Guidelines for Poster Preparation

General aim and format

- A poster is a graphically based approach to presenting research. In presenting your research/innovation with a poster, you should aim to use the poster as a means for generating active discussion of the research.
- Limit the text to about one-fourth of the poster space, and use "visuals" (graphs, photographs, schematics, maps, etc.) to tell your "story."

Design and layout specifications

- The entire poster must be mounted on a 76 cm wide x 106 cm high board. The poster does not necessarily have to fill the entire working area.
- A banner displaying your poster title, name, and department (or class, if appropriate) should be positioned at top-center of the board (see Figure 1).
- Make it obvious to the viewer how to progressively view the poster. The poster generally should read from left to right, and top to bottom. Numbering the individuals panels, or connecting them with arrows is a standard "guidance system" (see Figure 1).
- Leave some open space in the design. An open layout is less tiring to the eye and mind.

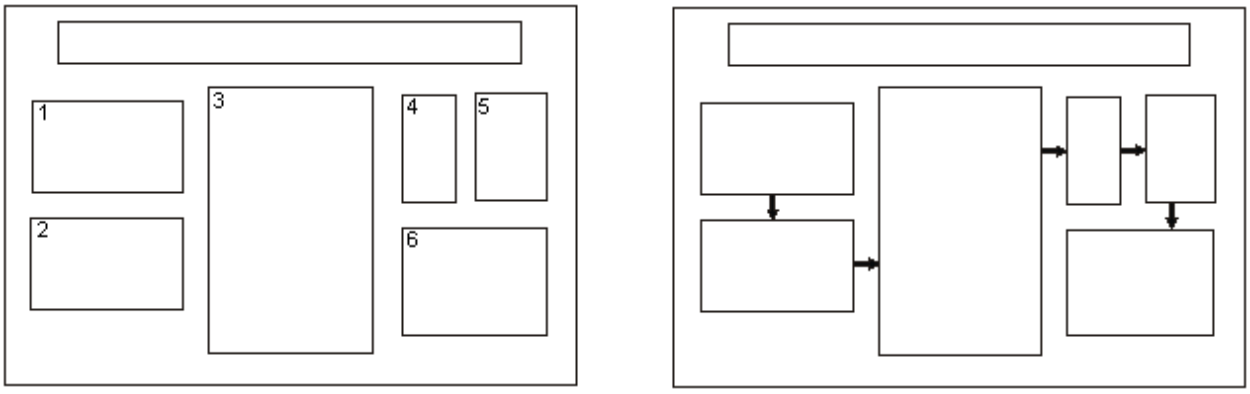

Figure1: Conventional layouts for a poster. Long panel at top-center is title/author banner. Individual panels can be connected by numbers and arrows. Also, note the use of space between panels to achieve visual appeal.

Lettering

- Word-process all text (including captions). Print on plain white paper with a laser printer or inkjet printer.
- Text should be readable from five feet away. Use a *minimum* font size of 18 points.

- Lettering for the title should be large (at least 70-point font). Use all capital letters for the title.

Visuals

- Present numerical data in the form of graphs, rather then tables (graphs make trends in the data much more evident). If data must be presented in table-form, KEEP IT SIMPLE.
- Visuals should be simple and bold. Leave out or remove any unnecessary details.
- Make sure that any visual can "stand alone" (i. e., graph axes are properly labeled, maps have north arrows and distance scales, symbols are explained, etc.).
- Use color to enhance comprehension, not to decorate the poster. Neatly coloring black-line illustrations with color pencils is entirely acceptable.
- Make sure that the text and the visuals are integrated. Figures should be numbered consecutively according to the order in which the are first mentioned in the text. Each visual should have a *brief* title (for example: Figure 1- Location of study area).

Text

- Keep the text brief. Blocks of text should not exceed three paragraphs (viewers won't bother to read more than that). Use text to (a) introduce the study (what hypothesis was tested or what problem was investigated? why was the study worth doing?), (b) explain visuals and direct viewers attention to significant data trends and relationships portrayed in the visuals, and (c) state and explain the interpretations that follow from the data. In many cases, conclusions can be summarized in a bullet-point list.
- Depending upon the stage or nature of your project, the text could also include sections on future research plans or questions for discussion with viewers.
- Cite and reference any sources of information other than your own, just as you would do with a research paper. Ask your professor about the particular citation system that you should use (every discipline uses slightly different styles). The "References Cited" is placed at the end of the poster.

Miscellaneous Suggestions

- SIMPLICITY IS THE KEY. Keep to the point, and don't try to cover too many things. Present only enough data to support your conclusions. On the other hand, make sure that you present sufficient data to support your conclusions.
- When you begin to make your poster, first create a list of the visuals that you would use if you were describing your project with *only the visuals*. Write the text *after* you have created the list of visuals.

- Mat the components of the poster on separate pieces of colored poster board. This sets-off the text and illustrations from the white mounting board. Also, you can easily attach each component to the mounting board with push-pins or thumb-tacks.
- Before the poster session, rehearse a brief summary of your project. Many viewers will be in a hurry and will want a quick "guided tour" of your poster. Don't be afraid to point out uncertainties in your work; this is where you may get useful feedback.

SAMPLE POSTERS

SCHOOL OF ENERGY & ENVIRONMENT

PLACE YOUR TITLE HERE

**Poster Author(s) Go Here

GETTING STARTED

DESIGN TIPS

TEXT

GENERAL FONT SIZES

SECTION	FONT SIZE
Main Title	
Subtitle/Authors	
Section Headers	
Body Text	

GRAPHICS

SUBMITTING POSTERS

Remember...

A Novel Approach to Campus Health and Wellness: The UCLA Healthy Campus Initiative

Tyler D. Watson, MPH[1] and Ryan Babadi, MPH[2]

[1]Department of Environmental Health Sciences, University of California, Los Angeles Fielding School of Public Health

[2]Department of Environmental and Occupational Health Sciences, University of Washington School of Public Health

Live Well is a campus-wide wellness movement with the goal of making UCLA the healthiest university campus in America.
http://healthy.ucla.edu/

CAMPUS POPULATION

Live Well includes the entire campus community:

~4,000 faculty

~26,000 staff

~42,000 students

~200 buildings = 17 million ft^2 built space

419 acres (0.66mi^2); smallest UC campus

CORE VALUES

A "healthy campus" is a place that:

1. Fosters high-level wellness
2. Encourages personal responsibility
3. Respects diversity
4. Strives to reduce inequalities in health
5. Is integrative

PROCESS

- Support and integrate existing health-related groups, programs, and activities
- Use best practices to coordinate new approaches and programs
- Map campus assets and learn from different stakeholders
- Organize community collaborations and facilitate bottom-up approaches
- Host monthly steering committee meetings and area-specific working groups
- Fund and facilitate student projects related to Live Well goals and values
- Develop metrics to measure health and wellness changes
- Maintain a website and other campus communications for resources and events

STRUCTURE

CHALLENGES AND SUCCESSES

Challenges:

- Cross-campus coordination of large groups
- Branding and recognition
- Student turnover and leadership transition
- Large and diverse campus population
- Wide range of health disparities

Successes:

- Bringing together diverse health groups
- Practical, action-based projects
- New data collection and publications
- Impact beyond the UCLA campus
- UC President Napolitano recommendation for a Live Well model at all UC campuses

KEYS TO SUCCESS

- Organizational integration
- Administration buy-in
- Interdisciplinary leadership
- Including non-traditional stakeholders
- Targeted and adaptable use of resources
- Combination of research and practice
- Collaboration between pods
- Graduate student researcher input
- FUN!

ACKNOWLEDGEMENTS

UCLA Healthy Campus Initiative is envisioned and supported by Jane and Terry Semel. A special thank you to Live Well leadership including Dr. Wendy Slusser, Dr. Michael Goldstein, Louise Ino, pod leaders and graduate student researchers, and steering committee members.

Attentional Filtering of Salient Distracters Involves Fronto-Parietal Regions That Target Ventral Visual Areas

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Laboratory of Brain and Cognition, NIMH, NIH

C-31

1 Introduction

Single-unit[1], lesion[2], and fMRI[3] studies have shown that when multiple objects are present in the visual field, they compete for neural representation in ventral visual stream areas and that selective attention biases the competition in favor of the attended object, such that irrelevant nearby distracters are filtered out. We hypothesized that areas in parietal and frontal cortex provide top-down feedback to ventral visual areas during such attentional filtering. Consistent with this idea, we previously documented a filtering deficit in a patient with bilateral parietal lesions[4]. In the present brain imaging study of healthy volunteers, subjects performed a difficult object discrimination task with displays containing visual distracters. We varied discrimination difficulty (easy, hard) and distracter salience (low, medium, high). We predicted that the presence of very salient distracters would interfere with performance of the object discrimination task, especially when the task was difficult and commanded attentional resources. Thus, we expected that fMRI maps would yield brain regions that reflect an interaction of task difficulty with distracter salience.

2 Methods

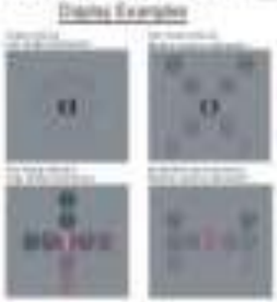
2 X 3 Factorial Design: Two Levels of Task Difficulty, Three Levels of Distracter Salience

- Eight subjects' object discrimination perceptual thresholds for morphed human-ape faces were determined using a staircase procedure.

Examples of Morphed Stimuli

- During threshold measurement trials, subjects were presented a central fixation point and one morphed image 5 degrees above-left of fixation.
- Subjects indicated whether the morph was the target (canonical ape) or a non-target (morphs).
- Thresholds were then used in an object discrimination task with distracters of varied salience.

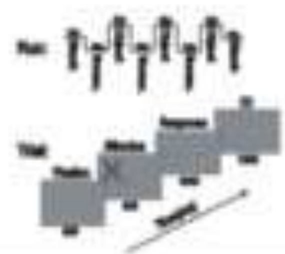
Display Examples



- Stimuli included a central fixation point with a to-be-attended morphed stimulus of high contrast surrounded by 8 distracters (scrambled faces) of high, medium, or low salience.
- Subjects still indicated, by button press, whether the attended object was an ape or morph during either difficult (canonical ape or threshold) or easy (above-threshold morph) discrimination.
- In a control task, the attended item was replaced with a scrambled morph and 8 scrambled distracters of medium salience.

Hybrid fMRI design:

- **Blocked** by task (Object Discrimination or Scrambled Control)
- **Event-Related** within each Object Discrimination block in which difficulty of discrimination and salience of distracters were randomized.

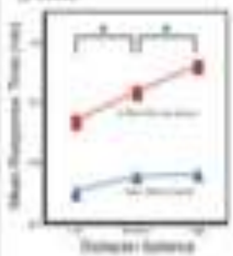


3 Results

Behavior: (n = 11)

Salient Distracters Elevate Response Times for Difficult Object Discrimination

- Main effect of discrimination difficulty was significant (p<0.005).
- Distracter salience levels did not significantly increase response times during easy discrimination.
- ANOVA showed significant effect of distracter salience during the difficult discrimination task (p<0.001).
- Task Difficulty X Distracter Salience interaction was also significant (p<0.005).

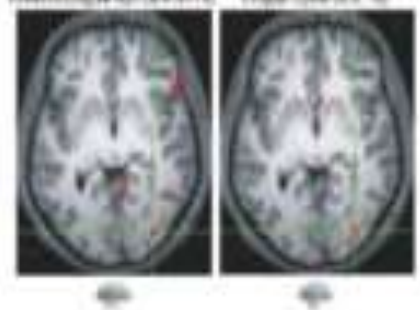


Group Maps: (n = 11)

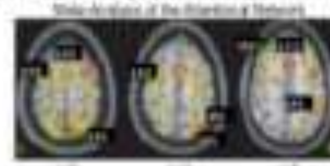
Top-Down Sources: Difficult Discrimination (High Salience>Low Salience Distracters)

- Fronto-Parietal activations were modulated by distracter salience during difficult discrimination only.

Top-Down Targets: (High Salience>Low Salience Distracters)



Fronto-Parietal Regions Exhibiting Filtering Activity Are Distinct From Regions In The Spatial Attention Network



4 Conclusions

5 References

Developing and characterising a novel combined nanoelectrode system

L. P. Robinson, A. Mount

Electrochemistry at nanoelectrodes

Nanoelectrodes have several advantages for electrochemical sensing.

Transport to macroelectrodes proceeds through a relatively inefficient linear diffusion profile. They are also are highly affected by convection and iR drop.

In contrast, the diffusion pattern for nanoelectrodes quickly becomes hemispherical. This profile is much more efficient, and they are not so affected by convection or iR drop. They can reliably detect very low (attomole) concentrations of analyte.

A Pt microsquare nanoband edge electrode (MNEE) array system in which the Pt nanoband acts as the working electrode has been developed. The project now aims to create a nanoelectrode device based on this system which has all three electrodes necessary for analysis on one chip.

Ag/AgCl as a combined electrode

The combined reference/counter electrode is created by electroplating a thin film of Ag onto the Pt microsquare.

Potentiostatic plating causes Ag to grow preferentially at the corners, creating dendrites. A galvanostatic plating protocol is being developed to provide the required smooth, shiny Ag deposit.

To convert the newly plated Ag surface to AgCl, it must be functionalised. Chemical functionalisation by immersion in $FeCl_3$ has been shown to produce uniform deposits of AgCl.

Combined nanoelectrode system

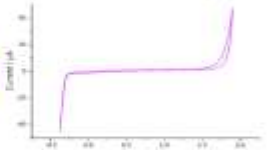
This design consists of a microsquare at the bottom of each cavity in the array, with the nanoband around the cavity edge.

The Ag/AgCl microsquare is a combined reference and counter electrode. As its area is so much larger than the Pt nanoband, the current passing through the square is not large enough to affect its use as the reference electrode.

This could create an on-chip device for sensitive analytical detection.

Characterisation

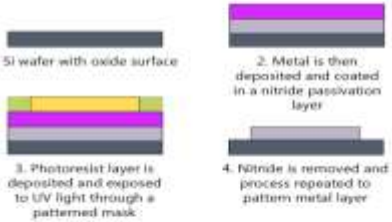
Cyclic voltammetry and electrochemical impedance spectroscopy will be used to verify that the system is behaving as predicted. The nanoband should have a similar reponse to the current nanoelectrode array.



Example of a nanoelectrode cycling in 100mM KCl solution. This cycle is used to determine the cleanliness of the electrode surface.

Fabrication

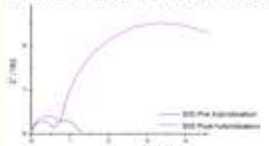
This design has been fabricated at the Scottish Microelectronics Centre using photolithography. In this technique layers of metal and insulator are deposited and patterned to produce the desired arrangement.



Each layer is deposited and patterned sequentially. This approach reliably produces uniform electrodes cheaply and easily.

An application

By coating the surface of the working electrode in a probe nucleic acid, the corresponding DNA sequence can be detected using electrochemical impedance spectroscopy (EIS). Before the target molecule is hybridised, the resistance measured for the redox couple is small. When the correct target is hybridised the resistance, and therefore the EIS reponse, is much larger.



EIS measurement of 50 nm electrode shows the increase in resistance upon addition of the target nucleic acid.

Pre hybridisation - the redox species has access to the electrode.

Post hybridisation - the access of the redox species is restricted, and so the resistance rises at the electrode.

Objectives

Having made the initial measurements, the next steps will include:

- complete fabrication of the combined system, including optimisation of nanoband and cavity dimensions
- further investigation of the sensitivity of nanoelectrodes for use in DNA sensing and the relationship between the response and concentration of the target
- optimisation of a galvanostatic silver plating protocol

Many thanks to Dr Damion Corrigan, Ilka Schmueser, Professor Andy Mount, the Mount group and the SMC for their continuing support and expertise.

SMC

EPSRC
Pioneering research and skills

Effects of electrical stimulation on Schwann cell migration on polypyrrole substrate

[redacted]

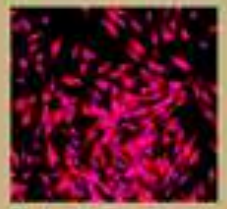
[1]School of Biological Sciences, [2]Department of Biomedical Engineering, Cockrell School of Engineering

Background

- Nerve injuries affect about 100,000 people in the US every year
- Nerve damage is difficult to repair, and often does not heal on its own

Why Schwann cells?

- Successful treatment requires nerve cells to migrate across the injury
- Schwann cells are associated with nerve repair after injury
- Migrate to site of injury to protect endoneurial tube
- Direct nerve growth with growth factors
- Axons are known to be able to regenerate through conduits formed by proliferating Schwann cells
- Study effects of electrical stimulation on Schwann cell migration to optimize treatment



Schwann Cells cultured on Ppy-Tosylate

Current Treatments:

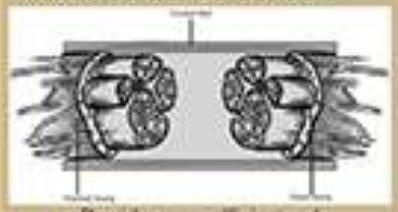
Autologous nerve graft

Requires donor nerve tissue to bridge injury gap (results in loss of function at donor site)

End to end connection

Stretching the nerve causes tension which can result in pain and difficulty of use

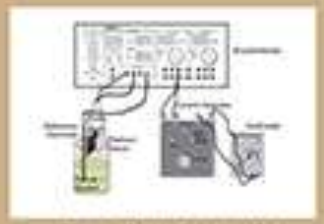
Nerve Guidance Conduit



- Provides more efficient and natural treatment
- Electrical stimulation has been shown to aid in recovery

Methods

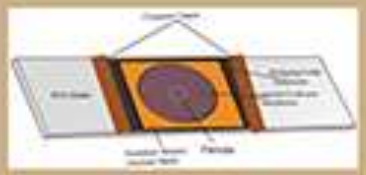
Electropolymerization of polypyrrole (Ppy) on Indium Tin Oxide (ITO) slides



Three-electrode setup for Ppy electropolymerization

Cell Culture/ Electrical Stimulation Set-up

Cells are stimulated with constant current through the substrate via copper tape using a two electrode set-up



Migration assay:

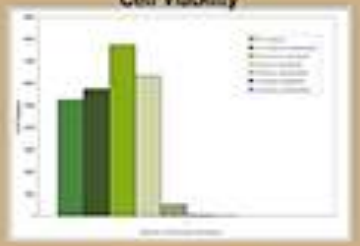
Using a 10mm diameter ferrule for a well, cells are allowed to adhere to the substrate, and are observed for movement and imaged at 24, 36, and 48 hrs

Preliminary Results

Unstimulated Cells

Stimulated Cells

Cell Viability



Conclusion

We hope to find that upon electrical stimulation of Schwann cells, the cells orient themselves and migrate in a specific direction (with the current, against the current, toward the cathode or anode, etc.). Specific migratory patterns could be used to optimize treatment using nerve guidance by affecting orientation and direction of the applied electrical field.