and step 2.

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Bruker Software Ready

This is what you will see when you double click on a folder: a folder for step 1 and a folder for step 2.





Double click on Folder for step 1 and you will see an image file for the fluorescent image.



If you double click on Folder for step 2 and you will see an image file for the XRAY image.

Double click on the image file; the fluorescent image will appear. The mice shown in this image have xenograft tumors from tumor cells that express red fluorescent protein.



To save the image as a jpeg file, with image on screen, click "File". Then click "Export Data". Scroll over to "Image" and click.

## File





Now you can name and save the image as a jpeg file in the folder of your choosing.



You can do the same for the XRAY image.