

# How to create an effective poster

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March 2014

# Two ways to make a poster:

- ✓ to have someone else do it 😊
- ✓ make your own!



<http://academicupdate.blogspot.ca/2013/09/academic-poster-template.html>

An **effective** poster will help you

- ✓ engage colleagues in conversation
- ✓ get your main points across to as many people as possible

An **effective** poster is

Focused: on a single message

Graphic: lets graphs and images tell the story

Ordered: keeps the sequence well-ordered and obvious

# Ineffective posters suffer from easy-to-fix problems

- ✓ objective(s) and main point(s) hard to find
- ✓ text too small
- ✓ poor organization
- ✓ poor graphics
- ✓ ...



# Poster Design

- ✓ Keep it simple; emphasize with visual effects
- ✓ Catchy title, prominent by-line (logos)
- ✓ Use bullets, not sentences
- ✓ Three columns for maximum flow
- ✓ Strong contrast between text and background

# Poster Elements

- ✓ Abstract (NO abstract or only bullets)
- ✓ Introduction (Background)
- ✓ Objectives (clearly stated)
- ✓ Methods (minimal; use a diagram)
- ✓ Results (prominent and visual)
- ✓ Discussion (not necessary; minimize)
- ✓ Conclusions (prominent)
- ✓ Acknowledgements (very important)

# O<sup>6</sup>-Benzylguanine Inhibits Tamoxifen Resistant Breast Cancer Cell Growth and Resensitizes Breast Cancer Cells to Anti-Estrogen Therapy

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## Abstract

Endocrine therapies using anti-estrogens are least toxic and very effective for breast cancers, however, tumor resistance to tamoxifen remains a stumbling block for successful therapy. Based on our recent study on the involvement of the DNA repair protein MGMT in pancreatic cancer [Clin Cancer Res. 17: 6037-6046, 2009], here we investigated whether MGMT overexpression mediates tamoxifen resistance. Specifically, we determined the effect of combination of MGMT inhibitor [<sup>6</sup>-benzylguanine (BG)] at a non-toxic dose along with tamoxifen (TAM) on the growth of tamoxifen resistant breast cancer cells (MCF-7 TAM) compared to normal breast epithelial cells. Our results show that tamoxifen resistant breast cancer cells are less sensitive to tamoxifen using tamoxifen resistant or -sensitive cells.

**Posters rarely need abstracts**

MGMT expression was found to be increased in tamoxifen cells relative to normal breast epithelial cells. Also, MGMT expression was significantly higher in tamoxifen resistant cells compared to tamoxifen sensitive cells. We also observed an inverse correlation between MGMT and ERα expression levels. We also found that BG alone or in combination with tamoxifen was accompanied by increased MGMT expression. Other experiments showed that BG alone or BG in combination with tamoxifen or fulvestrant decreased ERα expression, whereas tamoxifen alone and fulvestrant alone increased and decreased the same respectively. However, all these treatments increased the p21<sup>WAF1/CIP1</sup> mRNA and protein expression significantly. BG inhibited tamoxifen resistance in combination with tamoxifen or fulvestrant compared to tamoxifen or fulvestrant alone. These findings also demonstrated the cytotoxicity of BG alone or in combination with tamoxifen or fulvestrant caused significant tumor growth delay and immunohistochemistry revealed that BG inhibited the expression of MGMT, ER-α, Ki-67 and increased p21<sup>WAF1/CIP1</sup> staining. These findings suggest that MGMT inhibition may provide a novel and effective approach for overcoming tamoxifen resistance.

## Introduction

Recent advances in breast cancer research have identified key pathways involved in the repair of DNA damage induced by alkylating agents. In addition to causing DNA double-strand breaks, alkylating agents can also induce single-strand DNA lesions for therapeutic resistance. MGMT has a negative impact on therapeutic efficacy. A member of DNA-damaging alkylating agents attack the nucleophilic O<sup>6</sup> position on guanine, forming mutagenic and highly cytotoxic interstrand DNA crosslinks. The DNA repair enzyme O<sup>6</sup>-alkylguanine DNA alkyltransferase (AGT), encoded by the gene MGMT, repairs alkylation at this site and is responsible for protecting both tumor and normal cells from alkylating agents. MGMT is expressed constitutively in most normal tissues and levels are up-regulated in a variety of neoplastic cells. MGMT is a nuclear protein that binds to the O<sup>6</sup> position of alkylated DNA and transfers the alkyl group to the amino acid side-chain of Lysine 32 (Lys-32). This reaction mechanism effectively depletes the AGT content in tumors and the source of repair of alkylating agent-induced damage is currently undergoing clinical trials in various cancers across the efficacy of alkylating agents.

Interestingly, several observations suggest that the inhibition of MGMT and p53 function in tumor cells is often inactivated or suppressed. It has been reported that p53 activity is required for the success of some of these treatments. However, whether or not this is mediated by suppression of MGMT expression has yet to be determined. To date, the cross-talk between MGMT and ERα (the target of p53 expression) has not been explored in drug (i.e., tamoxifen) resistant breast tumors. The anti-estrogen tamoxifen is the most commonly used treatment for patients with estrogen receptor positive breast cancer. Although tamoxifen benefits tamoxifen in the adjuvant setting, it is associated with side effects such as endometrial carcinoma. The aim of present study was to investigate the mechanisms of anti-estrogen drug resistance and to design new therapeutic strategies for circumventing this resistance. The results show that MGMT expression is increased in TAM-resistant breast cancers and inhibition of MGMT by BG significantly improves TAM-sensitivity.

## Results

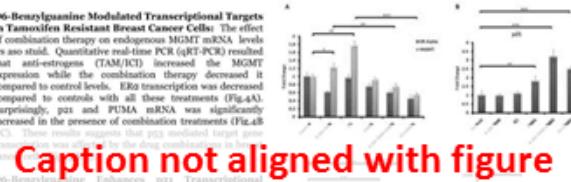
**Prolonged Treatment of Tamoxifen Increases MGMT Expression:** We developed a tamoxifen resistant MCF-7 cell line by using prolonged treatment of tamoxifen on the parental ER-positive breast cancer cell line, MCF-7. Tamoxifen-resistant MCF-7 cells proliferate at rates similar to the parental MCF-7. Prolonged treatment of tamoxifen onto MCF-7 cells increased MGMT expression compared to parental MCF-7 cells by 2 fold (Fig.1).

**Knocking Down ERα Enhances MGMT Expression in Tamoxifen Resistant Breast Cancer Cells:** In order to elucidate each other in tamoxifen resistant breast cancer cells. We therefore investigated whether down regulation of ERα has any effect on endogenous MGMT expression in these cells. As expected, downregulation of ERα using specific siRNA significantly reduced ERα protein levels in these cells. Western blot analysis was performed and the results in Fig. 2A (Fig. 2A) shows the silencing of ERα increased MGMT expression in these cells. And interestingly, the results in the bar graphs (Fig. 2B) show increased MGMT mRNA levels were increased as assessed by qRT-PCR. These data suggest that ERα-mediated signaling functions to repress MGMT gene expression in breast cancer cells.

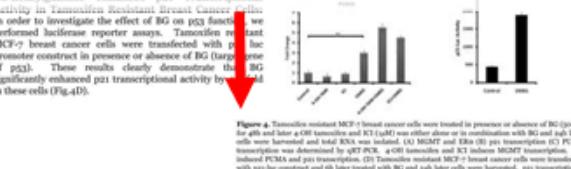
**Transcriptional Regulation Between MGMT and p53:** Previously, it was reported that p53 negatively regulates MGMT in breast cancer cells. Therefore, we addressed whether or not silencing the p53 enhances endogenous MGMT transcription. Tamoxifen resistant MCF-7 cells were transfected with either p53 siRNA (p53-KD) (Fig.3C) or MGMT siRNA (MGMT-KD) (Fig.3D) along with Non-specific siRNA (NS). MGMT expression was consistently increased in p53 knock down cells, while different expression of p53 was augmented (Fig. 3E). Interestingly, the results in the bar graphs (Fig.4B) show MGMT decreased MGMT transcription where p53 mRNA levels were unaffected in MGMT knockdown cells (Fig.4D). These results confirm that p53 can regulate MGMT at the transcriptional level.

**MCF-7 cells**  
**TAM resist. MCF-7**

Figure 1. MCF-7 parental and tamoxifen resistant MCF-7 cell pellets were prepared, lysed and total RNA was extracted. MGMT expression was detected by western blot analysis. Tamoxifen resistant MCF-7 breast cancer cells significantly increased MGMT expression compared to MCF-7 parental cells.

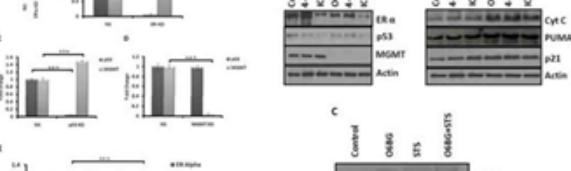


**Caption not aligned with figure**



**Figure 2. Tamoxifen resistant MCF-7 breast cancer cells were treated with ERα siRNA (0.5 μM) for 48h and later a qRT-PCR was either alone or in combination with BG (1μM) and ICI (1μM) for 48h. MGMT mRNA expression was determined by qRT-PCR. (B) Tamoxifen resistant MCF-7 breast cancer cells were transfected with ERα siRNA (0.5 μM) for 48h and later cells were harvested. MGMT mRNA expression was significantly increased in ERα siRNA treated cells.**

**O<sup>6</sup>-Benzylguanine Plays a Dual Role in Tamoxifen Resistant MCF-7 Cells:** Contrasting with the experiments above, next, we studied whether or not knocking down MGMT has any effect on ERα transcription. As expected, knocking down MGMT decreased MGMT gene transcripts. However, it was interesting to find that ERα gene transcription was also reduced after MGMT silencing (Fig.4E). These data demonstrate that BG has the ability to attenuate the not only the MGMT, but also the ERα transcription, indicating a possible dual role for MGMT blockers in these breast cancer cells.

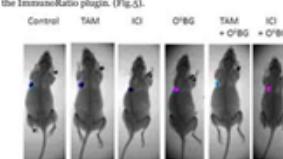


**Figure 4. (A) Tamoxifen resistant MCF-7 breast cancer cells were treated with BG (0.5 μM) and ICI (1 μM) for 48h. MGMT mRNA expression was determined by qRT-PCR. (B) Tamoxifen resistant MCF-7 breast cancer cells were treated with BG (0.5 μM) and ICI (1 μM) for 48h. MGMT mRNA expression was determined by qRT-PCR. (C) Tamoxifen resistant MCF-7 breast cancer cells were treated with BG (0.5 μM) and ICI (1 μM) for 48h. MGMT mRNA expression was determined by qRT-PCR. (D) Tamoxifen resistant MCF-7 breast cancer cells were treated with BG (0.5 μM) and ICI (1 μM) for 48h. MGMT mRNA expression was determined by qRT-PCR. (E) Tamoxifen resistant MCF-7 breast cancer cells were treated with BG (0.5 μM) and ICI (1 μM) for 48h. MGMT mRNA expression was determined by qRT-PCR.**

**O<sup>6</sup>-Benzylguanine Inhibits Tamoxifen Resistant Breast Cancer Cell Growth and Increases Resistant Breast Cancer Cell Sensitivity to Anti-Estrogen Therapy (TAM/ICI):** Detailed necropsy revealed that all the animals in tumors in the breast. The data summarized in Table 1 show the daily BG alone or in combination with twice daily BG tamoxifen/ICI significantly decreased median tumor volume and weight as compared with those in tamoxifen/ICI treated and control mice. The combination of BG with tamoxifen or ICI produced the greatest decrease in median tumor volume as compared with control mice (83.99 mm<sup>3</sup>, 9.33 mm<sup>3</sup> (TAM+BG), respectively,  $p < 0.001$ ; 83.99 mm<sup>3</sup>, 3.03 mm<sup>3</sup> (ICI+BG), respectively,  $p < 0.001$ ). TAM+BG was also significantly increased in median tumor volume as compared with control mice (81.29 mm<sup>3</sup>, 22.20 mm<sup>3</sup> (TAM+BG), respectively,  $p < 0.001$ ; ICI+BG, respectively,  $p < 0.001$ ). (Table 1). Body weight was not changed in all treated mice compared to control mice. No visible liver metastases were present in all the mice in all treatment groups.

**Crammed!**

**Histological Analysis (H&E):** Tumors harvested from different treatment groups were processed for routine histological and IHC analysis. Tumors from mice treated with BG alone or in combination with tamoxifen/ICI. Tumors harvested from different treatment groups were processed for routine histological and IHC analysis. Tumors from mice treated with BG alone or in combination with tamoxifen/ICI exhibited a significant decrease in MGMT, ERα, Ki-67 as compared with tumors treated with tamoxifen/ICI alone or control group. p53 expression was not much altered in these treatment groups. In sharp contrast, the expression of p21 was significantly increased in tumors from mice treated with BG either alone or in combination with tamoxifen/ICI. The expression of p21 was significantly increased in tumors treated with BG either alone or in combination with tamoxifen/ICI. The expression of ERα and MGMT, ERα, p53, p21 and Ki-67 expressions were quantified by the ImmunoRatio plugin. (Fig.5).



**Figure 5. (A) Tumors were harvested from control mice and mice treated with tamoxifen/ICI and BG. The tumor weight was measured. (B) Tumors were harvested from control mice and mice treated with tamoxifen/ICI and BG. The tumor volume was measured. (C) Tumors were harvested from control mice and mice treated with tamoxifen/ICI and BG. The tumor weight was measured. (D) Tumors were harvested from control mice and mice treated with tamoxifen/ICI and BG. The tumor volume was measured. (E) Tumors were harvested from control mice and mice treated with tamoxifen/ICI and BG. The tumor weight was measured. (F) Tumors were harvested from control mice and mice treated with tamoxifen/ICI and BG. The tumor volume was measured. (G) Tumors were harvested from control mice and mice treated with tamoxifen/ICI and BG. The tumor weight was measured. (H) Tumors were harvested from control mice and mice treated with tamoxifen/ICI and BG. The tumor volume was measured. 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(EH) Tumors were harvested from control mice and mice treated with tamoxifen/ICI and BG. The tumor weight was measured. (EH) Tumors were harvested from control mice and mice treated with tamoxifen/ICI and BG. The tumor volume was measured. (EI) Tumors were harvested from control mice and mice treated with tamoxifen/ICI**

# Too much text, poor organization, boring

**Title, formatted in sentence case (*Not Title Case and NOT ALL CAPS*), that hints at an interesting issue and/or methodology, doesn't spill onto a third line (ideally), and isn't hot pink**

Colin Purrington

666 Teipai Street, Posterville, PA 19801, USA

## Introduction

Your reader was mildly intrigued by the title, but you have exactly two sentences to hook them into reading more. So describe exactly what your interesting question is and why it really needed to be addressed. Granorous background information will cause them to walk away.

Typography research has shown that text is easier to read if you use a serif font such as Times. But use a non-serif font for titles, headings, etc., to subtly tag them as different. Research has also shown that fully justified text (like this paragraph) is harder to read, so don't do this, even if it seems cool and professional looking.



Figure 1. A catchy photograph can help lure people to your otherwise boring poster. Yes, I risked my life getting this shot.

## Materials and methods

Few people really want to know the gory details of what you've been up to, so be brief. And be visual. Use a photograph, drawing, or flow chart if possible, supplemented with only a brief overview of your procedure.

If you can somehow attach an object, an iPad, etc., that can involve viewers in active way, do so. Refer to the companion website (see bottom right section) for more ideas if you are creatively challenged.



Figure 2. Hand-drawn illustrations are preferable to computer-generated ones. Just scribble or flirt with an artist to get them to help you out. A photograph of you actually doing something might be nice.

## Literature cited

- Bender, D.J., E.M. Bayne, and R.M. Brigham. 1996. Lunar condition influences coyote (*Coneo lycus*) howling. *American Midland Naturalist* 136:413-417.  
Books, L.D. 1998. The evolution of recombination rates. Pages 87-103 in *The Evolution of Sex*, edited by R.E. Michod and B.J. Levin. Sinauer, Sunderland, MA.  
Scott, E.C. 2003. *Evolution vs. Creationism: an Introduction*.

## Results

The overall layout in this area should be visually compelling, with clear cues on how a reader should travel through the components. You might want a large map with inset graphs. Or have questions on left and answers with supporting graphs on right. Be sure to separate figures from other figures by generous use of white space. When figures are too cramped, viewers get confused about which figures to read first and which legend goes with which figure. Cramped contact just looks bad, too. The big thing to remember is that a Results section on a poster does not need to look like a Results section on a manuscript, so feel free to be creative.

If you can add small drawings or icons to your figures, do so — those visual cues can be priceless aids in orienting viewers. And use colored arrows or callouts to focus attention on important parts of graphs. You can even put text annotations next to arrows to tell reader what's going on that's interesting in relation to the hypothesis test. E.g., "This outlier was most likely caused by contamination when I inserted into tube." Also, don't be afraid of using colored connector lines to show how one part of a figure relates to another figure.

Figures are preferred but tables are sometimes unavoidable, like death. If you must include one, go to great efforts to make it look professional. Look in a respected journal and imitate the layout, line types, line thickness, text alignment, etc., exactly. A table looks best when it is first composed within Microsoft Word, then inserted as an Object. Use colored text or arrows to draw attention to important parts of the table.

Paragraph format is fine, but so are bullet lists of results:

- 9 out of 12 brain-stimulated rats survived.
- Brain-stimulated rats are less
- Control rats completed maze faster, on average, than rats without brains.

This sample results section is way too wordy, in case you were wondering.

University of California Press, Berkeley.

Society for the Study of Evolution. 2005. Statement on teaching evolution. <<http://www.evolutionasociety.org/statements.html>>. Accessed 2005 Aug 9.

[Don't just make up a format for your references — follow the standard citation format for your discipline exactly. Trust me, if you deviate from absolute perfection, the Type A editor police will be on you within a few minutes, and it won't be pretty. Note that you should not place a period after the journal name.]

Do treatments differ in their effects?

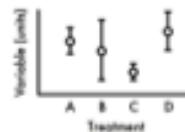


Figure 3. Legends can describe the experiment, answer the question, and even include statistics if you so choose (unlike a manuscript figure legend). And be brief.

Do As and Bs respond differently to X?

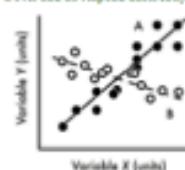


Figure 4. Label elements instead of relying on annoying keys that are defaults on most software. Add pictures of A and B if they are actually things (e.g., icons of ester and begonia flowers).

Are medians of treatment A and D different?

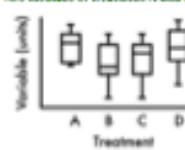


Figure 5. For the love of God, don't be tempted to reduce font size in figure legends, axes labels, etc. Your viewers are probably more interested in reading your figures and legends.

## Acknowledgments

We thank J. Giori for laboratory assistance, Mary Juana for seeds, and Herb Inouye for greenhouse care. Funding for this project was provided by the Department of Thinkology. [If you want to clutter your poster with annoying logos, shrink them down so that they can fit inside this area without crowding text too much. Note that people's titles are omitted...titles are TMI.]

## Conclusions

Conclusions should not be mere reminders of your results—that would be boring. You want to guide the reader through what you have concluded from the results, and you need to make the first several sentences understandable on their own and interesting...because many conference attendees will start reading this section first. If you don't hook them, they'll walk. These first several sentences should refer back, explicitly, to the burning issue mentioned in the introduction. (If you didn't mention a burning issue in the introduction, go back and fix that.)

A good conclusion will also explain how your conclusions fit into the literature on the topic. E.g., how exactly does your research add to what is already published on the topic? It's important to be humble and generous in this section, so assume that authors of previous literature may be at the conference, and further assume they are erobby and influential. You can also draw upon less formal types of context such as conversations you have had with smart and important people (God, personal communication).

Finally, you want to tell readers who have landed this long what needs to be done next, and who should do it. E.g., are you taking the next logical step, or should another discipline follow up on your amazing result? It's OK to put a bit of personality into this ending because viewers expect posters to be personal, and if you're not actually standing there to convey your enthusiasm, your poster should be doing that for you.

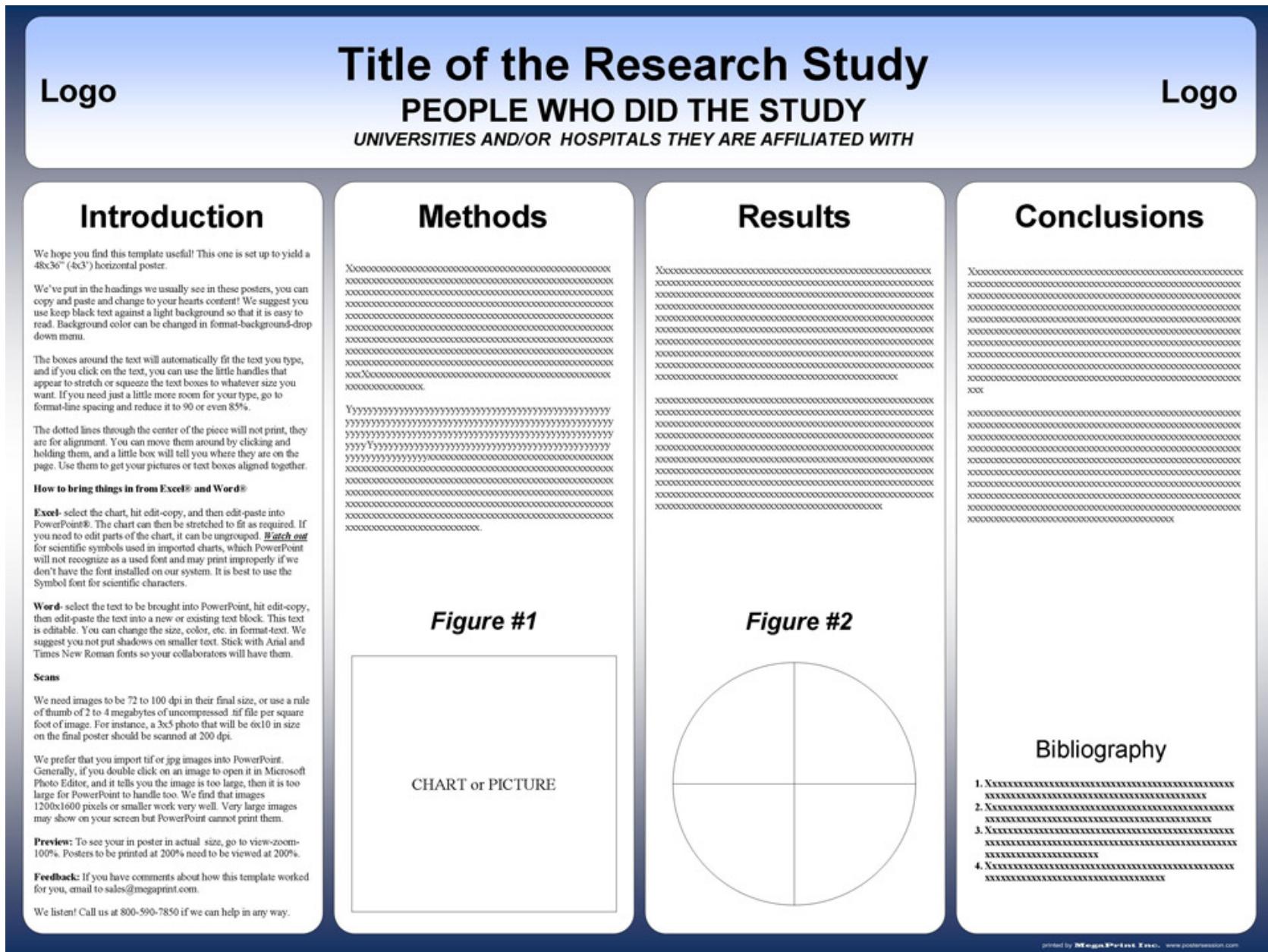
If you have a graphical way to express the next iteration of your hypothesis, by all means include it. For example, you might make a graph of hypothetical data that shows an expected result in a future experiment. That's something you couldn't do in a traditional manuscript, but it's totally fine for a poster.

If you're curious, this poster has 876 words (just look in File Properties to get this statistic). Aim for 500 words. If you are above 1000 words, your poster will be avoided.

## Further information

More tips can be found on "Designing conference posters," at <http://colinpurrington.com/tips/academic/posterdesign>. Note that URLs should always be stripped of any automatic hyperlink formatting (right-click, then "remove hyperlink").

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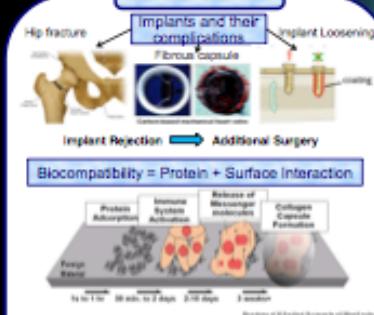
# Modelling Molecular Mechanisms of Biocompatibility of Synthetic Materials

N. Dragneva<sup>1,2</sup>, W. B. Fioranor<sup>3,4</sup>, D. Stauffer<sup>2</sup>, R.C. Mawhinney<sup>2</sup>, M. Ulanova<sup>2</sup>, S. French<sup>4</sup>, Y. MacKinnon<sup>2</sup>, G. Fanchini<sup>2</sup>, O. Rubel<sup>1,2</sup>



<sup>1</sup>Thunder Bay Regional Research Institute, 280 Munro St, Thunder Bay, ON, Canada  
<sup>2</sup>McMaster University, 1280 Main Street, Hamilton, ON, Canada  
<sup>3</sup>McMaster University, 1280 Main Street, Hamilton, ON, Canada  
<sup>4</sup>Thunder Bay Regional Health Sciences Centre, 300 Queen Street, Thunder Bay, ON, Canada  
<sup>5</sup>Physics & Astronomy, University of Western Ontario, 1135 Richmond St, London, ON, Canada

## INTRODUCTION



### Graphene as a biomaterial

1. Functionalization (chemical groups)
2. Easily manufacurable, low cost
3. Thickness
4. Great strength
5. Adhesive to irregular surfaces
6. Antimicrobial properties
7. Biodegradable (ie natural growth factor: G – ideal material for experiment with adherent cells (osteoblasts) due to strong non-covalent binding abilities of G)

### However, inconclusive evidence of Graphene toxicity

| Material | In vitro  | In vivo  |
|----------|---|--|
| G        | No cell aggregation<br>High generation of ROS                                 | —  |
| GO       | No significant toxicity<br>Decrease of cell adhesion<br>Reduced cell motility | No cell changes<br>Adhesion/desorption in lung and liver |
| rGO      | Reduced cell aggregation<br>Reduction of cell motility                        | Less effective in protein aggregation                    |

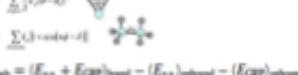
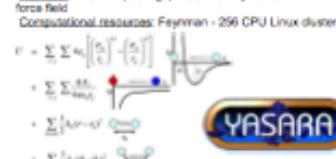
## OBJECTIVES

### METHODS

Objectives: Understanding of biocompatibility and bioadhesion mechanisms of biomolecules at the surface of Graphene on atomic level

Methods: YASARA package, Molecular Dynamics: AMBER1203 force field

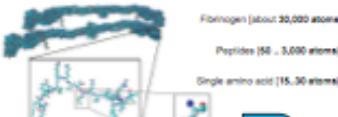
Computational resources: Feynman - 256 CPU Linux cluster



## RESULTS

### DISCUSSION

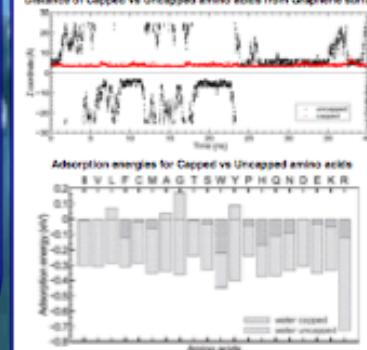
#### Graphene-amino acids in vacuum/water



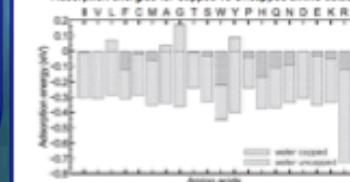
1. Modeled uncapped and capped amino acids.

2. To mimic the behavior of amino acids as part of a peptide chain, the ends of the chains were terminated.
3. Modelling amino acids at the surface of Graphene in explicit water environment provides a more realistic description of biomolecular interactions with artificial surfaces.
4. Obtained results are attributed to a desolvation effect, which is generally expected to reduce the affinity of amino acids to a surface in the presence of solvents.

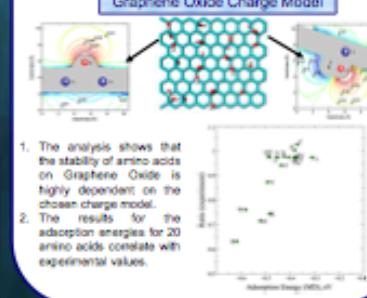
Distance of Capped vs Uncapped amino acids from Graphene surface



#### Adsorption energies for Capped vs Uncapped amino acids



#### Graphene Oxide Charge Model



1. The analysis shows that the stability of amino acids on Graphene Oxide is highly dependent on the chosen charge model.
2. The results for the adsorption energies for 20 amino acids correlate with experimental values.

## FUTURE WORK

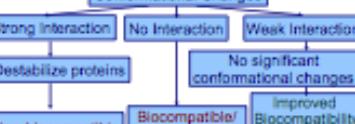
#### Biocompatibility of Graphene and Graphene Oxide

Degree of exposure of epitopes will be estimated by comparing:  

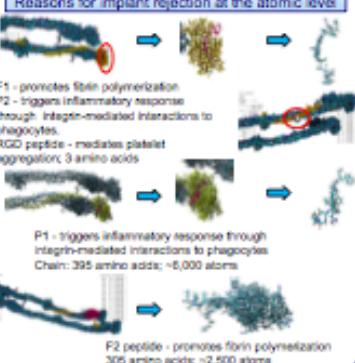
- Interaction Energy
- Solvent Accessible Surface Area
- Root Mean Square Displacement

 to parameters of natural peptides' states

#### Conformational Changes



#### Reasons for implant rejection at the atomic level



## SUMMARY

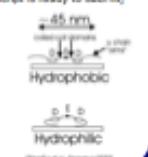
#### Results:

1. The interaction of proteinogenic amino-acids with Graphene surface has to be simulated in the presence of explicit solvent [Dragneva et al. J. Chem. Phys. 139, 174711 (2013)]

2. The charge model based on ab initio electrostatic potential of -O and -OH functional groups at the surface of Graphene Oxide was obtained. As well as the interaction of 20 amino acids and Graphene Oxide was described. [manuscript is ready to submit]

#### Future work:

1. Model the behavior of Fibrinogen functional peptides at the surface of Graphene and Graphene Oxide sheets
2. Compare results to experimental evidence: 1) adsorption to hydrophilic and 2) no-interaction at hydrophobic surfaces.



# Define your message

- ✓ All visuals and text should relate to message
- ✓ convey a clear message and support it with a combination of images and short blocks of text.
- ✓ Focus on your message
- ✓ Be bold & be explicit
- ✓ If you have an interesting result ->in the title
- ✓ Not repeating the results, state interpretations in the conclusion

# Visual Grammar

- ✓ shows, not tells
- ✓ avoids visual chaos that distract the viewer
- ✓ uses a visual logic, with an hierarchical structure that emphasizes the main points
- ✓ displays the essential content in the title, main headings and graphics
- ✓ All elements, including figure legends, are visible from 4 feet away
- ✓ The main headings explain the points, rather than merely stating "results"

# Headings

- ✓ to orient readers
- ✓ summarize your work in large letters. A hurried reader should be able to get the main points from the headings alone.
- ✓ organize: good headings are part of the visual grammar that helps move readers through your poster.
- ✓ Be hierarchical: the more important the point, the larger the type.
- ✓ Be Bold: make the strongest statements your research allows.

# Planning

- What's my message? You must be able to state your main point(s) and conclusion(s) clearly.
- How much room do I have? Determine specific size requirements.
- What milestones should I establish? Allow time for peer review and heavy editing.

# Planning

## When      What

- 0 Present poster
- 1 week Final print
- 1 week Make changes suggested by peers
- 1 week Distribute draft for peer review (round 2)
- 2 weeks Make changes suggested by peers
- 2 weeks Distribute draft for peer review (round 1)
- 3 weeks Edit your draft ruthlessly
- 3 weeks Create first draft of poster
- 4 weeks Plan out poster on scratch paper
- 4 weeks Define message and write an abstract (if you haven't already done so)

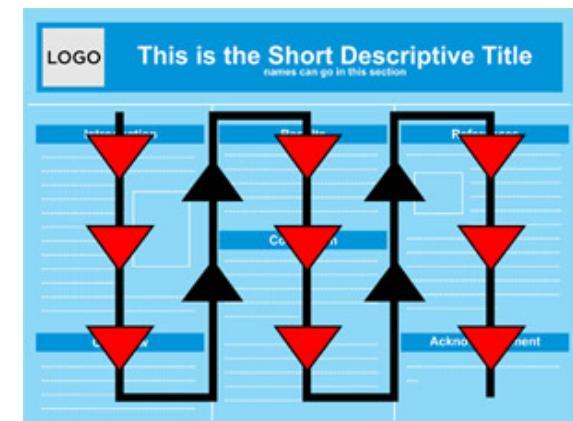
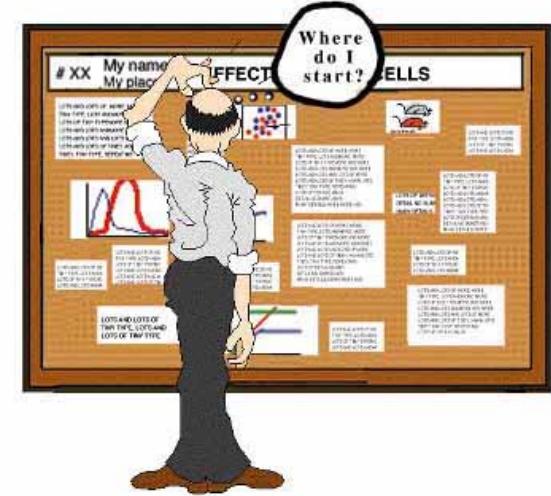


# Focus

- ✓ Stay focused on your message. Simple messages are more memorable.  
Details distract from the main point, and can be supplied in person as needed.
- ✓ which details are absolutely essential for conveying your message. The most common problem is too much focus on methods.
- ✓ Edit text carefully, reduce sentence complexity.

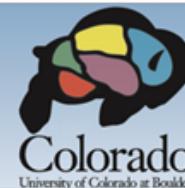
# Layout

- ✓ column format to make -> easier to read in a crowd
- ✓ organization cues to guide readers through poster
- ✓ "reader gravity" which pulls the eye from top to bottom and left to right
- ✓ balance the placement of text and graphics to create visual appeal
- ✓ white space creatively -> define the flow of information



# Repetition priming of faces depends on attentional load and emotional valence at encoding

Alejandro de la Vega & Marie Banich  
Department of Psychology and Neuroscience



## Background

### Emotional information is prioritized...

- Fast & interferes with perception
- Produces involuntary responses

### ... but is it processed automatically?

- "Independently of attention"
- Traditional view – emotional processing is automatic
  - Amygdala activation (marker of emotional processing) not modulated by spatial attention (task relevant vs irrelevant) for fearful faces<sup>1</sup>
- Alternative view - some attention is necessary
  - If attentional resources are fully exhausted, amygdala activation abolished<sup>2</sup>

### Need more behavioral measures of processing

- Brain activation overly relied to infer processing<sup>3</sup>
- Term "processing" is not well characterized
- In particular, how is future behavior affected by unattended emotional stimuli?

### Repetition priming (RP) – candidate measure

- Facilitation in the processing of a stimulus following previous processing of the stimulus
- Can reflect "subattentive" processing
- Informs on future behavior

## Present Study

### Aims

- Determine degree to which emotional distractors are processed automatically and how that depends on attentional load

• Use repetition priming as processing measure

- What type of processing is affected by a previous exposure to a stimulus?

- Modulate attentional load using bar orientation task & test future behavior using RP

### Experiment 1 - (n=24) Judgment

• Basic superficial judgment

### Experiment 2 - (n=22) Smartness rating (1-7 scale)

• "High level" subjective rating

## Methods



## Experiment 1 Results

More negative RT % change for fearful faces than neutral faces

- -2% (fearful) vs. -43% (neutral)\*
- Follow up did not replicate

### Limitations:

- Small cell size (12)
- Low overall repetition priming
- Too many total trials (144)

In Experiment 2:

- Increased cell size to 16
- Low total trials to 114
- Changed RP task

### Manipulation Check

Excluded subjects with:

- Accuracy over 75% on Hard blocks
- Difference between Easy & Hard accuracies < 25%

RT for Hard trials (900ms) > Easy trials (560ms)\*\*\*

Task difficulty successfully manipulated

Same faces used across experiments

### Processing - Repetition Priming

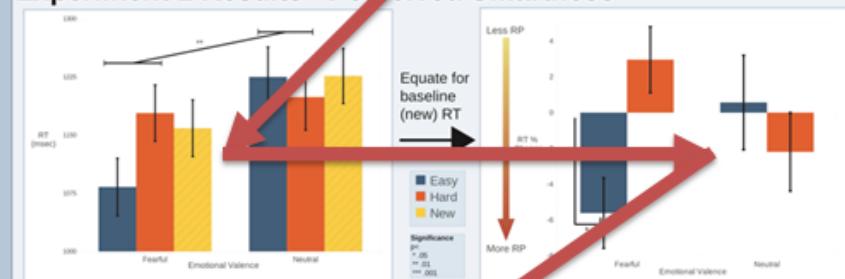
Outliers - Excluded cells with Cook's D > 4.16

Adjusted for baseline differences between emotional conditions in RP task

• RT % Change = (Old RT - New RT) / New RT

• Ex: (FearfulEasyRT - FearfulNewRT) / FearfulNewRT

## Experiment 2 Results - Perceived Smartness



## Conclusions

- High load - distractors *not processed*, though to change future processing
- Low load - very little processing of distractors occurs, though enough leftover resources -> **fearful faces *not processed***
  - Not very deep processing - responses are unmodulated
- Processing of emotional distractors is modulated by attentional load
  - At least some aspects of their processing is *not automatic*

## Acknowledgements

Luka Rotic - scripts, data analysis, adaptive staircase  
Jeff Archibald - data analysis, figures - design  
Sarah Cuthbertson - data analysis  
Zoe Wood - running subjects  
Tim Curran - advice

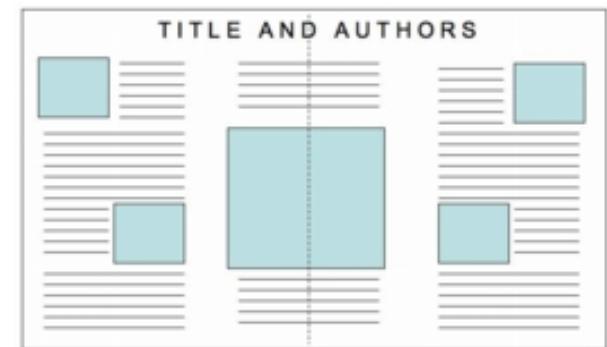
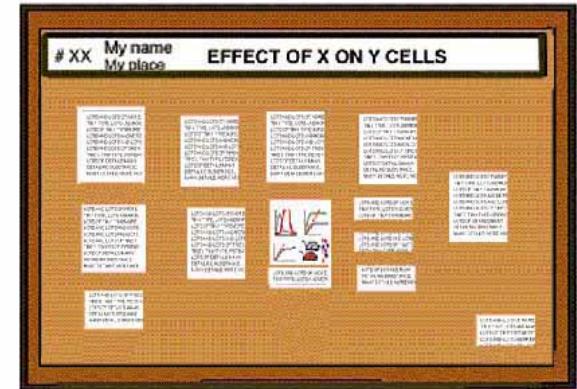
## References

- 1 - Pratto, L., Pitchford, S., & Mafford, T. (1991). The role of unattended fearful faces in the processing of threat. Effects of threat on memory and cognitive orientation. *Memory and Cognition*, 19(3), 349-353.
- 2 - Vaidyanathan, R., Aronson, J.J., Devine, A.P., & Olson, M.K. (2000). Effects of emotion and attention on the processing of threat. *Memory and Cognition*, 28(5), 629-640.
- 3 - Gehring, H., & Goss, P. (1996). The cognitive control of emotion. *Trends in cognitive sciences*, 9(3), 142-149.

contact: delavega@colorado.edu

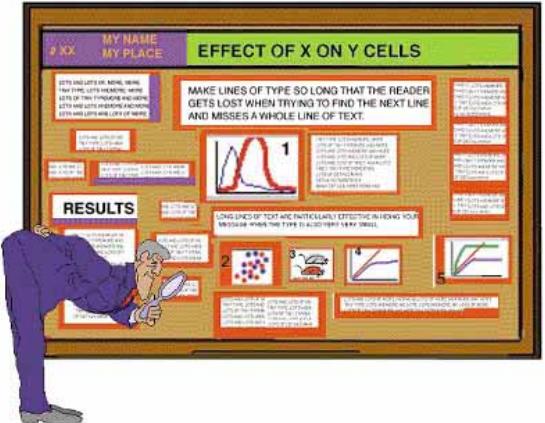
# Graphics

- simple and clean
- explanations directly on figures,  
instead of referencing from  
elsewhere
- Use simple 2-dimensional line  
graphs, bar chars, pie charts
- Text on graphs must be visible  
too



# Text

- ✓ Minimize text - use images and graphs
- ✓ Keep text elements to 50 words or fewer
- ✓ Phrases rather than full sentences
- ✓ Use an active voice, avoid jargon
- ✓ Left-justify text; avoid centering and right-justifying text.  
Use a serif font (e.g., Times) easier to read
- ✓ Text should be at least 24 point in text, 36 for headings
- ✓ text size in figures - it must also be large
- ✓ Title should be at least 5cm tall
- ✓ you, who are familiar with the material, should easily read it from 6 feet



# Color

- ✓ Use a light color background and dark color letters for contrast
- ✓ Avoid dark backgrounds with light letters - very tiring to read
- ✓ Stick to a theme of 2 or 3 colors - much more will overload and confuse viewers
- ✓ Overly bright colors will attract attention - and then wear out readers' eyes
- ✓ Consider people who have problems differentiating colors, especially when designing graphics (inability to tell green from red)

# No contrast, mixed up

**INSERT YOUR POSTER TITLE  
ON THESE LINES HERE**

Name of Author  
*Department Name and Institution Name can go here*

**BACKGROUND**



- Insert your text here. You can change the font size to fit your text.
- You can also make this box shrink or grow with the amount of text. Simply double click this text box, go to the "Text Box" tab, and check the option "Resize AutoShape to fit text".
- The background of this template may appear blue on your screen, but it does print lavender.
- Insert your text here. You can change the font size to fit your text.
- You can also make this box shrink or grow with the amount of text. Simply double click this text box, go to the "Text Box" tab, and check the option "Resize AutoShape to fit text".
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**MATERIALS AND METHODS**

**Title One**

Insert your text here. You can change the font size to fit your text. You can also make this box shrink or grow with the amount of text. Simply double click this text box, go to the "Text Box" tab, and check the option "Resize AutoShape to fit text". The background of this template may appear blue on your screen, but it does print lavender. Insert your text here. You can change the font size to fit your text. You can also make this box shrink or grow with the amount of text. Simply double click this text box, go to the "Text Box" tab, and check the option "Resize AutoShape to fit text".

**Title Two**

Insert your text here. You can change the font size to fit your text. You can also make this box shrink or grow with the amount of text. Simply double click this text box, go to the "Text Box" tab, and check the option "Resize AutoShape to fit text". The background of this template may appear blue on your screen, but it does print lavender. Insert your text here. You can change the font size to fit your text.

**Title Three**

Insert your text here. You can change the font size to fit your text. You can also make this box shrink or grow with the amount of text. Simply double click this text box, go to the "Text Box" tab, and check the option "Resize AutoShape to fit text". The background of this template may appear blue on your screen, but it does print lavender. Insert your text here. You can change the font size to fit your text. You can also make this box shrink or grow with the amount of text. Simply double click this text box, go to the "Text Box" tab, and check the option "Resize AutoShape to fit text".

**PURPOSE**

Insert your text here. You can change the font size to fit your text.

You can also make this box shrink or grow with the amount of text. Simply double click this text box, go to the "Text Box" tab, and check the option "Resize AutoShape to fit text".

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**RESULTS**

**Title Here**

Insert your text here. You can change the font size to fit your text. You can also make this box shrink or grow with the amount of text. Simply double click this text box, go to the "Text Box" tab, and check the option "Resize AutoShape to fit text".

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Your signal can go here.

**CONCLUSIONS**

Simply double click this text box, go to the "Text Box" tab, and check the option "Resize AutoShape to fit text". The background of this template may appear blue on your screen, but it does print lavender. Insert your text here. You can change the font size to fit your text.

**Title Can Go Here**

Insert your text here. You can change the font size to fit your text. You can also make this box shrink or grow with the amount of text. Simply double click this text box, go to the "Text Box" tab, and check the option "Resize AutoShape to fit text". The background of this template may appear blue on your screen, but it does print lavender. Insert your text here. You can change the font size to fit your text.

**REFERENCES**

1. Reference here
2. Second reference
3. Third reference

<http://www.makesigns.com/tutorials/poster-design-layout.aspx>





# Ryedale Flood Research Group

## Poster 4: Floods – have we never had it so bad?

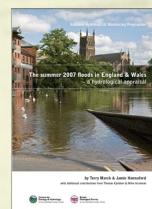
### Flood histories – a national perspective

1998, 1999, 2000, 2001, 2003, 2004, 2007, 2008 ...and on and on and on. We seem to be living in a period of unprecedented flood risk, one related to climate change:

Prime Minister's Question Time on the 25th July 2007, immediately in the aftermath of the Central England flooding (Hansard, Volume 463, Part 130, Column 834) -

*Sir Menzies Campbell:* "The Prime Minister was responsible for the establishment of the Stern review, which he will recall pointed out the severe economic consequences of climate change. Is it not clear from the events of the past few weeks that we cannot afford not to take the necessary steps or indeed, not to spend the necessary money, in order to mitigate the effects of climate change?"

*The Prime Minister:* "The right hon. and learned Gentleman is right. The Stern report, which the Treasury commissioned, said that global warming is very likely to intensify the water cycle and increase the risk of floods. It is an accepted part of the Stern recommendations that we have to do more..."



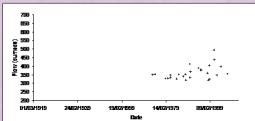
Or are we?  
How does this stand up to scrutiny?



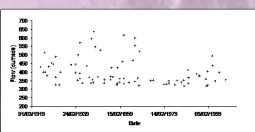
A day to remember: Pickering →  
26th June, 2007. How many years since the  
floods reached the bottom of Fish  
Street? Is this the worst it has ever  
been? And is climate change  
causing it?  
(Photograph by Mike Hagh)

### Records from water recorders

The River Severn Record from 1965 to present suggests a rising trend →



The full River Severn Record - things were much worse before 1965 →



### The data problem

The plots above illustrate a serious problem, which influences our perception of flooding and flood risk. Only c. 7% of our rain gauge records go back to before 1960. Our data are biased to a flood poor period. This is probably why the current wave of flooding seems so bad.

### Evidence from other sources of data

The possibility that, until the late 1990s, we had become used to living in a flood poor period is supported by other evidence, such as historical accounts, if we allow them to be used in analyses. For instance, the British Hydrological Society has a register of historical flood events that runs into the 1940s, based upon reported flooding (e.g. in newspapers). These data suggest that we go through runs of flood rich periods and runs of flood poor periods.

This shows us that there are other dimensions to the story, such as those to be found in historical and contemporary accounts of what it was like to live with floods. In this respect, 1947 & 2007 make an interesting comparison in that they were both years when the nation, as opposed to regions or districts, experienced flood risk ...

### 1947 versus 2007: 60 years of social change

Looking back over this period, we find evidence of how our approach to floods has changed. In particular, two government publications, one called *Harvest Home*, published in 1947 by the then Ministry of Agriculture and Fisheries, the other from the Review of the 2007 flood events led by Sir Michael Pitt, serve to illustrate this →

This shows how society has changed ... from one where, during what is widely known as 'Austerity Britain', flooding was something to be lived with by doing something personally, to one where technology should have stopped flooding and what flooding remains should be managed by other people.



Living with floods in 1947  
Evidence from *Harvest Home*

"Every stretch of floodbank is assigned two or three men who live near by - many of them volunteers - whose task is simply that of any patrol in a battle, to give warning of movement by the enemy."

"Not long after, the order went out 'Patrol!'. On every river bank the patrols set out from their homes, which some were not to see again for a couple of days or more!"

"So there remained only the mess to clear up ... Typical was the action of the W.V.S at Reading, which organized voluntary 'Lying squads of Mrs. Mops' to go rounds and help clean up the houses that had been flooded ..." (Householder, Gloucester)

Living with floods in 2007  
Evidence from the Pitt Review

"In 1947 were the last floods, and with modern technology there shouldn't be any floods round here..." (Householder, Doncaster)

"It's entirely the council's responsibility to prevent and deal with flooding." (Business, Hull)

"... what do I pay my council tax for? Why isn't someone actually doing this? Why do I, myself, have to do it, if there's nobody out there digging that brook deeper and draining it out? Why have I got to do it?" (Householder, Gloucester)

### Why do things seem to be bad?

1. We have had an unusually flood poor period from the 1960s to the 1990s

2. We are much less able and prepared to live with flood risk

### Searching further back ...

We can search even further back to appreciate better our relationship with flooding. In this respect, besides what can be found in local histories, the British Hydrological Society's *'Chronology of British Hydrological Events'* provides a wealth of material:

### A southern example, around Bath ...

1739 - major floods in Bristol and Bath; 1774 - major flood; 1809 - great areas of the city under water; 1840 - major flooding, including at the site of the new GWR station; 1875 - enormous summer storms over much of England; 1894 - major Autumn floods, hundreds of homes evacuated; 1932 - major floods in Wiltshire, Somerset, adjoining counties; 1947 - Bath flooded following the thaw after the severe Winter; 1960 - worst floods since 1947; 1968, 1979, 1993 and 2000 - major floods ...

### A northern example, around Leeds ...

1768 - major floods, following heavy rains and snow; 1790 - major flood after a sudden thaw, rivers higher than in the great flood of 1775; 1822 - big flood, many roads inundated and properties damaged; 1866 - great flood, prompting the Town Council to replace the old bridge; 1900 - extraordinary summer thunderstorm, many lives lost and much property damaged; 1948 - a very wet summer, with major flooding, prompting worries about the capacity of the sewers and storm drainage; 1968 - great summer storm, with serious flooding; 2000 - major floods, as in much of the U.K. ...

In summary, national trends in flooding are not so tractable to expressions of 'the worst ever' as one might believe. In particular, we seem to have moved from a 'flood poor' period, roughly between 1960 and 1990, to a 'flood rich' period, but it is not clear that this is any worse than has been experienced in Britain over past centuries.

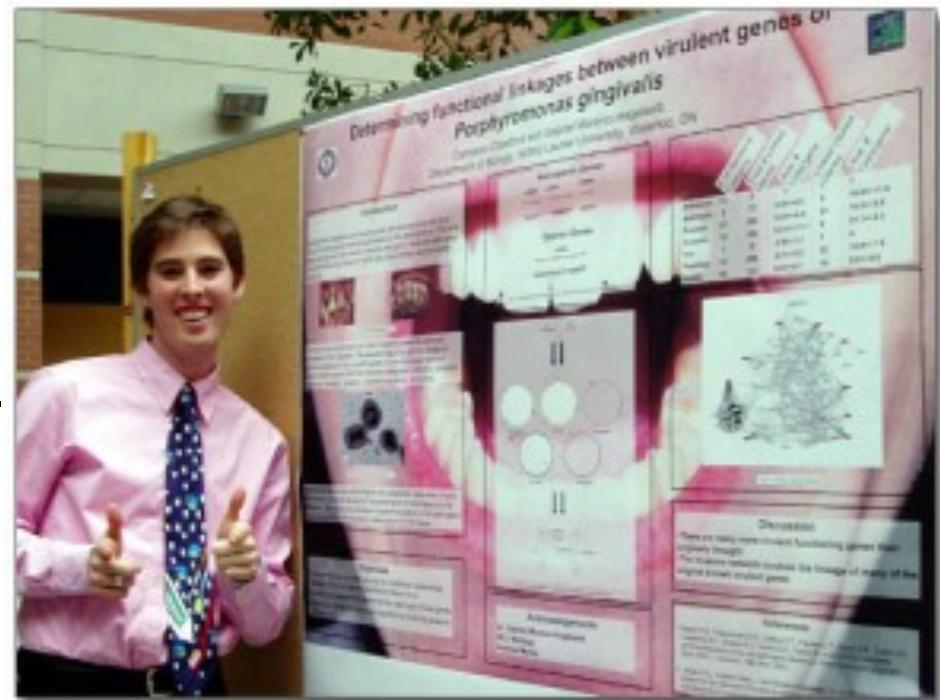
Background: Pickering, floods in 1901, a car stranded in the bottom of the Market Place; photograph by Sidney Smith, © Sidney Smith, by kind permission of the Beck Isle Museum, Pickering, joint custodians of the collection

# Color

- ✓ Colors that do not compete with your data, that look good once printed
- ✓ Proper contrast will reduce eye strain and make the poster more legible and interesting visually.  
(careful: too much contrast is hard on the eyes and can distract the reader from your data)
- ✓ Adding light color backgrounds to your figures can make the poster attractive (eyecatching)
- ✓ Colors on the monitor are usually not the same on the final printed poster

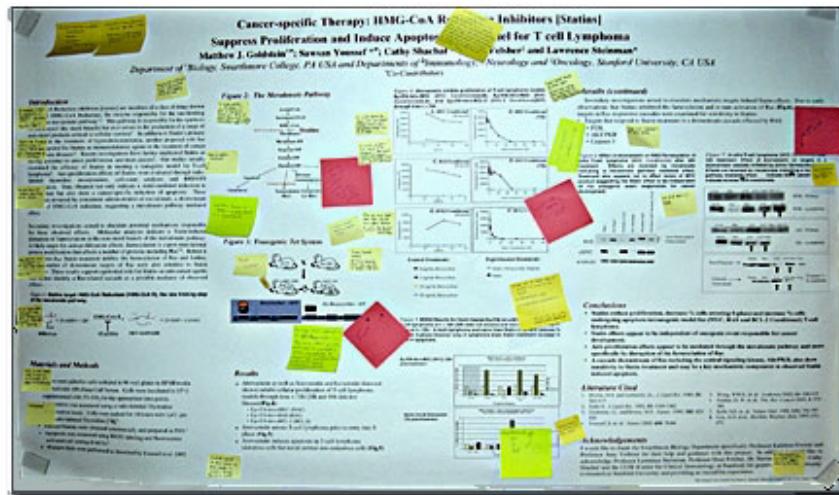
# Color

- If you are obsessive compulsive and have a large wardrobe, try to choose your clothes to match your poster color.  
(Research has shown that your poster will be visited more if you match it ☺)



# Editing

- ✓ Edit to reduce text (simplify verbiage, to reduce sentence complexity, and to delete details) If it's not relevant to your message, remove it.
- ✓ Have colleagues comment on draft



# Present your poster

- ✓ Don't read it
- ✓ Prepare 0.5-, 2-, & 5- minute tours of your poster.
- ✓ Tell viewers ... the context of your problem and why it is important (Introduction), your objective and what you did (Objective & Methods), what you discovered (Results), and what the answer means in terms of the context (Discussion).
- ✓ Use the graphics on your poster to support conversations with colleagues.

# Present your poster

- ✓ only 11 seconds to grab and retain your audience's attention so make the punchline prominant and brief.
- ✓ Most of your audience is going to absorb only the punchline.
- ✓ you can afford to leave out all the details and tell those who are really interested later.

[http://my.aspb.org/members/group\\_content\\_view.asp?  
group=72494&id=100256&CFID=1788127&CFTOKEN=99282524](http://my.aspb.org/members/group_content_view.asp?group=72494&id=100256&CFID=1788127&CFTOKEN=99282524)

# Helpful Questions

- ✓ What's the research question?
- ✓ Why is this question important?
- ✓ What strategy is used?
- ✓ What are the results?
- ✓ Why are these results unique/important?
- ✓ How does this relate to other research?
- ✓ What research comes next?

# Summary

## 1) People have to read it

- ✓ big letters: fonts are 36 or 48 for text and 72 – titles
- ✓ 4 feet away, and the title - at least 10 feet away

## 2) Don't challenge people's eyes

- ✓ a light colored background and dark letters for contrast
- ✓ avoid dark backgrounds with light letters - very tiring to read
- ✓ don't make small pictures really big – distracting
- ✓ don't use funky font, Times New Roman and Arial are easy to read

## 3) Don't read the poster to the audience

- ✓ give the big picture of what you did
- ✓ explain why the subject is important
- ✓ use the graphics to illustrate and support your key points

## 4) Balance the placement of text and graphics

- ✓ use white space creatively
- ✓ column format
- ✓ graphs should look professional and have labels

## 5) Take time in your creation

- ✓ This is a poster about something you have taking the time to study, take the time to present your information professionally.
- ✓ Spell Check. Proofread. Get feedback before printing.
- ✓ practice a poster

# Abstract

- Explain why your work is important
- Describe the objective(s) of your work. What are you adding to current knowledge?
- Briefly explain the methods. Unless the research is about methods, this should not be a major focus of your abstract (or your poster).
- Succinctly state results, conclusions, and recommendations. – tell what you found and recommend!
- do not recommend including an abstract on your poster. A poster is already a succinct description of your work. An abstract can also serve as an outline for your poster, which can be thought of as an illustrated abstract.