

The Heat Extractor Embedding Method.

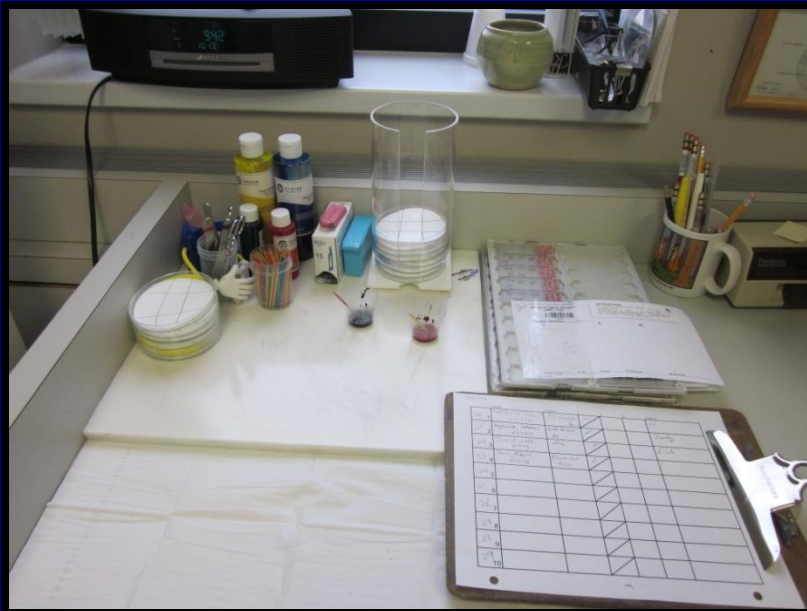
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Mohs Lab

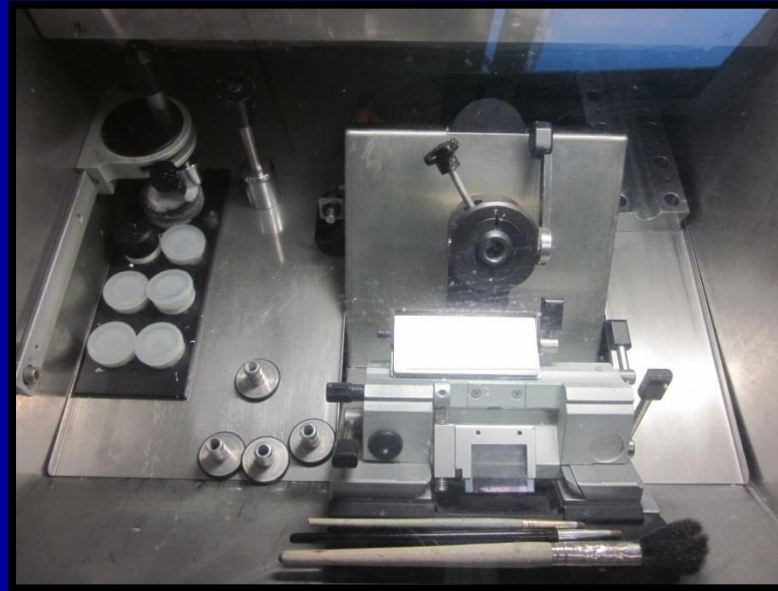


The H+E staining and cover slip area

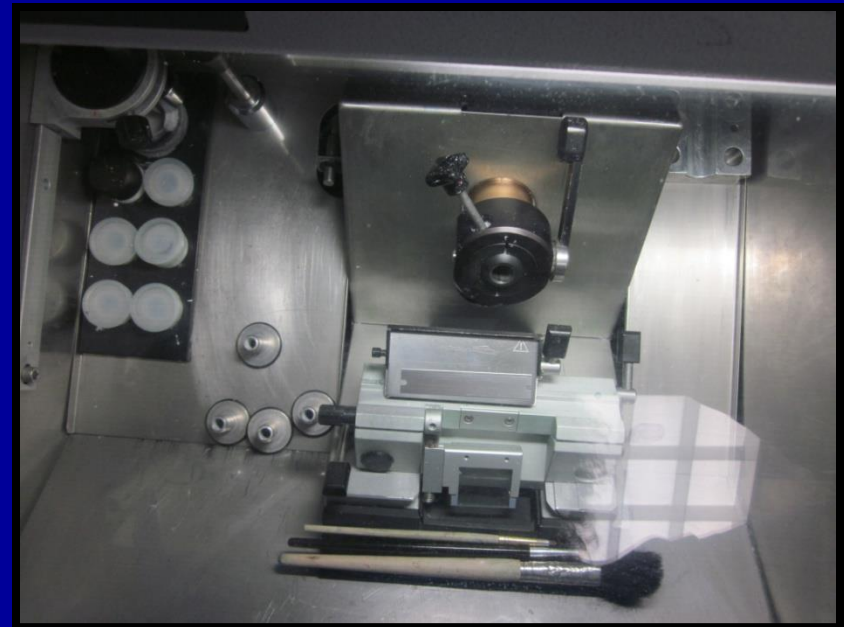
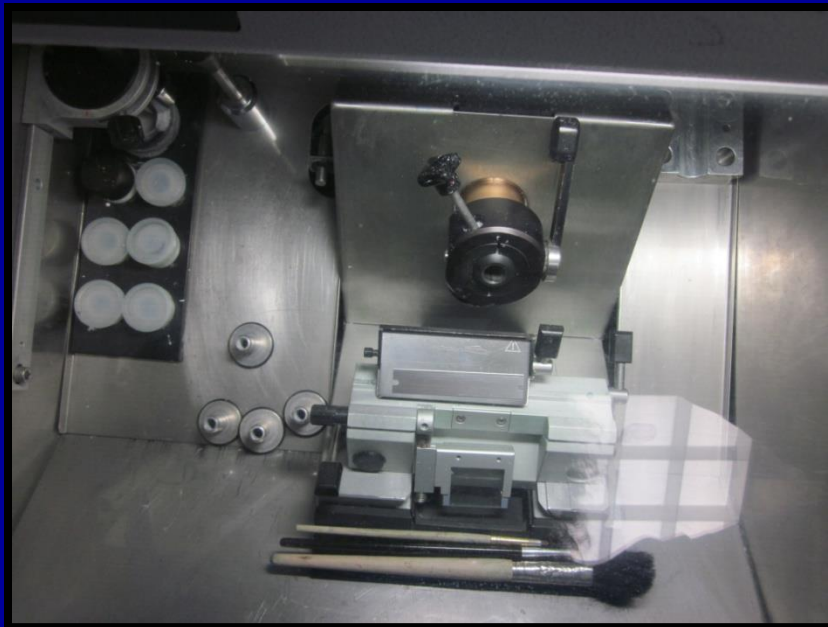


Grossing and marking area

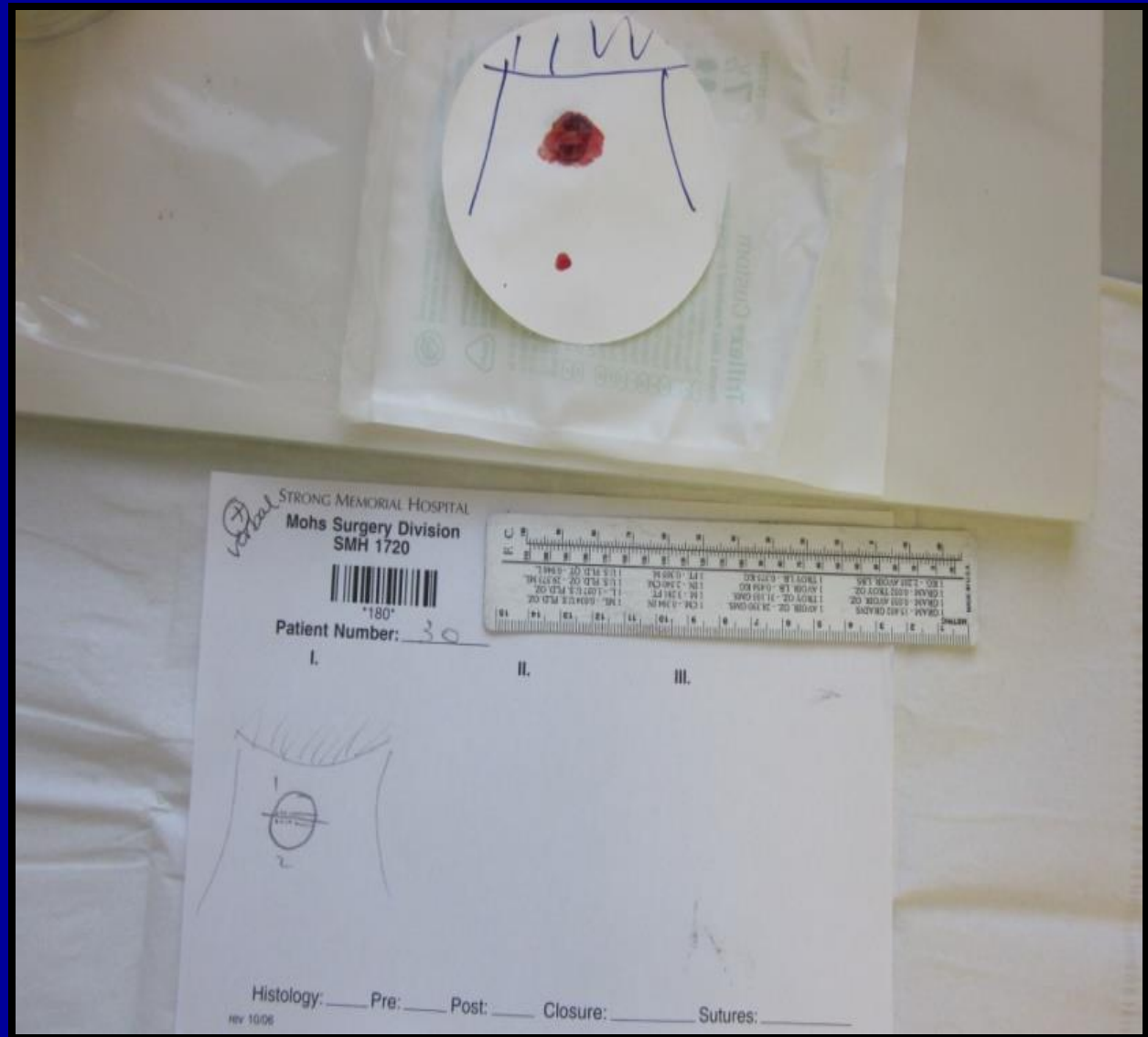
Cryostat chamber



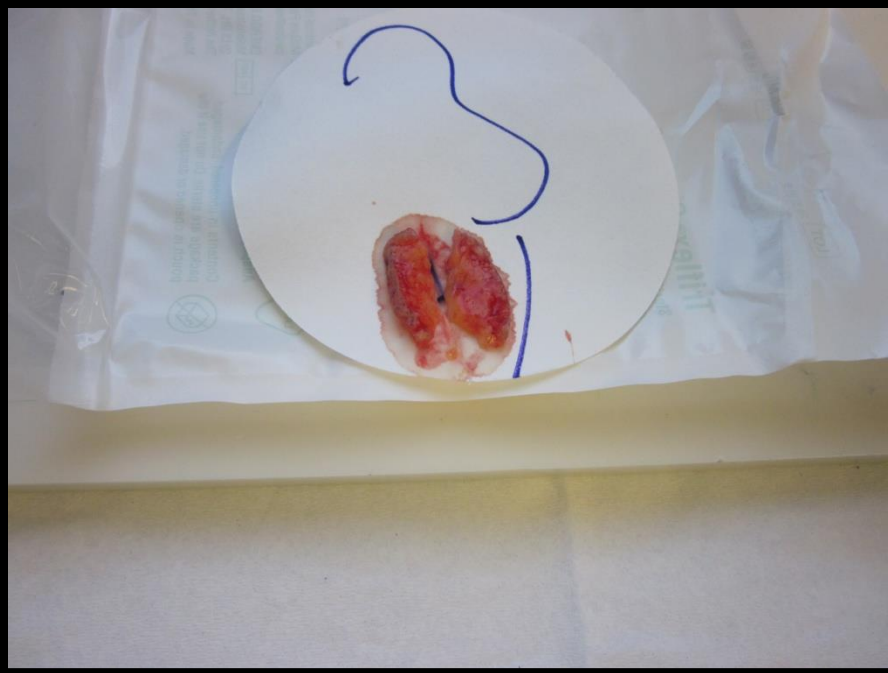
On the left side of the chamber is the heat extractor that is attached to the wall of the cryostat on a sliding bar. Another unattached heat extractor is available.



Specimen is received on a filter paper.



A specimen and a map.



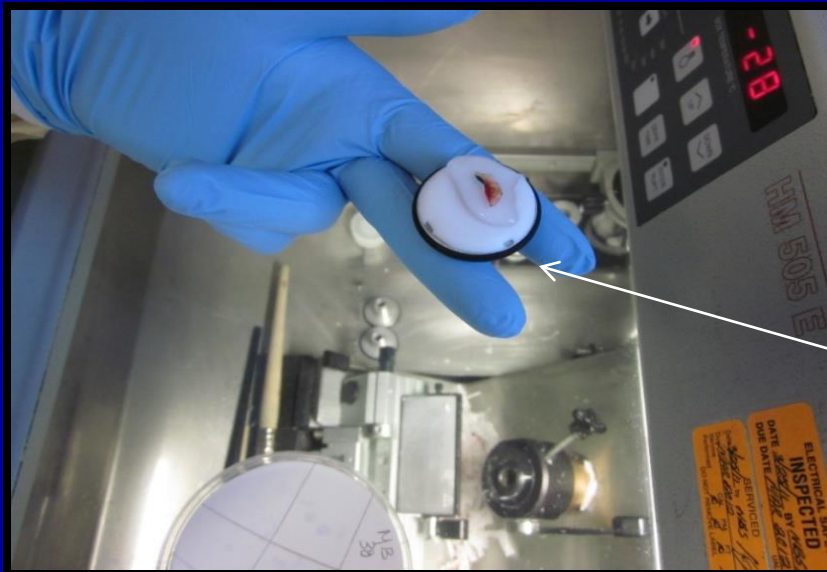
The dissected tissue is placed on a filter paper. Either Dr. Brown, the resident, or I will then proceed to map the tissue and orient it by flipping it over and adding the marking dye on the deep margin.



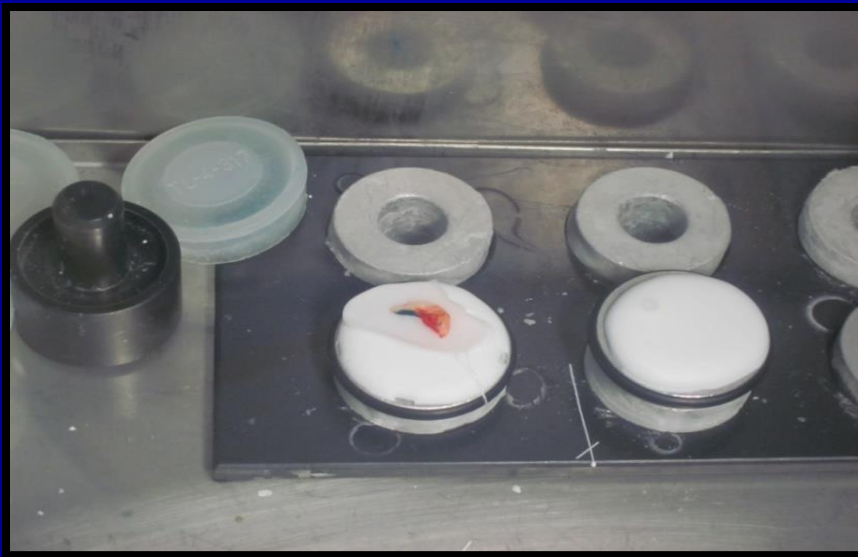
I begin by placing a couple of chucks inside the -28 degree cryostat chamber.



Once tissue is received I add OCT on the chucks and let it freeze (not completely).



Take the tissue and place it on the chuck and add some more OCT around it .



Once the base of the tissue starts to freeze, make sure the epidermis is straight up and the tissue dye is showing.



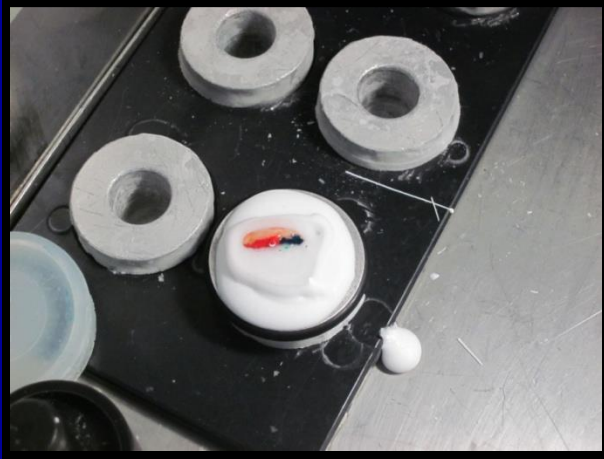
Cover the tissue with OCT

Heat extractor stamping the tissue.



Place tissue back in the chuck well and stamp it with the heat extractor.

Another tissue example



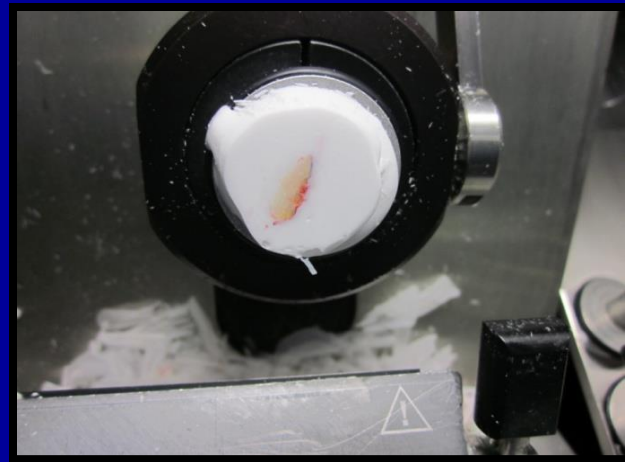
Embedding



Embedding

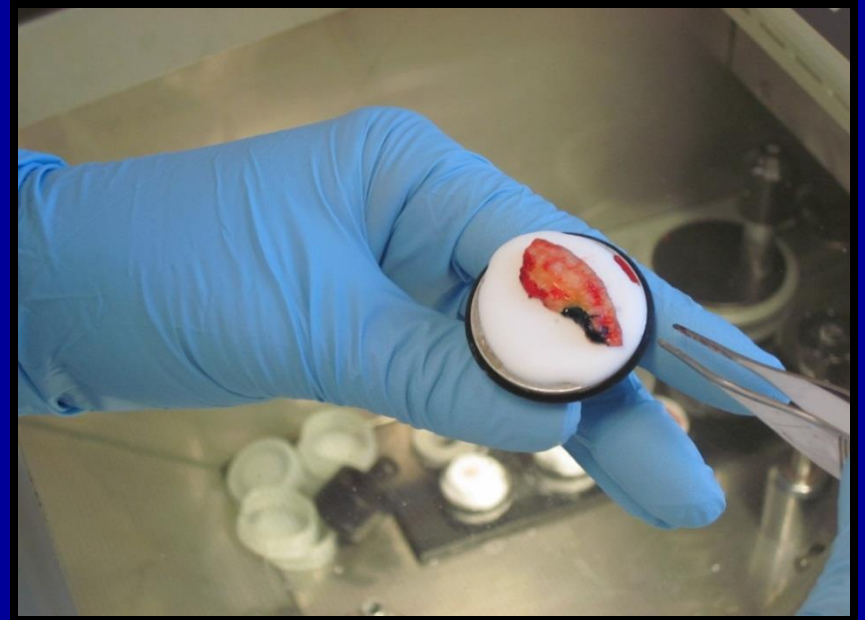


Stamped



Surfaced

Another Example





Not enough OCT

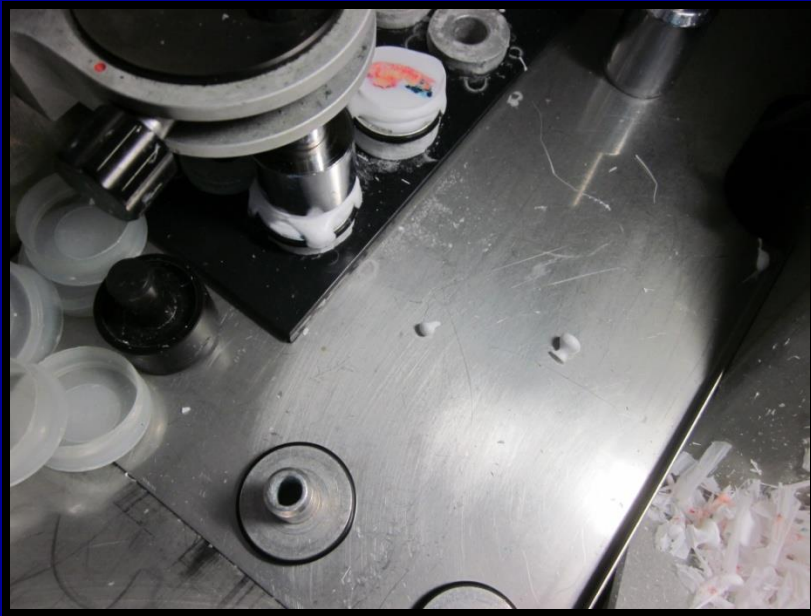


OCT added

Final product:

If the tissue is not sufficiently covered with OCT, it can be difficult to grab the section while cutting.

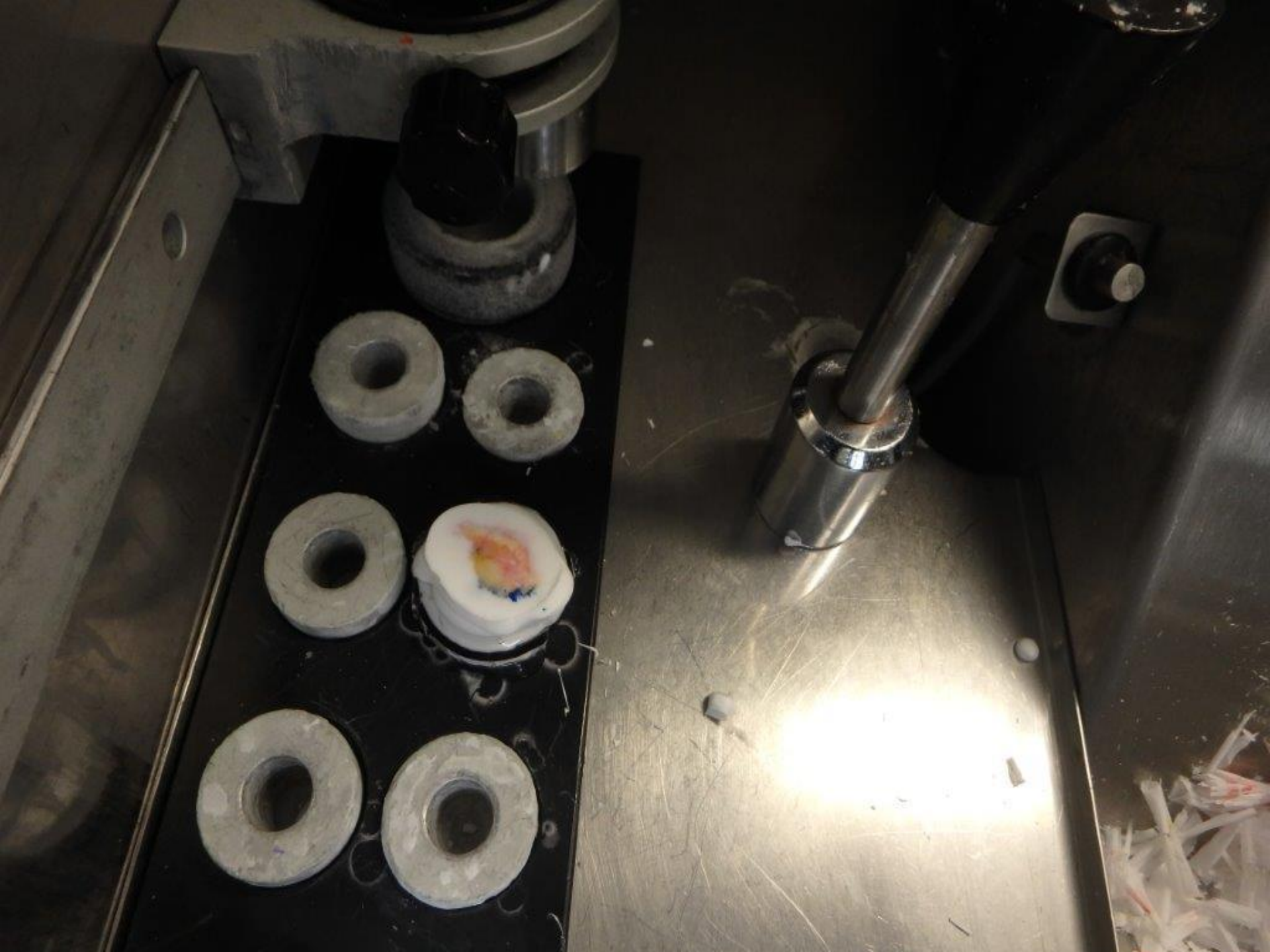
Add more OCT on the tissue and stamp it one more time to solve the issue.



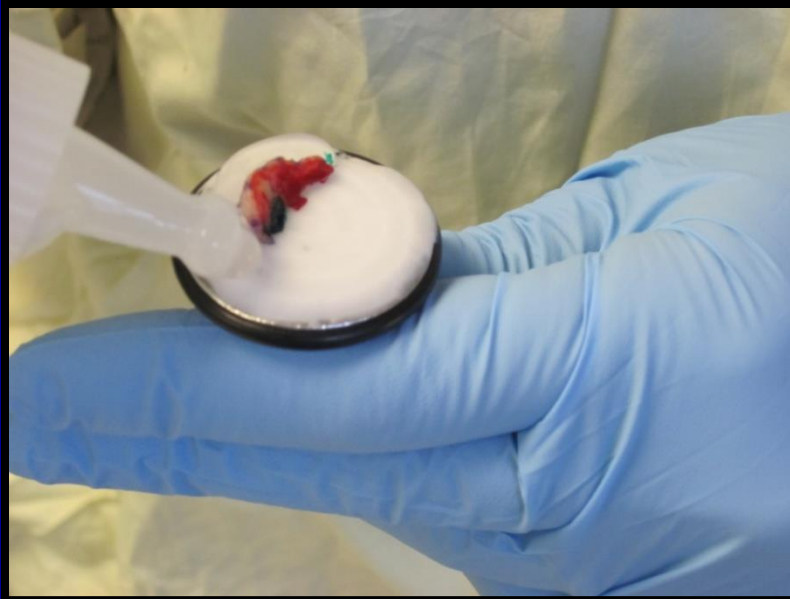
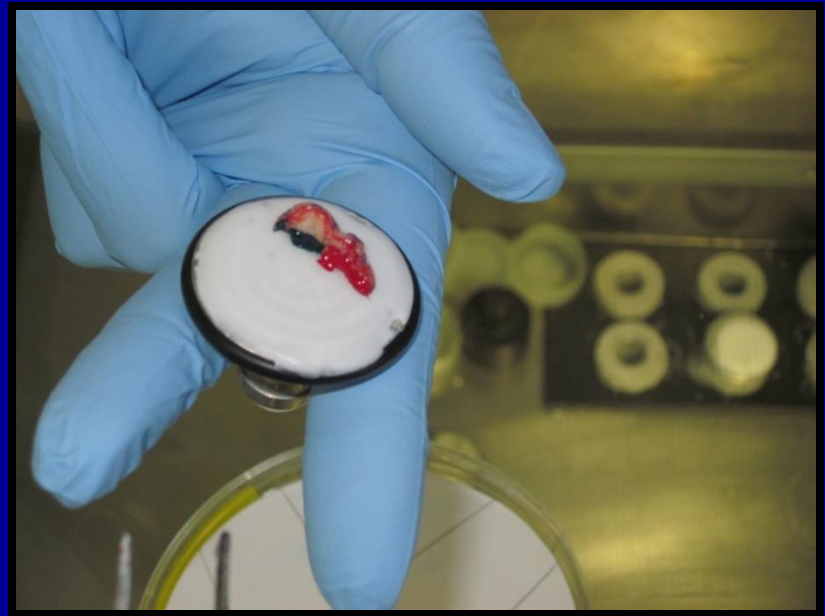
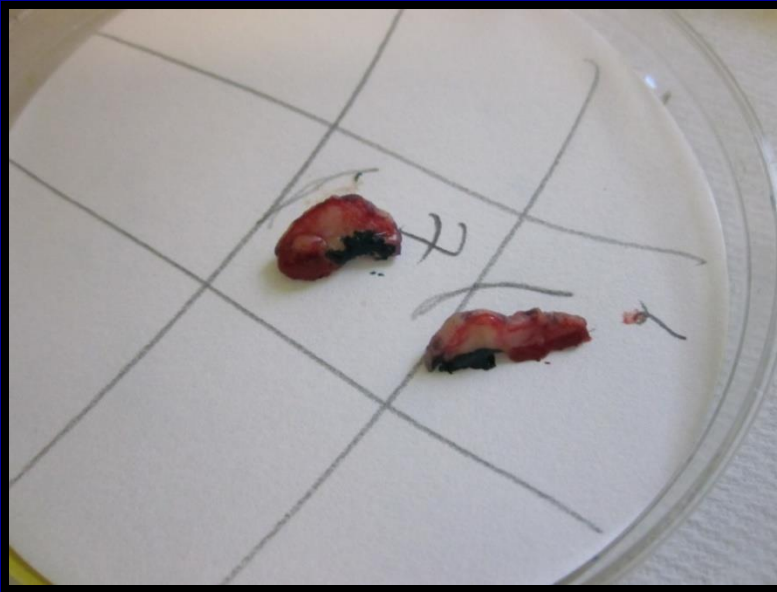
Using a cold chuck speeds the process, we do it often in our laboratory. In a rare case a peeling of (tissue+OCT) might happen when the OCT gets very cold before you put the tissue on it. This causes the (tissue+OCT) to come off with the heat extractor. To solve the issue, add some OCT on the same chuck, place the block (tissue+OCT) onto the chuck, and stamp it again.









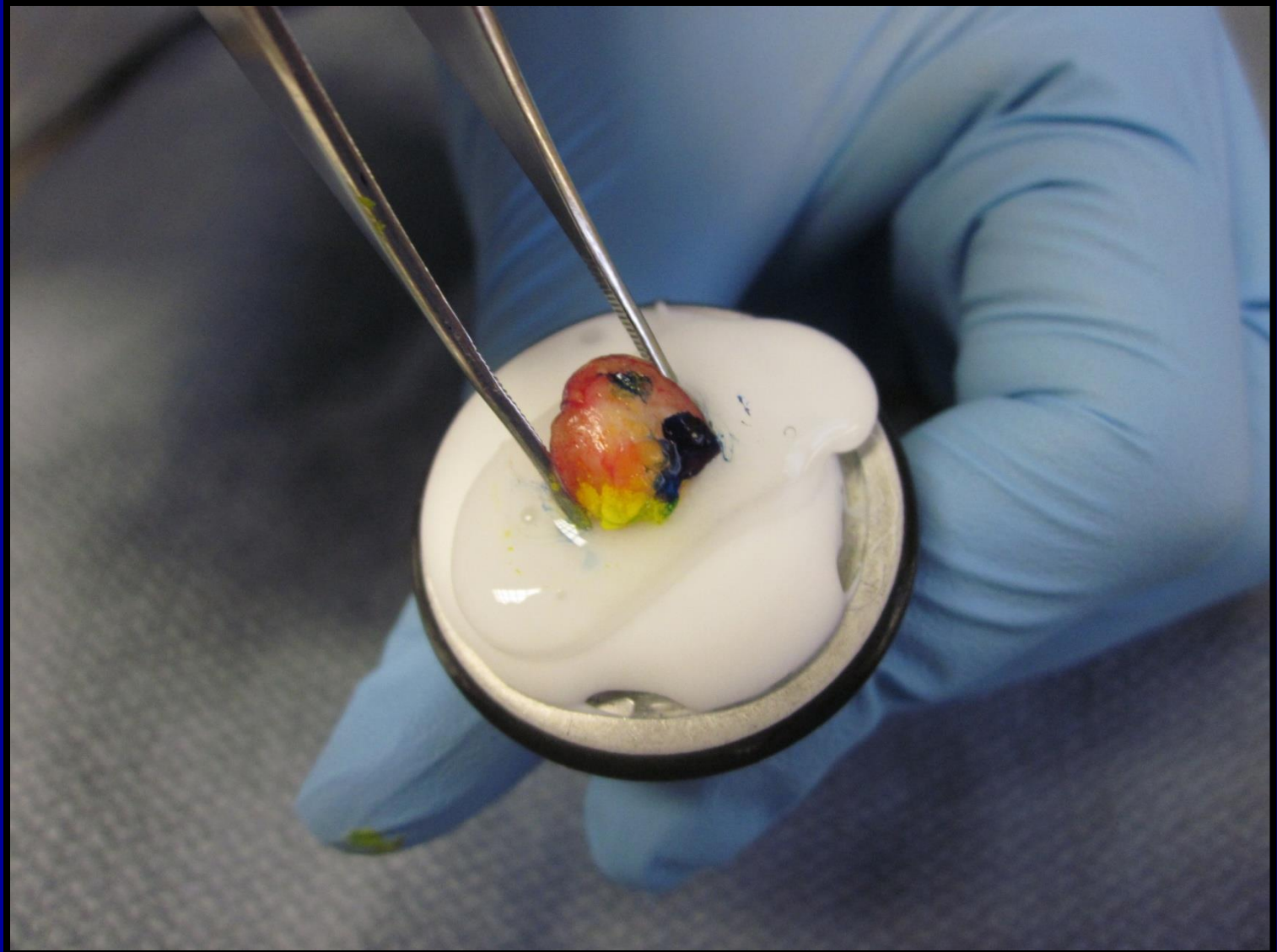


**Take your time checking the tissue.
Look around the it to see the epidermis size,
and thickness.
If the doctor debulks the tumor, he might
leave you with a very thin epidermis. So by
checking the tissue thoroughly you will know
how deep you can go before you loose it.**

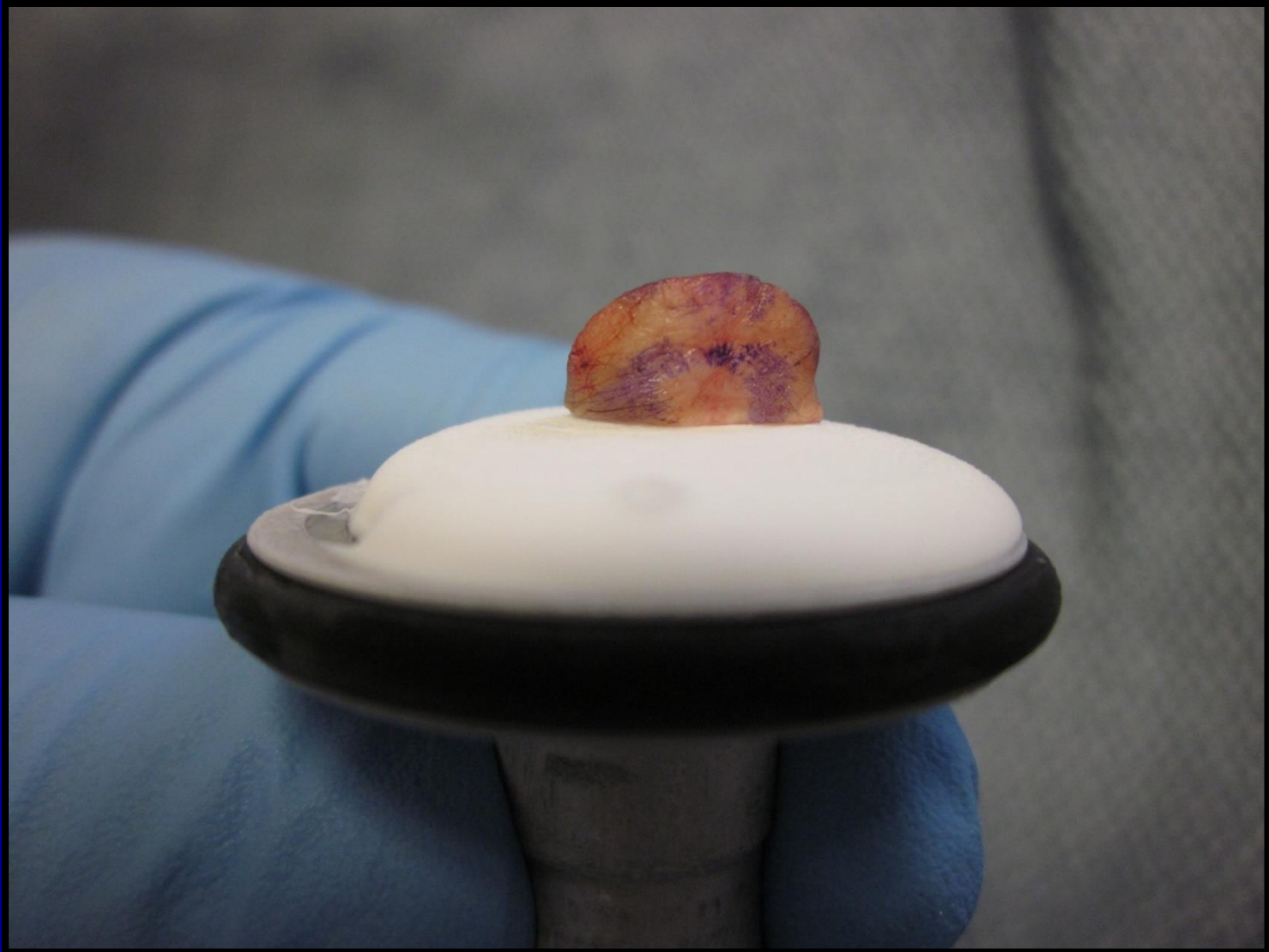
When I receive a dissected piece in half (half moon shape), I try to push both corners to the inside so you can have full epidermis all around.



This is how I push the corner with the forceps.



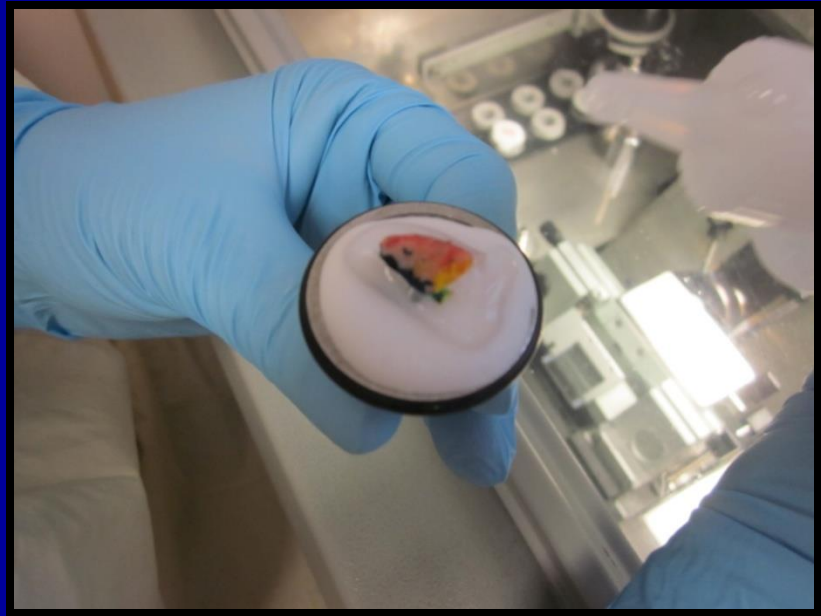
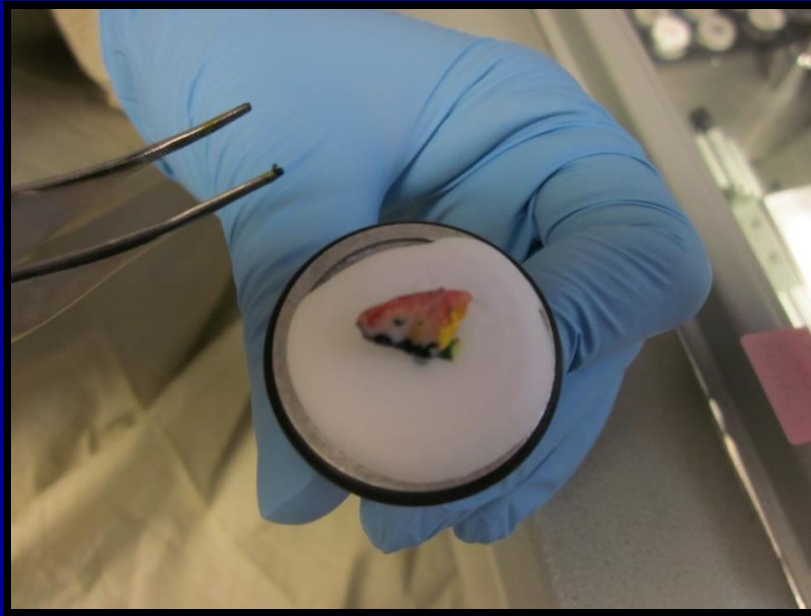
You can see it here, corners to the inside.



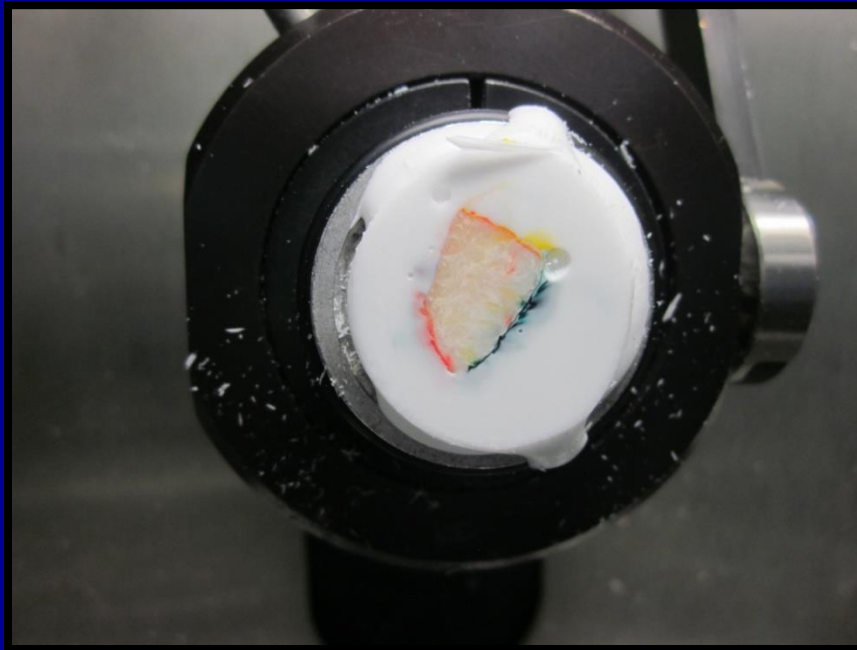
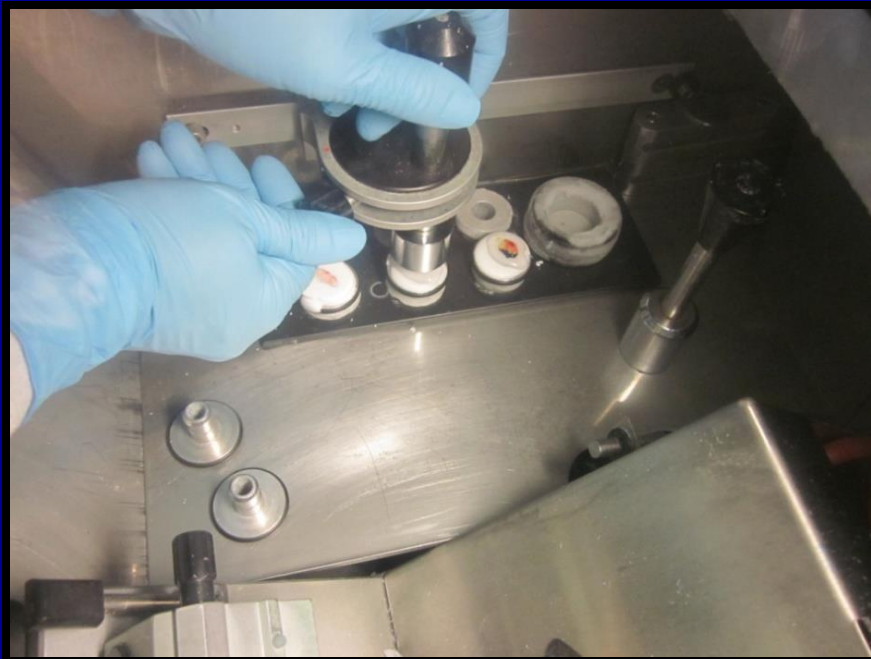
- I put the Adipose pieces on a frozen OCT and add some more around it.
- I let it freeze a bit and cover the whole tissue with OCT
- Stamp it with the heat extractor. (That is how you embed all deep pieces.)

NOTE: For cartilage, sometimes the tissue is not flat and it does not stay down, so I hold it down until it freezes on the chuck and then I cover it with OCT and stamp it.





For a wedge, it is a bit more tricky, usually I try to put the tissue on the bottom deep corner and I add OCT around it. When I put the chuck in the cold chuck holder, I keep my forceps supporting the tissue until it freezes so it won't fall back or to the sides. Then I continue the same embedding procedure.



I like this method because it is straight forward, not too complicated. I think that with any method, you have to understand the principle of Mohs surgery and what you are trying to achieve by it. That is why you have to choose the method that you are most comfortable with and master it.

Some tips I have learned through the years:

- **Always make sure your forceps are clean when you pick up the tissue to avoid any floaters, wipe it often.**
- **Change your blade whenever you cut thick skin like the back or follicular skin (hair follicles) like the scalp. Basically, change it often.**
- **Because canthus skin (around the eye) is thin, stretchy and curly, you must keep your eye on the tissue while it is on the chuck, you do not want it to freeze before you make sure the epidermis is straight up (not curled) or you will lose it while surfacing.**
- **If you think that you embedded the tissue wrong, go ahead and thaw it before you start cutting or you will lose it or end up cutting too deep into the chuck .**

Questions?