

DIY COLUMN CHROMATOGRAPHY

URINE-HORMONE-EXTRACTION-ACTION

THE FOLLOWING DOCUMENT IS FROM MARY MAGGIC TO EVENT ORGANIZERS. THANK YOU FOR YOUR INVITATION.

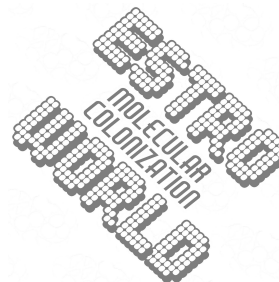
RECIPE IS OPEN SOURCE - IT'S OKAY TO SHARE!

LAST EDIT: 12 OF MARCH 2017

ONLINE REFERENCES:

<http://maggic.ooo/Open-Source-Estrogen-2015>

<http://maggic.ooo/Estrofem-Lab-2016>






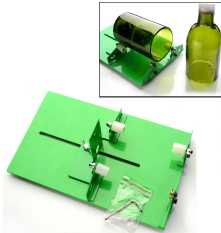

A VAGUE DESCRIPTION (MORE WILL BE REVEALED DURING THE WORKSHOP):






In response to the various ways that institutions both pollute and regulate our bodies through hormones, the Estrofem! Lab develops various methods of "freak science" for hacking estrogen and demonstrating its molecular colonization. From yeast biosensors for detection to DIY column chromatography for urine-hormone extraction, these recipes serve as kinds of 'biotechnical civil disobedience,' combining body-gender politics and queer discourse with civic science. The workshop will begin with a short presentation followed by hormone-extraction action. Bring your own urine!

QUESTIONS AND DISCURSIVE EXERCISES:


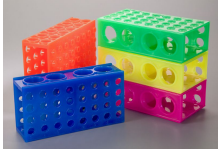



- How do bodies queer at the molecular level?
- How does that queering change based on body-type, intention, exposure, and desire?
- How can we "hack" this process, by way of freak-kitchen-science?
- What is a gender anyway, if there are increased bio-queer options?
- What is normality anyway, if our bodies are so open to mutation?

MATERIALS:

				
Paper towels	Scissors	Plastic Cups for urine	Glass Bottle Cutter	Tweezers with needle nose

				
<i>U-post fence bracket</i>	<i>Angle Bracket</i>	<i>2 Metal Threaded Rods per bracket length/diameter: (20"/3/8") (500mm/9.5mm)</i>	<i>Zip-ties (large, colorful preferred)</i>	<i>Pipe Clamp with black rubber and threaded nail (various diameters)</i>

				
<i>Any glass bottle, recycled</i>	<i>Cigarette filters, variety of brands of compare</i>	<i>Blue to Pink Silica Gel (bulk on Amazon)</i>	<i>Parafilm</i>	<i>Methanol</i>

				
<i>Falcon Tubes (50mL)</i>	<i>Falcon Tube Rack (able to boil)</i>	<i>Hotplate</i>	<i>Aquarium air pump with 1/4" tubing</i>	<i>Pot for boiling</i>

	<i>= Items that I travel with and will provide</i>
	<i>= Items that I travel with and will provide but in limited supply, please support if possible</i>
	<i>= Items that I travel with and will provide, but please provide your own if you want to keep what you make</i>
	<i>= Please provide these items</i>



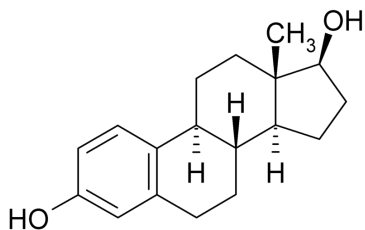
A angle bracket construction



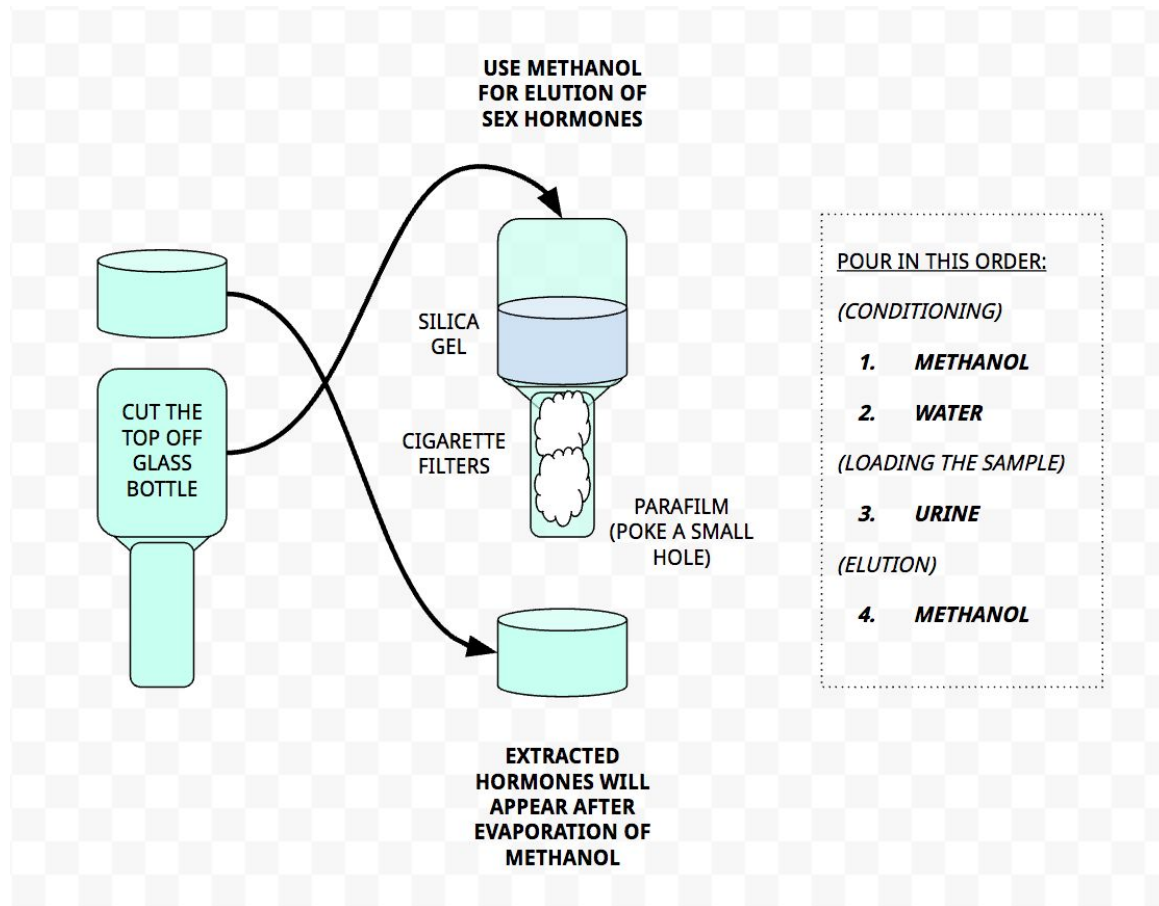
A U-post fence bracket construction

DIY Column Construction:

1. Two metal rods are fixed to bracket by zip ties.
2. One pipe clamp per metal rod is then fixed by zip ties.
3. Make an incision around a glass bottle using the glass bottle cutter.
4. Pour hot water around the incision, then cold water. This should cause the two pieces to separate.
The cut glass bottle will be the column.
5. Wrap the neck opening with parafilm.
6. Poke a small hole with tweezers.
7. Pack column with a layer of cigarette filters (preferably to take off the wrapper). This will be the nonpolar environment.
8. Pack column with a layer of silica gel (amount depends on volume of bottle). This will be the polar environment.



Look at the estrogen molecule. Do you think it will bind to the cigarette filters or the silica gel?



Urine Extraction:

1. Collect a urine sample in a plastic cup.
2. Place a new plastic cup underneath the column (waste collection).
3. Pour methanol (25-50mL) down the column. This is the "conditioning" step.
4. Now pour water down the column, washing any excess methanol.
5. Dispose the waste down the drain if it gets too full at this point.
6. Pour your urine sample down the column. This is called "loading the sample." Repeat at least 5 times to ensure binding of hormones to the cigarette filters.
7. Pour the waste down the drain.
8. Now "elute" the hormones (get them off the cigarette filters) by pouring methanol (<25mL) down the column. (Methanol is a solvent described in many scientific papers as having effective binding properties for steroidal molecules). Repeat at least 5 times to ensure efficient elution of hormones.
Make sure the final elution ends up in a 50mL falcon tube.
9. Place the falcon tube of methanol-hormones in a pot of boiling water. Use air pump to facilitate the evaporation of methanol. This process varies depending on amount of methanol.
10. Once you see a dry, brown, sticky substance, you can take the tube off the hot water. The final product is a collection of hormones, or steroidal molecules in general. To isolate only estrogen would require an additional step of purification, which needs to be further investigated.
11. Smell and share with your friends!