WHY MAKE A RESEARCH POSTER?

- Make your research accessible
- Invite discussion
- Receive feedback
- Make contacts and network
- Practice presenting research to the public
- Conferences & Poster Contests become résumé material
- Participate in a long tradition of disseminating your work to the research community
GENERAL GUIDELINES & THINGS TO REMEMBER

- You will be presenting to a wide variety of viewers.
- The average person should walk away with some understanding of your project.
- Translating scientific research for the general public is a valuable skill, and will become increasingly important. This is your chance to hone that skill!
- Always err on the side of succinctness.
- Your poster should be easy to scan from at least 5 feet away.
- Posters are for the audience, not for you and your colleagues.
- Your presence and presentation of your poster can often be as important as the poster itself.
MAKE SURE TO INCLUDE

- The title of your project, often in question form TITLE
- The question you sought to answer and why it matters!
- Your objectives for the project
- Your methods for the project
- Important figures to help visualize your data and results
- An explanation of your results
- Conclusions
- Challenges faced and ideas on how to improve (VERY BRIEF!)
- New questions you have formulated, and the next step(s) for your research
- References - *Going to the Source* with additional specifics from your advisor
- Acknowledgements
  - Funding, contributors, etc. (your academy award thank you’s!)
MAKE SURE TO AVOID

- Do not include an abstract
- TL;DR (wall of text)
- Avoid underlining
- Try not to include tables if a graph will be better. Avoid raw data.
- Find a way to minimize text and emphasize figures 70/30 figures/text.
- Abrasive or hard-to-read color schemes. Often, the printed version of colors is different than the on-screen version. Make sure that nothing clashes or is difficult to read by printing your poster on 8.5x11 to get an idea of the printed color (yellow text is a horrible idea!).
- Don’t overshadow your message with flashy colors or backgrounds. Make healthy use of the transparency feature.
- Do not steal images! If in doubt, check with your advisor! Cite your sources!
LAYOUT

- The recommended dimensions are (36”x45”) in order to fit in the poster frames in BLS/Olmstead, but you may elect a different size after discussion with your advisor.
- Print resolution is 300dpi, if your poster is the correct size in inches, your images should look sharp at their respective sizes.
- Flow each section into the next, but make sure to label the different sections clearly. Make it easy for the viewer to follow your steps.
- Make figures large enough to see from about 5 feet.
- A “clean” look is much better than a flashy, colorful poster that distracts from your message. Less is often more.
Font & Size

Font

- Use a clean, sans serif font, and use no more than three different fonts.
- *Arial* usually works well for Titles & Axis Labels.
- Continuous text paragraphs often display well with *Century Gothic* or *Avant Garde*.
- Avoid using *Times* or *Times New Roman* because they don’t scale well.
- Don’t underline, and use boldface only for titles or headings.

Size

- Main text should be around ~34 point
- Sub-Headings around ~42 point
- Title ~120 point
- Graphs ~20-26 point
- Acknowledgements ~22 point
LIKE ANYTHING ELSE, PROOF-READ!

- Once you have saved your poster as a PDF, go through each and every line and make sure that it matches what you have in your project file.
- Ask a friend or professor (preferably both) to read through your poster and give you feedback.
- Make sure all of your figures are displaying what you think they are!
- Run through a few mock presentations of your poster with friends or family. This will often result in questions you had not anticipated.
CREATING FIGURES

● If your software exports figures, try to use the PNG format for best compression.
● When creating figures from scratch, use Google Drawings.
● Screenshots
  ○ Mac: Command+Shift+4 gives crosshairs
  ○ Windows: Snipping Tool (search for snipping tool)
  ○ Linux: Usually Shift+Print Screen button
● Avoid using Microsoft Word
● Photoshop and/or Illustrator work great too, but the learning curve can be a little steep. Adobe Creative Suite is installed on all of the SciVis computers.
DEADLINES & REQUIREMENTS FOR URSI

● Find the official instructions on ursi.vassar.edu/students/posters/
● Final Poster Submission September 16th 2016
  ○ PDF File
  ○ Email/Share to chgahn@vassar.edu

● Poster Requirements:
  ○ Size: 36” wide x 45” tall, portrait orientation
  ○ Format: your final poster must be saved as a PDF
  ○ Creation: The preferred method for creating your poster is to use the PowerPoint URSI Poster Template, however, you can use any appropriate software tool to create your poster (e.g. Illustrator, InDesign, PowerPoint, Keynote, Google Slides), as long as you save your final work as a PDF file.
  ○ Maximum File Size: 100 MB (if it’s larger, contact Chris Gahn <chgahn@vassar.edu> prior to the submission deadline for help on reducing the file size)
  ○ File naming convention: URSI_posterNumber_facultyUsername_studentUsername.pdf where Username is the username that is used for the Vassar email address. For example: URSI_B01_joschwarz_beterry.pdf
  ○ If you do not use this naming convention, your poster will not be printed.
  ○ If you do not know your posterNumber, contact Susie Painter <supainter@vassar.edu> immediately.
O6-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 these treatments is an important mechanism for the development of tamoxifen-resistant breast cancers. The recent development of O6-alkylguanine-DNA alkyltransferase (MGMT) and 5-aza-2′-deoxycytidine (AZA) as potential therapeutics demands the need to understand the molecular mechanisms involved in the development of tamoxifen resistance. We have previously shown that MGMT expression is increased in tamoxifen-resistant breast cancer cells and that MGMT inhibition by O6-azacytidine (6-aza-C) and/or 5-aza-2′-deoxycytidine (5-Aza-C) results in sensitization of tamoxifen-resistant breast cancer cells to anti-estrogens. To further understand the role of MGMT in tamoxifen-resistant breast cancer cell growth and sensitivity to anti-estrogens, we investigated the effects of MGMT expression on tamoxifen-resistant breast cancer cell growth and sensitivity to anti-estrogens.

Results

1. O6-Benzylguanine plays a dual role in tamoxifen-resistant MCF-7 Cells: Contrasting with the above observations, next, we studied whether or not knocking down MGMT has any effect on ERα transcription. As expected, knocking down MGMT decreased ERα expression (Fig. 1A), whereas tamoxifen alone or tamoxifen plus 6-aza-C decreased ERα expression (Fig. 1B). These results demonstrate that MGMT has the ability to attenuate the not only the MGMT, but also the ERα transcription, indicating a possible dual role for MGMT blockers in tamoxifen-resistant breast cancer cell growth.

2. O6-Benzylguanine Plays a Dual Role in tamoxifen-resistant MCF-7 Cells: Contrasting with the above observations, next, we studied whether or not knocking down MGMT has any effect on ERα transcription. As expected, knocking down MGMT decreased ERα expression (Fig. 1A), whereas tamoxifen alone or tamoxifen plus 6-aza-C decreased ERα expression (Fig. 1B). These results demonstrate that MGMT has the ability to attenuate the not only the MGMT, but also the ERα transcription, indicating a possible dual role for MGMT blockers in tamoxifen-resistant breast cancer cell growth.

3. O6-Benzylguanine Plays a Dual Role in tamoxifen-resistant MCF-7 Cells: Contrasting with the above observations, next, we studied whether or not knocking down MGMT has any effect on ERα transcription. As expected, knocking down MGMT decreased ERα expression (Fig. 1A), whereas tamoxifen alone or tamoxifen plus 6-aza-C decreased ERα expression (Fig. 1B). These results demonstrate that MGMT has the ability to attenuate the not only the MGMT, but also the ERα transcription, indicating a possible dual role for MGMT blockers in tamoxifen-resistant breast cancer cell growth.

Conclusions

In conclusion, our study on MGMT expression and its role in tamoxifen-resistant breast cancer cell growth and sensitivity to anti-estrogens provides new insights into the mechanisms underlying tamoxifen resistance and potential therapeutic strategies. Further studies are needed to validate the clinical relevance of these findings and to develop targeted therapies for tamoxifen-resistant breast cancer patients.
BLOOD SCREENING AMONG SELECTED FRESHMEN ANATOMY STUDENTS AND ITS ASSOCIATION TO THE RISKS OF COMMON DISEASES

By: Eleonora Longo L., Mangus Iris Hai R., Musaquer Israel D.

ABSTRACT

This simple laboratory examined the blood samples of 38 freshmen students in an Anatomy class in University of Mindanao, College of Nursing. The study aimed to conduct blood screening to determine the two very important blood characteristics using ABO blood grouping determination test and RH Factor Analysis Kit, determine the percent distribution of students with Blood Types A, B, AB, A Rh and B Rh factors. Results of the study reveal that the distribution of students according to Blood Types A Rh and B Rh factors is very rare. Obvious in the data is that all subjects (100%) of the study are Rh+. This means that all of them have certain Rh antigens on the surface of their red blood cells.

RESULTS AND DISCUSSIONS

The table below shows the majority of male (81.54%) and female students (18.46%) are blood type O. They are known as universal donors, their blood is compatible with all ABO blood types. In the United States, Blood Type A is the most commonly found in the world, 41.4% of the population are type A (Genest 1993). ABO blood group is a set of red blood cells and plasma proteins that are made by the body. ABO blood group is important for determining whether one is an Rh positive or Rh negative. It is the most frequently used system for classifying red blood cells and is important for blood transfusion. Blood Type A is the most commonly found in the world, 41.4% of the population are type A (Genest 1993). ABO blood group is a set of red blood cells and plasma proteins that are made by the body. ABO blood group is important for determining whether one is an Rh positive or Rh negative. It is the most frequently used system for classifying red blood cells and is important for blood transfusion.

Table 1: Summary of Blood Screening among Selected Anatomy Students

<table>
<thead>
<tr>
<th>Blood Group</th>
<th>% of Students</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>38.47%</td>
<td>15.28%</td>
</tr>
<tr>
<td>B</td>
<td>42.11%</td>
<td>16.78%</td>
</tr>
<tr>
<td>AB</td>
<td>10.53%</td>
<td>4.054%</td>
</tr>
<tr>
<td>Rh Positive</td>
<td>99.74%</td>
<td>38.47%</td>
</tr>
</tbody>
</table>

CONCLUSIONS

1. The percent distribution of male and female ABO screening results showed Rh+ 99.74%, Rh- 0.26%, B Rh+ 42.11%, B Rh- 57.89%.
2. On the basis of the Rh factors, almost all would be Rh+.
3. Concerned associated risk is not known; Rh+ which is helpful for some transfusions.

RECOMMENDATIONS

1. It is recommended that emphasis on the principle of blood and cliniics be given during anatomy class and other related subjects to increase students’ awareness.
2. More researches and comprehensive studies must be conducted to discover ABO and Rh associated diseases.
3. Students need to take safety measures to avoid risks of acquiring blood transmitted diseases.

SAMPL REFERENCE

Haram, et al. Department of Molecular, Vision and Microbiology, Bayles College of Medicine, Temple, Texas 76308, USA 2001 APR 10 16:42:37 PPT 2007 FEB 25
HPC for Computational chemistry: Ab Initio and Semi-Empirical Approaches to Biology and Material Science

Jorge Alarcon Ochoa and Humberto Terrones
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Input: Structure
Force field or basis set+xc functional

We want to study realistic situations. Systems with thousands or millions of degrees of freedom have to be sampled for relevant time scales.

Rough energy landscapes (high dimensionality) call for enhance sampling Techniques.

In order to obtain thermodynamics or kinetics we need to use good features to characterize our system.

Statistical analysis helps dealing with the limited amount of information.

- Describing and predicting the structure and energetics of materials
- Energy changes upon crowding (solvation effects).
- Analyze the stability of material from an atomistic perspective (i.e. vibrational analysis).
- Describe materials from a macroscopic point of view (i.e. elasticity and curvature).
- Phase diagrams and population analysis.
- Predicting novel materials (modifying topological features can turn an insulator into a metal).
- Merging time and length scales to study the importance of electronic degrees of freedom on macromolecules.

D.C. Miller et al. Mechanical properties of hypothetical graphene foams: Giant Schwarzites. Carbon (2016)96 1191-1199
Why Collaborate?
Examing the impact of faculty & librarian collaboration on students' information literacy skill development in the First Year Seminar (FYS)

http://projecturl.com

Our Question
Does collaboration between FYS faculty and librarians make a difference to first year students’ information literacy skill development?

- 6 teaching librarians
- 385 first year students
- 5 years of the FYS curriculum
- 4 core skills including IL
- 24 FYS instructors
- 0 student learning assessments

St. Mary's College of Maryland Team Members

- Veronica Jordan-Douglas: Team Leader
- Luanh Olson: Writing Center Director
- Greta Sabinowitz: Library Director
- Libby Williams: Dean of the Core Curriculum
- Candice Heiner: Digital Initiatives Librarian
- Brandi Skotnicki: Reference Librarian
- Pamela Mann: Librarian

Acknowledgements
This project is part of the program “Assessment in Action: Academic Libraries and Student Success” which is undertaken by the Association of College and Research Libraries (ACRL) in partnership with the Association for Institutional Research and the Association of Public and Land-grant Universities. The program, a cornerstone of ACRL’s Value of Academic Libraries initiative, is made possible by the Institute of Museum and Library Services.

The project team would also like to thank Kelly Arnett, professor of educational studies at St. Mary’s College of Maryland for her assistance with the rubric component of this assessment project.

Project Results

Starting Points
First year students have some high school experience with libraries but familiarity with research & librarians varies (n = 377).

- 98% visited school or public library
- 82% did research at the library
- 77% borrowed library materials
- 67% used a library database
- 64% had library or research instruction

Relationships
24 librarian-faculty relationships analyzed using the following scale:

- 5: Collaborative assignment development
- 4: Faculty integrates some librarian feedback
- 3: Discussion of course materials (no changes)
- 2: Librarian received syllabus, assignments
- 1: Any contact between librarian & faculty

Where Collaboration Fell Short
There was NO correlation between faculty-librarian collaboration levels and students higher level IL skills (based on rubric evaluation of sample essays).

Overall scores were (BELOW TARGET):
- Research Question Formulation (mean = 2.54)
- Appropriateness of Sources (mean = 2.28)
- Relevance of Sources (mean = 2.4)
- Integration of Sources (mean = 2.0)
- Citation of Sources (mean = 1.99)

Actions & Recommendations

Immediate Action
Share project results with faculty.
Revise FYS IL learning outcomes.
Survey 2014 FYS students.

Shift in Practice
Librarians need to place greater emphasis on the IL learning outcomes for the FYS when working with faculty.

Shift in Thinking
Consultation is not collaboration. Faculty & librarians need to be active partners & IL skills need FYS faculty reinforcement.

Wider Implications
IL instruction needs to be expanded throughout the college curriculum to build advanced IL skills.

Future Planning
Need to build partnerships between the Writing Center & Library for better IL instruction.
Efficient Seismic Modeling Using Poroelastic Approach

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Oklahoma State University, EPFL, Switzerland

Objective
To simulate poroelastic propagation of seismic wave in geologic media.
- To derive poroelastic system in conservative form.
- To prove poroelastic system is well posed.
- To adopt Nodal Discontinuous Galerkin Finite Element Method (NDGEM) to numerically solve the poroelastic system.
- To explore heterogeneous computing platform for implementation.

Analytical Perspective
- Eigen decomposition of Jacobian Matrices

Numerical Scheme
Numerical scheme of equation (3) in Strong form using Nodal DG approach is as follows:
\[
\frac{\partial}{\partial t} \frac{\partial \mathbf{u}}{\partial x} = \mathbf{F} - \mathbf{G} \cdot \nabla \mathbf{u} + \mathbf{H} + \mathbf{S}
\]
- Characteristics decay

Riemann Problem \( \Delta \eta \)

Constitutive Equations
Conservation of momentum yields following equation of motion:
\[
\frac{\partial \mathbf{v}}{\partial t} + \nabla \cdot (\mathbf{v} \otimes \mathbf{v}) - \nabla \cdot (\mathbf{B} : \mathbf{D}) = \mathbf{f}
\]
where:
- \( \mathbf{v} \): solid velocity, \( \mathbf{B} \): fluid velocity.
- \( \rho_0 \): density of material, \( B_{	ext{v}} \): bulk modulus of material.
- \( B_0 \): density of material.

Parallel Approach
- Case Scenario:
  - \( N = 1000 \), \( N = 100 \), \( V = 200 \), \( \Delta x = 1 \), \( \Delta t = 0.1 \).
  - \( k = 2 \), \( A = 4 \), \( N = 10 \), \( \Delta x = 10 \).
- Parallel approach:
  - NFS: 40 TLP.

Combined CPU and GPU Implementation

Future Work
1. Simulation of poroelastic wave propagation in a heterogeneous medium using the derived upward flux.
2. Development and implementation of poroelastic wave equation incorporating the attenuation.
3. Further optimization of hybrid code.

References

Acknowledgements
1. School of Geology and Mathematics, OSU, Oklahoma
2. MCSS, EPFL, Lausanne, Switzerland
3. NSF and XSEDE-2016 Organizing Committee.
https://tinyurl.com/yb3ph6dk