

# Fostering a Culture of Collaboration in Lab Animal Science: A Researcher's Perspective on Problems, Sources and Solutions

**AstraZeneca in vivo Community**

**Culture of Care Week**

November 14, 2023 | Waltham, MA



OFFICE OF ANIMAL WELFARE

Research Support Services

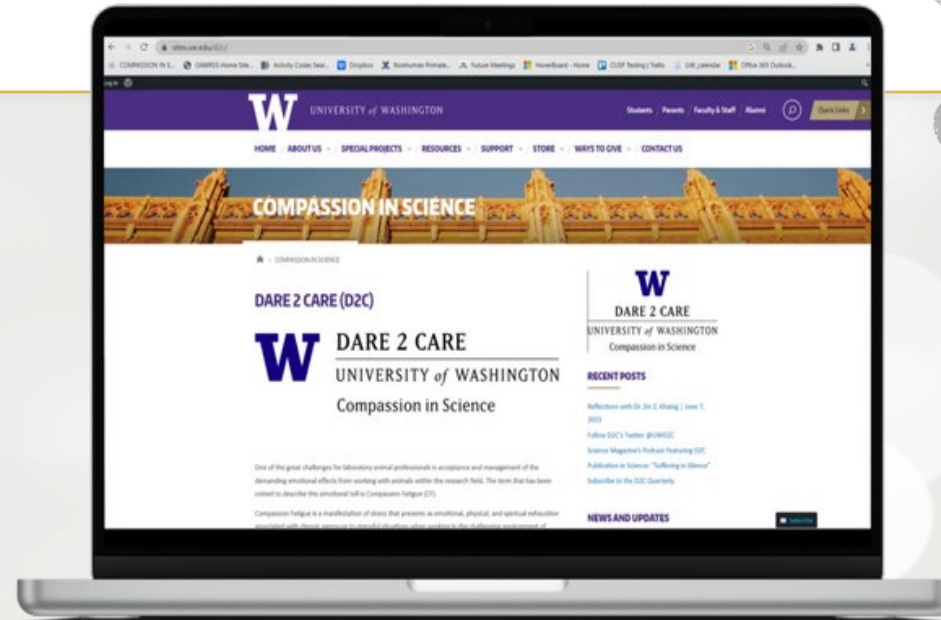
UNIVERSITY of WASHINGTON



DARE 2 CARE

UNIVERSITY of WASHINGTON

Compassion in Science



<https://sites.uw.edu/d2c/>



Office of  
Animal Welfare

Research Support Services

UNIVERSITY of WASHINGTON



## Preston Van Hooser

- Review Scientist & Compliance Manager, OAW
- Founder & Co-Chair D2C
- Since 2016
- Work with the UW to identify resource priorities and support for the lab animal science community.



DARE 2 CARE

UNIVERSITY of WASHINGTON

Compassion in Science

# Agenda

- **Brief overview**
  - **What is CF?**
- **Roles & triggers of CF**
- **Problems, sources & solutions (AT focus)**
- **Discussion**



# What is Compassion Fatigue in the Laboratory Animal Science Community?

In an animal care setting, Compassion Fatigue can be a combination of **physical**, **emotional** and **psychological depletion** associated with working and caring for animals and their well-being in a captive environment.



*It's the negative aspect of our work. It may be related to providing care, working with colleagues, beliefs about self, system failure, burnout and/or any work-related trauma.*

# Symptoms

## Intrusive

Intrusive thoughts and images

Obsessive desire to help

Inability to let go of work

Feelings of inadequacy

## Arousal

Increase Anxiety

Increased frustration and anger

Sleep disturbances

Physical ailments

## Avoidance

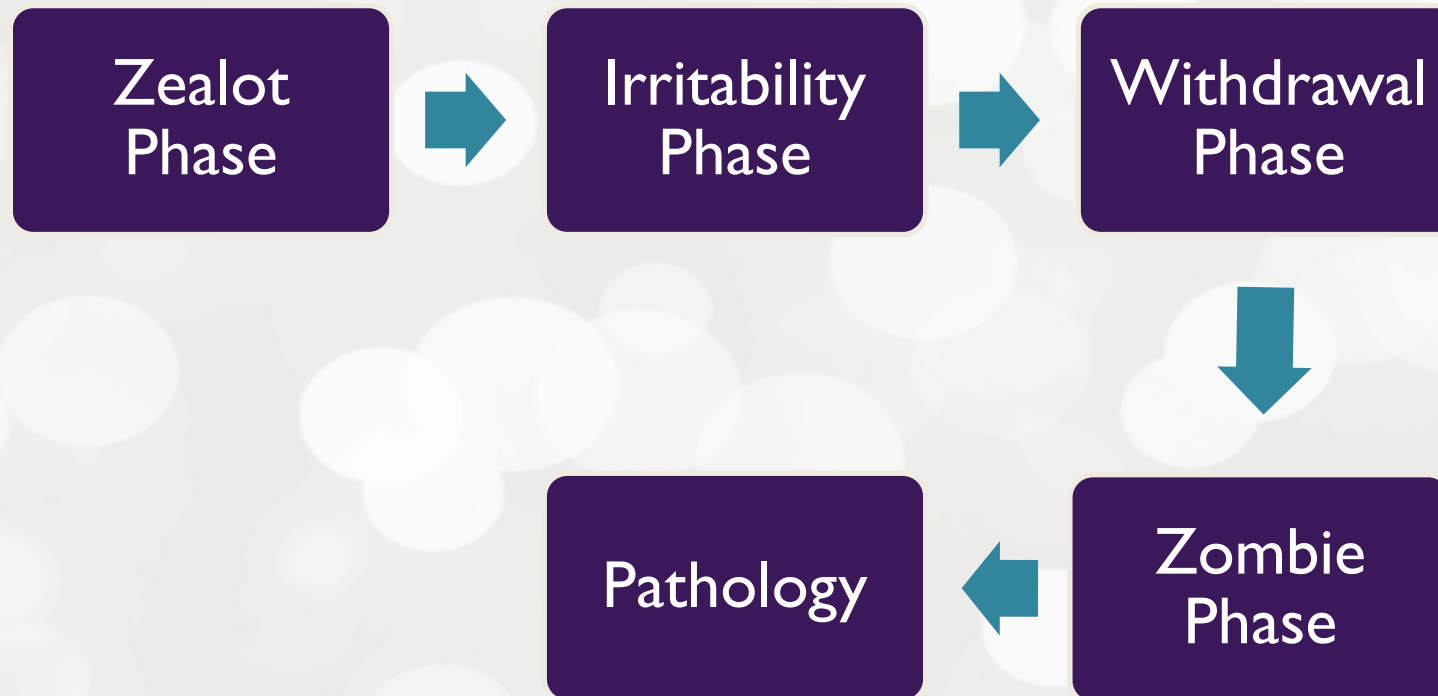
Apathy

Decreased energy

Loss of sense of competence

Self medication or addiction

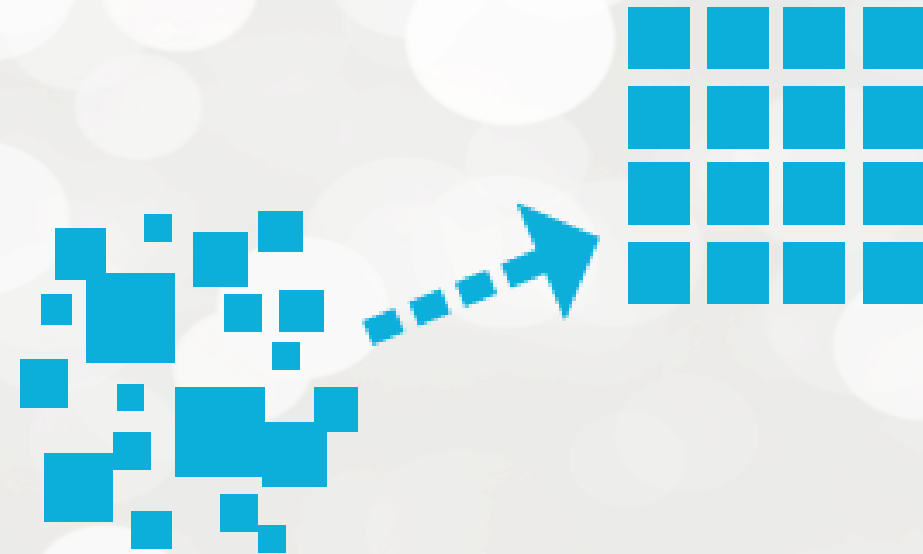
# Compassion Fatigue Trajectory



Jan Spilman, MEd, RCC

# Transformation

- Pathology & Victimization
  - Overwhelmed
  - Somatic Illness
  - Suicide\*
  - Leave the profession
- Maturation & Renewal
  - Resilience
  - Transformation



# We All (can or may) Experience It!

Not only do the individuals that work directly with the animals, but IACUC members, administrative support staff, vendors and facilities services personnel may indirectly experience compassion fatigue.



*We don't get compassion fatigue because we are weak, can't handle the work, aren't "cut out" for it, etc.  
We get compassion fatigue because we care, deeply. And we ignore our own needs.*





## In the mid-1990's

- When I started to work in the field of laboratory animal science, I was overwhelmed by emotions.
- Nobody told me about the feelings of
  - Guilt...
  - Sadness...
  - Regrets...

*And nobody told me (or warned me) how difficult it would be to talk about my work/research.*





home about us products & services policies & compliance contact us



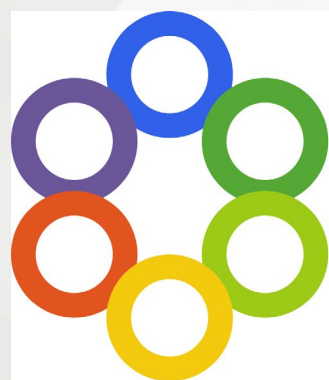
#### Products

Rod Outer Segment (ROS)  
Retinal Pigment Epithelium (RPE)  
Retinal Pericytes  
Retina  
Cornea  
Lens

## Our Products & Services

Since its inception, InVision BioResources expanded its scope of services to include a comprehensive utilization and distribution of valuable [incidental animal tissues](#) and expertise in ocular pathology of animal models as well as naturally occurring diseases in order to further facilitate biomedical research in other research areas directed towards improving human and animal health.

InVision provides a wide variety of incidental animal tissues for distribution to scientific investigators throughout the United States and internationally, while still specializing in retina and retinal cell purification. For all international orders, please email us first at [preston@invisionbio.com](mailto:preston@invisionbio.com) to determine



**InVision**  
BioResources

Tissues collected today  
for use in research tomorrow

RESEARCH ARTICLE | BIOLOGICAL SCIENCES |



# Rapid restoration of visual pigment and function with oral retinoid in a mouse model of childhood blindness

J. Preston Van Hooser, Tomas S. Aleman, Yu-Guang He, , and Krzysztof Palczewski [Authors Info & Affiliations](#)

June 27, 2000 | 97 (15) 8623-8628 | <https://doi.org/10.1073/pnas.150236297>

2,950 | 166



## PNAS

Vol. 97 | No. 15

#### Abstract

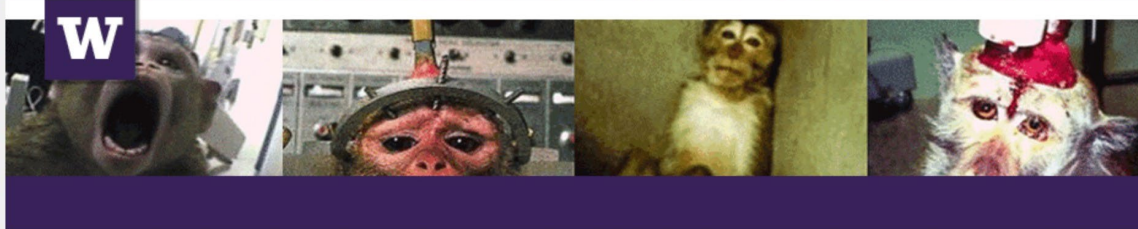
Materials and Methods  
Results and Discussion  
Abbreviations  
Notes  
Acknowledgments  
References

### Abstract

Mutations in the retinal pigment epithelium gene encoding RPE65 are a cause of the incurable early-onset recessive human retinal degenerations known as Leber congenital amaurosis. *Rpe65*-deficient mice, a model of Leber congenital amaurosis, have no rod photopigment and severely impaired rod physiology. We analyzed retinoid flow in this model and then intervened by using oral 9-*cis*-retinal, attempting to bypass the biochemical block caused by the genetic abnormality. Within 48 h, there was formation of rod photopigment and dramatic improvement in rod physiology, thus demonstrating that mechanism-based pharmacological intervention has the potential to restore vision in otherwise incurable genetic retinal degenerations.

# UW KILLS ANIMALS

HOME ABOUT WHAT YOU CAN DO



## IACUC

### Institutional Animal Care and Use Committee (IACUC)

The IACUC is appointed by the Executive Director for Health Sciences Administration, under authority delegated from the President of the University of Washington to oversee and make recommendations to the President regarding the institution's use of animals in research, teaching, and testing.

While they are not directly involved in actual animal research, they nevertheless are the ones that sign the death sentences for thousands of animals, even to be as "helpful" as to give procedural guidelines on the "proper" way to snap the necks of birds to kill them. Committee members consistently approve invasive protocols that means certain misery and death for thousands of animals a year.

### CATEGORIES

- Community Activism (10)
- Investigations/Uncovered (9)
- Lab Animal Life Stories (3)
- News (6)

- August 2012
- June 2012
- April 2012
- March 2012
- November 2011
- October 2011
- September 2011

<https://uwkills.wordpress.com/facilities-and-staff/iacuc/>

**IACUC | UW Kills Animals**  
J. Preston Van Hooser IACUC Review Scientist, Manager of Training Operations and Compliance Officer Phone: 206-616-8417 [jpvh@u.washington.edu](mailto:jpvh@u.washington.edu)

**J. Preston Van Hooser** IACUC Review Scientist, Manager of Training Operations and Compliance Officer

Phone: 206-616-8417

[jpvh@u.washington.edu](mailto:jpvh@u.washington.edu)



4616 25<sup>th</sup> Ave NE, #232  
Seattle, WA 98105 Tel:  
206.616.8417

## Cirrus BioSystems | Executive Summary

Cirrus BioSystems, an innovator of tools and technologies for the modern research lab, is soliciting offers to acquire the company or distribute its patented Specific Pathogen Free (SPF) Misting Station technology.

The summary below outlines key Cirrus BioSystems facts.

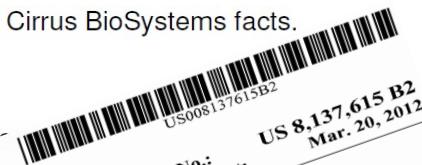
### The Cage Disinfection Problem

Every day in thousands of laboratories throughout the world, technicians routinely use biotechnology

### Cirrus BioSystems

Patented Specific Pathogen Free (SPF) Misting Station technology provides significant benefits:

- **Time Savings.** The Misting Station disinfects 20 lab cages in the average time it takes to manually disinfect a single cage.
- **Coverage Consistency.** Human error and fatigue mechanized spray pattern is applied to all cage surfaces.
- **Occupational Health.** The Misting Station enhances improved ergonomics, reduced overspray, reduced reduced repetitive stress injuries.



### United States Patent

(54) **AUTOMATED WORKSTATION FOR DISINFECTING OBJECTS AND METHODS OF USE THEREOF**

(75) Inventor: James Preston Van Hooser, Lynnwood, WA (US)

(76) Assignee: University of Washington, Seattle, WA (US)

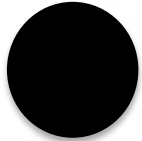
(73) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days

References Cited  
U.S. PATENT DOCUMENTS  
3,896,768 A 7/1975 Galloway  
5,771,841 A 6/1998 Boor  
6,158,387 A 12/2000 Gabriel et al.  
6,691,937 B2 2/2004 Heren et al.  
6,984,360 B1 1/2006 Feuilletoy et al.

FOREIGN PATENT DOCUMENTS  
20046106815 A 12/2004  
8802655 A 5/1990  
OTHER PUBLICATIONS



## PETA v. UW - Representation of J. Preston Van Hooser



To J.Preston Van Hooser

Cc




Reply

Reply All

Forward



Wed 2/15/2023 1:26 PM

 Follow up. Completed on Tuesday, February 21, 2023.  
You replied to this message on 2/21/2023 3:00 PM.

PETA v. UW Engagement Letter - J. Preston Van Hooser.pdf  
264 KBPlaintiff's Amended Complaint FILED 1.25.23.pdf  
5 MB

Dear Preston,

We are following up on your request that our firm defend you in PETA's lawsuit against the University and you regarding alleged violations of the Open Public Meetings Act. We have prepared the attached engagement letter stating the terms and conditions of our representation of you. Please read this letter carefully and, if you agree to its terms and conditions, respond with an email stating "I agree" or something similar. If you have questions about the letter, please contact me to schedule a telephone call with

As stated in the letter, we must prepare an answer to PETA's amended complaint responding to allegations sentence by sentence. A copy of the amended complaint is attached for your convenience. Please review the allegations, paying particular attention to the allegations regarding you, and let us know if any are inaccurate. To assist us in submitting the answer on time, please provide your feedback by **February 21**.

Thank you in advance for your assistance with this case, we look forward to working with you.



“  
I became extremely overcome with emotions I didn't know I had. I had no idea what I was dealing with.”  
— J. PRESTON VAN HOOSER | UNIVERSITY OF WASHINGTON, SEATTLE



Some at UW are trying to change this. A small group of volunteers has created a compassion fatigue outreach program at the school—the first and largest of its kind—gathering data from those affected, trying new approaches to combat the problem, and hoping to spread the word. “It’s time we started taking care of each other better,” says J. Preston Van Hooser, the program’s founder and co-chair. “We want people to know they’re not alone.”

Yet it’s uncertain whether similar programs will gain steam elsewhere. It’s also unclear whether their approaches will help. Many of the strategies that benefit others who suffer compassion fatigue may not work for the lab animal community—a profession ripe with unique triggers and challenges. Someone has to do something, however, Van Hooser says. “If we don’t try, we won’t survive.”

## SUFFERING IN SILENCE

Caring for research animals can take a severe mental toll. Is anyone listening?

9 MAR 2023 • 8:00 AM ET • BY [DAVID GRIMM](#)



## ***Laboratory Animal Professional Roles and Triggers of CF***

### **Animal Caregivers**

- Negative media
- Animal Rights Activists
- Long hours
- Manual labor
- Hazardous conditions
- Isolation
- Euthanasia
- Observed morbidity and mortality
- May develop animal allergies
- Self-blame
- Sadness over the loss of a particular animal
- Nothing to show for work
- Hard to talk about work

### **Trainers/Training Staff**

- Volume of animals euthanized for training purposes
- Workload
- Lack of discussion/support
- Mistakes (trainees)
- Failed euthanasia
- No formal program to help prepare newcomers or employees on managing CF
- Hard to talk about work

### **Research Faculty and Staff**

- Long hours
- Regularly witness or induce disease in animals
- Euthanasia
- Self-blame
- Isolation
- No one to talk to
- May develop animal allergies
- Desensitization
- Targeted by animal rights activists
- Hard to talk about work

### **IACUC Members and Administrative Support Staff**

- Protocol Reviews
- Protocol/Grant Congruency Reviews
- Post-Approval Monitoring
- Animal Numbers
- Program Size/Complexity
- System Failure
- Ethical Decisions
- Misperceptions
- Non-conforming Incidents/Non-compliance
- Hard to talk about work

### ***Possible Results of CF***

- *Belief that no one is going to listen/care*
- *Attitude that nothing will change*
- *Low morale*
- *Poor attendance*
- *High job turnover*
- *Poor job performance*
- *Callous or uncaring attitude*
- *Belief that the work is not of value*
- *Nothing to show for it*
- *Unexpected research outcomes*
- *Negative Media/Animal Rights Activism*
- *Desensitization*

# It Affects the Entire System

- Research Staff
- Lab staff, student helpers, and volunteers
- Veterinary Staff
- Trainers
- Husbandry Staff
- IACUC, AUTS, OH&S, EH&S, Animal Purchasing
- Building Management
- Facility Services
- Vendors
- Professional Transportation Services
- Government/Company

## Research Animals

- Numerous interactions throughout its life in a laboratory
- 100's of people involved in direct interaction and/or oversight of the animals



# It is important

To provide Lab Animal Professionals (LAPs) with proper training, guidance, and care because this will also have an effect on the animals.

## Mental Health needs



# Typical LAP Employee Training



- Bites, scratches, kicks, physical trauma
- Ergonomics, noise
- Zoonoses, allergens, blood-borne pathogens
- Caustic, infectious, radioactive, toxic agents
- Sharps, hot surfaces, physical hazards
- Public safety, facility and computer security
- Disaster plans, fire, flood, bomb threat
- Harassment, discrimination, whistleblower

# Typical Animal Use Training Courses (Online)

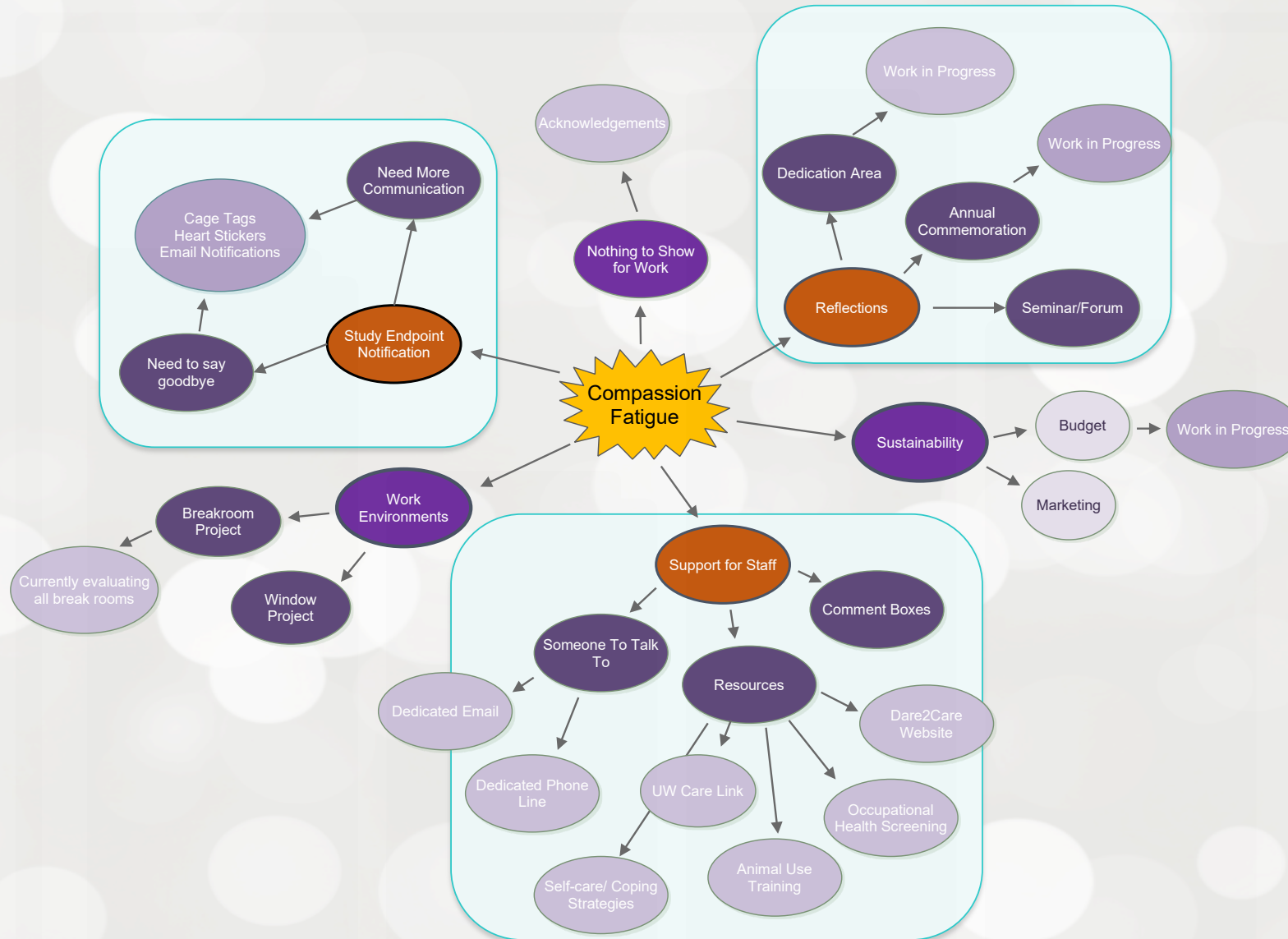
- Essentials for UW IACUC Members
- Animal Use Laws & Regulations Training
- Rodent User Course
- Non-Rodent User Course
- Working with Mice
- Working with Rats
- Introduction to Rodent Surgery
- Introduction to Surgery (Non-Rodent, USDA-Covered Animals)



# Animal Use Training at UW (In-person)

- Mouse Hands-on Lab
  - Rat Hands-on Lab
  - Hands-on Training for Species of than Mice and Rats
  - Certification\*
  - Lab-Managed Animal Care and Records
  - Lab-Managed Sick Rodent Recognition
  - Lab-Managed Animal Care and Records: Aquatic Animals
  - Surgery Lab Part IA
  - Surgery Lab Part IB
  - Surgery Lab Part II
  - Surgery Certification/Anesthesia Certification
  - 6<sup>th</sup> Floor Facility Orientation
  - 6<sup>th</sup> Floor Facility Behavior Room Orientation
  - T-wing Facility Orientation
  - K-wing Facility Orientation
  - Animal Research and Care Facility (ARCF) Orientation
  - Foege Facility Orientation
  - Harborview (HR&T) Facility Orientation
  - South Lake Union (SLU) Brotman Facility Orientation
  - South Lake Union (SLU) 3.1 Facility Orientation
  - Guthrie Facility Orientation
  - Roosevelt Facility Orientation
  - CHDD Facility Orientation
  - North Lake Diesel Facility Orientation
  - ABSL<sub>2</sub> Room Orientation
  - ABSL<sub>3</sub> Room Orientation
  - Gnotobiotic Animal Core (GNAC) Orientation
- **Mental health training on emotional involvement?**

# Compassion Fatigue at UW





Tired  
Pain  
Emotion  
Guilt  
Anxiety  
Stress  
D2C  
Pressure  
Worry  
Anxiety  
Frustration  
Sadness  
Depression  
Stress  
Pain  
Pressure



# UW D2C Program Mission Statement

Assist all members of the research team to recognize compassion fatigue and raise awareness, provide tools, strategies and resources for managing human emotions in working with and caring for laboratory animals.



# Problems

- RATs
- Not heard
- Not valued
- Not appreciated
- ***Nothing to show for work***
- No mental health training on emotional involvement
- Low public image of animal research
- Stigmatization as 'dirty' work
- Low social support and poor internal communication culture
- Areas of conflict in daily work
- Lack of education and supportive environments to cope with emotional stress in the workplace.



# Institution

Not acknowledged  
Nothing to show for work  
Do not talk about work

# Public

Negative media and publicity  
Judgmental  
Uneducated  
Hard to talk about work

# You

Hard to talk about work  
**\*\*TOLD\*\*** *not* to talk about your work

# Department

Limited educational opportunities  
Not valued

# Management

Understaffed  
"Just get it done"

# Research Group

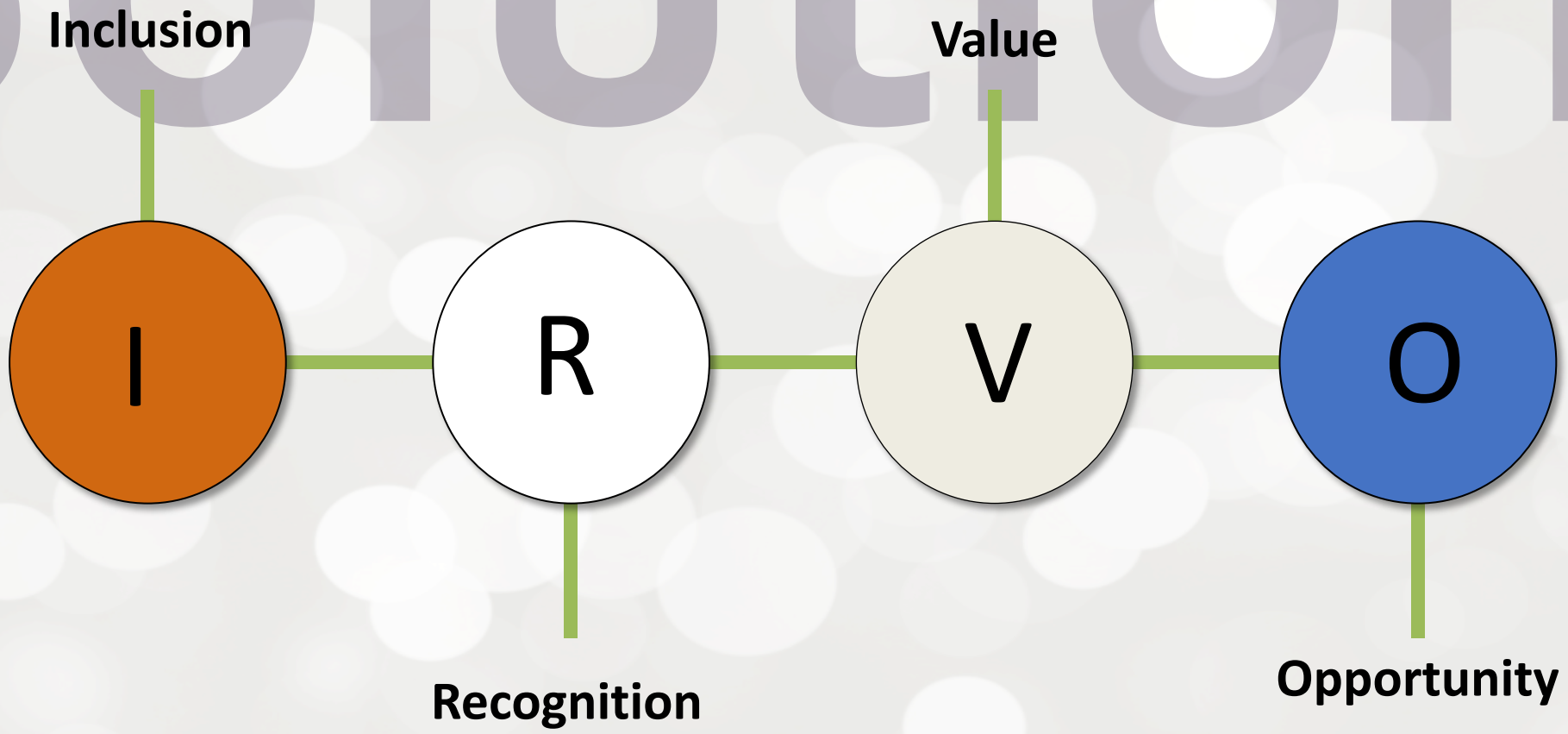
Endpoints unknown  
Not informed of research  
Not seen and not heard

# Regulatory

Not seen  
No regulatory representation



# Solutions



# Inclusion

## Summary of research

Principal Investigator:

IACUC Protocol:

Emergency Contact:

Telephone:

Email:

**Research Team**

We are Holly, Jennifer, and Conner. We work with our mice in the vivarium room every weekday and on holidays observed on weekdays. If you have any questions or concerns about our research or mice, please ask any one of us!

**Significance of Research**

Almost 35,000 men in the United States die from prostate cancer each year and it remains the second leading cause of cancer death in men. Essentially, no patients with advanced prostate cancer are cured of their disease.

**Summary of Research**

Our research group generates prostate cancer patient-derived xenografts by directly implanting tumors from humans. These models represent the many types of advanced prostate cancer found in man. Preclinical testing using our patient-derived xenografts models in mice has a high translational value and, through our studies, we continue to find new potential efficacious treatments and possibly even a cure for prostate cancer.

**Notes of Importance**

All mice in this room are males. The majority of the mice are albino, but occasionally there will be nude mice, which are hairless. Most mice will have a tumor growing on their right side underneath the skin and the tumor can vary in color from very light to almost black.

The three most common ailments our mice may experience/exhibit that should be reported to Veterinary Services are (1) Ulceration (a break in the skin) is noted on the tumor, (2) Penile or rectal prolapse, and (3) Rapid breathing with darkened eyes (our mice are prone to developing a type of mouse cancer in their chest which inhibits the space for lungs to expand fully).

Sometimes these mice are castrated and will be sleepy 24 hours post-surgery. The surgical date and time will be placed on their cage card. Minor bleeding is expected, but if excessive bleeding is noted, please contact Veterinary Services.

Our mice receive anti-cancer treatments including chemotherapies and radiation therapies. These treatments can cause some negative side effects on their health, which we closely and continuously monitor. We humanely euthanize any mouse who reaches a health endpoint which includes a tumor volume maximum and weight loss, or have an issue that cannot be properly managed or treated.

*We thank you for the daily care you provide our mice with and acknowledge your invaluable contributions to advancing prostate cancer research towards a cure.*

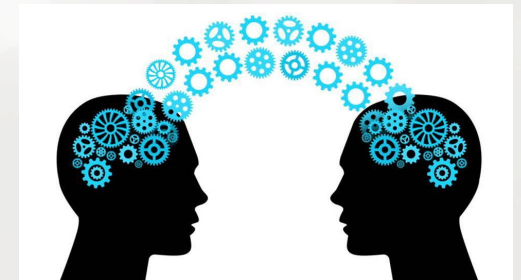
## Study endpoint notifications

♥ Euthanasia Date: \_\_\_\_\_

Research staff – If you know your animal is approaching their endpoint, please mark the date with a **wet or dry erase pen** and place this card behind the AOPS card.

This will help husbandry staff do their jobs more efficiently and give them an opportunity to say goodbye. Your participation is appreciated.

**W** DARE 2 CARE  
UNIVERSITY of WASHINGTON  
Compassion in Science

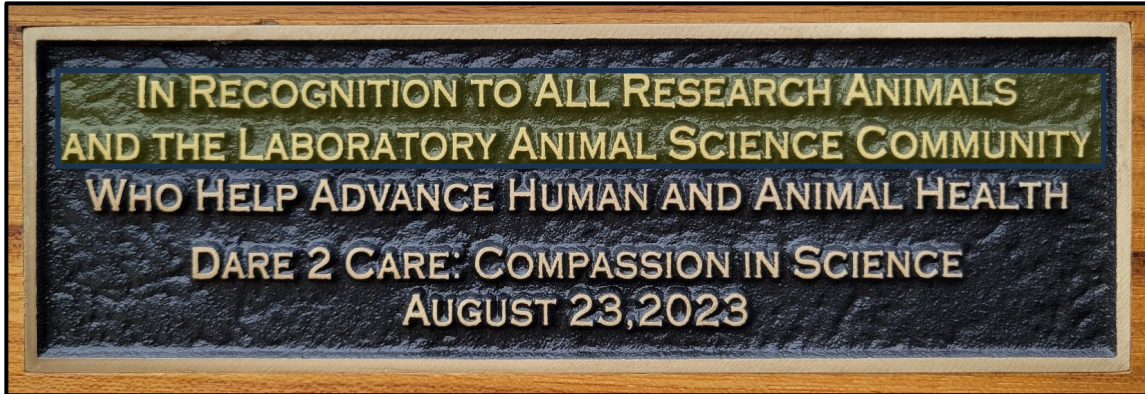


## Communication

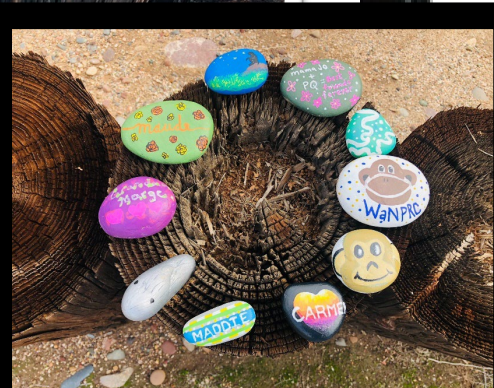
Pre-endpoint and post-endpoint email notifications acknowledging high level of humane care and the greater purpose the animal served.



# Recognition



# Recognition



After thirty years of the above research, that number is going greatly in that...

# Recognition



## THE PROSTATE CANCER RAPID AUTOPSY AND DEVELOPMENT OF PATIENT-DERIVED XENOGRIFT MODELS

Nguyen HM, Morrissey C, Corey E  
Department of Urology, University of Washington; Seattle, WA



### INTRODUCTION

- Prostate cancer (PCa) is the second most common malignancy diagnosed in men and led to almost 27,000 deaths in 2017 within the United States.
- PCa is widely heterogeneous with differences in mutations/genomic alterations, gene expression, sites of metastases, rate of proliferation, survival pathways, and therapeutic escape mechanisms.
- A significant limitation in the understanding of PCa, and evaluating novel therapeutic strategies is the lack of pre-clinical models that closely replicate the diversity of the disease seen in man.
- To overcome this limitation, we have established over 40 advanced PCa Patient-Derived Xenograft (PDX) lines.

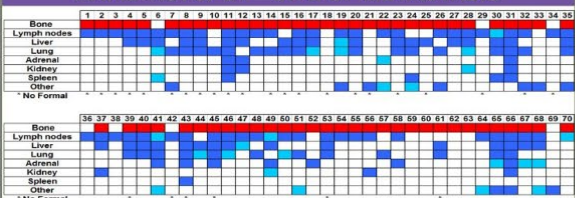
### OBJECTIVES

- Rapid Autopsy Program**
    - To collect human PCa specimens (primary prostate, visceral and metastases) for investigation on advanced PCa biology.
  - LuCaP PDX Series**
    - To establish and characterize PDXs of advanced PCa.
- The emergence of new drug resistance is associated with altered phenotypes. Continuous collection of tissues is important to capture the biology underlying treatment responses and resistance.
- PDXs provide a valuable resource to generate clinically relevant data with translational potential. PDXs demonstrate molecular features resembling patient tumors, tumor heterogeneity observed in patients, preserve tumor-microenvironment architecture, and provide clinically-relevant treatment responses.

### MATERIALS AND METHODS

- Rapid Autopsy Program**
  - 1996-2018; 196 rapid autopsies performed.
  - Metastatic tissue is acquired within 4-8 hours of death.
  - 16 different bone sites collected in addition to grossly evident visceral metastases.
- LuCaP PDX Series**
  - Samples of advanced PCa obtained from primary prostate cancer from surgery or metastases collected at rapid autopsy are implanted into immunocompromised mice to establish PDXs.
  - Established PDXs are propagated in vivo.
  - Genomic, transcriptomic, and STR profiles are generated.
  - Responses to novel therapies are studied.
  - Frozen tumors, paraffin blocks, and TMA containing 40 LuCaP PDXs.

### RAPID AUTOPSY—SITE OF METASTASIS



### ASSESSMENT OF BONE RESPONSE IN CRPC



### LuCaP PDX CHARACTERISTICS

LuCaP	Tissue Type	AR	PSA	Response to CX	LuCaP	Tissue Type	AR	PSA	Response to CX
23.1	LN	WT	High	HR	86.2	Bladder	WT	Mod.	NR
23.1CR (EXP)	WT	Mod.	NA	86.2CR**	(EXP)	WT	Mod.	NA	NA
23.12	Liver	WT	High	HR	92	LN	WT	Mod.	HR
35	LN	WT	Low	HR	93*	TURP	NA	NA	NR
35CR (EXP)	WT	Low	NA	96	TURP	WT	Mod.	HR	HR
49*	Omental Fat	NA	NA	NR	96CR	(EXP)	WT	Mod.	NA
58	LN	WT	Low	NR	106	Rib	WT	Mod.	IR
70	Liver	WT	Mod.	HR	105CR**	(EXP)	WT	Mod.	NA
70CR	(EXP)	WT	Mod.	NA	136	Acites	WT	Low	IR
73	Prostate	MUT	Mod.	HR	136CR	(EXP)	WT	Low	NA
73CR	(EXP)	MUT	Mod.	NA	141	TURP	WT	Low	HR
77	Femur	WT	Mod.	IR	145.1*	Liver	NA	NA	NR
77CR**	(EXP)	WT	Mod.	NA	145.2*	LN	NA	NA	NR
78	MUT	Mod.	HR	147	Liver	MUT	Low	NR	NR
81	LN	WT	High	NR	147CR**	(EXP)	MUT	Low	NA
81CR**	(EXP)	WT	High	NA	167	Liver	ND	Mod.	HR

Characteristics	AS vs CR pairs	Mixed AR	AR v5.6.7
Number of Models	11	12	1
Characteristics	TP53/SEER3	PTEN-negative	Neuroendocrine
Number of Models	4	13	3
Characteristics	RB Deletion	Osteoblast	
Number of Models	2	7	

\*: Neuroendocrine. \*\*: New castration-resistant sublines in mice. EXP: Experimental; LN: Lymph node; TURP: Transurethral castration; HR: highly responsive (>3X median survival [M] (>1.5X MS); NR: non-responsive (<1.5X MS); NA: not applicable; wild type; MUT: mutation; Mod: moderate. LuCaP 86.2 has constitutively active.

### MOLECULAR ANALYSIS OF DRIFT

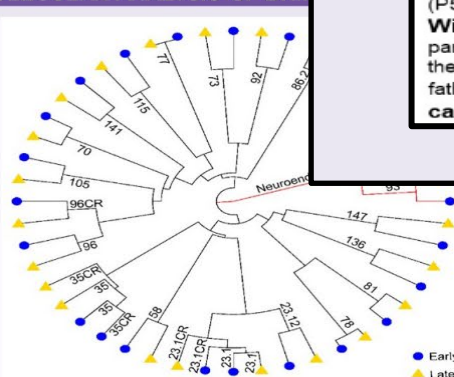
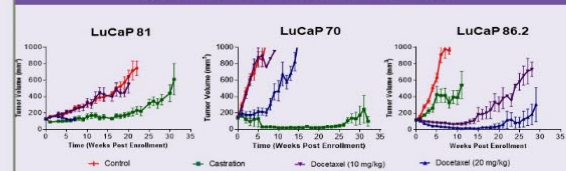
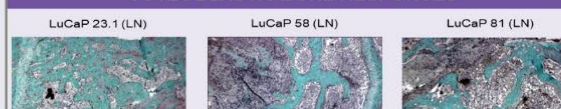


Figure 1. To determine if drift has occurred in the LuCaP xenografts, we compared gene expression analysis of early and late passages of 24 xenografts. From a cluster analysis of 1000 randomly assigned genes, all 24 LuCaP xenografts clustered with their parental tumor. We determined that while some changes were observed, a limited amount of drift had occurred in the LuCaP xenograft lines. Previous limited studies showed clustering of xenografts with the clinical tumors of origin.

### HETEROGENEITY OF RESPONSES



### OSTEOBLASTIC BONE RESPONSES



### ACKNOWLEDGEMENTS

These studies have been funded by the Prostate Cancer Foundation (PCF), The Richard M Lucas Foundation, NIH PO1 (PO1-CA163227), Pacific Northwest Prostate Cancer SPORE (P50-CA097186), the Prostate Cancer Biorepository Network (PCBN), and Movember. **With great appreciation we acknowledge the patients and their families for their participation in the UW Rapid Autopsy Program, the animals who have been sacrificed to make these breakthroughs to alleviate the suffering and death associated with prostate cancer for fathers, sons, brothers, and husbands around the world, as well as the exceptional daily care of these animals provided by the Animal Caretakers.**

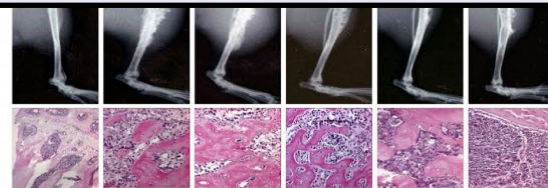
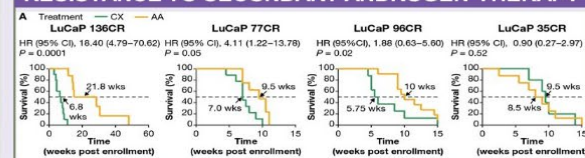


Figure 2. Radiographs and H&E stains from LuCaP xenografts injected and grown in the tibia of SCID male mice. \*: Osteoblastic; \*\*: Mixed. Additional lines showing an osteoblastic response include LuCaPs 23.1, 23.1CR, 93 and 136.

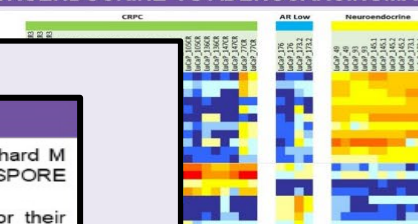
### CLINICALLY RELEVANT TO EVOLVING PHENOTYPE

New treatments and development of resistance results in alterations of tumor genotypes/phenotypes. In order to understand mechanisms of resistance and develop new therapies for the resistant tumors, PDXs representing these new tumor phenotypes are urgently needed.

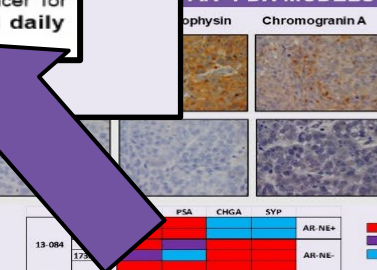
### RESISTANCE TO SECONDARY ANDROGEN THERAPY



### NEUROENDOCRINE VS ADENOCARCINOMA



### AR- PDX MODELS



### ACKNOWLEDGEMENTS

These studies have been funded by the Prostate Cancer Foundation (PCF), The Richard M Lucas Foundation, NIH PO1 (PO1-CA163227), Pacific Northwest Prostate Cancer SPORE (P50-CA097186), the Prostate Cancer Biorepository Network (PCBN), and Movember. With great appreciation we acknowledge the patients and their families for their participation in the UW Rapid Autopsy Program, the animals who have been sacrificed to make these breakthroughs to alleviate the suffering and death associated with prostate cancer for fathers, sons, brothers, and husbands around the world, as well as the exceptional daily care of these animals provided by the Animal Caretakers.



# Recognition

## [Molecular profiling stratifies diverse phenotypes of treatment-refractory metastatic castration-resistant prostate cancer](#)

[Mark P. Labrecque, ... , Peter S. Nelson, Colm Morrissey](#)

Published July 30, 2019

Citation Information: *J Clin Invest.* 2019. <https://doi.org/10.1172/JCI128212>.

### ACKNOWLEDGEMENTS

This work was supported by a Department of Defense Idea Development Award-Partnering-PI (W81XWH-17-1-0414;W81XWH-17-1-0415), W81XWH-15-1-0430, PC170431, the Pacific Northwest Prostate Cancer SPORE (P50CA97186), the Department of Defense Prostate Cancer Biorepository Network (W81XWH-14-2-0183), Department of Defense Prostate Cancer Clinical Trials Consortium W81XWH-15-2-0008, NCI R01 CA230617, NCI P01 CA163227, the Prostate Cancer Foundation, the AACR NextGen Transformative Cancer Research Grant, the Institute for Prostate Cancer Research, and the Richard M. LUCAS Foundation.

We would like to thank the patients who generously donated tissue that made this research possible. **We would also like to thank** Jennifer Conner, Michiyo Dalos, Daniel Sondheim and **the Comparative Medicine Animal Caregivers for assistance with the LuCaP PDX work**. Additionally, we would like to thank Paul Lange, Robert Vessella, Funda Vakar-Lopez, Martine Roudier, Xiaotun Zhang, Belinda Nghiem, Jennifer Noteboom and the rapid autopsy teams in the Urology and Pathology Departments at the University of Washington.



# Recognition

## Reflections

- Provide an opportunity for individuals to come together in one place to pay tribute to our research animals and each other.



**Martin K. (Casey) Childers,  
DO, PhD**

Professor  
Rehabilitation Medicine  
University of Washington



**Paul Frase**

NFL Veteran  
Co-Founder, Joshua Frase  
Foundation

- Guest speakers share their research and acknowledge the contributions provided by Laboratory Animal Professionals
- Open to all animal caregivers, research faculty and staff



### "REFLECTION"

Developing biomarkers for detecting injury severity and recovery after traumatic spinal cord injury - Animal models to translation



presented by

**Dr. Zin Z. Khaing, PhD**

Assistant Professor  
Neurological Surgery | UW Medicine  
Brotman Baty Institute for Precision  
Medicine  
Institute for Stem Cell & Regenerative  
Medicine

Please join us for the next "Reflection" hosted by Dare 2 Care (D2C) and the Office of Animal Welfare.

In this talk, Dr. Khaing will discuss the use of different animal models with spinal cord injury to discover and test therapeutic targets as well as develop biomarkers for patients with spinal cord injury. We will also discuss the importance of animal care in balancing animal welfare and the success of scientific discoveries.

Light refreshments will be provided.



[sites.uw.edu/d2c](https://sites.uw.edu/d2c)



**DATE:**  
Wednesday,  
June 7th

**TIME:**  
11:30 – 12:30 PM

**LOCATION:**  
E-202 Turner  
Conference  
Room

Health Sciences  
Building

**CONTACT:**  
(206) 616-2386  
d2c@uw.edu

**Learn More:**





# Value

## the London Plane




# Value

Thanks so much for everything you do on a daily basis. We are so appreciative of your tireless efforts in making sure our animals are well taken care of. Without you, many groups around campus wouldn't be able to do the research that has the potential to impact millions of people worldwide. Thanks for making all the difference!

Thanks to all Brotman husbandry staff for your continued dedication to your work for the well-being of all animals. Caitlyn Connolly is very competent and very dependable weekend animal care staff!


Many thanks for all of your hard work and dedication to caring for the animals, and for making this a great place for scientific research! -Wyeth Bair (Biological Structure, and Primate Center)



Clara has been the most thoughtful, diligent tech I have ever had the opportunity to work with. She is observant and clearly cares about her charges, animal and human. We appreciate all her thoughtful touches and her proactive monitoring of our animals, the woman saves our bacon on the regular. Clara, I cannot thank you enough!

## D2C KudoBoard





We can never say enough how grateful we are for all that you do for the animals in our care. It isn't an easy job. It requires the physical strength and stamina to transport heavy racks and cages around and the delicate care to avoid pinching little fingers and toes. You interpret what the animals are telling you without words. You come in when everyone else is staying home, whether it's a snowstorm or a pandemic. Research that saves lives can happen because of the work that you do. Thank you!

Thank You to Our Laboratory Animal Technicians!

**DARE 2 CARE**



Thank you to all the staff who have helped me with my research. You are all amazing and I am so grateful for your help. Thank you to all the staff who have helped me with my research. You are all amazing and I am so grateful for your help.

**DARE 2 CARE**



Thank you to all the staff who have helped me with my research. You are all amazing and I am so grateful for your help. Thank you to all the staff who have helped me with my research. You are all amazing and I am so grateful for your help.

**DARE 2 CARE**



Thank you to all the staff who have helped me with my research. You are all amazing and I am so grateful for your help. Thank you to all the staff who have helped me with my research. You are all amazing and I am so grateful for your help.

**DARE 2 CARE**



Thank you to all the staff who have helped me with my research. You are all amazing and I am so grateful for your help. Thank you to all the staff who have helped me with my research. You are all amazing and I am so grateful for your help.

**DARE 2 CARE**



Thank you to all the staff who have helped me with my research. You are all amazing and I am so grateful for your help. Thank you to all the staff who have helped me with my research. You are all amazing and I am so grateful for your help.

**DARE 2 CARE**



Thank you to all the staff who have helped me with my research. You are all amazing and I am so grateful for your help. Thank you to all the staff who have helped me with my research. You are all amazing and I am so grateful for your help.

**DARE 2 CARE**



Thank you to all the staff who have helped me with my research. You are all amazing and I am so grateful for your help. Thank you to all the staff who have helped me with my research. You are all amazing and I am so grateful for your help.

**DARE 2 CARE**



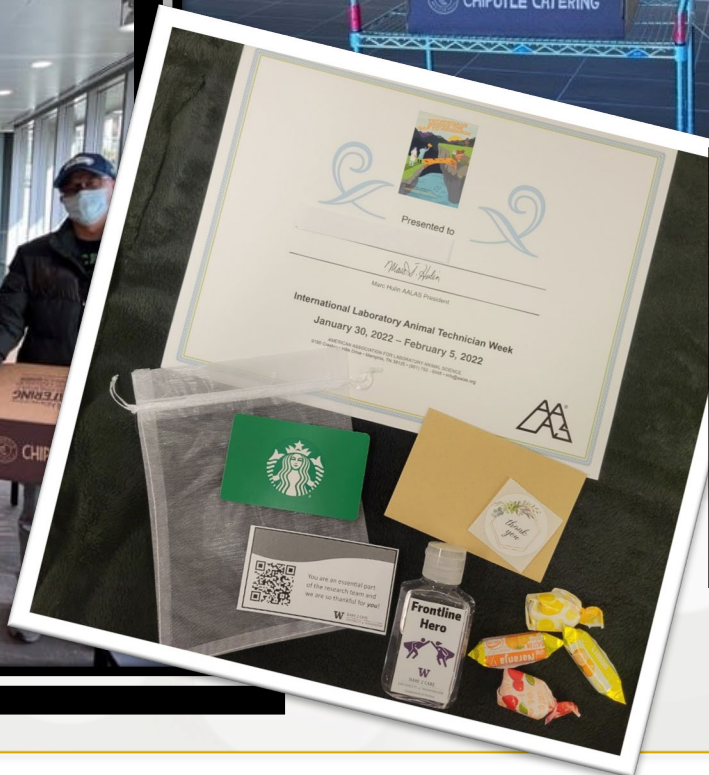
Thank you to all the staff who have helped me with my research. You are all amazing and I am so grateful for your help. Thank you to all the staff who have helped me with my research. You are all amazing and I am so grateful for your help.

**DARE 2 CARE**



Thank you to all the staff who have helped me with my research. You are all amazing and I am so grateful for your help. Thank you to all the staff who have helped me with my research. You are all amazing and I am so grateful for your help.

# Value



Improving break rooms was frequently requested during our Needs Assessment

“Before” and “After” video of animal caregiver breakroom with completed renovations @ <https://sites.uw.edu/d2c> under **Special Projects** page





# Opportunity

IACUCs



Conferences

Committees

Classes/Workshops



The background features a gradient from light green at the top to dark blue at the bottom. It is filled with numerous out-of-focus circular bokeh lights and several translucent, 3D-rendered bubbles of varying sizes, some appearing to float or rise.

**Closing remarks**



**Thank you**