

AWARD NUMBER: W81XWH-18-2-0017

TITLE: Prostate Cancer Biorepository Network (PCBN) - University of Washington Site

PRINCIPAL INVESTIGATOR: Colm Morrissey

CONTRACTING ORGANIZATION: University of Washington, Seattle, WA

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13. SUPPLEMENTARY NOTES					
14. ABSTRACT The purpose of the Prostate Cancer biorepository is to collect and distribute relevant biological specimens to prostate cancer investigators.					
15. SUBJECT TERMS Prostate Cancer Biospecimens					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Unclassified	18. NUMBER OF PAGES 10	19a. NAME OF RESPONSIBLE PERSON USAMRDC
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TABLE OF CONTENTS

	<u>Page</u>
1. Accomplishments	4
2. Products	8
3. Participants & Other Collaborating Organizations	9
4. Changes Problems	10
5. Special Reporting Requirements	10

Keywords: Biorepository, Prostate cancer

1. Accomplishments:

What were the major goals of the project?

Specific Aim 1: Collect, process, and store biospecimens annotated with clinical and pathology data from well-characterized populations of patients.

Specific Aim 2: Maintain an informatics infrastructure for secure data storage and transfer, and a web-accessible portal for users to learn about and access specimens from the PCBN.

Specific Aim 3: Continue to develop harmonized SOPs for biospecimen acquisition, processing, storage and quality control to increase the fidelity of biospecimens provided to investigators.

Specific Aim 4: Distribute biospecimens according to a prioritization plan to ensure maximal use by the prostate cancer community.

What was accomplished under these goals?

Database Management

Data abstraction and record updates continued at a regular pace throughout the duration of the grant.

Prostatectomy Tissue Acquisition

During this grant, we prepared frozen OCT embedded tissues from 133 prostatectomies. Thirty-two were from high risk patients (Gleason 8 and above), 98 were from medium risk (Gleason 7) and 3 were low risk (Gleason 6).

Tissue Acquisition Necropsies (TAN)

We performed 14 prostate cancer TAN procedures. The specimens are processed and read by a pathologist and the results entered into our database.

Tissue Microarrays (TMAs)

We constructed three xenograft tissue microarray (TMAs) in duplicate containing 40 patient derived xenograft lines. We have also constructed three castration-resistant prostate cancer metastasis TMAs.

Longitudinal Sampling

Serum and Plasma Isolation

Sera were obtained from 130 prostatectomy patients and 173 metastatic patients. Plasma and buffy coats were obtained from 129 prostatectomy patients and 172 metastatic patients.

Patient Derived Xenografts (PDX)

We attempted implants from 14 rapid autopsy patients and successfully transplanted and grew four of these lines. In addition, we developed four castrate-resistant lines from androgen sensitive lines.

Specimens Provided

Over the course of the grant, we have provided to different groups:

1. A metastasis TMA
2. Frozen tissue from ten PDX lines
3. Two metastasis TMAs
4. A metastasis TMA
5. RNA and matched serum from ten patients with castration resistant disease
6. Four metastases TMAs
7. Five metastases TMAs and 5 PDX TMAs
8. A metastasis TMA and a PDX TMA
9. Six PDX TMAs
10. A metastasis TMA
11. Three PDX TMAs
12. Four metastasis TMAs
13. A metastasis TMA
14. Five metastasis and PDX TMAs
15. Serum, a H&E and four sections from each of seven patients with neuroendocrine disease from the rapid autopsy program
16. One xenograft TMA
17. One xenograft TMA
18. Four paraffin sections from each of four LuCaP lines
19. One metastasis TMA
20. RNA from nine different patients with neuroendocrine disease
21. Four sera from control patients and patients with metastatic disease
22. 50 metastatic sera, 50 primary sera and 20 bone metastasis sections
23. Two LuCaP TMAs
24. A metastasis TMA
25. Frozen tissue from sixteen PDX lines
26. A PDX TMA
27. Two PDX TMAs and a metastasis TMA
28. Two PDX TMAs
29. Three cuts of twenty bone metastases
30. Two metastasis TMAs
31. A metastasis TMA
32. Twenty-eight serum samples from CRPC patients
33. One hundred sera from prostate cancer patients
34. One metastasis TMA
35. Two PDX TMAs
36. Three metastasis TMAs
37. A PDX and a metastasis TMA
38. A metastasis TMA
39. Three PDX TMAs
40. Serum from 40 patients
41. A PDX TMA
42. A PDX TMA and a metastasis TMA
43. Two PDX TMAs
44. Serum from 40 patients
45. Twenty paraffin embedded bone metastasis
46. Frozen primary tumor and normal and buffy coat from 121 patients
47. Sixteen FFPE and serum from CRPC patients

48. Two PDX TMAs
49. Twenty-nine rapid autopsy sera linked to a TMA
50. Six 50 mg of normal and tumored tissue (frozen)
51. Two metastasis TMAs
52. Three PDX TMAs and 3 metastasis TMAs
53. One metastasis TMA
54. Two metastasis TMAs
55. Forty sera from ENZA/ABI treated patients
56. Three metastasis TMAs
57. Twenty-four samples of frozen primary prostate

Describe the Regulatory Protocol and Activity Status (if applicable).

Describe the Protocol and Activity Status for sections a-c, as applicable, using the format described for each section. If there is nothing significant to report during this reporting period, state "Nothing to Report."

TOTAL PROTOCOLS: 1

PROTOCOL (1 of 1 total):

Protocol [HRPO Assigned Number]: HRPO Log Number E00074.1a

Title: The Prostate Cancer Biorepository Network (PCBN)

Target required for clinical significance: NA

Target approved for clinical significance: NA

SUBMITTED TO AND APPROVED BY:

University of Washington IRB #2341

HRPO #_E00074.1a

STATUS:

- (i) Number of subjects recruited/original planned target: 331/450
Number of subjects screened/original planned target: 331/450
Number of patients enrolled/original planned target: 331/450
Number of patients completed/original planned target: 331/450

- (ii) Report amendments submitted to the IRB and USAMRMC HRPO for review: NA

- (iii) Adverse event/unanticipated problems involving risks to subjects or others and actions or plans for mitigation: NA

(b) Use of Human Cadavers for Research Development Test & Evaluation (RDT&E), Education or Training

TOTAL ACTIVITIES: 1

ACTIVITIES: *Prostate Cancer Rapid autopsy program*

- *The purpose of this activity is to collect metastatic and control tissue from patients within hours of death.*
- *The lead PI is Dr. Colm Morrissey, the lead Pathologist Dr. Lawrence True.*
- *The tissue was processed and frozen for molecular biology, embedded in paraffin for histology and fresh tissue used to implant into immune compromised animals to establish patient derived xenografts.*
- *No problems encountered in the procurement, inventory, use, storage, transfer, transportation and disposition of cadavers used for RDT&E.*

(c) Animal Use Regulatory Protocols

TOTAL PROTOCOL(S): 1

PROTOCOL (1 of 1 total):

Protocol [ACURO Assigned Number]: ACURO Log Number PC171113P3.e001

Title: *Title*: Prostate Cancer Biorepository Network (PCBN) - University of Washington Site

Target required for statistical significance: NA

Target approved for statistical significance: NA

SUBMITTED TO AND APPROVED BY:

University of Washington IACUC # 3202-01

ACURO # PC171113P3.e001

STATUS:

ONGOING

What do you plan to do during the next reporting period to accomplish the goals and objectives?

This is the final report, however, we will look to complete the last request made to us through the Prostate Cancer Biorepository Network in the near term.

2. Products:

The products during the reporting period as described above were:

Prostatectomy Tissue Acquisition

During this grant, we prepared frozen OCT embedded tissues from 133 prostatectomies. Thirty-two were from high risk patients (Gleason 8 and above), 98 were from medium risk (Gleason 7) and 3 were low risk (Gleason 6).

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Patient Derived Xenografts (PDX)

We successfully transplanted and grew four PDX lines. In addition, we developed four castrate-resistant lines from androgen sensitive lines.

All specimens described have been entered into our Biorepository database. A summary of the specimens procured during the year are shown in the table (Inset).

Biospecimen Acquisition September 30 2018 – September 29 2022	Total Specimens Collected
Serum	
Pre-RRP	130
Metastatic	173
Total	303
Tissue	
Prostatectomy	133
Metastatic Sites Sampled	150
Normal Sites Sampled	124
Total	407

3. Participants & Other Collaborating Organizations

What individuals have worked on the project?

Provide the following information for: (1) Project Directors (PDs)/ PIs; and (2) each person who has worked at least one person month per year on the project during the reporting period, regardless of the source of compensation (a person month equals approximately 160 hours of effort).

Period of no cost extension:

Name: Colm Morrissey
Project Role: PI
Researcher Identifier (e.g. ORCID ID):
Nearest person month worked: 1
Contribution to Project: He supervised all biospecimen acquisition, processing, characterization, maintenance of the clinical database, interaction with the other sites when necessary, and the distribution of specimens.

Name: Lawrence True
Project Role: Co-director
Researcher Identifier (e.g. ORCID ID):
Nearest person month worked: 0
Contribution to Project: As a surgical pathologist with expertise in GU cancers his input and participation has been in tissue acquisition and rapid autopsies.

Name: Eva Corey
Project Role: Co-director
Researcher Identifier (e.g. ORCID ID):
Nearest person month worked: 0
Contribution to Project: Her primary responsibilities were to focus on the maintenance, development and processing of the LuCaP prostate cancer xenograft lines.

<i>Name:</i>	<i>Funda Vakar-Lopez</i>
<i>Project Role:</i>	<i>Co-Investigator</i>
<i>Researcher Identifier (e.g. ORCID ID):</i>	
<i>Nearest person month worked:</i>	<i>0</i>
<i>Contribution to Project:</i>	<i>As a surgical pathologist with expertise in GU cancers her input and participation has been in rapid autopsies.</i>
<i>Name:</i>	<i>Hung-Ming Lam</i>
<i>Project Role:</i>	<i>Co-Investigator</i>
<i>Researcher Identifier (e.g. ORCID ID):</i>	
<i>Nearest person month worked:</i>	<i>0</i>
<i>Contribution to Project:</i>	<i>Managing members of rapid autopsy team and an active member of a rapid autopsy team.</i>

4. Changes/Problems:

a. Actual Problems or delays and actions to resolve them

Not applicable.

b. Anticipated Problems/Issues

Provide a description of anticipated problems or issues that have a potential to impede performance or progress. Also provide course of actions planned to mitigate problems or to take should the problem materialize.

Not applicable.

5. Special Reporting Requirements:

Quad Charts: If applicable, the Quad Chart (available on <https://www.usamraa.army.mil>) should be updated and submitted with attachments.

Not applicable.