Posters:
A brief overview from the Office of Undergraduate Research

It's just an illustrated abstract
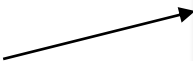
Expectations of order

- Background/description/literature review
  - Develop credibility and **situate/motivate work**
- Gap/Research Question (goal, outcome, creative work)
- Methodology/process
- Analysis/Findings
- Conclusion/"so what"
  - What is the discipline contribution?
  - **Why should people care?**
- Citations & references

You and listener(s)/reader(s)should always be able to answer:

1. What are you asking/trying to find out/creating? (motivate this)
2. How did you find the answer/create the thing (what steps)?
3. What did you find/what is the outcome? Why is it important?

Communicating – language, style

- Know your "knows" (audience, worth, expectations)
- The multidisciplinary audience
  - Everyone understanding = quality/contribution by all
  - Do NOT "dumb it down", just simplify
- Be concise!
- Define terms and abbreviations
- Supplement text/pictures
  - Give examples people can relate to

General Presentation skills

- Practice and peer review
  - Have listener/reader restate highlights (what, how, why)
- Follow expected order
- Everything must have a reason & be digestible
  - Especially figures and pictures (explain them too)
- Virtual vs in person
- Loss of interest happens quickly
  - Poster should be eye-catching (visuals!!)
  - Be a dynamic presenter
  - Browsers will browse

Posters (the process)

- You get one-on-one audience time and feedback
  - Keep something to write with nearby!

- Typical (idealized) process
  - People walk around
  - You give 3-5 minute overview
  - They ask you questions
  - They move on
  - New group comes in

Posters (visual/talking)

- Use templates/branding (as indicated/required)
- NCSU branded poster templates
- Ease of readability!
  - Consistency in sizes/texts
- Typical pattern, but can deviate
- Typical (required) sections and pieces
- Don't overpopulate!
  - It's a synopsis, not an article (you're there to fill in)

Poster layout

- Titles should be big – bring the audience to you
- Affiliations and names
- White space – not too much, but don't crowd
- Headings and paragraphs
- Images/graphs are better than words
  - Poster = visual
- Colors – writing, backgrounds, visuals
- Proofread!
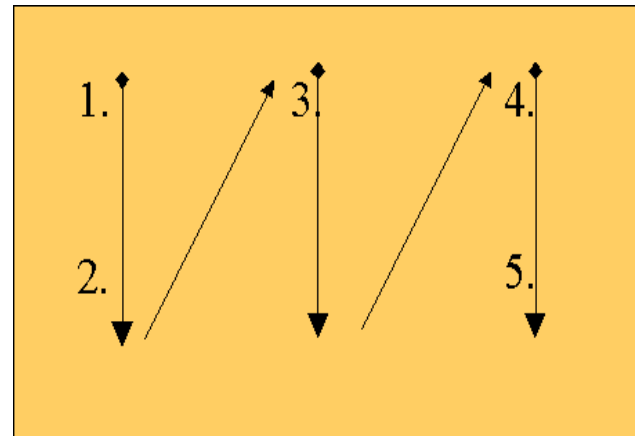
Data

- Don't misrepresent data in visuals
- Visuals should be explanatory – labels!
- Think about size of the visual

Find & Borrow   Study & Learn   Research & Teaching   Media & Making   Data & Visualization   About

Search books, articles, journals, website

Hours   My Account   Log Out   Ask Us   Chat Now 💬

Our buildings are not open, but our online services continue. Libraries Coronavirus Response →

Data Visualization Guides and Tools

Data Visualization Guides

- Workshop Materials. Materials from our popular Data and Visualization Workshop Series.
- Learn Data Viz. Guide from UNC Libraries.
- Infographic Creation Guide. Tools, tutorials, templates, books, and other resources for designing infographics.
- Visualizing Impact. Use graphs and visualizations to analyze and present research impact. Includes a step-by-step guide on bibliometric network visualization using Web of Science and Gephi.
- Data Visualisation Catalogue helps you select an appropriate chart type and provides links to tools.
- Data Viz Project. A website trying to present all relevant data visualizations, so you can find the right visualization and get inspiration on how to do it.
- Picking a Colour Scale for Scientific Graphics
- Top Ten Chart Dos and Don'ts, by Angela Zoss of Duke University Libraries.

Data Visualization Tools

- Datavisualization.ch provides a useful compilation of free data visualization tools.
- Tableau helps you create and share interactive charts and graphs, maps, and dashboards.
- Plotly provides online graphing and stats tools for individuals and collaboration, as well as scientific graphing libraries for Python, R, MATLAB, Perl, Julia, Arduino, and REST.
- Raw is an easy-to-use open web app for creating visualizations using D3.js.
- Vischeck and Chromatic Vision Simulator let you check your visualization for colorblind safeness.

Data Sources for Visualization

- Awesome Public Datasets
- Tableau Sample Datasets
- More datasets for teaching and learning

Link to Page

Text sizes:

Title: **85 point**

Authors: **56pt**

Sub-headings: **36pt**

Body text: **24pt**

Captions: **18pt**

72 point can be read at 14 feet
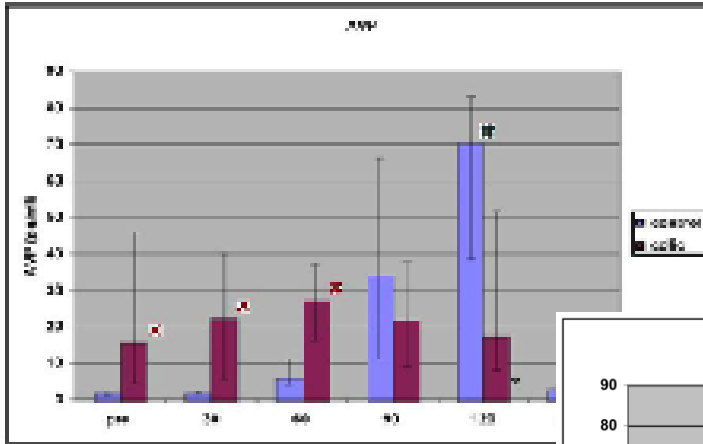
60 pt – 12 ft

48 pt – 10 ft

20 pt – 6 ft

Images

- Avoid resolution overkill!
  At least 150 dpi, but no more than 300 dpi

- Save photos as jpg or png
  Line art as a png (graphs)
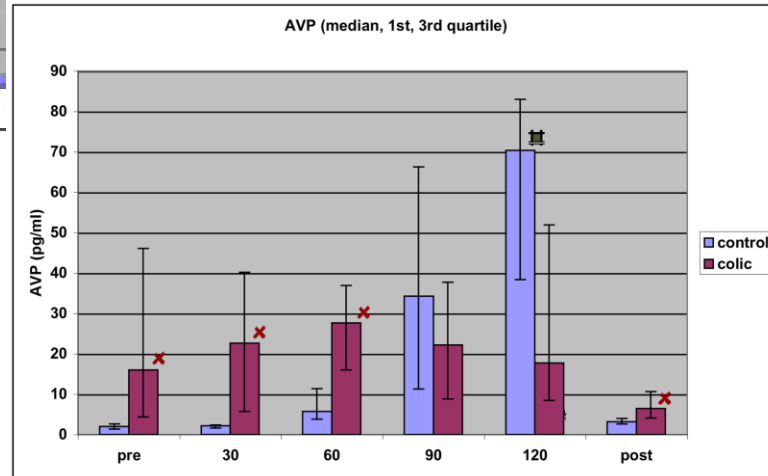
- Web images are usually
  poor resolution 72 dpi

Can you read this

Can you read this

Line art is best displayed as a "png"
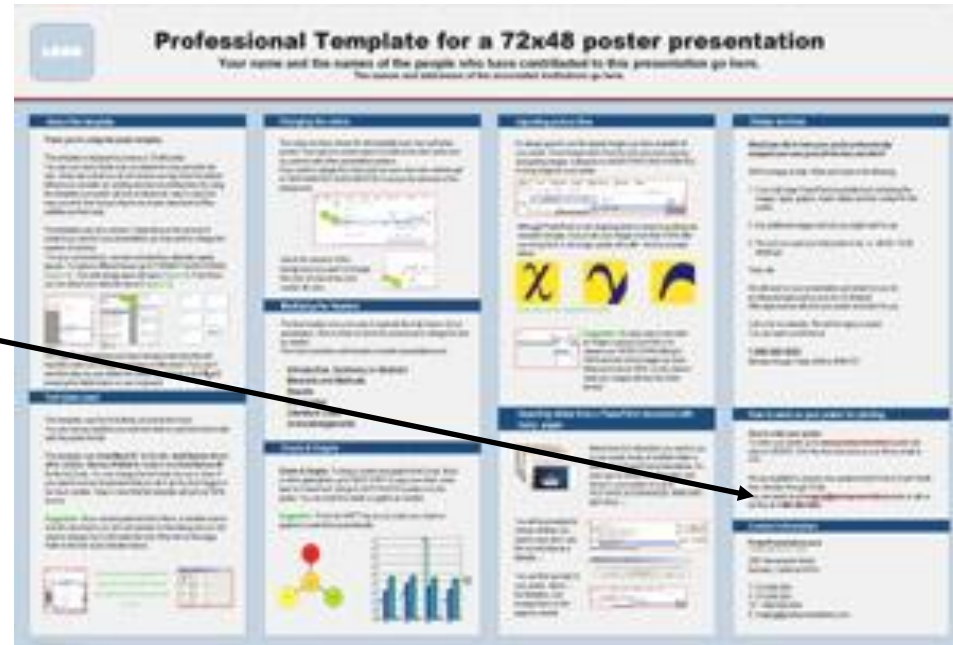
jpg (not as crisp)

png

Funding acknowledgements

OUR, TRiO, BME, etc. Your department can provide you with the required wording

Print out a letter-sized draft

Can you read the type?

Are these the colors you really want?

Does it look too busy?

Do my main points pop?

The Three-column Format

- A more recognized standard of poster formatting
- Use boxes and/or headings to offset sections
- Visuals!
- Sections include (vary slightly by discipline):
  - Introduction/background
  - Methods
  - Results
  - Conclusion
  - References
  - Acknowledgements

NC STATE UNIVERSITY
Department of Psychology

The Relationship Between Different Insurance Types and Youth's Access of Sexual Health Care Services

Team Member, Team Member, Team Member

BACKGROUND

- According to the CDC, one in five people living in the USA has an STI, with people aged 15-24 accounting for 50% of all new diagnoses.
- Several studies have found a relationship between insurance type and sexual healthcare access, with parent-provided insurances users reporting the least usage, followed by private and then public insurance (Pearson et al., 2016; Kavanaugh et al., 2018; Loosier et al., 2018; Meanley et al., 2015).

PURPOSE

- Examine the differences in sexual healthcare access between 16-24 year old patients covered by their parent provided, private, or public insurance.
- We hypothesized that rates of access to sexual healthcare would differ based on insurance type, with parent provided insurance indicating the least access, followed by private and public.

PARTICIPANTS

- 344 participants from across the US, aged 16-24.
  - 42.6% south, 16.6% north, 18.4 west, 22.4% midwest
- 178 were women, 197 men.
- 36.1% white, 35% black, 28.9% Hispanic/Latinx.
- 70.8% heterosexual, 11.8% mostly heterosexual, 8.7% bi, 3.4% pan, 2.4% gay/lesbian, 1.3% mostly gay/lesbian.
- 55.5% covered by parent insurance, 17.7% covered by private insurance, 26.7% covered by public insurance.
- The participants in our study had to have indicated that they have had vaginal or anal sex in their lifetime in order to participate.

PARTICIPANTS CONT.

Participant Insurance Coverage

Private 26.7%
Public 17.7%
Parent 55.5%
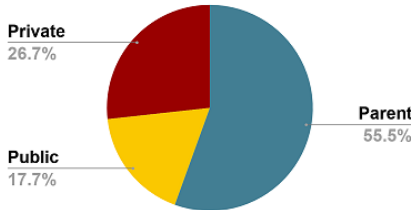
METHODS

- Participants were given a remote survey through Qualtrics. A waiver of parental consent was approved so 16 & 17 year olds were recruited directly. A screener survey was given to all participants, as they needed to be sexually active, between 16-24, White, Black, or Latinx, and live in the USA to participate.
- We analyzed the relationship between two questions on this survey:
- What is your primary source of health insurance?
  - We re-coded our survey data to fit into the following groups: private insurance included university/student health plans, employer-based plans, or self purchased plans; public plans included Medicaid, Medicare, SCHIP, or VA/Tricare coverage; parent provided insurance chose "I am covered by my parent/guardian's plan."
- Within the past 12 months, have you had a sexual health care visit or exam (for example: STI/HIV testing, contraception, pelvic exam, or Pap test) with a healthcare provider (for example: doctor, nurse practitioner, physician assistant, OB-GYN)?
  - This was answered with a binary yes or no.
- We did not include participants that indicated that they did not have insurance, did not know if they had insurance, or did not know the primary source of their insurance.

RESULTS

- There were no statistically significant differences in whether or not participants accessed sexual healthcare within the last year between those covered by parent, private, and public insurance. (p = .699, chi-square = .715).
- 64.4% of participants covered by parent insurance, 68.5% of those covered by public insurance, and 62.3% of those covered by private insurance indicated that they did not access sexual healthcare services in the last year.

Sexual Health Care Visits in the Last Year

No Visit | Yes visit

- Parent Insurance: 64.40% / 35.60%
- Public Insurance: 68.50% / 31.50%
- Private Insurance: 62.30% / 37.70%
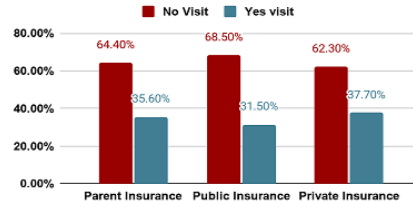
DISCUSSION

- Our study contradicts prior data that reported differences in sexual healthcare access based on insurance type.
- While we did not have statistically significant results in the rates of sexual healthcare access based on different insurance types, the majority of participants indicated that they did not seek sexual healthcare within the past year, despite being sexually active.
- COVID-19 could be impacting the rate at which people access sexual healthcare; they may be currently sexually inactive due to the pandemic, or only sexually active with one partner. They may also choose to not visit the doctor due to the pandemic.
- Future research could revolve around how COVID-19 impacted sexual relationships and health, as well as other factors influencing access to sexual healthcare, such as cost and social acceptance/norms.

NC STATE UNIVERS

NC STATE UNIVERSITY

College of Humanities and Social Sciences
Department of Psychology
Department of Social Work

How Do Parents of Black Adolescents Teach About Race? The Role of Parent Political Beliefs

Kayla Wilmot, Elan C. Hope, PhD & Qiana Cryer-Coupet, PhD

Background

Political Beliefs
- The political beliefs of parents can often impact the development of political beliefs in adolescents (Niemi & Hepburn, 1995)
- According to the Pew Research Center, most African-Americans say they are moderate (44 percent) or conservative (27 percent), while just 26 percent said that they are liberal (Gilberstat & Daniller, 2020)

Racial Socialization
- Parents of Black adolescents are often responsible for the task of racial socialization in order to introduce their children to the experiences members of their social group have regularly (García Coll et al., 1996)
- In the context of this study, racial socialization will be based off five different aspects
  - Cultural Pride Reinforcement, which are statements that encourage having pride in one's identity
  - Cultural Alertness to Discrimination, which are statements discussing experiences of discrimination
  - Cultural Endorsement of the Mainstream, which measures statements that uphold popular views about race in society
  - Cultural Appreciation of Legacy, or the importance of heritage and related concepts
  - Coping with Antagonism, which discuss ways Black youth can cope with the reality of race in our society

Research Question

How do Black adolescent reports of their parents' racial socialization differ based on their parents' political beliefs?

Findings

Cultural Pride Reinforcement

Cultural Alertness to Discrimination

Cultural Endorsement of the Mainstream

Cultural Appreciation of Legacy

Coping with Antagonism
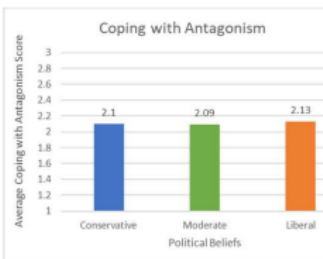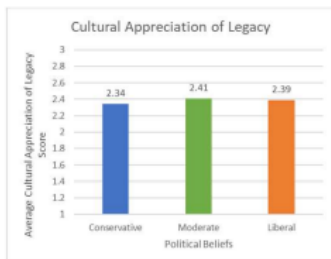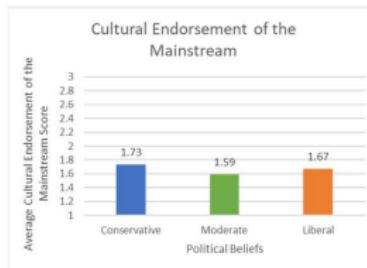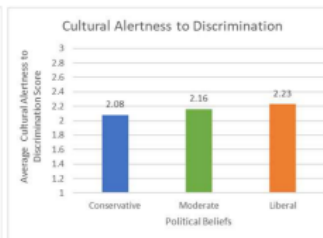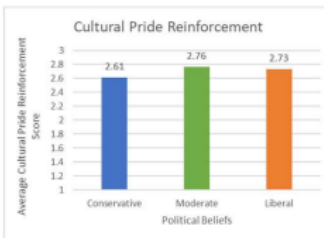
Method

Black Families Survey
- In 2018, Black families (caregivers and their adolescent children) were surveyed with questions regarding their experiences with politics/community, criminal justice, parenting, neighborhood/environment, physical health, and psychological well-being

Adult Participants (N=604)
- 93 Male Participants (15%), 511 Female Participants (85%)
- Ages 25-83 years old

Adolescent Participants (N=50)
- 24 Male Participants (48%), 26 Female Participants (52%)
- Ages 13 through 17

Measures

Teenager Experience of Racial Socialization Scale (Stevenson et al, 2002)
- Adolescents rated the frequency in which their parents engaged in statements or behaviors about race and racism
- Scale: 1 – (Never), 2 (A few times), 3 (A lot of the time)

Parent Political Beliefs
- Parents indicated their political beliefs as very conservative, conservative, moderate, liberal, or very liberal
- 21.8% of parents identified as conservative; 55.6% were moderate and 22.5% were liberal

Results & Future Directions

Results
- Parents with moderate political beliefs socialized their adolescents with more cultural pride reinforcement than conservative parents
- There were no significant differences in the other types of racial socialization.
- We find evidence to support that across all political beliefs, parents of Black adolescents approach the task of racial socialization in similar ways.

Future Endeavors
- Further research is necessary to explore the intricacies of political beliefs (whether someone is socially liberal and/or fiscally conservative) and how they may differ in their methods of racial socialization

Acknowledgements
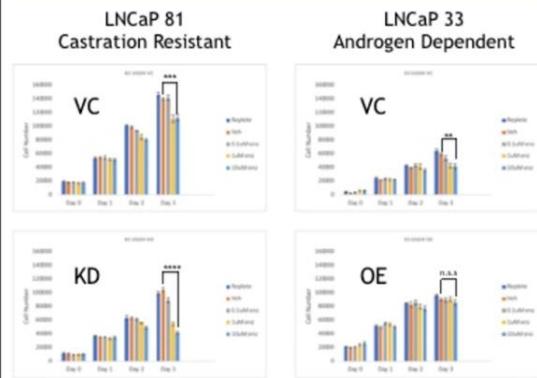
NC STATE UNIVERSITY

Characterizing a Biological Marker for Castration Resistant Prostate Cancer

Malone Hanis; Brenna Zimmer, PhD; Joseph Barycki, PhD; Melanie Simpson, PhD

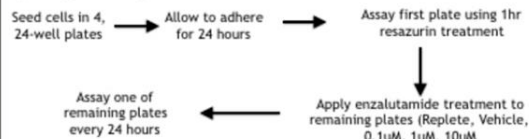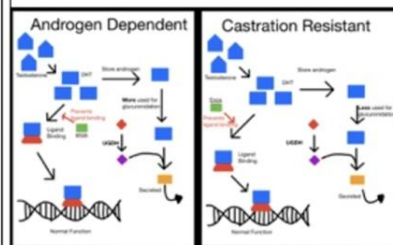*Department of Molecular and Structural Biochemistry NC State University, Raleigh, NC 27695*

Introduction

- 191,930 new cases of prostate cancer expected in 2020 [1].
- ~10-20% of diagnosed patients will develop castration resistant prostate cancer, which has a 29% five year survival rate [2].
- Treatment for advanced prostate cancer is anti-androgen treatment to block the activity of androgen hormones
- We are working on the enzyme UGDH, which controls androgen sensitivity in prostate cells and may be a predictive biomarker, indicating a higher probability of developing castration resistant prostate cancer.
- UGDH is an enzyme involved in glucuronidation, proteoglycan biosynthesis, and hyaluronan production, and each of these process can impact cell proliferation.
- We are working with two model cell lines: LNCap 33 mimics an early stage prostate cancer and LNCaP 81 mimic castration resistant prostate cancer.
- LNCaP 33 responds to anti androgen therapy whereas LNCaP 81 is does not respond to to anti androgen therapy.
- Enzalutamide, a clinically relevant anti-androgen, is applied to test the prostate cancer cell lines response to anti-androgens.

Pathway

Cytosolic

UDP-glucose → UGDH → UDP-glucuronate → UGTs → Hyaluronan production Plasma membrane (HAS)

UGTs → Steroid elimination ER

UXS1 → UDP-xylose Golgi → Proteoglycan biosynthesis

Excreted

Results

LNCaP 81 Castration Resistant

VC

KD

LNCaP 33 Androgen Dependent

VC

OE

Tukey's Post Hoc Analysis
* p≤0.05; ** p≤0.01;*** p≤0.001; **** p≤ 0.0001

Methods

We applied different dose amounts of androgen treatments to the cell lines and then measure their change in growth to determine the effect of enzalutamide depending on the expression of UGDH.

Seed cells in 4, 24-well plates → Allow to adhere for 24 hours → Assay first plate using 1hr resazurin treatment

Assay one of remaining plates every 24 hours ← Apply enzalutamide treatment to remaining plates (Replete, Vehicle, 0.1uM, 1uM, 10uM)

Model

Androgen Dependent

Castration Resistant

Discussion

- Reducing UGDH expression in LNCaP 81, a cell line that mimics the castration resistant condition, restores the sensitivity of these cells to enzalutamide treatment.
- UGDH inhibition in combination with enzalutamide administration may improve efficacy of patient treatment.
- In the future, we plan to investigate the effect of 4-MU, a chemical scavenger of the UGDH product approved for clinical use in other diseases.

References

[1] Siegel, R.L., Miller, K.D. and Jemal, A. (2020), Cancer statistics, 2020. CA A Cancer J Clin, 70: 7-30. doi:10.3322/caac.21590
[2] Damodaran, S., Kyriakopoulos, C. E., & Jarrard, D. F. (2017). Newly Diagnosed Metastatic Prostate Cancer: Has the Paradigm Changed?. *The Urologic clinics of North America, 44*(4), 611-621. https://doi.org/10.1016/j.ucl.2017.07.008

NC STATE EXTENSION

FireWorks: A K-12 Fire Curriculum for Southeastern Ecosystems

Kaitlyn Tiffany[1], Laurel Kays[1], Renee Strnad[1], Jennifer Fawcett[1], Jonathan Hartsell[2]

What is FireWorks?

- K-12 wildland fire science educational curriculum covering topics including fire physics, history, ecology, and current use
- 7 Major units with over 50 hands-on activities
- Activities easily used for public outreach events
- Currently exists in some Western U.S. regions, but has not been developed for the South….until now!

Original FireWorks Curriculum:
www.frames.gov/fireworks

Sample Southeast-Adapted lessons:

Fire Triangle Lesson:
go.ncsu.edu/fw2_1_draft

Fire Physics Lesson:
go.ncsu.edu/fw2_2_draft

Tony Glen Photo

The Southeast Adaptation

- Develop a new FireWorks curriculum specific to the Southern U.S. region
- Cover three regions across the Southern U.S.:
    a. Coastal plain
    b. Piedmont
    c. Upland hardwood Appalachian ecosystem
- Emphasis on wildland fire as part of healthy landscape, particularly the benefits of prescribed burning
- Targeted towards middle school, with applications for late elementary, early high school, and outreach to general public

Curriculum will include:

1. Encyclopedia of species representing different fire regimes, ecosystems, and relationship to fire
2. Curriculum lessons for teachers on topics including physics of fire and fire ecology

https://www.outsidethebeltway.com/southern-us-map/

Draft Bobwhite Quail Encyclopedia Entry:
go.ncsu.edu/bobwhite

Join Us!

We welcome support in the following areas:
- Technical review
    ○ Review content
    ○ Revise activities
- Secure funding
    ○ Curriculum design & layout
    ○ Educator training
    ○ Materials coordination
- Publicize and implement curriculum

Laurel Kays Photo

Contact Laurel Kays at lekays@ncsu.edu to participate and for more information.

UF UNIVERSITY of FLORIDA | Forest Stewards Guild | THE LONGLEAF ALLIANCE | The Nature Conservancy | Museum of Natural Sciences | Project Learning Tree | COOPERATIVE EXTENSION | SOUTHERN Fire Exchange | TALL TIMBERS | WARNELL

[1]North Carolina State University [2]Blue Ridge Resource Conservation & Development

Characteristics of nest construction in captive aye-ayes (Daubentonia madagascariensis)

NC STATE UNIVERSITY

Department of Biological Sciences
Dr. Lisa Paciulli

Kaitlyn Tiffany, Samantha Cothern, David Watts, Dr. Lisa Paciulli

Introduction

Aye-aye lemurs (Daubentonia madagascariensis) are a species of little-known prosimians that are the only extant member of their genus. The body of knowledge surrounding aye-ayes is slim compared to other non-human primates, and especially so in regard to the rest of the lemurs. Even less well documented are their nesting habits; specifically when it comes to the physical characteristics and environmental properties of the nests. This is due in part to the elusive, nocturnal nature of aye-ayes, but mostly as a result of their nests being built a minimum of 10-15m above ground (Petter et al, 1970).

At the Duke Lemur Center in Durham, NC, captive aye-ayes provide a unique opportunity to document nests built in nest boxes or elsewhere in the enclosure -- ones that are not the 3 to 5 stories above the ground as would be found in the wild.
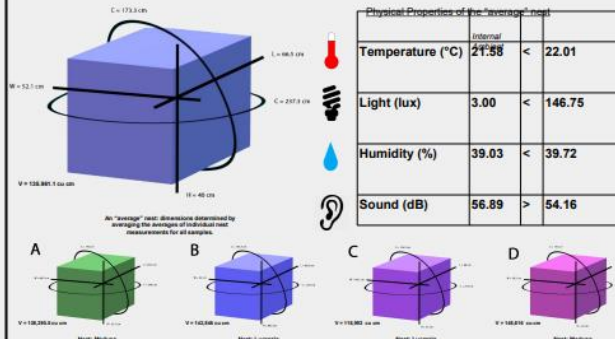
This study examines the dimensions, construction materials, and physical properties (internal humidity, temperature, light, sound level) of nests built by adult individuals, and attempts to construct a baseline knowledge of the ideal aye-aye nest.

Methods

- Nests built by Lucrezia, 18, and Medusa, 16
- Construction materials selected from those provided by keepers
- Lemurs gnaw/bite off sections of material, weave into nest's form
- Most are built inside metal nest box or provided cardboard box (some in paper bags)

Characteristics of an average nest

Physical Properties of the "average" nest

	Internal		
Temperature (°C)	21.58	<	22.01
Light (lux)	3.00	<	146.75
Humidity (%)	39.03	<	39.72
Sound (dB)	56.89	>	54.16

An "average" nest: dimensions determined by averaging the averages of individual nest measurements for all samples.

A — Nest: Medusa
B — Nest: Lucrezia
C — Nest: Lucrezia
D — Nest: Medusa

Nest Opening

- Each nest has one circular entrance/exit
- Diameter 1 & 2 averaged together in case of oddly shaped opening

Avg D: 19.34 cm
Avg C: 56.5 cm

Construction Materials

- Pine Boughs
- Bamboo
- Wood Wool
- Fleece Strips

Future Directions

- Expand nest-builder population: two senior, female lemurs built the nests in this study
  - Build a more accurate model of the "ideal" or "average" nest
  - Investigate potential variation in construction between sexes
  - Investigate the development of nest construction from infancy to adulthood
- Determine nest properties in high-humidity environments like those in the wild
  - Investigate whether ambient humidity plays a role in the insulatory (thermal + auditory) properties of nests
- Provide a wider variety of materials for construction/locations for construction
  - Most captive nests are built within nest boxes or cardboard boxes--determine if this changes with greater enclosure infrastructure/broader access to construction materials

References

- Petter, J. J., & Peyrieras, A. (1970). NOUVELLE CONTRIBUTION A L'ETUDE D'UN LEMURIEN MALGACHE, LE AYE-AYE (DAUBENTONIA MADAGASCARIENSIS E. GEOFFROY). Mammalia, 34(2), 167-193.
- Duke Lemur Center. (n.d.). Retrieved from https://lemur.duke.edu/
- File:Thermometer Fever blank.png. (n.d.). Retrieved from https://commons.wikimedia.org/w/index.php?curid=7767-4205
- File:Lightbulb1.jpg. (n.d.). Retrieved from https://commons.wikimedia.org/w/index.php?curid=43809649
- Alex Cliparts #7580 (License: Personal Use). (n.d.). Retrieved from http://clipart-library.com/clipart/109550.htm
- https://www.arborsci.com/products/fiberglass-metric-tape-measure-10-pk

NC STATE UNIVERSITY

Preliminary Establishment and Characterization of a Lung Cell Model that is Biologically Relevant to COVID-19 Conditions

Malone Hanis; Brenna Zimmer, PhD; Melanie Simpson, PhD

Department of Molecular and Structural Biochemistry NC State University, Raleigh, NC 27695

Background

- During a SARS infection the production and regulation of Hyaluronan is defective [1]. Hyaluronan is also a component of the innate immune response and protects tissues while recruiting immune cells to damaged or infected sites [2]
- We are characterizing an in vitro system to mimic conditions of a COVID infection and evaluate the subsequent effects of treatment, specifically using the human lung epithelial cell lines A549 and BEAS-2B.
- 4-methylumbelliferone (4MU) is a pharmacological scavenger of precursors for hyaluronan synthesis. 4MU has been found to selectively reduce hyaluronan production [3].
- CD44 is a cell surface receptor that is involved in the clearance of HA and is required for the resolution of inflammation [4]. CD44 expression may also be reduced by 4MU [5].

Methods

1. Hyaluronan quantification was performed using conditioned media from cell cultures. Hyaluronan content was assayed by competition for binding to biotinylated hyaluronan binding protein on a hyaluronan-coated plate. Bound biotin (inversely proportional to hyaluronan in the sample) was detected with streptavidin-DAB, a colorimetric reagent measured in a spectrophotometric microplate reader. Hyaluronan amount was interpolated from a standard curve of hyaluronan. Results are shown in Figure 1.
2. For western analysis samples were separated by 10% SDS-PAGE and transferred onto PVDF membranes. Membranes were blocked and incubated with primary antibodies for CD44 and GAPDH (control). Following incubation with secondary antibody-fluorophore conjugates, proteins of interest were quantified using fluorescence densitometry. Results are shown in Figure 2 and Figure 3.
3. A proliferation assay of 4-MU dose response was done by seeding equal numbers of cells in quadruplicate wells on four plates. Each day, one plate was incubated with resazurin for one hour and analyzed in microplate reader. Plates were treated with 4-MU doses, except for day 0. Results are shown in Figure 4 and Figure 5.

Hyaluronan Concentration

Figure 1 shows hyaluronan amounts produced by both cell lines in normal conditions. As expected, the A549 cell line produces significantly more HA than BEAS-2B. In future experiments this assay will be used to see the effect 4-MU has on HA production.
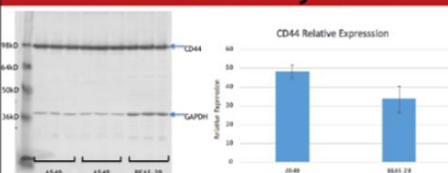
Western Analysis

Figure 2 shows the immunoblot where GAPDH was used as a control for sample loading. Figure 3 shows the relative expression of CD44 in A549 and BEAS-2B cell lines. CD44 was expressed in both cell lines. A549 expressed relatively more CD44 than BEAS-2B.
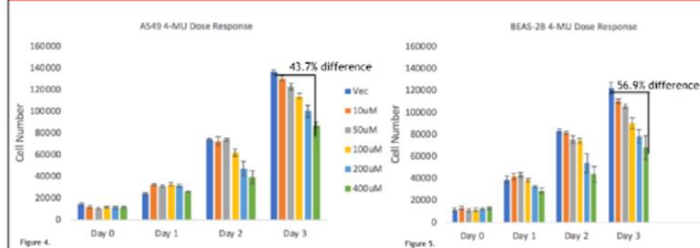
Proliferation with 4MU

Figure 4 and Figure 5 show the effects of 4-MU on cell growth of A549 and BEAS-2B. Growth of both cell lines is suppressed by 4-MU in a dose responsive manner, as expected. BEAS-2B was more sensitive to 4-MU inhibition than A549. Future experiments will examine the result of 4-MU treatment on hyaluronan and CD44.

Discussion

The study presented here focuses on characterizing cell lines in mono-culture to have a baseline for comparison with in a co-culture model to mimic lung surface. In the future, I will continue characterizing HA and CD44 for the cell lines with an analysis of CD44 response to 4-MU treatment. After the characterization is completed, I will co-culture the cell lines with the addition of a differentiated macrophage line that will mimic the immune response to COVID-19 infection. Using the co-culture model, I will analyze the effect 4-MU treatment, looking for changes in macrophage proliferation, cell signaling, and pro-inflammatory cytokines.

References

[1] Shi, Y., Wang, Y., Shao, C. et al. COVID-19 infection: the perspectives on immune responses. Cell Death Differ 27, 1451–1454 (2020). https://doi.org/10.1038/s41418-020-0530-3

[2] Kaber, G. Kratochvil, M. Burgener, E. Peltan, E. Barlow, G. Yang, S. Nicolls, M. de Jesus Perez, V. Rosser, J. Wardle, A. Kalinowski, A. Ozawa, M. Regula, D. Nagy, N. Heilshorn, S. Milla, C. Rogers, A. Bollyky, P. Hyaluronan is abundant in COVID-19 respiratory secretions. medRxiv Doi: https://doi.org/10.1101/2020.09.11.20194662

[3] Marshall, P. Nagy, N. Kaber, G. Barlow, G. Ramesh, A. Xie, B. Linde, M. Haddock, N. Lester, C. Tran, QL. de Vries, C. Malkovskiy, A. Gurevich, I. Martinez, H. Kuipers, H. Yadava, K. Zhang, X. Ewoldt, S. Gebe, J. Wang, X. Vernon, R. Hargil, A. Motta, C. Wight, T. Engleman, E. Krams, S. Meyer, E. Bollyky, P. Hyaluronan Synthesis Inhibition Impairs Antigen Presentation and Delays Transplantation Rejection. bioRxiv 2020 Aug. doi: https://doi.org/10.1101/2020.08.26.272443

[4] Lee-Sayer, S., Yifei, D., Arif, A. A., Olsson, M., Brown, K., & Johnson, P. (2015). The Where, When, How, and Why of Hyaluronan Binding by Immune Cells . Frontiers in Immunology, 6(1), 150. https://doi.org/https://doi.org/10.3389/fimmu.2015.00150

[5] Hiraga, T., Ito, S., & Nakamura, H. (2013). Cancer Stem–like Cell Marker CD44 Promotes Bone Metastases by Enhancing Tumorigenicity, Cell Motility, and Hyaluronan Production. Cancer Research, 73(13), 4112–4122. https://doi.org/ DOI: 10.1158/0008-5472.CAN-12-3801

- You can alter what you put in the middle. You could have text, analyses, an image, or something else that is representative of your work.

A Poster Design that Highlights

Distributing Information More Easily

Jennifer Example[1], Bob Blueprint[1], Elaine Illustration[2]

[1] Department of Chemistry, NC State
[2] Department of Physics, NC State

Introduction
Lorem ipsum dolor sit amet, consectetur adipiscing elit (citation, 2010). Maecenas ac ornare nisi. Curabitur auctor vitae odio sodales blandit. Praesent molestie in diam id fermentum (citing sources et al., 2019). Cras ornare dictum velit, bibendum imperdiet libero luctus vel. Suspendisse et varius nulla (final source, 2018). Duis nec lectus neque. Nunc sagittis suscipit quam at mollis. Duis interdum congue augue, eu mattis eros lobortis ac.

Methods
- Quisque vulputate ex magna, id consectetur augue interdum commodo
- Praesent auctor lectus quis nisl auctor, ac sagittis nunc vestibulum.
- Pellentesque a fermentum massa.
  1. Donec rutrum velit non pharetra vehicula.
  2. Donec ullamcorper convallis vestibulum.
  3. Vivamus tincidunt sem sapien, ac varius lectus lobortis sed.

Results
Donec nec vehicula ipsum, eu pulvinar arcu. Maecenas pulvinar, orci ut semper vestibulum, risus sapien aliquam ipsum, at pretium sapien massa et nunc. Ut rhoncus vehicula luctus.

This is where I highlight my main finding or most impactful piece of my project.

Figure 1: What I want the audience to focus upon

Group by Condition Results

With Written Aid *With Auditory Aid* *Control Group*
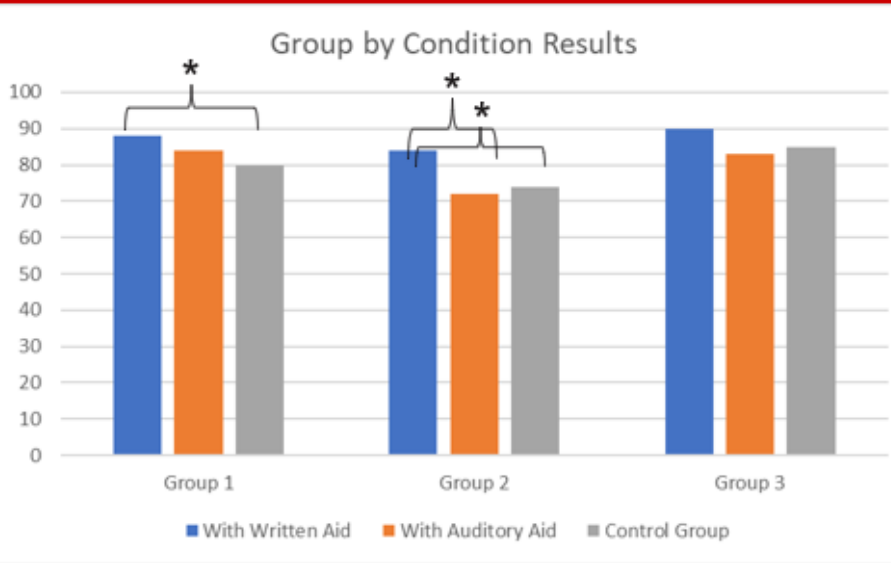
Include some descriptions to assist viewers with interpreting data.

Conclusions
- Lorem ipsum dolor sit amet, consectetur adipiscing elit
- Maecenas ac ornare nisi.
- Curabitur auctor vitae odio sodales blandit.
- Praesent molestie in diam id fermentum (citing sources et al., 2019).

Figure 2: Visuals are so helpful

	Final Test	Post-Test	Delayed Post-Test
Group 1	88	88	90
Group 2	76	79	84
Group 3	91	89	92

Little description regarding how to interpret this. It's important for viewers to have this information.

Figure 3: Informative, helpful figure title

See: <brattle>
Feedback: incorrect vowel

References
Citation, Q. (2010). Title tile title. *Journal of Interesting Science, 23*(1), 100-125.
Citing Sources, M., Fake, N., & Another, E.X. (2019). Interesting title. *Fun Science and Other Information, 4*(6), 310-344.
Final Source, W. (2018). Wow these worked out. *Journal of to be in Order Nicely, 3,* 1-18.

Acknowledgements

- https://osf.io/6ua4k/ - Has some examples of a variety of designs and information.

Discovering the Language of Meaningful Work

👤 Mike A. Morrison, Saakshi Kale

INTRO
- How does work meaningfulness show up in natural language?
- H1: There are certain features of written language that signal whether a person finds their work meaningful.

METHODS
1. n=200 page-length work stories. Full-time employees. Several measures of meaningfulness.
2. "In 500 words, tell me about your work."
3. Machine Learning via scikit-learn and NLTK to discover common language features with meaningful vs. not meaningful stories.

RESULTS

	Identity words at beginning of story. ("I am a ___")
Single-item Work Meaningfulness	.31***
Comprehensive Work & Meaning Scale	.20***
Work And Meaning Inventory (WAMI).	.19***

Starting to describe their work with the words "I am a[n]..." significantly correlated with 3 self-report measures work meaningfulness.

DISCUSSION
- Work meaningfulness seems related to identity.
- Could be related to achieving a 'final' identity, a la Maslow's self-actualization.
- "I am" is especially correlated with extremes of meaningfulness (correlation jumps to from .3 to .4 in polarized dataset of high/lows only.

MICHIGAN STATE UNIVERSITY

When people **find their work meaningful**, they talk about it using **identity words**, like...

"**I am** a writer" VS. "**I work for** a magazine."

^(I am a |I'm a |I am an |I'm an)

Take a picture to **download** the **full paper**

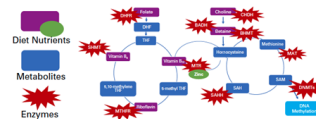# Diet impacts the avian epigenome for generations
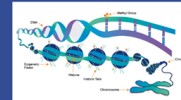
The effect of a diet high in methyl donors on DNA methylation patterns across multiple generations.

Chelsea A. Phillips and Chris M. Ashwell
Prestage Department of Poultry Science,
NC State University, Raleigh, NC 27695 USA
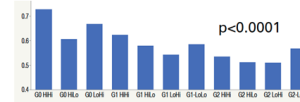cmashwel@ncsu.edu

DNMT3 Methylation vs. Treatment

p<0.0001

Legend:
- ■ Control diets (starter/layer)
- ■ High Methyl Donor diets

Phenotypes Collected for Each Generation

|	BW*	# of Eggs	Egg Wt*	Body Composition*	DNA Methylation Sequencing*
G0 Parents	BW*	# of Eggs	Egg Wt*	Body Composition*	DNA Methylation Sequencing*
G1 Progeny	BW*	# of Eggs	Egg Wt*	Body Composition	DNA Methylation Sequencing
G2 Progeny	BW	# of Eggs	Egg Wt*	Body Composition	DNA Methylation Sequencing*, RNA sequencing*

* Significant differences between G0 treatments

Diet Nutrients

Metabolites

Enzymes

Correlation of DNA Methylation and Gene Expression by RNAseq

Methylation Level

RPKM
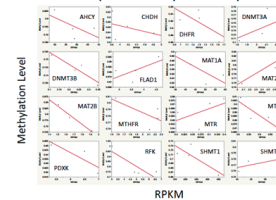
Conclusions

- ❖ Diet affects genomes for generations
- ❖ Heritable differences in DNA methylation impact gene expression
- ❖ Animal Agriculture: Important to consider environment of parent stocks

Contact Us!

**Office of
Undergraduate Research**

2425 DH Hill Jr. Library

go.ncsu.edu/OUR

undergraduate-research@ncsu.edu

@NCStateOUR

@NCStateOUR

Join our Google Group (NC State
Undergraduate Research Info)