Procedure to change the Be target:

**Only those with training should touch the Be target. (Zibi, Jack, Bec, or Rachel) Ask one of them to help you.**

Take Target key from Data U.

Enter gamma lab (former HiRA Lab location).
- Directly ahead, on the counter, is a black/gray toolbox. The key opens the padlock.
- On the top layer inside the toolbox are several targets. We want the 0.04” target, it is in a plastic cylindrical case that holds both the 0.04” and 0.08” targets. (“Remember: it is the thinner target”) The target is already on a frame.

Take the Be target to the S2 vault.
- On the right-hand side, just past the AC unit, is a cabinet. Inside on a middle shelf is the cradle: it is yellow and has “GRETINA” written on it.

Mount the Be target on the cradle so that the side without the frame points towards the side of the cradle with “GRETINA” written on it (or: the side without the frame is on the side secured by the black holders).

**A: Do not proceed unless Bob, and Kyle (or Jack, Zibi) are there. Before you insert the Be target into CAESAR, you have to let the CAESAR section of beam tube to air.**

1. **Put the stopper in to block any possible airflow between the beam tube and chamber and make sure the HiRA vacuum interlock is on (Not working).**
2. Turn off CsI power to the preamps
3. Turn off CAEN biases (19)
4. Turn off back bias and P7 & P8 bias on the HiRA electronics
5. Manually close the gate valve between the chamber and CAESAR
6. Monitor the vacuum status of beam line and chamber via the computer near S1 area. P8 or S2_vault control program
   a. Push B204GV button to close the Gate valve between beamline and CAESAR
7. Make sure both valves to the chamber and to the Cyclotron side of the beam tube are closed.
8. Let the CAESAR section of the beam tube between the two valves up to air. Monitor chamber pressure.
9. **Take off the bellows between beamline and CAESAR.**
   a. Loosen the screws on the chamber side.
   b. When the bellow is disconnected from the chamber, cover the beam tube to the chamber with a plastic cover.
   c. To loosen the other side of the bellows, remove the nuts and take out the set screws.
d. Remove the bellows

10. Insert the Be target into CAESAR
   a. Make sure that “GRETINA” on the cradle faces towards you
   b. Push the cradle with the pusher using the side labeled “IN”. The target is in position when the side labeled “OUT” hits the mouth of the beam-pipe.

11. Pump down CAESAR section of the beam line with roughing pump.
   a. Put Copper rings on beam line where the bellow was taken off
   b. Connect the bellow to the beam line
   c. Pump that CAESAR section of the beam line with roughing pump.

12. Make sure the CAESAR vacuum is good (??)

13. Open gate valve to beam line (see 6) Make sure vacuum is good.

14. Open gate valve to chamber (Monitor vacuum, see 6)

15. Bias up CsI, CAEN, P7&P8 (see 2,3,4)

16. Take out blocker

Clean up the area, put the pusher back to the cabinet and the Be bag to Gamma lab.

To remove the target: See A and reverse steps above
-use the pusher side labeled “OUT” to hook onto the cradle and pull. Then reverse steps above.

IMPORTANT: the Be Target Key stays in the Data U when not in use! Return it when you are done. Also return the empty Be bag to the Gamma lab in the tool box.