

A Research Poster

*A large sheet on which
the presenter displays (the results
of) their research
in a clear, concise and visually
appealing manner*



Origin of scientific posters

- The first posters appeared in the late 1960's
- “Prepared cards” with pictures, graphs, diagrams and tables
- “Poster session” was introduced in the 1970's
- Nowadays, almost all conferences in different disciplines have poster sessions



Root reasons to make a poster

- 1
Communicate my research findings
- 2
Promote networking
- 3
Facilitate meaningful discussion among conference attendees
- 4
Future co-operation?



Basic questions

1. What is my **key message**?
2. What kind of **reactions** I want to evoke?
3. What kind of **audience** do I have?
4. What kind of **co-operation opportunities** you are looking for?



- What could be the most effective way to tell my key message to the target audience?
1. Will the people notice my poster?
 2. Do they become curious and interested?
 3. Do they come and discuss?
 4. Can we do something together in the future?

Framework issues to consider



- **Size** of the poster wall, required **format**, or other limitations ?
- **Printing** (if needed) and **transport** to destination
 - Costs?
 - Does the poster fit in a suitcase, poster tube, etc.
- **Size and shape** of the poster
 - Poster walls are often for A0 or A1 size posters
 - Rectangular/ square / other shapes
- What **software** can be used?
 - PowerPoint / Adobe Illustrator / Photoshop / InDesign / Open source alternatives...
- Sheet **material**
 - Paper / Fabric / Something else

Once the basic message, target audience and constraints are clear, how to make the best possible poster within them?

Remember

- Layout
- Content
- Readability
- Special effects
- Getting feedback



1. Introduction

What makes people come to your poster?

1. Something that looks interesting
2. Title in the list of posters
3. Poster pitch (if there's any)



<https://www.animateyour.science/post/best-examples-of-scientific-posters>

2. Content

Poster ≠ scientific article

- No abstract needed
- No long chapters
- Focus on the main findings
- You may add QR code that leads to supplementary information

- Key message
- Figure(s)
- Contact information



3. Readability

3.1 FONT STYLE

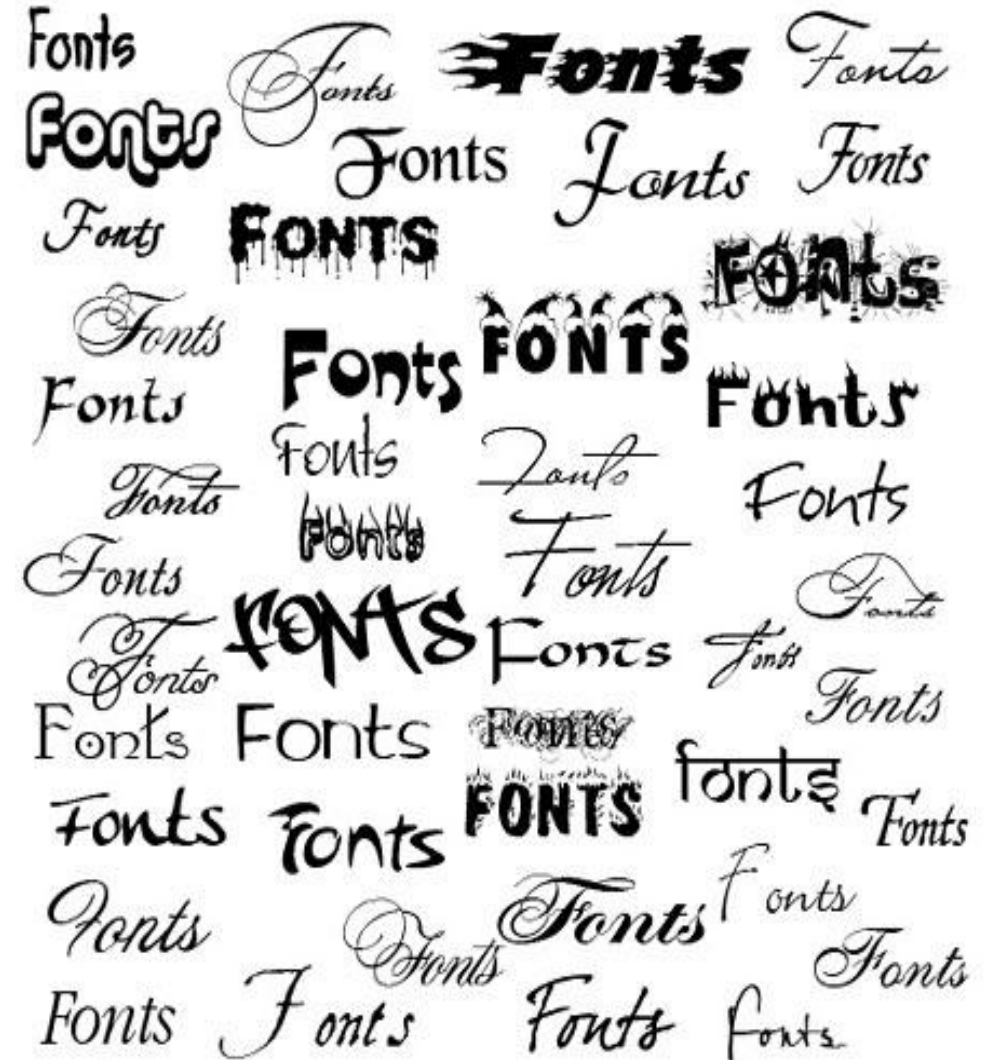
- Use easy-to-read font
- Do not use too many different fonts

3.2 FONT SIZE

- Use big enough font
- Do not use too many different font sizes

3.3 COLOURS

- Use easy-to-read colours
- Also colour blind people should be able to see and read your poster!



4. Layout

Project
logo

Title

Short
description

Process
flow chart

Objective

Results

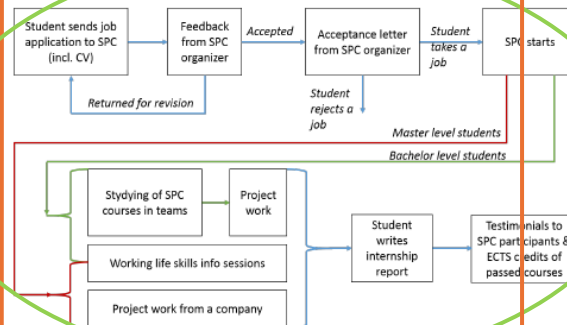


Terhi Virkki-Hatakka*, Eila Pajarre, Merja Heikkilä,
Riku Hietaniemi, Sauli Pajari and Helena Tompuri
*corresponding author,
Lappeenranta University of Technology, Finland, e-mail: tvh@lut.fi
www.tyylihanke.wordpress.com

Practice makes perfect!

How to get the best learning outcome from an internship

- prepare well beforehand
- pay attention to the quality of internship during the period
- set learning objectives and guidance during the period
- include reflection



Summer Project Camp (SPC)

- integrates studies and internship.
- working-place-like conditions in the university campus area.
- different tracks to bachelor and master level students.
- Piloted 2016 - 2017 with software engineering, computational science and technical physics students.
- 2018, also electrical engineering students.
- Studied and developed based on interviews, written feedback and reflections.
- SPC increased students' self-knowledge, know-how and understanding their own targets for future working life.

Renewal of internships in six TYyli project partner universities

Objective:
to improve the instructions and documentation used in all internships and similar kind of working life periods.
Piloted in the faculty of Information technology and electrical engineering in University of Oulu.
In renewed internship, the documentation was divided into three main phases of an internship:
1. Before: internship plan with personal development goals
2. During: Weekly reports of progress
Longer report and reflection focusing on the learning outcomes,
3. After: Personal development immediately after the internship.

Results:
New documentation clearly helped the students
- to compare university studies to expectations from working life
- to identify personal strengths and development areas
- to feel more ready to proceed in the working life after graduation.

Authors,
contact information

Illustration

Pilot case explained

Illustration

Sponsor logos





Examples of different layouts and colour use



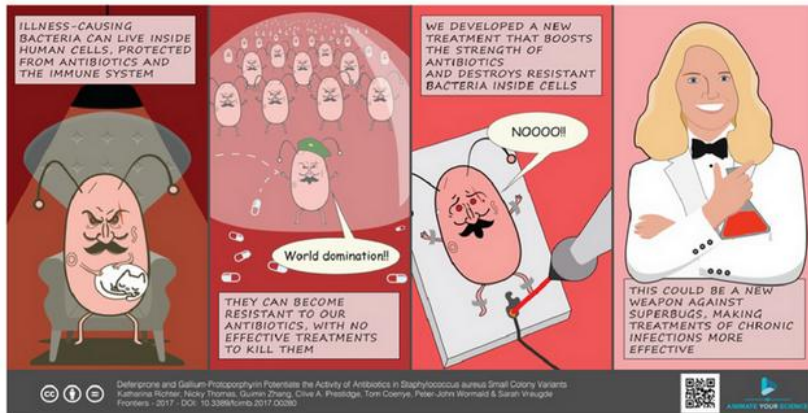
A topical gel for biofilm-associated respiratory tract infections- translation from bench to bedside

Katharina Richter^{1,2}, Nicky Thomas², Tom Coenye³, Sarah Vreugde¹

¹ University of Adelaide, Basil Hetzel Institute for Translational Health Research, The Queen Elizabeth Hospital, Adelaide, Australia
² Adelaide Biofilm Test Facility, Sansom Institute for Health Research, University of South Australia, Adelaide, Australia
³ Laboratory of Pharmaceutical Microbiology, Ghent University, Ghent, Belgium



the hospital
research foundation
finding cures improving care



Logo

Title offset 2/3 to the right
obeys the rule of thirds!

Authors and affiliations

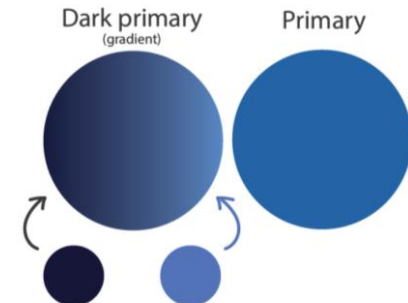
QR code

Logo

Logo

Colour palette

Graphical abstract
the bigger the better!



Background

S. aureus forms biofilms and small colony variants (SCVs), which hide inside human cells, thereby surviving the immune attack and antibiotics¹. Best medical care (long-term antibiotics, surgery) is ineffective resulting in recurring infections, significant healthcare costs and low quality-of-life².

Aim & Methods

Preclinical validation of a novel treatment comprising the iron-chelator deferiprone (Def) and the haem-analogue gallium-protoporphyrin (GaPP) against antibiotic-resistant *S. aureus* biofilms and SCVs³.

Results

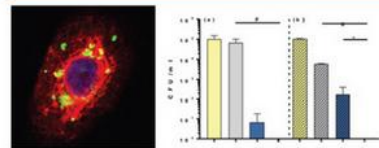


Fig. 1: Intracellular SCVs (green) in a human cell (red-blue). Infection assay: Def-GaPP-Gentamicin eradicated intracellular (a) and extracellular (b) SCVs. C: untreated control. Treatment 1: gentamicin (Gent), 2: Def-GaPP, 3: Def-GaPP-Gent.

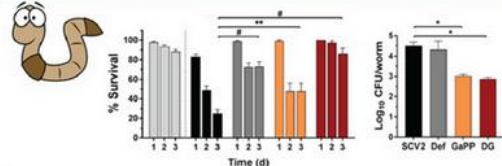


Fig. 2: *C. elegans* infection model: Def-GaPP significantly increased the survival of worms infected with SCVs. Uninfected controls (light grey). Worms infected with SCVs (black) and treated with Def (dark grey), GaPP (orange) or Def-GaPP (red). GaPP and Def-GaPP significantly reduced the bacterial load per worm.

Conclusion

Def-GaPP showed significant activity against *S. aureus* biofilms and intracellular SCVs, and potentiated the potency of Cip and Gent against resistant strains³. Delivered in a wound healing gel, Def-GaPP progressed to a first-in-human pilot study for the treatment of chronic rhinosinusitis at The Queen Elizabeth Hospital in Adelaide, Australia.

References

- Garcia LG, et al. *J Antimicrob Chemother* 2013;68(7):1455-64.
- Chronic respiratory diseases in Australia. Australian Institute of Health and Welfare, 2015.
- Richter K, et al. *Front Cell Infect Microbiol* 2017;7(280).

Acknowledgements

Funded by The Hospital Research Foundation and the National Health and Medical Research Council, Australia (grant number NHMRC: GNT1090898).
KR and SV hold a patent on Def-GaPP for topical antimicrobial applications.

Banner heading 1

Text

Banner heading 2

Text

Banner heading 3

Figures and legends

Banner heading 4

Text

Banner heading 5

Text

Banner heading 6

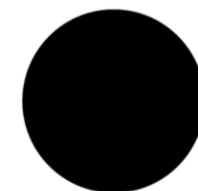
Text

Other logos

Background



Text



Accents





SIZING UP THE CRAB INVADERS!

Morphometrics for *Carcinus* spp. can assess population variability & may assist with species identification

René Campbell¹, Sabine Dittmann¹, Michael Gardner¹, Marty Deveney²

¹rene.campbell@flinders.edu.au



CRUSTACEAN DOMINATION

European shore crabs - some of the most widespread marine invasive species worldwide. Two species in the genus:

Carcinus maenas (Atlantic) & *C. aestuarii* (Mediterranean)



Prey on native & commercial species = impacts!

CRAB COLLECTION

Field sites: Coast of Gulf St Vincent, South Australia

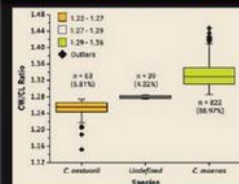
Habitat regions: Rocky shore/estuary, port & mangroves



Specimens: Crabs collected with baited traps & time searches

Seasonal from 2012 - 2018

A LOOK AT SOME DATA



MDS + bootstrap averages for 12 morphometric features

Differences for both sex & region - male crabs most distinct in mangroves

CW & CL - strongest drivers behind these differences

Mangrove crabs tend to be larger = more distinct grouping in MDS

SIMPER Analysis

Mangroves mean similarity 88.85% Port mean similarity 84.92% Rocky shore mean similarity 79.69%

Major contributions: carapace width (~18%), carapace length (~14.5%), right chela length (~9.5%)

WHICH CRAB IS WHICH?



Taxonomy & population biology: may assist management
Morphometrics: quantitative analysis of shape & form

Carcinus species not confirmed in South Australia

Can assess taxonomic ID & local population variability



Populations: Variation due to life-history or plasticity

Species ID: Potential insight into hybridisation, adaptation or source populations

MEASUREMENTS

Measurements: Digital callipers used for morphometrics

Species ID: Carapace ratios can help identify species (based on previous literature)



Population: Multivariate analyses for morphometrics between regions & sex assessed

WHAT'S NEXT?

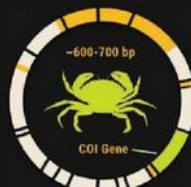


Morphometrics - influenced by sex, so species ID inconclusive

Population: Morphology distinct across regions + sex

Potential adaptations to habitats + life history (dispersal)

Population genetics will be assessed - connectivity & gene flow



Species ID: CW/CL ratios suggest both species are present in SA

Sex & intraspecific variability can influence ratios - unreliable?

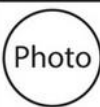
DNA: species being confirmed with DNA barcoding (COI gene)

IMPLICATIONS

SA's Mediterranean climate - ideal for *C. aestuarii* establishment, or plasticity for *C. maenas*



Habitat use & potential range expansion - concerns for management of this global invader



Twitter handle

Catchy main title

Subtitle and authors

Logo

Email

Banner heading #1

Figures and text

Banner heading #2

Figures and text

Banner heading #3

Figures and text

Banner heading #4

Figures and text

Banner heading #5

Figures and text

Banner heading #6

Figures and text

Big crab!

Colour palette

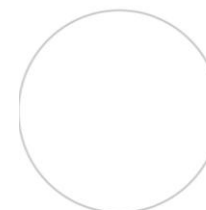
Dark primary



Primary



text



Accent



Text

Text

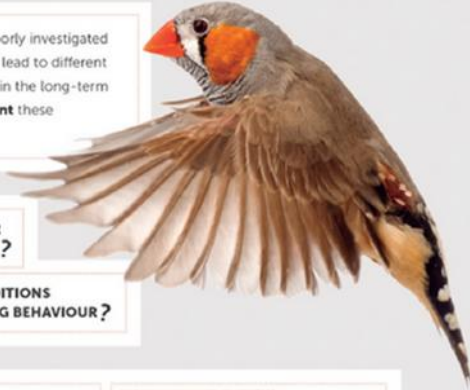
<https://www.animateyour.science/post/best-examples-of-scientific-posters>

FLEXIBLE FORAGING BEHAVIOUR IN **WILD ZEBRA FINCHES** AND ITS RELATION WITH TEMPERATURE

CATERINA FUNGHI, LUKE MCCOWAN, WIEBKE SCHUETT AND SIMON GRIFFITH

INTRODUCTION

- Foraging as behavioural trait has been poorly investigated
- Fluctuation in environmental conditions can lead to different behavioural strategies being equal in fitness in the long-term
- In **extreme and unpredictable environment** these fluctuations are more pronounced



QUESTIONS

IS INDIVIDUAL FORAGING BEHAVIOUR
CONSISTENT IN **WILD ZEBRA FINCHES**?

HOW DO THE ENVIRONMENTAL CONDITIONS
(**TEMPERATURE**) INFLUENCE FORAGING BEHAVIOUR?

MATERIALS AND METHODS

16 FEEDERS RANDOMLY LOCATED (I.E. 2 TRIALS)

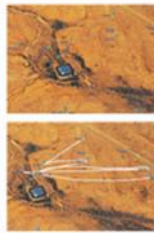


Zebra finches were PIT - tagged and foraging behaviour monitored using a decoder-antenna-feeder system over 3 weeks.

PCA ANALYSIS ON DAILY
FORAGING BEHAVIOUR
OF 72 ADULTS

PCA variation	PCA foraging
Visits	0.8
Distance travelled	0.18
No. feeders	0.6
Feeder fidelity	0.45

Example of 2 individuals showing different foraging behaviour. Dots represent feeders located 800m around a dam.

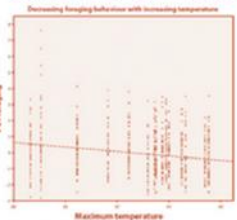


LOW PC1 foraging:
• visits per feeder
• distance travelled
• feeders visited
• fidelity

HIGH PC1 foraging:
• visits per feeder
• distance travelled
• feeders visited
• fidelity

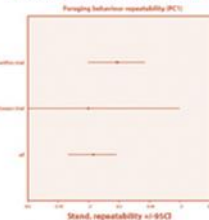
RESULTS AND DISCUSSION

IN EXTREME ENVIRONMENTS FORAGING
BEHAVIOUR WAS INFLUENCED BY TEMPERATURE



GLMM: $P < 0.05$, $N = 68$. Negative relation between foraging behaviour (PC1) and Temperature (°C).

CHANGED ENVIRONMENT LED TO FLEXIBLE
FORAGING BEHAVIOUR > OPPORTUNISM?



Repeatability (EMM) calculated considering all days of all trials, between and within trials.



Contact:
caterina.funghi@students.mq.edu.au

Margin

Large and impressive title

Authors

Divider

Heading 1

Text

Heading 2

Text

Text

Eye-catching
main graphic

Heading 3

Figures

Figures

Figures

Heading 4

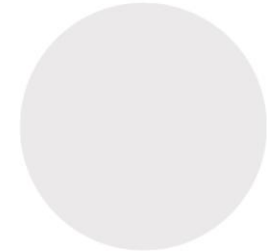
Figures

Figures

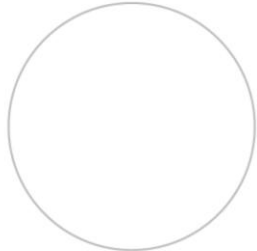
Logos
and
contacts

Colour palette

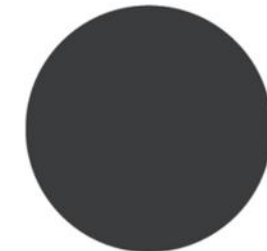
Dark primary



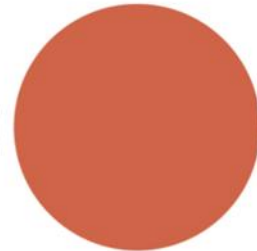
Primary



Text



Accent



<https://www.animateyour.science/post/best-examples-of-scientific-posters>

Poster in comic form

NOVEL REGULATION OF MAJOR HISTOCOMPATIBILITY COMPLEX (MHC) CLASS I ASSEMBLY AT THE SEC61 TRANSLOCON COMPLEX

Karen Howard, Naveen Bangia - Roswell Park Cancer Institute - Department of Immunology

ABSTRACT

MHC Class I molecules are key in the anti-tumor and anti-viral responses of the immune system.

MHC molecules are constitutively expressed on the surface of all nucleated cells.

Antitumor Antiviral

require the assistance of multiple chaperones for correct folding, peptide-loading and transport to the cell surface.

TAP-Associated protein-peptide complex

Of the chaperones involved with correct folding, TAP-Associated protein-peptide complex has been shown to be of utmost importance; disorganization or absence of TAP results in the inability of the MHC heavy chain to associate with the TAP transporter to receive antigen.

BUT

We know that cyclins can enhance antigen presentation by up-regulating the expression of genes involved with MHC Class I assembly and transport.

We have discovered another level of MHC regulation involving the ribosome-associated Sec61 translocon complex of the endoplasmic reticulum (ER).

Here, we show an interaction between TAP and Translational Associated Protein-alpha (TRAPalpha).

A ribosome-associated membrane protein (RAMP) in the ER membrane.

Using biochemical fractionation to isolate ribosome-associated membrane proteins,

we determined that TRAPalpha

is required for TAP and MHC heavy chain association with the translocon.

I don't really know how to read comic books, but apparently if you follow the arrows, you'll be ok.

only if it helps get the message across!

BACKGROUND INFORMATION

Major Histocompatibility Complex Class I (HLA-A, B and C in humans). Composed of a heavy chain and light chain (beta 2-microglobulin), inserted into the ER through the Sec61 translocon after translation. Stabilized by an interaction with Tapasin of the Peptide Loading Complex (PLC) where antigen is loaded. Protects against intracellular pathogens. Responsible for transporter associated recognition of antigen by cytotoxic T lymphocytes leads to killing of presenting cell.

It is a transmembrane protein of the ER and is critical for formation of the PLC.

We've previously observed an interaction between tapasin and TRAPalpha.

suggesting that tapasin may be present at the translocon and therefore make the PLC as well.

TRAPalpha however, is one of four proteins of the TAP complex. TAP associates with the Sec61 translocon and assists in the translocation of newly synthesized proteins into the ER from the cytosol.

TRAP is also implicated in ER-Associated Degradation (ERAD) of misfolded proteins.

Try to think of it kind of like a customs office. Sometimes it lets proteins in... other times it kicks them out!

An interaction exists between TRAPalpha and tapasin, which is strengthened by a change in amino acid 408 of tapasin.

This is an inhibition-precipitation of tapasin from cell lysates.

After a Western Blot was run and probed for TRAPalpha.

You can see that there is an interaction even without the K408 mutation.

Here, we split cells into separate components using two different solubilization agents.

Digitonin is much milder than Triton, so complexes like TAP can stay together.

The translocon, TRAPalpha and members of the Peptide Loading Complex assemble with ribosomes.

By comparing Digitonin to Triton in a Western Blot, we can see how associations between cellular components change.

Since TRAPalpha, tapasin and MHC heavy chain are present with ribosomes, but they dissociate when using Triton, we can conclude that Digitonin is a better solubilization agent for future experiments.

These proteins really are in a complex with ribosomes.

HYPOTHESIS

TRAPalpha regulates the expression of MHC Class I by coordinating association of Peptide Loading Complex Members with the translocon. Furthermore, association with the translocon is dependent upon phosphorylation.

PROCEDURE

Biochemical Fractionation

This is my procedure. Pretty self-explanatory really.

Immersive in digitonin

Centrifuge at 900, 5 min, 4°C

Wash FC, then solution in 1.2% digitonin on ice for 30 min. 10X-5, 5 min, 4°C

Transfer FC to an ultracentrifuge tube, spin at 17K rpm, 5 min, 4°C

Inhibitors added

Transfer supernatant and wash pellet in 2x

The S2 membranes and the P2 fractions are mostly what interest us.

Using these two fractions, we can determine conditions in which proteins associate with RAMPs.

Conditions we employ are transient transfection of siRNA to TRAPalpha, and fractionating with without phosphatase inhibitors.

After fractionation, we perform a normal Western blot procedure.

DATA

Here, we fractionated HeLa cells with different types of phosphatase inhibitors.

The inhibitors were used in both the permeabilization and solubilization steps.

Phosphatase Inhibitors Maintain TRAPalpha in the S2 membranes.

HeLa cells were transfected three days post-transfection with TRAPalpha KD or siRNA.

Transfection groups were analyzed equally, that were fractionated with phosphatase inhibitors, with and without, and the other half without.

TRAPalpha KD decreases western, calnexin and MHC heavy chain signal with the RAMPs.

Cells were also set aside for Flow Cytometry.

Using antibodies to detect MHC Class I alpha chains, we can use a downstream MHC Class I surface expression.

GAMTTC is our control, measuring only background fluorescence.

In TRAPalpha KD cells, the subtle decrease in surface MHC expression may be more pronounced when we take into consideration the increase in background shown with GAMTTC.

Subtract the increase in background from the decrease in surface expression to see how much it really decreased.

CONCLUSIONS

So here is what we think is going on:

We've shown that TRAPalpha protects the phosphorylation with keeps the complex together.

With TRAPalpha present, phosphorylation can't get in to break apart the complex.

But if we knockdown TRAPalpha,

all of the sudden the phosphatases can get in there and start cleaving phosphorylation.

When that happens, tapasin dissociates from the RAMPs.

Our next steps will be to determine the phosphorylation effects on tapasin through mutagenesis.

To perform RT-PCR on the TRAPalpha gene and see what transcripts are being translated.

and to determine if TRAPalpha is regulating MHC class I heavy chain insertion into the ER or retrotranslocation out of the ER.

regularly in the end if we can figure out to enhance this tapasin-TRAP interaction, then maybe we'll get better recognition of viruses or cancer cells.

Thanks for reading!

Ready-made templates

- A lot of different ones can be found
- Consider if they are suitable for you or not
- Think about your key message first!

AUTHORS Be proud of your work! Add the names of the people involved in this study. Don't forget to include titles and honorifics. We're proud of those too.
AFFILIATIONS You're also proud of the institutions that we are with and support our research. Let's let them show by adding their names and logos here.

How to make a research poster: A guide for students

MANY TECHNOLOGIES AND BREAKTHROUGHS WOULD NOT BE POSSIBLE WITHOUT RESEARCH. IT IS IMPORTANT TO KEEP MEMBERS OF THE COMMUNITY INFORMED ABOUT THE LATEST UPDATES. ONE WAY TO DO THAT IS THROUGH RESEARCH POSTERS.

1.



Image 1: Here is a brief description of this image including sources.

INTRODUCTION

POSTERS ARE A POPULAR METHOD OF PRESENTING RESEARCH FINDINGS IN A CONCISE AND VISUALLY PLEASING MANNER. THEY ARE COMMONLY USED IN CONFERENCES AND MEETINGS. START BY INTRODUCING THE SUBJECT OF YOUR RESEARCH AND/OR YOUR HYPOTHESIS. WHAT ARE THE QUESTIONS ABOUT THIS TOPIC THAT YOU WANT TO ANSWER? WHAT NEW THINGS CAN IT CONTRIBUTE TO THE EXISTING LITERATURE?

OBJECTIVE

It is important for your readers to know what you want to achieve with your research. State this as clear as possible.

METHODOLOGY

Let people know how you did your study. Methods can vary depending on the subject or results you want to see. These methods can include:

- Interviews
- Surveys
- Comparison studies
- Experiments

You can also show studies of existing literature that were used as references.

2.



Image 2: Here is a brief description of this image including sources.

3.

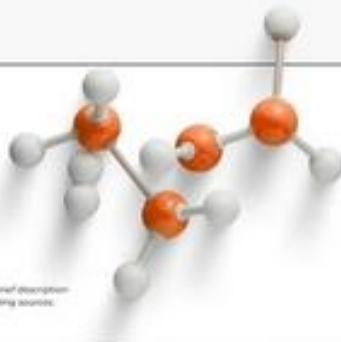
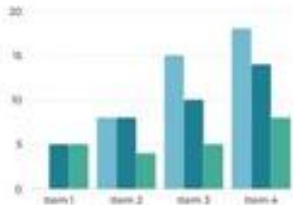


Image 3: Here is a brief description of this image including sources.



4.

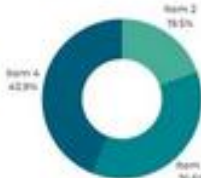


Image 4: Here is a brief description of this image including sources.

5.

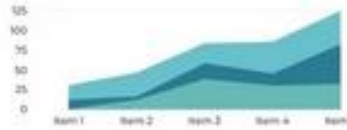


Image 5: Here is a brief description of this image including sources.

RESEARCH / FINDINGS

Results show the outcome of the research and should answer the question or hypothesis stated in the introduction.

- State what you've found from your study.
- You can also list your findings in bullets.

Important! Avoid using too much technical detail or using excessive jargon when presenting them.

FINDING 1

State the results you've found from your study of Finding 1.

FINDING 2

State the results you've found from your study of Finding 2.

FINDING 3

State the results you've found from your study of Finding 3.

FINDING 4

State the results you've found from your study of Finding 4.

FINDING 5

State the results you've found from your study of Finding 5.

FINDING 6

State the results you've found from your study of Finding 6.

6.



Image 6: Here is a brief description of this image including sources.



ANALYSIS

Expand on your findings by discussing what methods were used to analyze your data. It can get technical so keep it simple and direct to the point. Use bullets for emphasis. Include key graphs, tables, illustrations, and other images that support the study and show a visual analysis of the data. Make sure they are large enough to be seen from a distance but not clutter the poster.

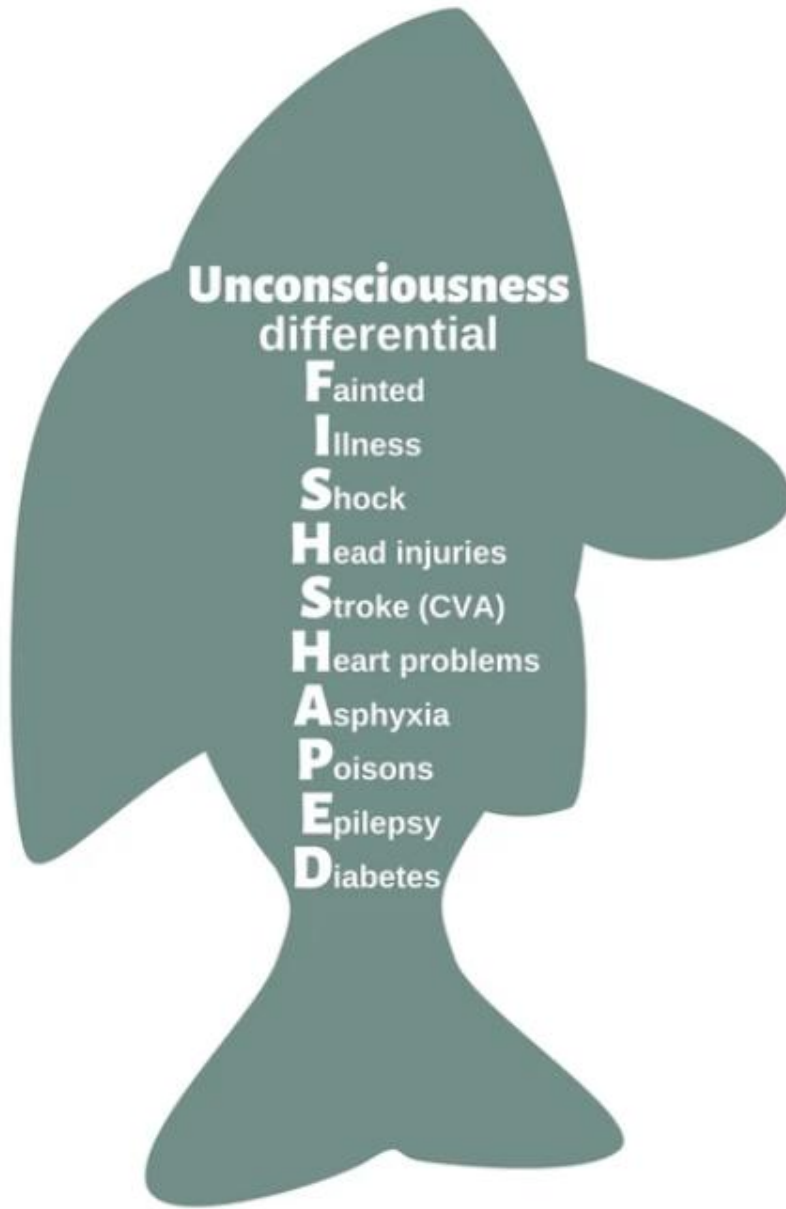
CONCLUSION

Summarize your study and let the viewers know how to take the next steps. You can also add a description of each that can give them an idea of what comes next. This section can also include any implications of the study, and if there are any actions or recommendations for future study.

5. Effects that highlight your message

- Shape of your poster
- 3 dimensional objects





5.1. Shape of the poster

- The usual way
 - Rectangular
 - => A0, A1, square or something else
 - => landscape or portrait?
- Shape your message
 - Other than rectangular
 - => partly or as a whole
 - Shape itself is an essential message

5.2. Three-dimensional objects included

- Something to touch and feel



- Describing 3D shapes



<https://cosmoaims.wordpress.com/2011/12/07/radical-research-vi-thinking-outside-the-box-with-a-3d-poster/>

6. Presenting and Feedback

- Discussions
 - Do not only explain your research, ask others what they are doing
- Peers
- New contacts
- Co-operation



Road map to an outstanding academic poster

1. Before starting
 - What is my **key message**?
 - What kind of **audience** do I have?
 - What kind of **co-operation** I'm looking for?
 - What kind of **limitations** exist?
2. While making a poster, consider
 - Size and shape
 - Software use
 - Material
 - Content
 - Layout
 - Readability
 - Special effects, e.g. 3D objects
 - Feedback



LUT DS conference framework for posters

- Conference organizer will **print** the posters
- Send your poster between **22 April and 4 May** via the Eventos system
- **Instructions will be sent** to students by 22 April at the latest
- Canvas size **max A1**
- **pdf format**
- File size max **10MB**
- Posters printed by LUT will be in poster stands when the event starts
- Students can also print it out (etc.) and bring their poster with them to the event.