

MASSURC 2025



**How to design
your research
poster for the
MassURC!**

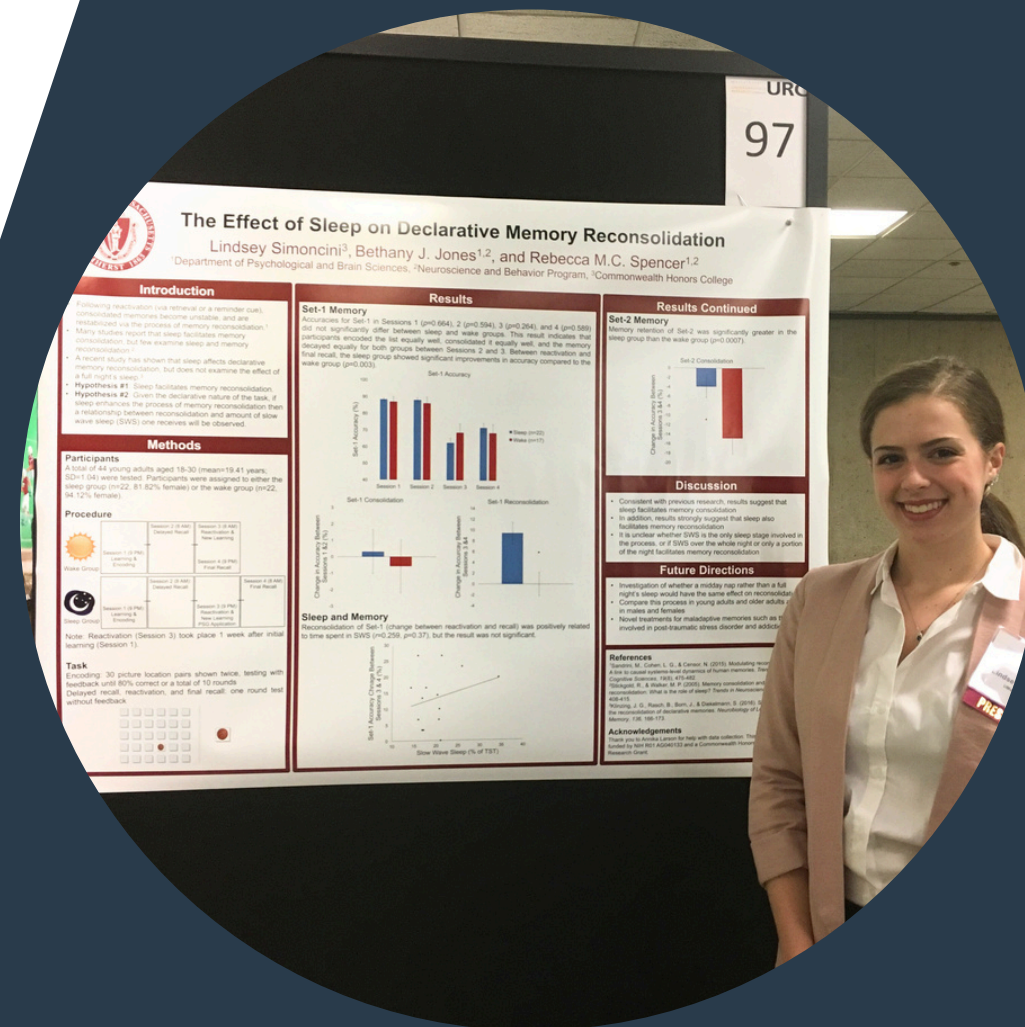
Introduction to
RESEARCH POSTERS



WHAT

IS A RESEARCH POSTER?

- Posters are a popular method of presenting research findings in a concise and visually pleasing format
- On the conference day you will stand by your poster during your presentation slot, showcasing your work to those walking by and allowing you to have a direct and engaging connection with your audience
- Posters generally consist of: concise text, tables, graphs, images, and various formats of data

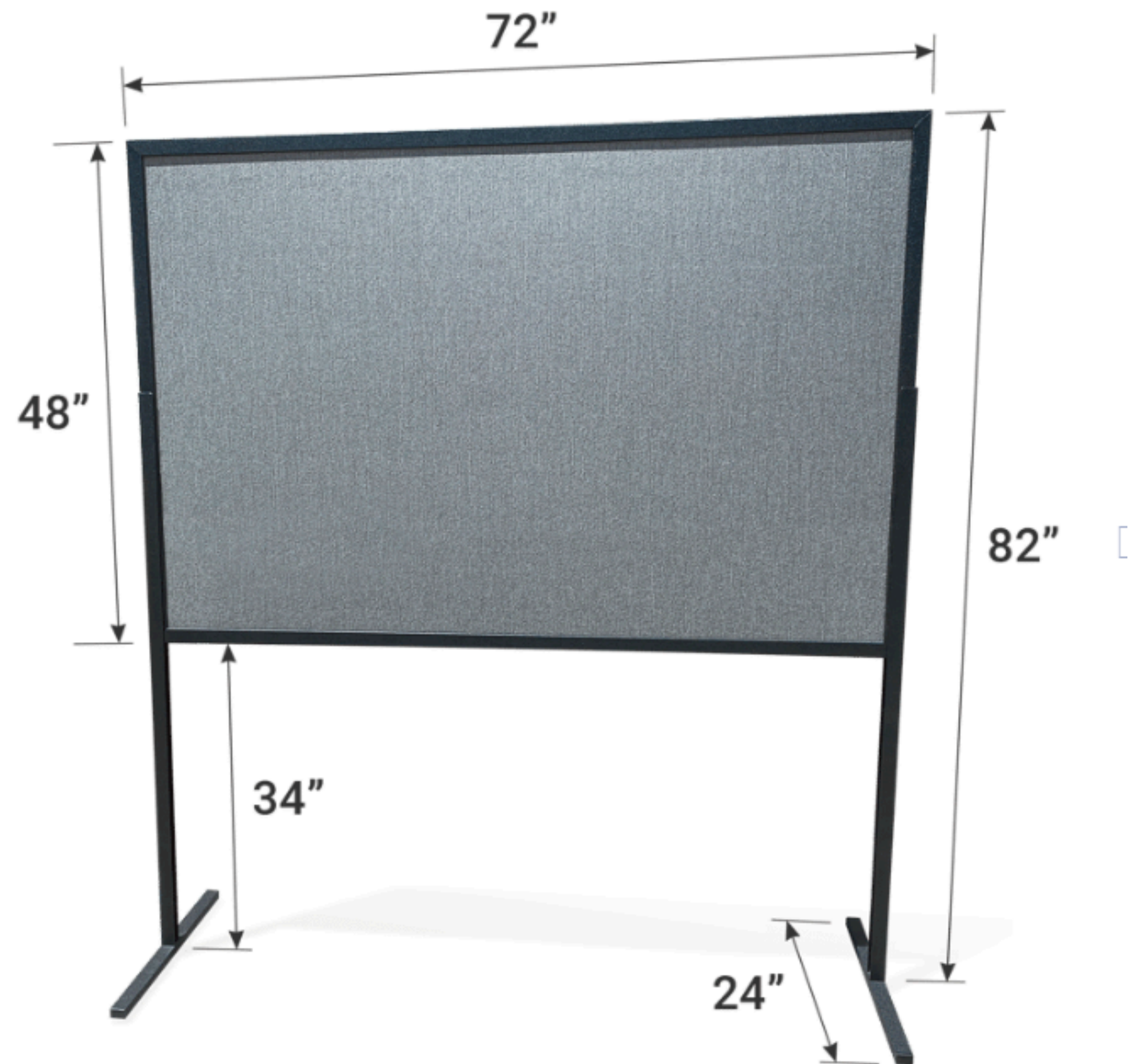


GUIDELINES FOR

MASSURC 2025

- MassURC will provide 48 inches x 72 inches (four feet by six feet) poster boards and pins for display
 - Your poster can be any size up to 4' x 6'. It is not expected to be the same size as the poster board we provide!
- Every participating student must designate a **Faculty Sponsor** who will review and approve their research materials, including the abstract and poster presentation
- Students have the option to present individually or in small groups

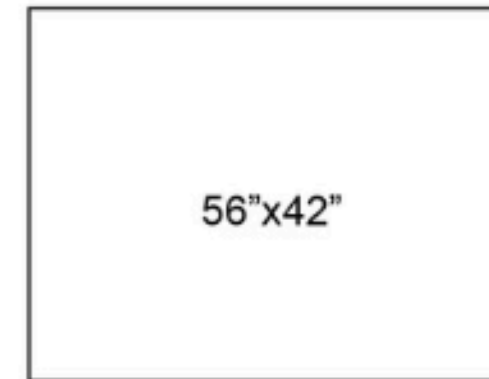
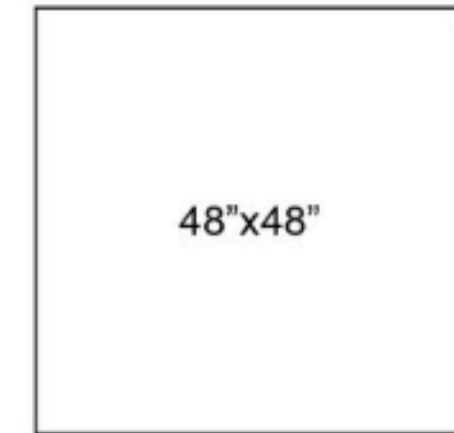
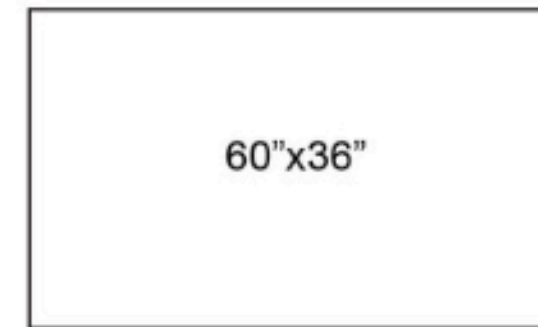
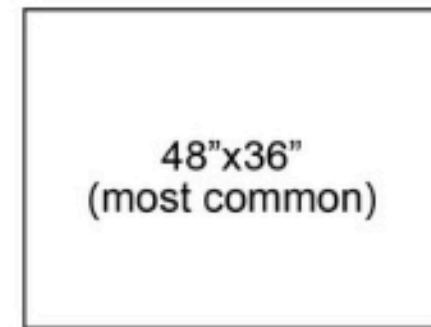
Here is what the poster board provided looks like:



POSTER SIZE

RECOMMENDATIONS

- We don't have one suggested size for conference posters.
- Here are some size recommendations:
 - 48" x 36" (most common)
 - 60" x 36"
 - 48" x 48"
 - 30" x 48"
 - 56" x 42"

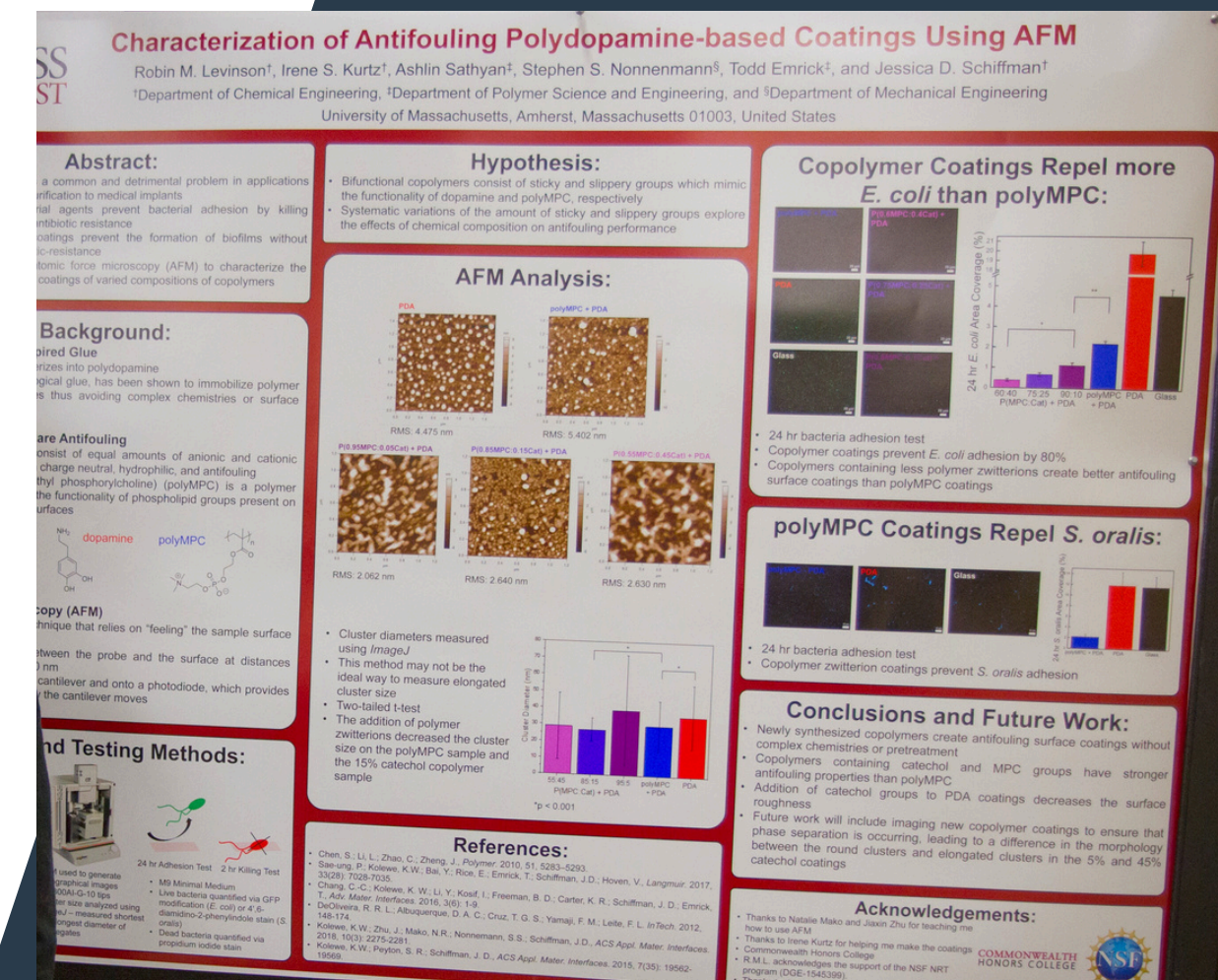


Common poster sizes

WHAT MAKES AN

EFFECTIVE POSTER?

- Ensure that crucial information is legible from 10 feet away
- Have a concise and attention-grabbing title
- Include your **acknowledgments, name, and institutional affiliation**
- Use a mix of text, tables, graphs, images, and other formats to summarize and convey information in a succinct and appealing way



Designing your

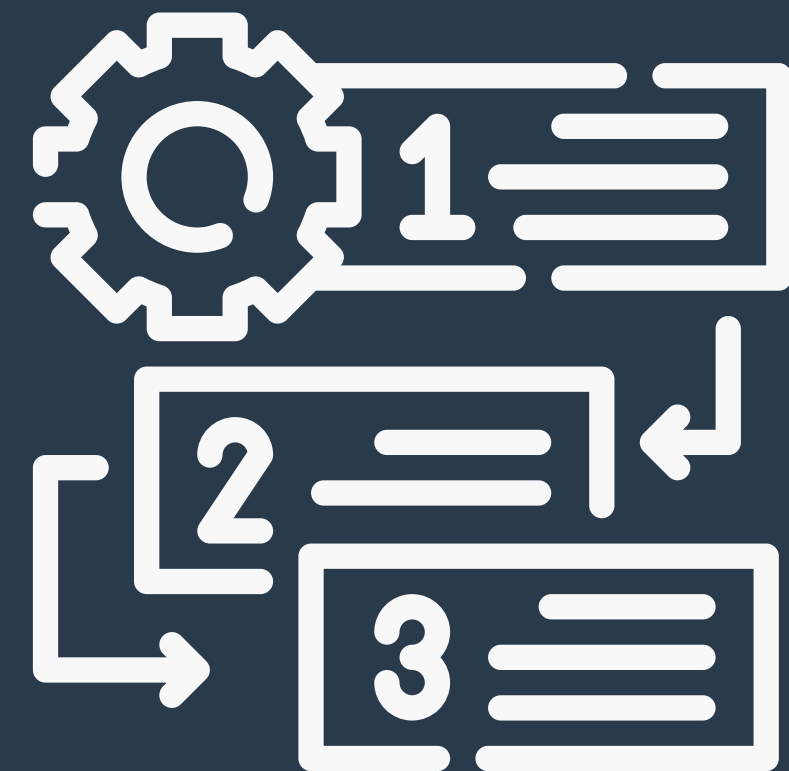
RESEARCH POSTER



ORGANIZE

YOUR CONTENT

- Make sure to format your title according to Chicago, MLA, APA, or the appropriate style guide for your discipline
- Make good use of headings and subheadings; be sure to organize your content into sections such as “Data”, “Results,” “Key Findings”, for example
- Use bullets and numbering to summarize information and methods utilized
- Arrange your content in a logical order, following the flow of your research process
- Maintain a clean and consistent layout and color scheme throughout the poster



RECOMMENDED

COMPONENTS

- **Provide background:** Make sure you include a section that provides relevant background information that someone unfamiliar with the research field or topic might not know on their own
- **Highlight your research question:** State your research question clearly, so that others understand what exactly you want to achieve with your research
- **Describe your methodology:** Explain the methods and procedures you utilized throughout your research process in a concise and thorough manner
- **Visually convey results/takeaways:** Use tables, charts, and graphics to visually display important information to others

Design Considerations:

- Ensure a good balance of content and white space. Crowded posters can be overwhelming to look at
- Leave sufficient margins around the edges for a clean look

Incorporate
ACCESSIBILITY



WHY ACCESSIBILITY

MATTERS:

- Your poster is a visual representation of your research, and making it accessible involves choosing design elements that are clear and easily understandable.
 - This ensures that your research reaches the widest possible audience!

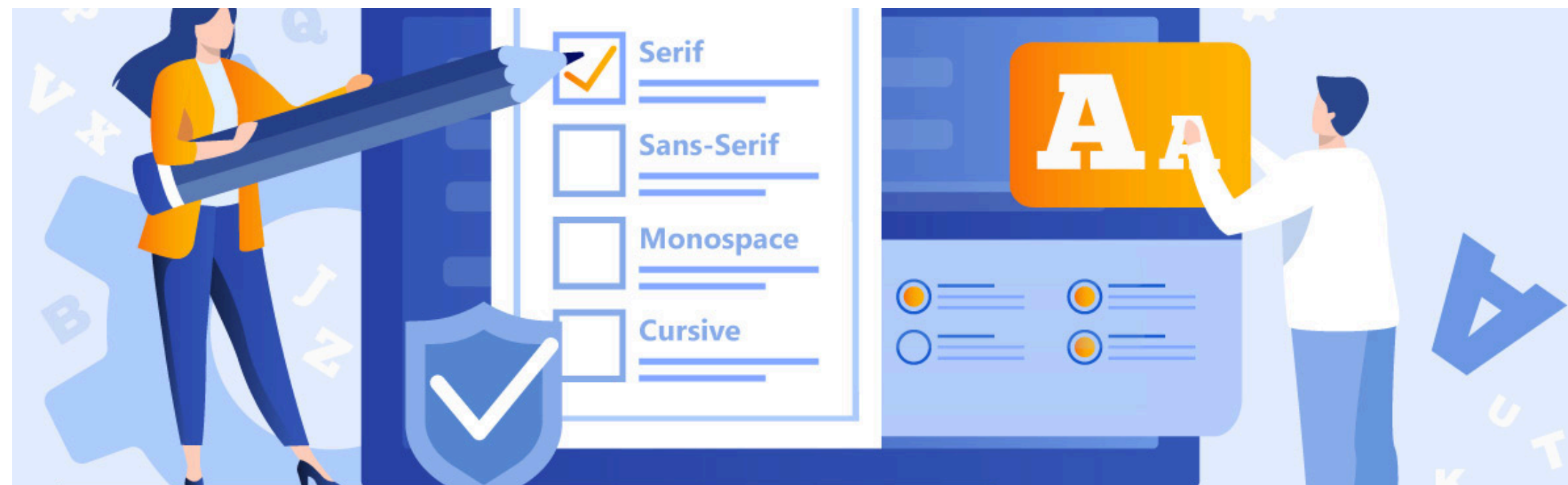


DESIGN TIPS TO CONSIDER TO

ENHANCE READABILITY:

Fonts:

- Recommended: **Sans-serif fonts** such as Arial, Gill Sans, Helvetica, and Verdana for body and heading text.
- **Serif fonts** such as Times New Roman and Garamond are recommended for headings only.



DESIGN TIPS TO CONSIDER TO

ENHANCE READABILITY:

Text size:

- Bigger is better!
- Recommendations:
 - Main title: 72 point (minimum) - 158 point (ideal)
 - Section headings: 42 point (minimum) - 56 point (ideal)
 - Body text: 24 point (minimum) - 36 point (ideal)
 - Captions: 18 point (minimum) - 24 point (ideal)

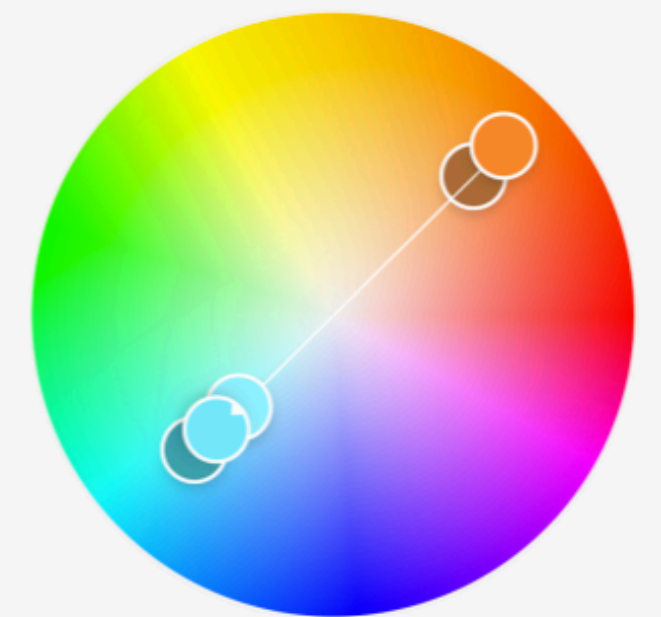


DESIGN TIPS TO CONSIDER TO

ENHANCE READABILITY:

Colors:

- Ensure sufficient contrast between the text and the background.
 - **Color Contrast checking tool** is linked on the MassURC Hub!
- Avoid relying solely on color to convey meaning. Instead, use patterns or shading in addition to color on charts, graphs, illustrations, and maps where color differences are intended to convey information.
- For more design tips, [click here](#)



CONSIDER YOUR

VERBAL COMMUNICATION

Why it matters:

On the day of the conference, you will be walking attendees through your research verbally. By considering accessibility, you guarantee that your spoken explanations are inclusive and contribute to a clear and coherent understanding of your work for everyone in the audience.

Tips to Consider:

- **Clarity:** Speak clearly and at a moderate pace to aid understanding for all attendees
- **Inclusive Language:** Use language that is inclusive and avoids jargon, making your research accessible to a diverse audience
- **Descriptions of Visuals:** Describe visuals to assist those with visual impairments, provide detailed descriptions verbally for any visuals you may have included

LAST MINUTE TIPS!

- You will likely be explaining your work to a lot of people. Prepare a short “elevator pitch” that consists of a concise verbal summary of your research process and results so far so that you have one ready to go!
- If you want to bring extra “props” or components of your research outside of your poster, you can do so
 - You can make a request for a small table to display through the accommodations form on the MassURC Hub, but we cannot guarantee that we will be able to provide it
- If you have any friends, family, or other guests that you would like to invite to the conference, they can fill out the guest check-in form that is available on the MassURC Hub!

Research Poster

EXAMPLES



Unraveling CheA Regulation by Domain State

Bacterial Chemotaxis

Stanley Yuan¹, Thomas Tran^{1,2}, and Lynnmarie Thompson¹
¹Department of Chemistry, University of Massachusetts Amherst
²Molecular and Cellular Biology Graduate Program
 Contact Info: syuan@umass.edu

I. Chemoreceptors Propagate Signals

- Motile bacteria utilize signaling complexes to direct their navigation towards favorable environments.
- The histidine kinase CheA catalyzes phosphoryl transfer to response regulators that control flagellar motion.
- Ligand binding and methyl modification of the receptor shifts CheA into kinase-on or kinase-off signaling outputs.
- Methylated (CF4) and unmethylated (CF4L) forms of the receptor cytoplasmic fragment recruit the kinase-on and off forms in native-like complexes, respectively.

II. CheA is Stabilized in Kinase-on Complexes

Recent studies have revealed changes in conformational dynamics between CheA and kinase-off states (Tran et al., PNAS, 2022). We have investigated the role of CheA in kinase-on and off states in native-like complexes.

III. P3 Disulfide Crosslinking via Disulfide Trapping Experiment

- A cysteine mutation (C102S) in CheA stabilizes the kinase-on state in the presence of the histidine kinase-off state (CF4L).
- CheA (C102S) has a higher fraction of kinase-on state compared to CheA (WT).
- Disulfide crosslinking between CheA (C102S) and CheB (WT) stabilizes the kinase-on state in the presence of the histidine kinase-off state.

IV. Assembly of V298C-CheA in Native Complexes

Cysteine mutation (V298C) in CheA stabilizes the kinase-on state in the presence of the histidine kinase-off state.

The Potential Over-Use of Acacia mellifera by Conservancy Members and Brown Recluse Spiders

Adria Boudreau, Cass Leonard, De Figueiredo, North Beach
 University of Massachusetts, Amherst, School for Field Studies (SFS), Amherst

Abstract

The brown recluse spider (BRS) is a medically important arachnid. The BRS is known to feed on a variety of animals, including humans. The BRS is also known to feed on Acacia mellifera, a common tree species in the region. The BRS is known to feed on Acacia mellifera in the region of the SFS. The BRS is known to feed on Acacia mellifera in the region of the SFS.

Methods

We conducted a field study to determine the feeding habits of BRS in the region of the SFS. We collected BRS and Acacia mellifera in the region of the SFS. We analyzed the feeding habits of BRS in the region of the SFS.

Results

Our results show that BRS feed on Acacia mellifera in the region of the SFS. The BRS is known to feed on Acacia mellifera in the region of the SFS. The BRS is known to feed on Acacia mellifera in the region of the SFS.

UMASS AMHERST

The influence of particle shape on adhesion in flow: rods versus spheres

Aiste Balciunaitė¹, Molly K. Shure², and Maria M. Santoro¹
¹Department of Chemical Engineering, University of Massachusetts Amherst, ²Department of Polymer Science and Engineering, University of Massachusetts Amherst

Introduction and Motivation

Encasing drugs in microparticles is increasingly being seen as the solution to targeted drug delivery.

- Ability to control microenvironment of drug
- Ability to target drug by addition of targeting ligands to microparticle
- Ability to control release of drug into body

Effect of particle shape on drug delivery

- Widely accepted that rods and disks are advantageous to use in drug delivery
- Shape of particle affects biodistribution
- Shape of particle affects adhesion of particle to surfaces in flow and have a stronger adhesion

Rod Behavior in Flow

Rods behave differently in flow than spheres

- Spherical particles interact with the surface by rolling
- Behavior easy to model due to symmetry
- Rod-shaped particles can have a variety of different behaviors
- End-over-End tumble is one type of interaction
- Rods can also roll along the surface
- Different behaviors result in different adhesion

Electrostatic Interactions for Adhesion

Adhesion = Positive PLL + Negative Silica

- Poly-L-lysine: positively charged polymer
- Adsorbs to silica surface of glass slide, creating positively charged patches
- Silica-based microparticles adhere to the positively charged PLL patches

Laterally Mounted Flow Cell System

Flow cell system designed to study the interactions between surfaces and microscale particles or bacteria in flow

Flow Cell Results: Adhesion Threshold

Spheres have a lower adhesion threshold than rods with small aspect ratios

Raw Data: Particles captured per time

Flow Cell Results: Capture Rate

Shape affects how much material is delivered to the surface

Raw Data: Particles captured per time

Particle Synthesis

Spheres: Nitric Oxide Precipitation

Rods: Porous rod shaped cores are synthesized via wet polymerization (PVP) in porous silica shells.

Particle Summary

Sample	Length (nm)	Diameter (nm)	Aspect Ratio
MSK1	1923	1394	1.38
MSK2	1361	1061	1.28
MSK3	1361	1061	1.28
MSK4	1361	1061	1.28
MSK5	1361	1061	1.28
MSK6	1361	1061	1.28
MSK7	1361	1061	1.28
MSK8	1361	1061	1.28
MSK9	1361	1061	1.28
MSK10	1361	1061	1.28

Future Work

Adhesion Threshold: Surface functionalized silica spheres

Capture Rate: Study effect of increasing aspect ratio on capture rate of rods

Iron(III) Porphyrin Complex and its Reactions with Quinoline-based Antimalarial Drugs

Adama Bangura
 Faculty Sponsor: Dr. Dennis Awasabishah
 Biology & Chemistry Department, Fitchburg State University
 Email: abangura@student.fitchburgstate.edu, dawasabishah@fitchburgstate.edu

Introduction

The Iron(III) porphyrin complex (FeP) is a natural product that has been shown to have antimalarial activity. The FeP is known to react with quinoline-based antimalarial drugs (QADs) to form a complex. The FeP is known to react with QADs to form a complex.

Experiment/Results

The FeP reacts with QADs to form a complex. The FeP is known to react with QADs to form a complex. The FeP is known to react with QADs to form a complex.

Conclusion

The FeP reacts with QADs to form a complex. The FeP is known to react with QADs to form a complex. The FeP is known to react with QADs to form a complex.

MASTERING THE ART OF INDEPENDENCE: A STUDY ON THE KEY FACTORS OF AN INDEPENDENT ARTIST'S SUCCESS

Melanie Duarte and Raymond Liu
 College of Management, Honors College, University of Massachusetts Boston

ABSTRACT

The purpose of this study is to build a model theory on independent musician success and determine the best methods to stand out in an industry saturated with independent artists. Independent artists are quickly reaping the future of the music industry. After the COVID-19 pandemic, the number of independent artists has increased significantly. However, hundreds of other critical factors were also revealed throughout existing research. Independent artists are still struggling to become signed and capture the attention of acclaimed record labels. In order to determine which contributing factors are highly correlated with success, surveys and interviews from listeners, artists and managers will be conducted and analyzed. Independent artist success will be measured through success factors including: audience building, strategic distribution, business acumen, effective promotion, music quality and artist branding. Correlational data will be reviewed to produce a conclusion of independent success factors. The study will benefit from the completion of this study as it will emphasize areas of focus in their career.

RESEARCH QUESTIONS

- How can independent artists maximize their level of success in an industry now heavily defined by creativity?
- What strategies are independent artists currently using for marketing their art?
- How can independent artists improve the way they market themselves?
- What success factors are most impactful on an independent musician's success?
- What skills do independent artists need to improve to become successful?
- How can independent artist management and development companies improve their services for independent artist success?

RESULTS

Preliminary results from the artist manager data suggests that:

- Audience building and music quality are of almost equal importance to independent artist success.
- Networking is important in the industry, but it is not the most important. The most important kind of networking is with the fans.
- Building an audience and creating authentic content are the most important aspects of driving the results.

Preliminary results from the independent artist data shows the following:

- The independent artist with the least amount of growth and engagement (A2) demonstrated the highest success rate in terms of revenue and audience building.
- The artist with significant amount of listener growth (A1) and A2) provides a high level of listener growth and audience building.
- The artist with the highest amount of monthly listeners and audience building (A3) shows the highest success rate in terms of revenue and audience building.

REGRESSION ANALYSIS

Multiple regression analysis of the most listener data shows the following:

- Strategic distribution and effective promotion are a significant positive effect on success at a value of 0.12.
- Audience building showed the least significant effect on success at a value of 0.08.
- Artist branding and music quality showed significant positive effect on success at a value of 0.15.
- A strong correlation between the independent and listener data was observed.
- The regression value of the data is 0.74, showing a strong correlation between the independent and listener data.

Hypertension Treatment Attenuates Diet-Induced Obesity and Insulin Resistance in Old Female and Ovariectomized Mice via TRPV1-Mediated Folate Calcium Cycling

July K Kim, Gwanseol Layek, Sookyung Chung
 University of Massachusetts Amherst, USA, 01003, USA

Abstract

Old mice fed a high-fat diet (HFD) develop obesity and insulin resistance. Hypertension treatment (HT) attenuates diet-induced obesity and insulin resistance in old female and ovariectomized mice via TRPV1-mediated folate calcium cycling.

Results

Old mice fed a HFD develop obesity and insulin resistance. HT attenuates diet-induced obesity and insulin resistance in old female and ovariectomized mice via TRPV1-mediated folate calcium cycling.

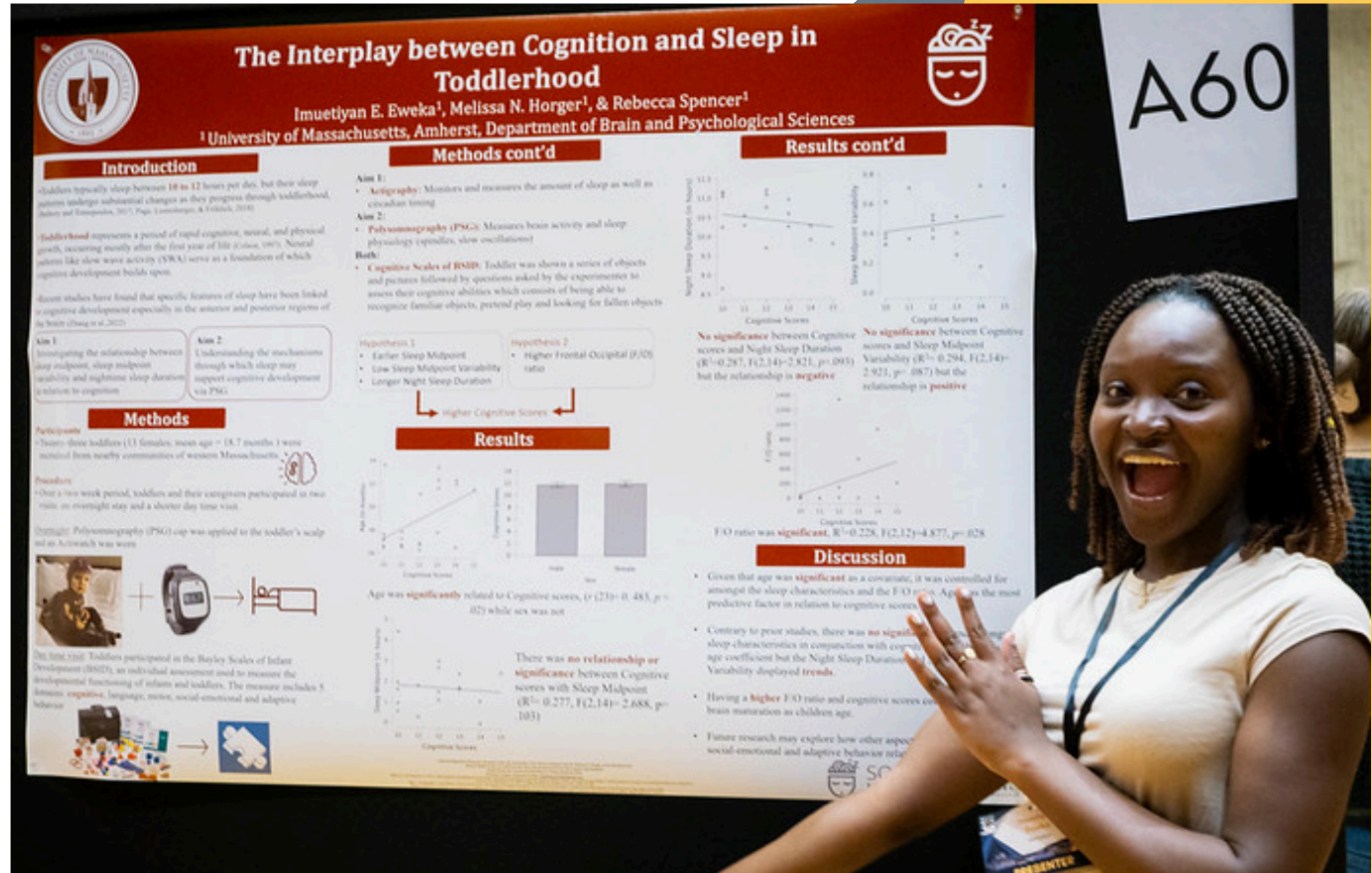
Proposed Mechanism

HT attenuates diet-induced obesity and insulin resistance in old female and ovariectomized mice via TRPV1-mediated folate calcium cycling.

POSTER

EXAMPLES

- [Follow this link to see more examples of posters](#)



Reminder:

PRESENTER RESOURCES





POSTER RESOURCES

- [Example Posters](#)
- [Color Contrast Analyser](#)
- [WebAIM Contrast Checker](#)
- [Guidelines for Creating Accessible Printed Posters](#)
- [Poster Tips for Humanities Conference Posters](#)

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Welcome to the MassURC Hub!

We're excited for your interest in the 30th Massachusetts Undergraduate Research Conference (MassURC), where students from across Massachusetts come together to present original research in their respective field of study. If you are interested in presenting or are serving as a Faculty Sponsor, please make sure you register to create a user account.

The [MassURC Hub](#) is where you will register for the conference, submit, revise, and review abstracts. In addition, [MassURC Hub](#) will be your resource for live schedules, searching, notifications, and updates on conference day.

To Register



MASSURC HUB

MASS
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- One-stop-shop for all MassURC information!
- The **Poster Tips, Color Contrast Checker, and Example Posters** that we've mentioned today will live here!

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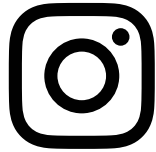
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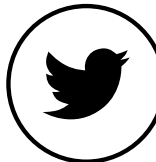
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QUESTIONS?

Still have questions?
✉ [Email the conference team](#)

