

# Radiologic Pathologic Correlation in Renal Cell Carcinoma

**Date:** 2024/02/01

**Client:** Dr. Meghan Lubner

**Advisor:** Dr. Tracy Puccinelli

**Team:**

Ellie Steger (Team Leader)

Erin Schlegel (Communicator)

Emily Wheat (BWIG)

Olivia Jaekle (BPAG)

Aleks Skutnik (BSAC)

## Problem statement

The goal of this project is to develop a blade for a tumor resection coring device. The blade should be able to effectively resect a cross-section from an ex-vivo kidney tumor without causing damage to the overall tissue sample. Currently, the resection device used is too blunt and thick to effectively extract tissue without causing surrounding areas to be damaged and un-imageable on CT. By creating a new blade design, the pathologist can preserve the extracted tumor during the coring process. In maintaining the integrity of the tumor, the pathologist will be able to accurately correlate CT image markings and findings with their location in the patient sample.

## Brief status update

The team has purchased a new pre-fabricated 10mm circular trephine blade from MicroSurgical technologies. The team created and will present our preliminary presentation to our client and advisor. This includes our plans for the semester.

## Difficulties / advice requests

The team would like to get in contact with Silvana with UW Health to set up a time to talk about our coring tube fabrication feasibility and to get design advice.

## Current design

Our current design is our final design from the fall semester, which can be found here: [https://bmedesign.engr.wisc.edu/projects/f23/coring\\_device](https://bmedesign.engr.wisc.edu/projects/f23/coring_device).

## Materials and expenses

Item	Description	Manufacturer	Quantity	Cost
Trephine Blade	AM0570S 100- 10mm d	Miro surgical	1	\$92.71

## Major team goals for the next week

1. Present our preliminary presentation
2. Create testing protocols to compare the purchased circular trephine blade to the blade we fabricated last semester
3. Create a final solidworks file for the coring device

## Next week's individual goals

- Aleks Skutnik
  - Work on preliminary report
  - Work on user manuals, safety precaution documents, etc.
- Emily Wheat
  - Finalize outreach details
  - Work on preliminary report
  - Work on user manuals, safety precaution documents
- Erin Schlegel
  - Receive order for pre-made blade
  - Contact Sylvana about 3D printing design
- Olivia Jaekle
  - Work on preliminary report
  - Work on silicone cap and overall production
  - Work on user manuals, safety precaution documents
- Ellie Steger
  - Consult Sylvana about 3D printing the coring device
  - Work on preliminary report

## Timeline

Task	Jan	Feb				March					April				May	
	26	2	9	16	23	1	8	15	22	29	5	12	19	26	3	10
<b>Project R&amp;D</b>																
Empathize	X	X	X													
Background...	X	X														
Coring Device Prototyping																
Blade Prototyping																
Packaging Prototyping																
Blade Comparison Testing																
Compatability Testing																
Final Device Testing																
Testing Analysis																
<b>Deliverables</b>																
Progress Reports		X	X													
Prelim presentation		X														
Prelim Report																
User Manual																
Maintenance Instructions																
Service Instructions																
Safety Precautions																
Final Poster																
Final Report																
<b>Meetings</b>																
Client	X															
Advisor	X	X														
<b>Website</b>																
Update	X	X														

Filled boxes = projected timeline  
 X = task was worked on or completed

## Previous week's goals and accomplishments

- Week 2 Goals:
  1. Meet with advisor to discuss preliminary presentation
  2. Practice and present preliminary presentation
    - a. The team will present on 2/9
  3. Set up payment plan and order premade blades
    - a. The team ordered the blades

- Week 1 Goals:
  1. Set up the team notebook, meet with client,
    - a. The team was able to successfully create a Lab Archives notebook and meet with our client.