

A leading cause of death worldwide, cancer claims nearly 7.6 million lives each year, according to the World Health Organization. With approximately 1.6 million new cases diagnosed annually in our country alone, there has been an increasing demand placed upon researchers to gain a better understanding of this incredibly complex and devastating disease, and hence, to develop new treatment strategies. Such progress requires an extensive and meticulous study of several fundamental characteristics of cancer, including its ability to respond to growth signals yet disregard growth-inhibitory signals, to evade programmed cell death, and to indefinitely proliferate. Conducting research of this nature requires patience, dedication, and of course, sustained, adequate funding.

In simplest of terms, cancer may be defined as an uncontrolled growth and division of cells. Such behavior is often stimulated by epidermal growth factors, which activate pathways responsible for the growth, proliferation, and survival of normal cells; however, in cancer, these pathways become altered in some way to enhance this cycle. Therefore, it is important to investigate precisely how the pathway's efficiency is maximized and what can be done to limit its activity. For example, one of the most prominent of these cell-signaling cascades in the human body is known as the Akt/PKB pathway. Considering this series of signal recognitions, reactions, and products supports the aforementioned behaviors of cells, it has come as no surprise to researchers that the Akt/PKB pathway is notably overactive in certain cancers. But how and why, exactly, is this happening?

Gaining particular attention over the course of the past few years is a protein known as "SHIP." SHIP is an SH2-containing 5' inositol polyphosphatase<sup>1</sup> found within cells. Its product, PIP<sub>2</sub> (a membrane-bound component of the Akt/PKB pathway) activates the

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<sup>1</sup> an enzyme that removes phosphate groups from its substrate, PIP<sub>3</sub>, at the 5' position

kinase Akt in the cell's cytosol. The cellular signaling pathway activated by this kinase, the Akt/PKB pathway, is responsible for growth and survival, including that of neoplastic cells. My Capstone project, conducted in the Department of Microbiology and Immunology at SUNY Upstate Medical University, seeks to identify compounds capable of inhibiting SHIP, and hence, suppressing the proliferation and survival of cancer cells. Earlier work conducted in the Kerr lab elucidated the potential of the compound 3- $\alpha$ -aminocholestane (3AC) to promote apoptosis of blood cancer cells in vivo. However, several challenges accompanied the administration of this drug; because 3AC has a low solubility, it had to be introduced in very high concentrations to demonstrate any inhibitory effect. Such high concentrations proved toxic to the hosts, and so, while it did kill the cancer cells, it also frequently killed the mice model organisms—clearly not advantageous from a clinical perspective! Therefore, it is my goal to identify a new, more effective inhibitor that circumvents the issues associated with 3AC.

The analysis of potential inhibitory compounds is quite multifaceted, comprising many individual assays and experiments; as one can imagine, each process poses a notable expense to our lab. To begin, Dr. John Chisholm's organic chemistry lab in SU's Center for Science and Technology synthesizes the compounds that I am currently working with, and provides me with nearly twenty new compounds every several weeks. These compounds must initially be screened via the Malachite Green Assay, whose colorimetric results indicate whether SHIP's activity proceeds to dephosphorylate PIP<sub>3</sub> to PIP<sub>2</sub> (an unfavorable result, as PIP<sub>2</sub> is able to activate the cancer-promoting pathway). The compounds that demonstrate inhibition at the starting concentration are then diluted to test their efficacy at lower concentrations. The strongest inhibitors identified in this screen are then analyzed

via the fluorescence polarization (FP) assay, which proves to be more sensitive than the Malachite at lower concentrations. Using the FP assay, I further intend to screen the compounds for selectivity against the two existing homologs of the protein, SHIP1 and SHIP2. For example, does 'compound x' inhibit only SHIP1, but not SHIP2? SHIP2, but not SHIP1? Both? It has been noted, in previous studies of breast cancer cells, that when SHIP1 is knocked down, SHIP2 is overexpressed in order to compensate, continuing to promote malignancy. Quite possibly, knocking down *both* homologs may be beneficial. However, humans have evolved two 'versions' of this protein for a reason; therefore, during the next stage of the process, I shall test whether inhibiting both simultaneously is too toxic to the host. The Malachite and FP assays for all compounds ought culminate mid-spring 2012 semester, and immediately thereafter, I shall begin introducing the most promising inhibitors to cancer cells in vitro.

During this phase, I will assess the ability of the inhibitory compound(s) to penetrate the membranes of human leukemia, breast, and other tissue cancer cells (all utilizing the same Akt/PKB pathway, stimulated by the same epidermal growth factor), as well as to determine the lowest concentration at which the drug is effective. Although a particular compound may have demonstrated significant inhibition of SHIP's action in the aforementioned assays, if it cannot cross the membrane to function *inside* the cell, it will have little to no benefit for a cancer patient in need. Therefore, this component of my overall project shall further narrow our field of potentially clinically-relevant compounds.

After screening the compounds for their efficiency in cell cultures, the final phase of my project shall commence. Those demonstrating the most significant inhibition at the lowest concentrations *inside* the cells will be introduced into our mouse models to evaluate

the drugs' effects on a living organism. Mice possess a highly conserved genome to that of *homo sapiens*, and hence, serve as an ideal model organism of study. These mice shall first be irradiated, then injected with human leukemia cells to create a condition remarkably similar to that experienced by human leukemia patients. The inhibitors of interest, identified by our screens, shall then be administered to these leukemic mice, which will be evaluated over the course of several months, allowing for ample observation. It is my hope that by the culmination of my project, our lab will have identified at least one, if not several, compounds worthy of further study, and ultimately, of clinical trials involving the treatment of hematopoietic malignancies, as well as other solid-type tumors, such as those characteristic of breast, brain, and lung cancers.

The Crown Award or Wise-Marcus 50-Year Friendship Award will greatly benefit my research, as the funding provided shall allow me to purchase the enzymes, substrates, and other assay components crucial to my project. Likewise, this generous scholarship shall enable me to devote my undivided time and attentions to my Capstone project, rather than trying to establish an additional source of income to cover my summer living expenses. With this funding, I believe I will be able to maintain the strong forward momentum necessary to make a notable difference in the field of cancer research. While it may sound rather ambitious, should we identify a compound that significantly inhibits SHIP while satisfying the additional criteria explained above, it could truly revolutionize the chemical treatment of cancers seen today, bringing us one step closer to the coveted "c word" . . . a cure.

Amanda N. Balch

Crown Award/Wise-Marcus 50-Year Friendship Award Application

Proposed Timetable

27 January 2012

<b>Proposed Timeline of Capstone Project (December Graduate)</b>	
<b>Phase</b>	<b>Prospective Date of Completion</b>
Malachite Assay Analysis (Initial and dilution series)	March 1, 2012
Fluorescence Polarization Assay	March 1, 2012
Cell Line Studies	June 30, 2012
In vivo studies, mice as model organism	November 1, 2012
Rough Draft of Paper*	November 11, 2012
Final Draft of Paper	December 1, 2012
<p>*Please note, paper will be an ongoing rough draft; background, methods, and results will continuously be incorporated as I work on my project. Analysis and discussion will be written after last of data is recorded.</p>	

Amanda N. Balch  
 Crown Award/Wise-Marcus 50-Year Friendship Award Application  
 Proposed Budget  
 27 January 2012

Item	Supplier	Catalog Number	Quantity	Price	Total
DMSO	Krackeler Scientific, Inc.	D-2650	1 x 100 mL	\$139.00	\$139.00
5 PtdIns (3,4,5) Phosphatase Activity Assay	Echelon Biosciences, Inc.	K-1400	1 x 1 kit	\$645.00	\$645.00
PTEN Enzyme	Echelon Biosciences, Inc.	E-3000	1 x 2.5 ug	\$119.00	\$119.00
Phosphatidylinositol 3,4,5-trisphosphate diC8 (PI(3,4,5)P3 diC8)	Echelon Biosciences, Inc.	P-3908	1 x 1 mg	\$325.00	\$325.00
SHIP2 Enzyme	Echelon Biosciences, Inc.	E-1000	1 x 10 ug	\$290.00	\$290.00
Malachite Green Solution	Echelon Biosciences, Inc.	K-1501	4 x 1 bottle	\$39.00	\$156.00
Dojindo Cell-Counting Kit-8	Dojindo Molecular Technologies, Inc.	CK04-20	1/4 x 1 kit (10,000 tests)	\$950.00	\$237.50
Iscove's Modified Dulbecco's Medium (IMDM)	ATCC	30-2005	1 x 500 mL	\$21.00	\$21.00
RPMI-1640 Medium	ATCC	30-2001	1 x 500 mL	\$20.00	\$20.00
Mediatech CellStripper Dissociation Reagent	Fisher Scientific	MT-25-056Cl	1 x 6/pk of 100 mL	\$85.41	\$85.41

Summer Living Stipend			
Expense	Amount	length of time	Total
Rent	\$360/month	3 months (May-August)	\$1,080
Food	\$105/wk	15 weeks	\$1,575
Utilities	\$100/month	3 months (May-August)	\$300
			<b>\$2,955</b>



Caitlin Dewey  
Proposal Narrative

Just last week, *The New Yorker* – one of the world’s oldest and most revered publications – released an iPad edition to the Apple Store. It was a moment of celebration for the 85-year-old magazine, as it ventured onto a new platform that could forever change the way print media is read. At the same time, its editors seemed confused: “We’re at once delighted and a little bewildered about this latest digital development,” they wrote online. “We’d be liars if we said we knew precisely where technology will lead.”

No one knows quite what to make of the iPad yet – not even the editors of the country’s premier magazine. But in this Capstone project, which is both a research-intensive and creative undertaking, I will attempt to create an iPad magazine in order to solve some of the essential issues facing the very new realm of mobile publishing. How can we optimize a print version for mobile delivery? What multimedia and interactive elements will engage readers? How can this new technology help us become more effective storytellers? And how can we employ this technology in a cost-efficient, small-scale way, so that not only *The New Yorkers* of the world can make dynamic digital editions?

Working with Professor Seth Gitner, I have already begun to research the answers to these questions and to design an iPad magazine that could be published at relatively low cost. We have developed a concept for a multimedia product that will look and navigate like a print magazine, but that will also include audio, video and interactive features, in addition to the usual photo and text. We have also developed a technical framework to support the magazine. In order to implement this plan, however, and to optimize my project so that it truly represents an innovation in the field, I am requesting \$5,000 from the Crown/Wise Program.

To understand why the project requires this funding, it is first necessary to understand a bit about the technology behind iPhone/iPad applications. There are two types of applications: one, called a native application, launches directly from the iPad’s home screen and requires a very specialized, very difficult type of coding. This is the type of application used by magazines like *The New Yorker*, which have hundreds of thousands of dollars to spend on development. The second type of application, the web-based app, is essentially a website that has been designed, coded and converted to work specifically on the iPad. It can still launch from the home screen and employ many of the iPad’s characteristic features – the touch screen and page flips, for

instance – but it uses the common coding languages HTML, CSS and Javascript. This is also the type of application that I intend to build for my project, because it requires only a website and a developer or coder to do so.

This brings us to the equipment and technical support necessary for a web-based app. The most basic piece of equipment is, of course, the iPad itself. The iPad is necessary for planning, designing and testing the magazine, as well as researching what other magazines have done with their digital editions. While the app will be hosted on the Web, it can only be tested from an iPad – there is no reliable way to check iPad display or interactivity from a computer browser. I have also requested a year's worth of server space, which is where the magazine and its data will be stored.

As explained above, this type of project also requires a developer – a person with advanced, specialized knowledge of HTML, CSS and Javascript who can prep the editorial product for mobile delivery. The market rate for a developer varies (Aquent, a developer agency, charges \$40-45/hour; freelancers charge as much as \$65) but I have found a student who is willing to take the project for between \$30 and \$40/hour. Of course, it's impossible to predict exactly how many hours the coding will require, as the project will doubtlessly need edits and renovations. Thus, in the interests of being fair to my developer, I have requested the maximum payment allowed under Crown/Wise guidelines. At a rate of \$35/hour, that works out to roughly 90 hours of work – or about four hours per week over the course of the project.

Finally, any project that positions itself on the cutting-edge of the industry requires expert feedback and specialized research. I have already begun contacting professors, developers and research fellows from around the country, asking their advice on iPad design and development. (Incidentally, when I have server space, I will also launch a blog chronicling my research.) However, no amount of e-mailing or phone-calling could replace the research and feedback opportunities at the SXSW Interactive Festival, which I have requested funding to attend. The Interactive Festival is the country's most important new media conference, in which thousands of journalists, developers and producers gather to share theories, strategies and start-ups. This year's panels include, for example, discussions on cross-platform applications, optimizing iPad editions for older users and designing for the iPad. Thus, in terms of my Capstone, SXSW is a critical research tool that will keep me at the very forefront of new media development. More importantly, the festival's many mentorship and networking opportunities will allow me to show

the first draft of the project to industry leaders – and to incorporate their feedback into the magazine in time for its submission to the Honors Program in April.

The sales figures for *The New Yorker* app aren't in yet, but I suspect that they'll be strong. In fact, if the growing enthusiasm for mobile editions is any indication, then in ten or fifteen years you may well receive the majority of your print media diet on the iPad. Thus, this project is a chance to see the future of the media a decade early – and for that reason, I hope that the Crown/Wise program will fund it in full.

Caitlin Dewey  
Anticipated Timetable for Completing Project

1. Preliminary reporting and research (Due September 10) – *completed, but continuing*
2. Magazine conceptualization (Due September 17) – *completed*
3. Story assignment (Due October 15)
  - a. Recruit student journalists, photographers and videographers to contribute material to the magazine. Once we've discussed the story angle and sources, they'll have one month to complete the assignment. I'll check in with them weekly to make sure that the piece is developing as planned.
  - b. Assign one piece of content in each medium to myself and begin working on it at this point.
4. Development blog launch (Due October 29)
  - a. Create blog detailing the conceptualization, development and progress of the magazine.
  - b. Interview six digital media experts suggested by Professor Gitner.
5. First edit (Due November 12)
  - a. First deadline for student contributors. I'll review the print content with my Honors reader, Professor Chessher, and the multimedia content with Professor Gitner.
  - b. I'll meet with contributors to discuss and assign revisions.
6. Preliminary design (Due December 3)
  - a. Lay magazine out in InDesign using first story drafts. Send to Brian for preliminary coding.
7. Second edit (Due December 3)
  - a. Second deadline for student contributors. I'll make final edits with Professors Chessher and Gitner and review any changes with contributors.
8. Final design (Due December 17)
  - a. Place revised photos and copy and finalize InDesign document.
  - b. Send InDesign document and multimedia elements to developer for coding.
9. Application coding (Due February 1)

- a. Developer will have a month and a half to code the magazine for iPad delivery.  
We will test it together and have a workable version by February.

The remaining steps are for revision and review before submitting the final project on April 27.

10. Write first draft of accompanying paper (Due February 4)
11. Write second draft of accompanying paper and revise magazine (Due February 18)
12. Write Capstone summary (Due March 30)
13. Write third draft of accompanying paper and revise magazine (Due April 15)
  - a. If I receive funding to attend the SXSW Interactive Festival, I will incorporate feedback from industry leaders at this stage in the revision process.
14. Complete project and submit to Honors (April 27)

## Crown/Wise-Marcus Application

<b>Proposed Budget for Caitlin Dewey</b>			
<b>Item</b>	<b>Cost Per Unit</b>	<b>Subtotal Cost</b>	<b>Notes</b>
<b>Research Travel</b>			
SXSW Interactive, March 11-15			
<b>Transportation</b>			<b>Notes</b>
Plane to/from Austin	\$289	\$289	
Conference bus pass	\$40	\$40	
<b>Meals</b>			
5 (1/day)	10/day	50	<b>Notes</b>
<b>Housing</b>			
6 Days	87/day	522	<b>Notes</b>
<b>Conference Registr Fee</b>	\$450	\$450	
<b>Other Travel Expenses</b>			<b>Notes</b>
None			
<b>Research Support</b>			
<b>Equipment and Materials</b>			<b>Notes</b>
16 GB iPad	\$499	\$499	
Server space	\$6.95/month	83.4	
<b>Services (e.g., lab analyses)</b>			<b>Notes</b>
Developer		3067	

## Crown/Wise-Marcus Application

<b>Stipend for Research in Syracuse</b>			
Rent: Number of Months or Weeks	Up to \$360 per month		<b>Notes</b>
Food: Number of Weeks	Up to \$105 per week		<b>Notes</b>
Utilities: Number of Months	Up to \$100 per month		<b>Notes</b>
<b>Other Expenses (explain in "Notes")</b>			<b>Notes</b>
<b>BUDGET TOTAL</b>		5000	

Gabrielle Traub

As a voice major, I have decided to tackle something that is necessary for me to understand in my field, yet do not get a chance to do: directing. I have decided to direct the opera *The Magic Flute* by Wolfgang A. Mozart. I understand that this is a very large undertaking, and I am excited to take on the challenge. The process will definitely put all of my artistic and musical strengths to good use, and well as put me in a leadership position, which will be a great opportunity for personal and artistic growth. In my program, it is rare that we get to do a production in another language besides English, so I plan to do the music of the production in German, with dialogue in English. It will also give the performers a chance to do more than one production for the year (which is not something that happens often either). It is a great way to educate/challenge both the students I will be directing and open up the audience to another language performed within the opera world.

I will be collaborating with Eric Johnson, the director of Opera Workshop (a class through the Music Program), during the rest of this year. He has agreed to let me take over the class Opera Workshop for second semester in order to give me legitimate rehearsal times and rehearsal studios (Every Tues/Thurs 5-630pm).

I spent this past summer training in Graz, Austria for six weeks through the American Institute of Musical Study in Graz, Austria. Their native language is German, which gave me a very good foundation for the German pronunciation and also professional training in stagecraft and coaching.

Things that I have already accomplished: I have found a conductor who is also willing to act as music coach/accompanist, so he will help me run rehearsals along with playing for the auditions. He will be putting together the orchestra that we need, and rehearsing them as well. I

have an assistant producer/director, a grad student in the music school who will help stage the opera, organize rehearsals, and fulfill many of the administrative needs of putting together a finished production. Another thing I am extremely excited about: I will be collaborating with a fellow student who happens to be a former fashion design student to design and create a full set of costumes. In terms of the physical set, the opera workshop has for past productions in Setnor Auditorium, simply painted wooden flats to create a minimalist set background, with various furniture pieces for each scene. These items are in storage and are readily available.

As I have discovered over the years, it takes a lot to make a production, especially as one as large as *The Magic Flute* possible. This includes a pretty decent budget, depending on the scale of the show. Thus, my anticipated financial needs are as such:

Music Scores: 18 principals, 1 director 1 asst. director = 20 scores at 13.57 each (Amazon)

Photocopies:  $\$0.10 \times 500 = \$50.00$

For Chorus members who do not need a full score.

Individual Orchestral scores (one for each instrumentalist): \$400

Conductor's large detailed score: \$140

Scenery and Stage Lighting (quote estimate): \$808

Every year Opera Workshop hires Syracuse Scenery and Stage Lighting to rent necessary scenery pieces and lighting fixtures. These rentals are necessary to help transform Setnor Auditorium from a simple hall into a theatre, if only for one night. This past year we put on *Die Fledermaus*, and the quote from the rental was about \$808. I will be using them again this year to help with the *Magic Flute*, so it will be necessary to have this amount at the ready for my production. I have included a copy of the *Die Fledermaus* invoice for price reference/ clarification.

Labor: \$500

\$250 for a Master Electrician (\$10/hr x 25 hours the week of the show) + \$250 for a Lighting Designer (\$10/hr x 25 hours the week of the show). Please see attached quote.

Full Color Promotional Posters: \$60

Makeup Supplies: \$30

I will be designing and implementing the makeup for this production as well. Attached is a breakdown of what I will need.

Costumes (including props): \$1009.81 - \$1359.80

Attached is a budget breakdown created by myself and costume designer Tim Westbrook.

Thank You cards/gifts: \$6.19

I would like to write up a nice Thank You card to each person who helped with this endeavor, especially the teachers who helped me put such a production together. A pack of 12 on Amazon.com is \$6.19.

DVDs: \$52.98

For research purposes – one film version and one stage version.

Travel Arrangements to NYC (research): Plane ticket = \$118.40, Opera ticket = \$85, Meals = \$180, Subway = \$54

The Metropolitan Opera in NYC is doing their yearly production of the Magic Flute around Christmas/New Years, and I would love to travel there to do some research and see their approach. All I would need for this is a plane ticket (from Boston to NYC on Jet Blue) and the production ticket. A moderately priced ticket for a production usually runs about \$85 (not the best, but not standing room only). I will be spending about six days in the city (December 29-January 4) to see a few other productions, but am only asking for

funding for one Magic Flute ticket. I have lodgings already set up, but meals will be necessary. I'm hoping to budget \$30/day, simply because food in NYC is expensive.

There is also subway fare: \$2.25 per ride, and I'm budgeting about 4 rides per day for 6 days. That totals about \$54 dollars.

**Timeline:**

My timeline thus far is as such: This semester I am meeting weekly with both Janet Brown (my advisor) and Eric Johnson (head of Opera Workshop), sorting out both the syllabus/class issues and the staging/music rehearsals, and starting getting together lists of materials (props and costumes) I will need. At the end of first semester I will hold auditions, cast, then give the cast their winter break to begin learning their music and lines. As soon as classes begin during second semester I will start the rehearsal process, which will be 2-3 times per week (every Tuesday and Thursday from 5-630 pm with additional rehearsals the last two weeks), until our performance on Saturday, April 30 at 8pm in Setnor Auditorium, Crouse College.

In conclusion, I am very excited about my upcoming project, and look forward to working with both my peers and the wonderful faculty who have thus far agreed to help out. All of this funding will help to make this production the best it can possibly be, and ease the weight that will be on my shoulders over the next couple of months. I thank you for your time and consideration.

## Crown/Wise-Marcus Application

<b>Proposed Budget for</b>	Gabrielle Traub		
<b>Item</b>	<b>Cost Per Unit</b>	<b>Subtotal Cost</b>	<b>Notes</b>
<b>Research Travel</b>			
(Include travel dates)	December 29, 2010 - January 4, 2011		
<b>Transportation</b>	Cost per trip		<b>Notes</b>
(Include number of trips)			
Roundtrip to NYC	\$118.40	\$118.40	Jetblue.com (boston to NYC)
<b>Meals</b>			
Number of days or weeks	Cost per day or week		<b>Notes</b>
5 days	\$30/day	\$180	
<b>Housing</b>			<b>Notes</b>
Number of days or weeks	Amount per day or week		
<b>Conference Registr Fee</b>			
Performance of The Magic Flute	\$85.00	\$85.00	1 Ticket for the Metropolitan Opera Performance
<b>Other Travel Expenses</b>			<b>Notes</b>
(Itemize below)			
Subway	\$2.25/ride 4 rides per day	$2.25 \times 4 = 9 \times 6 = \$54$	
<b>Research Support</b>			
<b>Equipment and Materials</b>			
The Magic Flute vocal Scores	\$13.57	$20 \times \$13.57 = \$271.40$	according to Amazon.com
Full Conductor Score	\$140	\$140	Kalmus & Co. Music Publishing
Set of Orchestra parts	\$400	\$400	Kalmus & Co. Music Publishing
Thank You cards	\$6.19	\$6.19	according to Amazon.com
DVDs	\$27.49 + \$25.49	\$52.98	Amazon.com: live performance, film version
Makeup		\$30	elf.com (eyes lips face)

## Crown/Wise-Marcus Application

Costumes		\$1009.81 - \$1359.80	See Attached budget breakdown
<b>Services (e.g., lab analyses)</b>			<b>Notes</b>
Lighting and scenery rental	\$808.20	\$808.20	Syracuse Scenery & Stage Lighting Co. Invoice
Master Electrician	\$250	\$250	Maximillian B. Zorn
Lighting Designer	\$10/hr	25 hours x \$10/hr = \$250	
Poster Copies	\$1.20	50 x \$1.20 = \$60.00	SU Schine Copy Center
Photocopies	\$0.10	500 x \$0.10 = \$50.00	photocopies of translations, and choral music
<b>Stipend for Research in Syracuse</b>			
Rent: Number of Months or Weeks	Up to \$360 per month		<b>Notes</b>
Food: Number of Weeks	Up to \$105 per week		<b>Notes</b>
Utilities: Number of Months	Up to \$100 per month		<b>Notes</b>
<b>Other Expenses (explain in "Notes")</b>			<b>Notes</b>
<b>BUDGET TOTAL</b>		\$4115.97	

Proposal Narrative for Crown Award or Wise-Marcus 50-Year Friendship Award  
Jaime Bernstein

Diabetes not only affects 25.8 million people in the United States, but is the 7th most common cause of death. It is the primary cause of kidney failure and is a major contributor to stroke and heart disease. However, these complications can be significantly reduced when diabetes is properly controlled. The ability to deliver insulin orally would increase the ease at which this protein can be administered to those with diabetes. This could significantly increase patient adherence, lowering the complications and deaths each year caused by this chronic disease.

The delivery of any protein, especially insulin, is a difficult task. If given orally, insulin is highly susceptible to degradation in the acidic environment of the stomach. Even if it could survive the stomach's harsh pH, the body has no method of absorbing the insulin by means of the gastrointestinal tract. Our hypothesis is, by taking advantage of the vitamin B<sub>12</sub> uptake pathway and conjugating insulin to B<sub>12</sub>, these problems could be overcome.

The Doyle lab has shown success with the oral delivery of a B<sub>12</sub>-insulin conjugate. When the conjugate was administered to STZ diabetic rats, the results showed a 30% drop in blood glucose levels, lasting 2-3 hours. However, for the conjugate to be clinically applicable, we need a 70% drop over 12 hours.

Reexamination of the original B<sub>12</sub>-conjugate suggests the need for a more stable linkage between B<sub>12</sub> and insulin, which would potentially increase its lifetime *in vivo* and make the drug clinically viable. The original B<sub>12</sub>-insulin conjugate was attached through B<sub>12</sub>'s ribose 5'-hydroxyl group to insulin's B chain Lysine 29, resulting in an unstable carbamate bond. This ester runs the risk of being degraded in the acidic environment of the gastrointestinal tract and

Essay for Crown Award or Wise-Marcus 50-Year Friendship Award  
Jaime Bernstein

endosome, both of which are inevitably part of the oral transport route. However, by oxidizing the ribose 5' hydroxyl group in B<sub>12</sub> to a carboxylic acid, insulin could be conjugated using the more stable amide bond and these obstacles could be overcome.

This has proven to be a difficult task because of the complexity of the B<sub>12</sub> molecule. However, after much experimentation, I have been able to make a carboxylic acid B<sub>12</sub> derivative and confirm its formation. Now my main obstacle is the purification of this B<sub>12</sub> derivative. I have tried a number of liquid chromatography techniques to accomplish this, with the best success resulting from ion exchange chromatography on fast protein liquid chromatography (FPLC) machine. However, the instrument is not sensitive enough for complete purification. After researching and reading through many scientific journal articles, I have concluded that using ion exchange chromatography on a high pressure liquid chromatography (HPLC) instead of an FPLC will result in the separation needed for complete purification of the B<sub>12</sub> carboxylic acid derivative. Unfortunately, we do not have the appropriate column needed for this instrument. In order to execute my idea, I need a weak ion exchange column for the HPLC. Using this, I can separate my B<sub>12</sub> derivative based on its ionic properties. The derivative will stick to the column while impurities are removed, and then upon elution, the pure product will be collected. If I received this funding, I would be able to buy my own column to use. I know this is the last piece of the puzzle in the success of my capstone research project.

The field of B<sub>12</sub> research has exploded over the last decade and many scientists are exploring the use of B<sub>12</sub> conjugates to deliver drugs, such as cancer therapeutics and other oral peptides. This is a groundbreaking field of pharmaceuticals that will change the course of treatments for many. Therefore, this funding would do more than help the Doyle lab and me, but

Proposal Narrative for Crown Award or Wise-Marcus 50-Year Friendship Award  
Jaime Bernstein

would be beneficial to scientists all over the world currently creating life changing vitamin B<sub>12</sub> conjugates because they would be able to use the more stable derivative I have created.

If I can get this column for purification, I hope to finish this part of my research by the end of this semester. Then, I can publish and share it with the many others in the scientific community who will find it beneficial.

In addition, receiving funding for my capstone project will allow me to continue my molecular biology work on the expression of C-peptide. C-peptide links the A and B chains of insulin together in its proinsulin form before it is activated. Insulin is delivered to people with diabetes already in its active form, therefore supplemental insulin does not include C-peptide. Although it was previously believed to be biologically inert, recent studies have shown that C-peptide plays an important part in circulation, and its administration could decrease diabetic neuropathy. I have expressed recombinant C-peptide by ligating its DNA sequence into a plasmid with the sumo system, which helps with purification, and inserting the plasmid into E. coli. Next, I have allowed the E. coli to grow and expressed the plasmid as a peptide. I have purified the peptide using FPLC with a His tag purification. By running a polyacrylamide gel, I can see a band that appears at the correct weight for the sumo C-peptide system, confirming that I have made the protein. I just have not yet been successful in cleaving the C-peptide from the system. I plan on using the rest of January and February of 2012 to finish the expression and cleavage of C-peptide.

Then, in March and April of 2012, I will work on the B<sub>12</sub> conjugation of C-peptide. Provided the successful purification of the B<sub>12</sub> carboxylic acid derivative I discussed above, I will be able to use this form of B<sub>12</sub> to conjugate to the C-peptide using a more stable amide bond.

Essay for Crown Award or Wise-Marcus 50-Year Friendship Award  
Jaime Bernstein

Once all of the above steps are complete, I will be able to decide in which direction to bring my research and determine what the next phase of my studies will be for Senior year.

My capstone project has and will continue to allow me to add another dimension to my chemistry major that cannot be taught in a class room. However, I would like to take it one step further and present my research at an American Chemical Society conference. This will give me an opportunity to share my work with others as well as receive invaluable feedback from the scientific community. In addition, it will provide me with preparation for my future endeavors in medical school, graduate school, and beyond, which will inevitably include presenting and defending my work. These conferences are held biannually and I would like to attend one either this spring or next fall. Capstone funding would make it possible for me have this amazing and educational experience.

All in all, I have big plans for my last few semesters at Syracuse University and my capstone project is a large part of that. Receiving this funding would mean so much to me and to the success of my capstone project. It would add a whole different dimension to my learning experience here at Syracuse University.

II. Anticipated timetable for completing the project:

**January/February 2012:** Work on the purification of the B<sub>12</sub> carboxylic acid derivative.

Finish expression and cleavage of C-peptide

**March/April 2012:** Conjugation to B<sub>12</sub> and assay of C-peptide

Attend American Chemical Society Conference March 25th-29th in San Diego, CA or the one in August

**August 2012:** If not in March, Attend American Chemical Society Conference from August 19th-August 23rd

**Senior Year: August 2012-May 2013:** Based on how my research goes for my Junior year I will decide the course for the rest of my project and how I will complete it senior year.

## Crown/Wise-Marcus Application

Proposed Budget for Jaime Bernstein		
<u>Item</u>	<u>Subtotal Cost</u>	<u>Notes</u>
<b>Research Travel</b>		
American Chemical Society Conference either Spring 2012 or Fall 2012		Spring Dates: March 25 - 29, 2012 San Diego, CA Fall Dates: Aug. 19 - 23, 2012 Philadelphia, PA
<b>Including transportation, hotel, and registration fees</b>	<b>\$800</b>	<b>Notes:</b>
		To present, defend, and hear feedback about my research from the scientific community
<b>Research Support</b>		
<b>Equipment and Materials</b>		
weak ion exchange HPLC column	\$1,500	<b>Notes:</b> Used on a high performance liquid chromatography machine to purify my B12 carboxylic acid derivative based on its ionic properties
HPLC/FPLC reagents	\$200	These reagents are a special grade made specifically for the HPLC and FPLC. For my purification I need reagents like methanol and acetonitrile.
<b>Services (e.g., lab analyses)</b>		
Spectroscopy time and analyses	\$500	<b>Notes:</b> Would use for time on NMR and MALDI to analyze and confirm the product I am making. Would also use some of this money to sequence and confirm my C-peptide DNA
<b>BUDGET TOTAL</b>	<b>\$3,000</b>	

For my Capstone research, I propose to study self-settled refugees from Myanmar (Burma) residing in Thailand. My study will examine the way these refugees – specifically ethnic Karen - have adapted to a different society and adjusted their practices and identities within everyday life. As my project will be informed by fieldwork in Syracuse and Thailand, the Crown-Wise Memorial Scholarship will be essential in providing the funds necessary to complete this project.

The Karen are a “hill tribe” spanning much of the border of Myanmar and Thailand. The Karen in Myanmar have fought against the ruling Burmese government since 1949, attempting to establish their own independent “Karen State” (Hayami and Darlington 2000:137). Prolonged fighting has led to a sustained and protracted refugee problem across the border in Thailand, where thousands of Karen along with other Burmese nationals have fled into refugee camps. The number of Burmese refugees living in camps has grown significantly since the mid-1980s, totaling close to 200,000 at present by conservative estimates (Bunte 2009:3).

These figures, however, do not include a large part of the refugee population: those who do not live in camps but instead flee across a rather fluid border for the peace and economic security of life in Thailand. These refugees, while officially considered “illegal” by the Thai government, affect very real changes in both Thailand and Myanmar. In Thailand they provide a cheap and steady labor force for blossoming manufacturing centers, while in Myanmar money received from family members in Thailand can provide much needed income in an otherwise devastated economy (see Arnold and Hewison 2006, Bress 2008 and 2009).

While studies have addressed the changes such self-settled refugees have impacted on the host and country of origin, few address the changes the refugees have experienced themselves. The self-settled refugees choose to live outside the camps, forfeiting support and aid given to other “legal” refugees. They must negotiate every aspect of their life – living, lodging, working – in new and inventive ways. These adaptations and negotiations will be the focus of my study: seeing how self-settled refugees construct their daily life.

With this study I have two goals. One is purely academic – refugees interact at the intersection of multiple cultures, stuck in a liminal state while utilizing great resourcefulness to navigate the complexities inherent to their position. I find studying where such cultures interact not only fascinating, but with the potential to provide valuable insights into how culture is enacted in everyday life. My other goal is practical and action-oriented. I hope that in some way I can yield something that will be of use to the Karen populations, whether it is policy recommendations to the community based organizations that work with Karen refugees, or contributions to a deeper understanding of the refugee experience in order to make such transitions smoother. My project will be completed in three phases: an introductory phase in Syracuse, a research phase in Thailand, and an interpretative phase back in Syracuse.

The first phase will be completed between January and April 2010. Prior to starting this phase, I will seek clearance from the Institutional Review Board beginning in November 2009. As the study will entail interviewing and working with human subjects, utmost care will be given to the IRB process to ensure that adequate protection for interviewees and all necessary documentation and waivers are obtained. The first phase will then proceed with four to eight in-depth, ethnographic interviews with Karen refugees in Syracuse. Syracuse maintains a Karen population of between 400 and 600 individuals (Engler and Giammatteo 2009:3). Many of the members of the Syracuse Karen have spent time as self-settled refugees in Thailand, not only in manual labor and manufacturing but also as skilled workers at medical clinics (personal communication, Karen refugee in Syracuse). The in-depth interviews will set the agenda for

future phases of the project – highlighting key aspects or main trends that will invite further investigation. These interviews will be followed by an intensive eight-week period in Mae Sot, Thailand.

The second phase of the project will consist of eight weeks of intensive interviewing and participant-observation on the Thai border town of Mae Sot. Mae Sot boasts a significant population of self-settled refugees. The town also serves as one of the main legal border crossings between Karen areas of Burma and Thailand. A fluid border and a consistent demand for labor (legal migrants or otherwise) have made Mae Sot an important location for self-settled refugees. Travel to and research in Mae Sot is crucial to understanding and capturing the full picture of self-settled adaptation. Not only will the second phase provide an opportunity to interact directly with refugees who are actively engaged in such adaptation, but also invaluable opportunities for simple participant-observation of everyday life and refugee strategies for adapting to their new lives. I expect to collect the majority of my data within this second phase.

The Mae Sot phase will take place from approximately May 30, 2010 until July 31, 2010. Due to the intensive nature of the phase and its short time frame, interviews will be completed with interpreters. These interpreters will be carefully chosen as to ensure the safety and confidentiality of the interviewees and data.

Research in Thailand will be coordinated with the Mae Tao Clinic in Mae Sot. The Mae Tao Clinic is the chief provider of medical care to the Karen population in Tak Province, Thailand. Last year the Clinic saw a total of 140,937 visits to their facilities. The Clinic also runs various social programs aside from their medical care and works with other community organizations throughout Mae Sot (Mae Tao Clinic 2009). As such, the Clinic serves as a vital gatekeeper to the Karen self-settled community in the town. I have been corresponding with the research director for the Mae Tao Clinic and we have begun discussing my project and how I will gain access to potential interview subjects. We will finalize this process as I move closer to the research phase.

The third phase of research will be completed in Syracuse after returning from Thailand. Data will be transcribed and interpreted and patterns will be analyzed. Conclusions, however, will be formed in participation with the initial interviewees involved in the first phase of the project. A second set of interviews will be conducted with these refugees in the Syracuse community, serving as a validity check on any conclusions found in the data. The interviews will cover initial patterns and interpretations and such interviews will provide an invaluable opportunity to reassess and reinterpret and ensure that all conclusions are sound before turning to writing the final thesis.

Without funding through the Crown-Wise Memorial Scholarship, such a project would be impossible. The Crown-Wise Scholarship will be used to fund travel, living, and project expenses both in Syracuse and Thailand. Such expenses, totaling \$5,000, are as follows:

- Travel (Flight - \$1600.00; Transportation within Thailand - \$300; Gas and Misc. Travel \$100)
- 8 Weeks in Thailand, May 30, 2010 – July 31, 2010 (\$300 a month for lodging for 2 months, Food and Misc. Daily Expenses - \$600 for 8 weeks)
- One Month in Syracuse, Summer 2010 (Rent - \$300; Food for 4 weeks - \$400; Utilities \$100)
- Project Funds (Interpreters and paid interviewees - \$400; NVivo Coding Software, See Appendix D- \$600)

## Selected Bibliography

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2000 The Karen of Burma and Thailand. *In* Endangered Peoples of Southeast and East Asia: Struggles to Survive and Thrive. Leslie E. Sponsel, ed. Westport, CT: Greenwood Press.

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## **Appendix A: Anticipated Timeline for Completion of Project**

<b>November 2009</b>	Begin IRB process
<b>January – April 2010</b>	Begin interviews in Syracuse refugee community 4-8 agenda-setting interviews
<b>May 4, 2010</b>	Last day of classes, Spring Semester 2010
<b>May 30, 2010 – July 31, 2010</b>	Travel to Mae Sot Thailand 8 weeks of interviews and participant observation
<b>August 5, 2010 – August 29, 2010</b>	Preliminary Analysis of Data 2 <sup>nd</sup> set of interviews within Syracuse
<b>August 30, 2010</b>	First day of classes, Fall Semester 2010
<b>Fall 2010</b>	Continued Analysis and interpretation Writing
<b>Spring 2011</b>	Project Completion

**Appendix B: Proposed Budget**

<b>Proposed Budget for John Giammatteo</b>			
<b>Item</b>	<b>Cost Per Unit</b>		<b>Notes</b>
<b>Research Travel</b>			
Thailand - May 30, 2010 -July 31, 2010			
<b>Transportation</b>	\$2,000		<b>Notes</b>
1 Trip			Flight - \$1600 round trip Buses and Trains, Rickshaws - \$400
<b>Meals</b>			<b>Notes</b>
8 Weeks	\$600		8 Weeks x \$50 per week
<b>Housing</b>			
8 weeks, \$300 a month	\$600		<b>Notes</b>
<b>Research Support</b>			
<b>Equipment and Materials</b>			
Nvivo Coding Software	\$600		<b>Notes</b>
<b>Services (e.g., lab analyses)</b>			
Interpreters	\$300		<b>Notes</b>
Paid Interviews	\$100		
<b>Stipend for Research in Syracuse</b>			
Rent: 1 Month, August 2010	\$300.00		<b>Notes</b>
Food: 4 weeks, August, 2010	\$400.00		<b>Notes</b>
Utilities: 1 month, August 2010	\$100.00		<b>Notes</b>
<b>BUDGET TOTAL</b>	\$5,000.00		



# Application for Crown Award or Wise-Marcus 50-Year Friendship Award

Deadline: January <sup>27</sup>~~28~~, 20<sup>12</sup>~~11~~

Please complete this form and return it, **WITH YOUR TRANSCRIPT, ESSAY AND A RECOMMENDATION FROM YOUR CAPSTONE FACULTY ADVISOR**, to Eric Holzwarth, Renée Crown University Honors Program, Suite 306, Bowne Hall, Syracuse University, Syracuse, NY 13244.

Copy this form and add extra space where you need it.

Name Krystyna Zhezherya Grad Date May 2013  
College/s Arts & Sciences Major/s Biochemistry (pre-dental)  
Capstone Project Topic Lignin Biodegradation  
Capstone Project Advisor Ivan Korendavych

**Please attach a copy of your transcript!**

## Contact Information

SU ID # 232170002 SU Email kzhezher@syr.edu  
Local Address Haven Hall, Box #370, 400 Comstock Ave,  
Syracuse, NY 13210  
Cell Phone 585 489 8994

Please TYPE the following:

### **I. Proposal Narrative and Recommendation**

1. In 2-4 pages, describe your project and why you need the funds from this award to advance it. Describe in some detail what you would use the funds to do, and why that is necessary for the success of your project. Do not assume that committee members have read your Capstone Proposal! Make the full case here for your project and why it should be funded.
2. Include a recommendation from your Capstone Project Advisor (show him or her a copy of your essay from #1, above). Be sure to request this in advance. You don't ever want to request a recommendation on short notice.

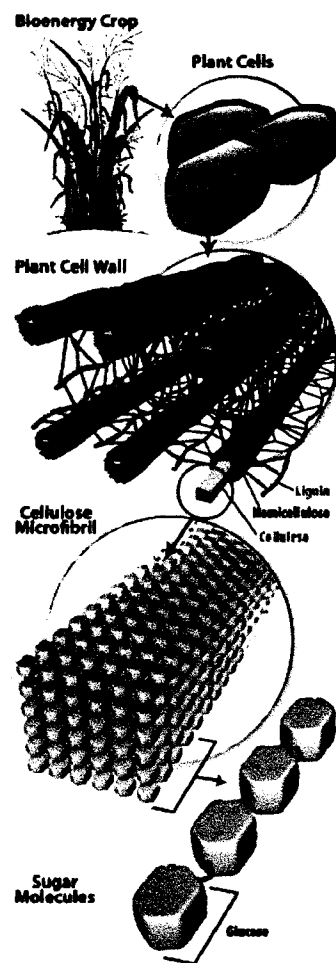
### **II. Anticipated Timetable for Completing the Project**

## The First Step to Biofuel Production: *bioinspired design for lignin degradation.*

The current global concern over green-house gas emissions and energy security greatly facilitated scientific research in biofuel synthesis. Cellulose, an organic compound that constitutes a vast portion of all plant-life on Earth, is a major and almost untapped renewable resource. However, releasing cellulose from plant cells in an industrial setting is a difficult process requiring the initial **degradation of a lignin complex.**

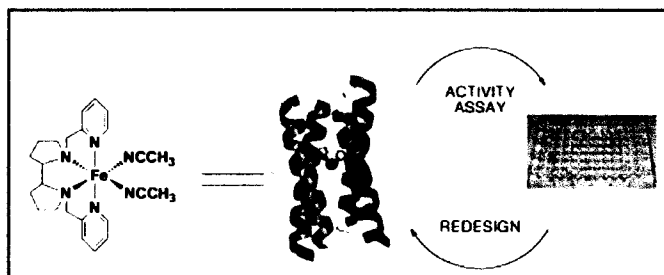
So far, the successful breakdown of lignin has been accomplished *naturally* by certain insect species utilizing degrading enzymes.<sup>1</sup> Unfortunately, working with natural enzymes on an industrial scale is prohibitively expensive and complicated. Alternatively, lingo-cellulosic biomass can be broken down using high temperature and pressure, a process that often requires investing more energy than is gained at the end.

Therefore, the research I will conduct over the next two years focuses on **developing an efficient bioinspired catalyst for lignin degradation**, as a necessary precursor to processing cellulose-based biofuel. Recent studies demonstrated that metal-based catalysts were utilized to break a crucial chemical bond in molecules that model natural lignin (a reaction called aromatic hydroxylation).<sup>2</sup> **The central idea of this proposal is to combine the lessons learned from small molecule catalysts with the ability to evolve proteins, to create an efficient catalyst for lignin biodegradation.**



<http://www.lbl.gov/Publications/YOS/Feb/>

The necessary steps to undertake are: 1. *Designing a metal environment that is appropriate for catalysis.* The figure to the right demonstrates an example of an iron metal atom and its environment, also shown by the red ball within the green protein



alpha-helices. 2. *Developing an effective screening assay.* The screening assay is extremely important because it enables the testing of large numbers of compounds for their activity. Aromatic hydroxylation, a key reaction in lignin biodegradation, is well understood and allows the results to be easily visualized in a high throughput fashion. As the reaction happens, the colored products formed will indicate success. This is a particular advantage in this research plan due to the ability to screen enormous amounts of proteins using directed evolution. This technique is based on the principles of *natural selection* that evolves the protein into having desirable characteristics not originally found in nature. Directed evolution relies on generated diversity and a successful screening assay. Specifically, random mutations will be introduced to the DNA sequence that correspond to the protein of interest and will result in the production of proteins with various mutations. 3. *After identifying the mutants with improved reactivity, the protein structure will be subject to further rounds of directed evolution, until no improvement is observed.* The overall scheme is once again shown by the previous figure.

The research planned for the next two years will require a considerable use of materials and equipment. The majority of the consumable supplies (glass/plastic ware, enzymes, bacterial media) will be provided by the laboratory; however materials specific to my research will need to be purchased. First, synthetic genes will be bought in order to begin mutational analyses. Because it is not possible to create the necessary genes in the university laboratory, the required

DNA will be purchased from *BioBasic Inc.* In order to ensure product success, at least three synthetic genes will be bought. Next, mutations will be introduced using sterile disposable pipette tips. One case of tips can be easily used in one week, and I am requesting seven cases at this time.

After the introduction of mutations and rounds of directed evolution, the success of the results will have to be screened using 96-well plates. All of the tips and plates must be sterile and disposable due to potential cross-contamination. After the selected mutants are identified, their DNA will have to be sequenced in order to identify mutations that improve the activity. Funding for at least one plate (96 samples) worth of sequences is necessary. The gene synthesis, pipette tips, plates, and DNA sequencing services I require are summarized on the budget worksheet.

In order to conduct meaningful research, I will spend 13 weeks during the summer living in proximity to campus. I will be renting a room, which will require three months worth of utilities and rent. At this time I am also asking for thirteen weeks worth of food. Summer research will give me the opportunity to focus solely on my project, and I hope to attain significant results before the start of the academic year. The funding I am requesting will give me the freedom to experiment with a variety of techniques, which will be crucial for the development of a catalyst for lignin degradation. The budget worksheet includes a summary of the funds I am requesting, along with links to the websites I plan to purchase from.

Successfully developing an evolvable catalyst for lignin degradation is an exciting and new step towards creating efficient compounds that evolve with their environment. This approach will allow researchers maximal control over the lignin biodegradation reactions, which could eventually lead to the mass synthesis of biofuel for the planet.

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1. Geib, S.M; Filley, T.R; Hatcher P.G. *Proc. Natl. Acad. Sci. U.S.A.* 2008, 105, 35.
  2. Sergeev, A.G; Hartwig, J.F. *Science* 2011, 332, 439.

## Anticipated Timetable\*

### **Krystyna Zhezherya; research in biochemistry.**

Deadline	Goal
May of 2012	<ol style="list-style-type: none"><li>1. Develop bioinformatics skills.</li><li>2. Prepare and test bacterial strains for the summer work.</li></ol>
Summer of 2012 (13 weeks)	Directed evolution studies: <ol style="list-style-type: none"><li>1. Have genes for the catalyst candidates synthesized (3 candidates will be chosen).</li><li>2. Characterize the metal binding.</li><li>3. Screen the activity in the 96-well format.</li><li>4. Sequence the candidates.</li></ol>
Academic year 2012-2013	<ol style="list-style-type: none"><li>1. Analyze the final candidates.</li><li>2. Continue directed evolution studies.</li><li>3. Publish findings.</li></ol>

\* Please note that because this is biochemical research, at this time it is difficult to provide a more detailed timetable.

## Proposed Budget

### Krystyna Zhezherya; research in biochemistry.

#### Materials and Services

<b>Item</b>	<b>Cost Per Unit</b>	<b>Quantity</b>	<b>Subtotal Cost</b>	<b>Online Store</b>
DNA gene synthesis	\$150.00	3	\$450.00	<a href="http://www.biobasic.com/">http://www.biobasic.com/</a>
UltraCruz™ Tissue Culture Plates, 96 well, flat bottom, individually wrapped, 100/case sc-204447	\$121.00	2	\$242.00	<a href="http://www.scbt.com/datasheet-204447.html">http://www.scbt.com/datasheet-204447.html</a>
10ul GeneMate Ext. Length Graduated Tips, 1 case	\$128.25	4	\$513.00	<a href="http://www.bioexpress.com/divinity-cart/item/410150/GeneMate-Bulk-Pipet-Tips-Non-Sterile/1.html?child=P-1230-10XL">http://www.bioexpress.com/divinity-cart/item/410150/GeneMate-Bulk-Pipet-Tips-Non-Sterile/1.html?child=P-1230-10XL</a>
200ul GeneMate Graduated Tips, 10000/cs	\$108.00	3	\$324.00	<a href="http://www.bioexpress.com/divinity-cart/item/410150/GeneMate-Bulk-Pipet-Tips-Non-Sterile/1.html?child=P-1230-10XL">http://www.bioexpress.com/divinity-cart/item/410150/GeneMate-Bulk-Pipet-Tips-Non-Sterile/1.html?child=P-1230-10XL</a>
DNA sequencing services	\$8.00	96	\$768.00	

**Subtotal for Materials and Services: \$2297**

#### Stipend for Housing

<b>Item</b>	<b>Cost Per Unit</b>	<b>Quantity</b>	<b>Subtotal Cost</b>
Rent	\$360.00/month	3 months	\$1080.00
Food	\$105.00/week	13 weeks	\$1365.00
Utilities	\$100.00/month	3 months	\$300.00

**Subtotal for Housing: \$2745**

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**Grand Total: \$5042**

As a Television-Radio-Film major at S.I Newhouse School of Public Communications as well as an Animation minor through the College of Visual and Performing Arts, I plan on finishing a capstone project that requires me to demonstrate each element of the production process. My project, "The Lotus Flower," is a lighthearted short animation depicting a beloved Korean folktale, "The Blind Man's Daughter." My story is a twist on the traditional classic, adding character depth while still retaining the major themes.

The story is about a young girl, Shimchong, who is tossed into the ocean in order to clear her blind father's debt. In the ocean, the Dragon King rescues her due to her selfless nature and she is sent up to the surface as a lotus flower. The king finds the blossom and is surprised to find the beautiful Shimchong living in it. The two are married, but Shimchong still wants to find her father. The royal pair hold a party for all the poor and blind in the kingdom, and Shimchong finds her father amidst the crowd. The happy reunion ends this timeless, rags-to-riches tale.

The animation will be about twenty minutes long, and will be in a flat, two-dimensional format. As I write this, the script and storyboards are completed. I will cast voice actors for the recording, and an audio-play version of the script, complete with a time sheet of each line, will be finished by the end of the year. The art for the project is an ongoing process, with character design currently in progress. The backgrounds and stock animations for the

characters will be completed, and the actual animation of the project will begin. After the film is finished, post-production will begin; editing, the addition of sound effects and music, and the creation of a DVD. The project is a culmination of all the skills I have learned throughout my studies in television production and animation.

I chose a Korean folktale in hopes to depict the cultural richness of Korea to a widespread audience. South Korea is sometimes called “the shrimp caught between whales,” a reference to the powerful nearby countries of China and Japan. The country is often overshadowed by these cultural superpowers, which is a shame considering its rich and unique history.

As a freshman I joined the traditional Korean drumming group on campus, Cheon Ji In, and the past two years have educated me on an area of the world I knew virtually nothing about. My first visit to a Korean restaurant involved me blindly pointing at a dish on the menu. Now, I can explain the various dishes to those unfamiliar with the cuisine as well as cook a few myself. In a way, the creation of this animation will be a tribute to my experiences as well as an expression of what I have learned.

Unfortunately, I still know very little about this distant country. I have never been to Korea, and all I know of it is from books and my friends. As one can not learn to play tennis from reading a book, I too can not draw Korea without first seeing what to draw. I hope to fly to Korea this spring break, so that I can create a mental image of the setting of the folktale.

Professional animators have a long history of travel before productions. When Walt Disney and a group of artists went to South America for inspiration, the films *Saludos Amigos* and *The Three Caballeros* were the result<sup>1</sup>. This tradition continued; the leads of production for *The Lion King* went to Africa in order to give the setting depth and realism<sup>2</sup>. I will incorporate my travels into the mise-en-scène of the animation, adding a visual richness and authenticity to the final product. Using a high-end digital camera, I will capture authentic images that will be later drawn as settings and props in my animated film. I will also obtain recording equipment (or use my own) to record the authentic sounds of Korea.

One of the most important expenses of my project will be the programs used to create the animation: the characters and backgrounds will be created with Adobe Photoshop, which will be animated using Adobe After Effects. These programs are available in one of the Newhouse computer labs, but only for a limited time due to their use by various classes. I have previously attempted to use this lab for a large After-Effects project, but the lack of availability severely limited my efficiency. Instead of competing with other students, I wish to work on my own time with my own copies of the programs. Adobe Creative Suite 4 Production Premium includes the latest professional programs for a production of this scale; Photoshop and Illustrator for the art, After-Effects for the animation, Soundbooth for the sound, Premiere for the

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<sup>1</sup> "Saludos Amigos," 7 Jan. 2010 < <http://www.imdb.com/title/tt0036326/>>.

<sup>2</sup> "The Lion King: Production Information," 7 Jan. 2010 < <http://www.lionking.org/text/FilmNotes.html>>.

editing, and Encore for the final DVD. I am proficient in all of these programs for use in creative projects.

However, having the software to create the project would be useless without the material used to create the animation. Visiting sites in Korea that correspond to the setting of the film will provide an immense resource of visual data. The most convenient time of travel will be spring break, as it will allow the maximum time for drawing the many backgrounds and characters after the trip.

I will begin by flying into Seoul. The first place I will visit, Changdeokgung, is one of the five ancient palaces in Seoul, and arguably its most important; it was the country's center of power for almost 300 years<sup>3</sup>. This site will be an excellent introduction to the Korean aesthetic. Later, I will visit a small museum above a café that serves tteok, traditional rice cakes. My small travelers' hotel is situated in the heart of Seoul's cultural and artistic neighborhood, Insadong, so after checking in I will explore this area thoroughly.

My next day will be a visit to a major folk village just outside of Seoul. This location, a large restored traditional village including a museum, will be the best way to see how an average Korean citizen lived before globalization<sup>4</sup>. Ten minutes away by bus is Hwaseong Fortress, an UNESCO World Cultural

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<sup>3</sup> Robinson, Martin et al. Korea. (Victoria: Lonely Planet Publications, 2007) 101.

<sup>4</sup> Robinson et al. 147

Heritage site and beautiful example of traditional Korean architecture with Suwon stream flowing through the gates.

Tuesday and Wednesday will be spent in the ancient capital of the Korean Peninsula and the one of the major settings of my animation, Gyeongju<sup>5</sup>. Among the many historical sites featured in this history-rich area are Daereungwon, the tombs of kings featuring relics of ancient royalty, Cheomseongdae Observatory, the oldest astronomical observatory in Asia, the forest of Gyerim, the birthplace of Silla Dynasty kings, Anapji Pond, the palace used to house the royal prince (a major character in my retelling of the folktale), and the Gyeongju National Museum, home to many historical remains. I will be staying in a traditional Korean house in Gyeongju.

Wednesday will be spent seeing Bulguksa temple, one of the most famous temples of Korea renowned for its architecture and artistry<sup>6</sup>. Close to the temple is Seokguram Grotto where you can look out to the coast, where Shimchong washes ashore. The beauty in these places will be used to illustrate the palace of the Dragon King, a major spiritual character in the folktale.

Thursday will mark my return to Seoul, where I will visit the Kimchi museum, exploring the history of Korea's most famous dish. Nearby is Bongnusa Temple, a major Buddhist center that is 1,200 years old. The folk tale I am illustrating is based on ancient Buddhist traditions. I will also visit

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<sup>5</sup> Robinson et al. 187

<sup>6</sup> Robinson et al. 202

Ahyeondong wedding street, where wedding vendors provide for western and traditional Korean weddings. My story's climax is the wedding of Shimchong, so a visit to this area would be crucial. Nearby is Maronnier Park, where small theatres are located.

Friday will be a journey to Samcheonggak, where I will learn about the lives of royalty in Korea, to stay true to a rags-to-riches storyline. I will take a class in the traditional tea ceremony, since the main character in my capstone project serves tea. Later I will dine at the restaurant Yi-Gung, one of the few restaurants specializing in royal cuisine. I will then visit Gyeongbokgung Palace, featuring the National Palace Museum and the National Folk Museum. There I will learn of both the average Korean and the highest echelon of society.

My last day in Korea will be spent visiting a traditional hanok village complete with restored houses. Nearby this place is the Seoul Animation Center, featuring a large museum. Since my project is an animation, I would greatly benefit from a look at Korean animation. The end of my trip will be to Deoksugung Palace, where a changing-of-the-guard ceremony will take place.

For travel in South Korea, I have obtained the immunizations recommended by the CDC. My mobile phone is equipped for international use, including the major cities in Korea. US citizens are granted a 30-day permit on arrival to the country, but I only plan to stay a week.

I have danced the traditional dances, played the traditional instruments, and sang out the folk songs, but Korea is still within the realm of unknown to me. Despite many lengthy speeches I have endured about the history and culture of Korea, all I know about the country is hearsay. The cultural element, a major part of my capstone, would be lost without this crucial journey. Call it spiritual, but I believe that I must actually experience a place before sincerely telling its story in a meaningful way.

### Crown/Wise-Marcus Application

<b>Proposed Budget for Meghan Couture</b>			
<b>Item</b>	<b>Cost Per Unit</b>	<b>Subtotal Cost</b>	<b>Notes</b>
<b>Research Travel</b>			
(Include travel dates)			
<b>Transportation</b>	Cost per trip		<b>Notes</b>
Train- SYR to NYP (March 12 07.00)	54	54	From Syracuse to New York
Plane- JFK to ICN (March 13 00.30)	1,155	1,155	From New York to Incheon ( <b>Round Trip</b> )
Train- Seoul to Gyeongju (March 16 07.20)	32	32	
Train- Gyeongju to Seoul (March 17 15.26)	32	32	
dobe	54	54	From New York to Syracuse
<b>Meals</b>			
Number of days or weeks	Cost		<b>Notes</b>
9 days	10	90	
<b>Housing</b>			
Number of days or weeks	Amount per day or week		<b>Notes</b>
Sa Rang Chae Room (1 night)	22.18	22.18	
Sae Rim Hotel (6 nights)	61.38	368.3	Two separate bookings influence subtotal price, see rates
<b>Other Travel Expenses</b>			
(Itemize below)			
Tour of Changdeokgung Palace	2.66	2.66	
Korean Folk Village Admission	10.64	10.64	
Bulguksa Temple Admission	3.54	3.54	
Kimchi Museum Admission	2.66	2.66	
Tea Ceremony Course (traditional)	62.09	62.09	
Gyeongbokgung Palace Admission	2.66	2.66	
<b>Equipment and Materials</b>			
Adobe Creative Suite Production Premium	549	549	Price is for educational version + Shipping
<b>Other Expenses (explain in "Notes")</b>			
			<b>Notes</b>
			<b>All prices in won converted to dollars 01/12/10</b>
			Exchange rates change often.
<b>BUDGET TOTAL</b>		2440.73	

Rising to global recognition during the height of the Cold War, the concept of dirty war has become one of the defining characteristics of 1970s and 1980s Latin America. Dozens of liberal democracies with constitutions, laws, and human rights cast aside the ideals of the enlightenment and returned to medieval violence. Thousands of people disappeared, governments physically tortured its citizens, and the most basic of civil and human rights that the governments had sworn to protect were overtly and covertly violated. Governments predicated their extralegal actions on the notion that they were faced with political enemies that threatened to destroy society and send the world into a third world war. There are generally two interpretations of what justifies the atrocities that take place during a Dirty War. The first is the ideological justification: government organizations respond to violence with equal or greater violence, validating their actions as "because they are bad and have gone outside the rule of law, so must we". The second interpretation is arguably more insidious than the first: the intent of repression does not need state justification of its elected tactics because its aim is to either remake society or to protect what they have deemed as the acceptable social order. In other words, the government undermines the rules it has established in order to fix what it believes to be a social malfunction.

I have chosen the Latin American country of Chile to be the case study of my investigation. Chile is not only considered by many scholars to be the quintessential example of Dirty War, but also contains a unique, yet relatively unknown, contradiction and combination of both interpretations of what justifies a Dirty War. President Salvador Allende was legally elected by means of a western democratic system, yet the violence that escalated during his term and political polarization that divided society pushed Chile to the brink of civil war. Military leaders, in order to prevent war, believed the country's only salvation would come by means of a military coup. Chile also has a developed awareness of its Dirty War because of the effective Truth Commission (Informe de la Comision Nacional de Verdad y Reconciliacion) the Chilean government carried out post 1990, investigating the human rights violation

and disappearance claims of the Dirty War. Although the political violence has stopped, the theme of Dirty War still resonates through Chilean society today.

I believe focusing my investigation around Chile will help me answer a number of questions that I have come across during my preliminary investigations: How do various actors (scholars, victims, government officials, etc) define and interpret a Dirty War? Where does the notion of a government waging war against a portion of its citizens originate? What is the connection between Dirty War and the Cold War? Can we redefine the current definition of Dirty War to give it malleability to accommodate the wide variety of cases where it seems the term can apply? And my most important question, what is the political culture like in countries before, during, and after, that have endured a Dirty War?

Finding the answers to these questions by studying the Chilean case will greatly improve the usefulness of the Dirty War concept in explaining and understanding the greater theme of political violence. I intend to adopt a comparative study of the Chilean Dirty War with the French-Algiers War, the Argentine Dirty War, and the current Russian-Chechen conflict. I have chosen these to be my comparative study cases because they occur at different locations and different times, yet have elements that resemble to current definition of Dirty War. By applying the information gathered from the quintessential case, Chile, I hope to demonstrate how the concept of Dirty War is not static to 1970s and 1980s Latin America. Rather, it has evolved during the second half of the 20<sup>th</sup> century and conforms to fit the geopolitical nature of the specific region and the world at the time.

While much of my investigation will be done from Syracuse in the form of books, articles, and documentaries, there exists an invaluable piece of the puzzle needed to answer my questions that cannot be found here: face-to-face human interaction. The topic of Dirty War is an extremely sensitive subject in any country that has experienced it. People are often unwilling to express their feelings and opinions with strangers because the topic brings back so much pain and anguish, creating what Steven

Stern, a leading Dirty War scholar, defines as “a memory knot”.<sup>1</sup> Due to the tender nature of the material, oral history is the only way in which to conduct much of my research, making it an essential aspect of my project.

As this critical element of my project cannot be accomplished here, I request funds from the Honors Program in order to return to Chile. I will be able to capitalize on my previous experience living in Chile and the connections I have made to carry out the research my project demands. I have already contacted several university professors, including Mauricio Paredes and Claudio Barrientos Barria, who have agreed to meet with me and introduce me to other potential interviewees. These interviews with Chilean citizens from across the political, socioeconomic, and generational spectrum will deepen, and broaden my understanding of how the atrocities of the Dirty War affected those alive at the time, affect those who came of age post dictatorship, and influence scholars today. I will take a semi-structured interview approach, having a set list of questions prepared in advance to discuss with the interviewee, leaving room, however, for a more flexible discussion based on the interviewee’s responses. I intend to fulfill all requirements set by SU’s Office of Research and Integrity and Protections to ensure that I abide by the ethical protocols when interviewing people. Living in Chile will also grant me access to resources that would otherwise be impossible to find in the US. The Chilean National Archive and university libraries have thousands of periodicals and magazines that cannot be found in the US. These resources provide political opinions and detailed accounts of events that took place during the dictatorship.

The ambitious nature and scale of my project requires that I spend approximately three months

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1.) Stern, Steve J. *Remembering Pinochet's Chile: on the Eve of London, 1998*. Durham: Duke UP, 2004. Print.

conducting my field research in Chile. I will need several weeks immediately after my arrival in order to establish the necessary connections and to arrange interviews with such a wide variety of political, socioeconomic, and generational interviewees. I also would like to ensure the possibility of meeting with people several times. The funding will go to three primary needs: 1.) transportation to and from Chile. 2.) Housing and food for three months. 3.) Other expenditures in order to procure resources. I have fully detailed all of my expected expenditures in the following pages.

In recent years the topic of Dirty War has disappeared from the table of discussion, yet events that have remarkable resemblance to 1970s and 1980s Latin America continue today. While at first glance the countries, conflict, and times I am investigating may seem unrelated, my research thus far has suggested the opposite, raising a number of questions. This investigation is incredibly valuable because no one has ever looked at the concept of Dirty War from the perspective I am investigating. It will shed new light on a dark subject, and has the potential to redefine what we categorize as Dirty War, and bring the concept of Dirty War back to the forefront of political analysis.

## **Robert Solonick's Timeline for Capstone**

10/15: Thick Skeleton/draft of Chapter 1

10/22: Revision of Chapter 1

10/29: Revision of Chapter 1

11/12: Revision of Chapter 1

Note: almost all of the work regarding Chapters 2 and 3 will be done *during and after* my time in Chile. As such, all work done before May, 2011 for Chapters 2 and 3 is preliminary. These are the core chapters of my project and from May-Sept, 2011, I will be working exclusively on Chapters 2 and 3. At no point before November, 2011, will I consider any chapter a final draft.

11/19: Skeleton of Chapter 2

11/26: Preliminary stages of Chapter 2

12/17: Preliminary stages of Chapter 2

Winter Break, 12/17/2010 - 1/18/2011: Research, reading, preparation for Chapters 3 + 4

2/4: Skeleton of Chapter 3

2/11: Preliminary stages of Chapter 3

2/18: Preliminary stages of Chapter 3

2/25: Preliminary stages of Chapter 3

3/11: Preliminary stages of Chapter 3

3/18: Skeleton of Chapter 4

3/25: Revision of Chapter 4

4/1: Revisions of Chapter 4

4/15: Revision of Chapter 4

4/22: Revisions and editing of entire project up to this point

Preparation for Chile

May 15-August 15, 2011: In Chile doing research, conducting interviews, and writing. Returning to Chapters 2 and 3 to do extensive work.

September, 2011: Continued revisions and rewrites of Chapters 2 and 3

October, 2011: Revisions of Chapter 1 and 4 to include any relevant information acquired in Chile.

November, 2011: Editing, revising, and polishing of entire project. This includes final drafts of all chapters, an annotated bibliography, and any other necessary acknowledgements deemed necessary.

Note: It is hard to predict the status of the project a year in advance. As such, I cannot be more specific as to what I will do for a certain week during the fall semester of 2011

## Proposed Budget for Robert Solonick from May 15-August 15, 2011

<u>Item</u>	<u>Cost per Unit</u>	<u>Subcost Total</u>	<u>Side Notes</u>
<b>Airfare</b>	\$1,350 US	\$1,350 US	
<b>Housing</b>			
3 months (12 weeks)	\$480 US per month	\$1,440 US	I will live in my own apartment. I have already found a suitable apartment for my needs and with convenient location to my resources and contacts in Chile
<b>Utilities</b>	\$100 US per month	\$300 US	
<b>Meals</b>			
3 months ( 12 weeks )	\$50 US per week	\$600 US	I will prepare my own meals in my apartment.
<b>Local Transportation</b>			
10 metro rides per week (excluding weekends) for 12 weeks	\$10 US per week	\$120 US	
<b>Other Travel Expenses</b>			
2 trips of same expense	\$12 US	\$24 US	1 round trip ticket to Valparaiso
	\$24-\$36 US	\$48-\$72 US	2-3 nights stay in a hostel
	\$30-\$45 US	\$60-\$90 US	Food for 2-3 days. I may or may not be able to prepare my own meals while staying in the hostels. This will be enough if I must buy 3 meals a day for 2-3 days
<b>Research Support Materials</b>			
Audio Recorder			To record interviews.
Photo Copies of Documents	\$200	\$200	Archives permit photocopies of documents to be made
Digital Pictures	\$200	\$200	Archives permit photo of documents to be made. A standard cost in \$100 for 1 hour of photo time with the documents
<b>Budget Total</b>		\$4,342-\$4,396	

## **Crown/Wise-Marcus Scholarship Application Proposal Narrative**

The buffer zone near the South Korean and North Korean demilitarized border is currently evolving into an ecological phenomenon. I am interested in how the Demilitarized Zone (DMZ) and Civilian Control Zone (CCZ) have evolved despite their political limitations. I want to explore how the evolution of the entire strip has impacted current residents working as local farmers, students and researchers, and outsiders visiting as eco-tourists in South Korea. I hope that architecture can aid in developing the militarized sites in a positive direction, even after unification. I am concerned that urban encroachment will swallow the existing ecological strip and transform it into a new urban center.

My Capstone/thesis is a proposal for progressive architecture that combines environmental and cultural aspects as a way to promote sustainable design. The project promotes an ecological lifestyle and physical setting that is both appropriate for the context of the environment—in the sense of physical site, climate, social culture and economies—and is appealing to a wide audience.

The motivation for the thesis is to demonstrate that cultural excitement can be created by a responsible ecological design, which balances environmental sustainability and a concern for people in the region. Rezoning the CCZ from a war zone to a habitable greenbelt will redefine land as a viable regional and cultural identity.

I have selected Dorasan Complex--Train Station and Peace Park as the first site for ecological demonstration and intervention because it has the potential to act as a main gateway at the CCZ border. I view this thesis as a prototype for facilitating an initial exchange

## **Crown/Wise-Marcus Scholarship Application Proposal Narrative**

of trade and knowledge between outside visitors and local farmers for both countries. The project is intended to educate and celebrate the effectiveness and economic viability of ecological building practices. The intervention supports local production by bringing outside visitors to the CCZ, so that resident farmers can display their sustainably produced products and methods that are important in preserving CCZ's history and ecology of the environment. The railway will help transport visitors in South Korea without traveling by car, but also establish a route in which the knowledge of preserving the CCZ can travel between South Korea and North Korea, when the railway becomes publicly accessible after unification. Secondly, my project shows how existing infrastructure has the potential to be reused and redeveloped with ecologically conscientious purpose, when the two Koreas are united.

The proposed Centre at Dorasan features exhibition spaces, galleries, informal market spaces, formal seminar rooms, accommodations, a spa, facilities for testing and research, and an interactive restaurant with characteristics of BYOF (bring your own food) or (PYOI pick your own ingredients).

The project will simultaneously embody sustainable strategies through building material choices, site organization, structural design, building and site performance such as, natural ventilation, reduced energy consumption, and on-site purification and waste disposal. The thesis promotes socioeconomic engagement and respect for the cultural context of the site's conditions. At the same time, it strives to sustainably interact with the existing natural environment.

## **Crown/Wise-Marcus Scholarship Application Proposal Narrative**

The thesis required extensive research in the cultural, historical, economic, and environmental background of the Civilian Control Zone of South Korea, Paju City, and Dorasan region. It was essential to make a site visit to physically see and experience the conditions, verify my facts, conduct interviews, and attain direct information.

I want to clarify why I am seeking reimbursement for my flights, because the situation is complicated. My original plan was to travel to the site to conduct research for my Capstone/thesis for a few weeks in late May and early June. I built in enough time to deal with the complex regulations that govern visits to this high-security area. It was also my hope to gain an internship while I was there, to extend my stay. This would provide excellent practical experience, and perhaps allow me to discuss my thesis with Korean architects knowledgeable about the CCZ. In fact, I collected indirect information during my internship as I informally discussed my thesis with supervisors at the office. I gained knowledge of South Korean opinions about preserving the CCZ and/or aiding industrial complex development in the CCZ. My personal stance for preserving the CCZ region as an American college student was enhanced by these discussions during my internship..

I applied to many internships in April, but did not secure one. I took a chance, and booked a round-trip ticket to return in late July. After my arrival, I interviewed with SIAPLAN Architectural Associates and they offered me an internship, so I was able to extend my visit through July 29. I hope the committee will consider reimbursing me for my airfare, because

## **Crown/Wise-Marcus Scholarship Application Proposal Narrative**

my initial purpose was Capstone research, although in the end it also included an internship. I apologize that the arrangements are so confusing!

I have resided at one-room efficiency at a long-stay hotel called, CasaVille. I have requested for seven days' worth of my stay at the hotel because that was the time it took for me to arrange the guided tour and contacts that provided me with information regarding the entry to the Dorasan. The tour was the only way I was allowed to visit the site. I made a secondary trip to Heyri Artists Village, which is an artist residence and galleries located 6km from the DMZ in Paju City. It was previously called, The Unification Development Project, which began in 1997. It was important for me to visit Heyri because it is within the city of my project's site, Paju city, and has similar zoning laws. Secondly, Heyri Village serves as a model for the urban development that I am hoping to create as an intervention for the thesis in Dorasan. The easiest method of transportation to Heyri was by car.

I was not allowed to enter Dorasan due to security issue. Even though Dorasan is a public peace park, public visitors are not allowed to enter the site. Since I was not allowed to enter the site, I consulted a licensed DMZ photographer, who has special permission by the government to enter and document the CCZ and DMZ. I was fortunate to have direct contact with Photographer Sun-gyu Kim, and he was kind enough to make the trip on my behalf. Although he traveled on his own budget, I would like to request funding for his expenses that includes transportation, meals, and internet and telephone communication.

**Crown/Wise-Marcus Application**

<b>Budget for Sunchung Christine Min</b>			
<b>Item</b>	<b>Cost Per Unit</b>	<b>Subtotal Cost</b>	<b>Notes</b>
<b>Research Travel</b>	June 5-12, 2011		
Total Travel Dates	May 24-August 20		
<b>Transportation</b>	Cost per trip		
(Include number of trips)			
5/24/2011-8/20/2011, 1 Round Trip, Korean Air Flight	\$1,835.80	\$1,835.80	***Please view attachment
7/30/2011, 1 Round-trip, Heyri Art Village	\$70 gas/\$5 parking	\$75	Public site that is 6km away from the DMZ
6/4/2011, 1 Round-trip, DMZ Tour	\$4/ one-way	\$8	Additional cost of public transit
<b>Meals</b>			
Number of days or weeks	Cost per day or week		
6/5-12, 7 Days	\$30 USD per day	\$210	
<b>Housing</b>			
Number of days or weeks	Amount per day or week		
6/5-12, 7 Days	Total 455,000 KRW	\$391	CasaVille Motel, Seoul, Korea
	65,000 KRW per night		***Please view attachment
<b>Conference Registr Fee</b>			
6/4/2011, Cosmojin Tour Guide	274,000 KRW	\$256.30	Required guide and group tour to enter the DMZ
			***Please view attachment
<b>Research Support</b>			
<b>Services (e.g., lab analyses)</b>			
9/9/2011, Dorasan Peace Park Tour-- Photographer Sun-gyu Kim/ UFO Kim			Licensed DMZ Photographer
travel expense- round trip	\$100 gas/\$5 parking	\$105	***Expenses were handled by photographer
meal expense- lunch	\$20	\$20	
internet/call- cost of international communication	\$20	\$20	
			***Please view attachment for photographer information
<b>BUDGET TOTAL</b>		<b>\$2,920.70</b>	