

AWARD NUMBER: W81XWH-18-2-0017

TITLE: Prostate Cancer Biorepository Network

PRINCIPAL INVESTIGATOR: Colm Morrissey

CONTRACTING ORGANIZATION: University of Washington
Seattle, WA 98195

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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

Our collaboration on obtaining follow up information with the Fred Hutchinson Cancer Research Center on the radical prostatectomies in the Biorepository is completely operational and is functioning well.

Prostatectomy Tissue Acquisition

During this year we prepared frozen OCT embedded tissues from 54 prostatectomies. Fourteen were from high risk patients (Gleason 8 and above), 40 were from medium risk (Gleason 7) and 0 were low risk (Gleason 6).

Tissue Acquisition Necropsies (TAN)

We performed nine prostate cancer TANs in the past year. Specimens are being processed and are being read by a pathologist and the results entered into our database.

Tissue Microarrays (TMAs)

Due to the high number of requests for xenograft tissue TMAs we constructed a new duplicate TMA to replace the one we were using containing 42 patient derived xenograft lines. We also constructed a new castration-resistant prostate cancer metastasis TMA to replace our previous one that is no longer in use.

Longitudinal Sampling

Serum and Plasma Isolation

Sera were obtained from 52 prostatectomy patients and 76 metastatic patients. Plasma and buffy coats were obtained from 52 prostatectomy patients and 75 metastatic patients.

Patient Derived Xenografts (PDX)

We have attempted implantations from eight TANs into 36 mice. We have successfully transplanted two of these tumors (LuCaP 235.2 and LuCaP 235.3), two are ongoing (it is too early to know if the lines will continuously passage) and four additional attempts to develop a line were unsuccessful.

Specimens Provided

This year 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

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: 144/150
Number of subjects screened/original planned target: 144/150
Number of patients enrolled/original planned target: 144/150
Number of patients completed/original planned target: 144/150

(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: An Unanticipated Problem Report was submitted to HRPO and HRPO assessed and provided a Reportable Event Acceptance Memorandum (Proposal Number PC171113P3, Award Number W81XWH-18-2-0017) stating The unanticipated event had the potential to increase risk to subjects; however, corrective measures have been put into place to prevent similar errors from occurring in the future. At this time, the unanticipated event report will be placed in the HRPO protocol file. No further action related to this event will be taken.

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

TOTAL ACTIVITIES: 9

ACTIVITES: *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 from 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?

We will continue to consent patients and collect biospecimens into the Prostate Cancer Biorepository at the University of Washington.

2. **Products:** List any products resulting from the project during the reporting period. If there are no products to report for the current quarter, state “Nothing to report.”

The products during the reporting period as described above were:

Prostatectomy Tissue Acquisition

During the year we prepared frozen OCT embedded tissues from 54 prostatectomies. Fourteen were from high risk patients (Gleason 8 and above), 40 were from medium risk (Gleason 7) and 0 were low risk (Gleason 6).

Tissue Acquisition Necropsies (TAN)

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Tissue Microarrays (TMAs)

Due to the high number of requests for xenograft tissue TMAs we constructed a new duplicate TMA to replace the one we were using containing 42 patient derived xenograft lines. We also constructed a replacement metastasis TMA.

Longitudinal Sampling

Serum and Plasma Isolation

Sera were obtained from 52 prostatectomy patients and 76 metastatic patients. Plasma and buffy coats were obtained from 52 prostatectomy patients and 75 metastatic patients.

Patient Derived Xenografts (PDX)

We have successfully transplanted two of these tumors that represent PDX lines (LuCaP 235.2 and LuCaP 235.3).

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 October 1 2018 – September 31 2019	Total Specimens Collected
Serum	
Pre-RRP	52
Metastatic	76
Total	128
Tissue	
Prostatectomy	54
Metastatic Sites Sampled	115
Normal Sites Sampled	94
Total	263

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).

Name: Colm Morrissey

Project Role: PI

Researcher Identifier (e.g. ORCID ID):

Nearest person month worked: 2

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: 1

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: 1

Contribution to Project: Her primary responsibilities were to focus on the maintenance, development and processing of the LuCaP prostate cancer xenograft lines.

Name: Lori Kollath

Project Role: Biorepository Manager

Researcher Identifier (e.g. ORCID ID):

Nearest person month worked: 4

Contribution to Project: Her primary responsibilities were to obtain human subjects approvals oversight of all biospecimen collections, processing, clinical chart abstractions, database entries and biospecimen distributions. She supervises Ms. Nghiem and Ms. Essien.

Name: Halima Essien
Project Role: Research Scientist
Researcher Identifier (e.g. ORCID ID):

Nearest person month worked: 4

Contribution to Project: Ms. Essien is one of two tissue acquisition technicians. She works very closely with Dr. True in obtaining radical prostatectomy and control specimens immediately after surgical removal. She processes these specimens initially in the frozen section suite of surgical pathology and then follows-up with processing in the research laboratory, she also aids in the processing of blood specimens. She reports to Ms. Kollath and helps maintain the repository specimen database. She is also a member of the rapid autopsy team.

Name: Jennifer Conner
Project Role: Research Scientist
Researcher Identifier (e.g. ORCID ID):

Nearest person month worked: 4

Contribution to Project: Ms. Conner reports directly to Ms. Nguyen. She assists Ms. Nguyen in all administrative tasks associated with the animal facility and fully participates in the daily maintenance and care of the animals bearing our 42 serially passaged patient-derived xenograft models. In addition, she assists in the establishment of new xenograft lines from tissue acquisition. Ms. Conner is a member of the rapid autopsy team.

Name: Belinda Nghiem
Project Role: Research Scientist
Researcher Identifier (e.g. ORCID ID):

Nearest person month worked: 4

Contribution to Project: Ms. Nghiem is our research study coordinator and phlebotomist. She spends 100% of her time in the Urology Oncology clinic helping to identify and consent patients for biospecimen donations. She draws blood on hundreds of patients per year and serves as the primary link between the research laboratory and clinic. Ms. Kho was a team leader for the rapid autopsies.

4. Changes/Problems: The PD/PI is reminded that the recipient organization is required to obtain prior written approval from the awarding agency Grants Officer whenever there are significant changes in the project or its direction. If not previously reported in writing, provide the following additional information or state, "Nothing to Report," if applicable:

a. Actual Problems or delays and actions to resolve them

No problems that have impeded the progress of the project.

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.

Nothing to Report

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.