



Building A Science And Innovation Nation

Profiles of Filipino Delegates to the Novartis Next Generation Scientist Program and Biotechnology Leadership Camp



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Next Generation Scientist Program and
Biotechnology Leadership Camp***



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Republic of the Philippines

Malacañang Palace

OFFICE OF THE PRESIDENT

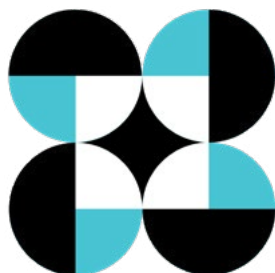
My warmest greetings to the organizers and participants of the **Next Generation Scientist (NGS) Program** and the **International Biotechnology Leadership Camp (BioCamp)**.

Over the years, **Novartis Healthcare Philippines, Inc.** has developed various pharmaceutical products that help improve the health conditions of our people. It has been at the forefront of breakthroughs in medicine, ensuring that its approaches and services address our society's most pressing health issues.

I am delighted that, as part of its corporate social responsibility, Novartis has launched the NGS Program and the BioCamp to bring together research scientists from around the world to collaborate and foster scientific and professional development. I am confident that these initiatives will lead to the creation of long-term solutions that will enhance our healthcare system and uplift our communities.

This administration relies on your active collaboration and unwavering commitment to improve public health. I trust that you will uphold innovation, competence and integrity as we work towards a brighter future for every Filipino.


RODRIGO ROA DUTERTE



Republic of the Philippines
Department of Science and Technology
OFFICE OF THE SECRETARY

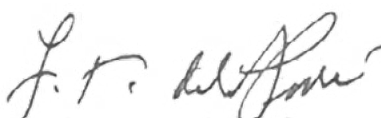
Vigorously promoting science, technology and innovation is at the core of the Department of Science and Technology's (DOST) efforts to contribute to the realization of the long-term vision for the country.

Embodied in the Vision 2040, science, technology and innovation will have a crucial role in laying a strong foundation for inclusive growth, a high-trust and resilient society, and a globally competitive economy to ultimately attain a life that is strongly rooted, comfortable and secure for all Filipinos.

DOST's partnership with Novartis through the Next Generation Scientist (NGS) and the International Biotechnology Camp (BioCamp) has given opportunities to stimulate innovation and entrepreneurship among young Filipino scientists.

These partnerships are providing an excellent platform for building knowledge capacity and idea generation, while encouraging scientists to establish STI-based start-ups to ensure that innovations are sustained. It is hoped that these programs will continue to strengthen Filipino STI human capital and increase the potential for infrastructures that support research and development intended to find, prevent and cure diseases that afflict Filipinos.

A culture of purposeful innovation is necessary to advance the country's bid to become a leading Science, Technology and Innovation hub in the region by 2022. Through open and productive collaborations with the private sector, this culture shall be enhanced and this will help lead to the building of a prosperous and healthy nation.


FORTUNATO T. DE LA PEÑA
Secretary



Republic of the Philippines
Department of Health
OFFICE OF THE SECRETARY



Congratulations to Novartis Healthcare Philippines on your initiatives that support the government's efforts to improve healthcare delivery in the country, and provide new solutions focused on addressing the evolving needs of the Filipino patient.

The Department of Health recognizes the need to look after the health needs of the country's populace and works harder to ensure that all Filipinos have access to quality and affordable health care services in line with our Philippine Health Agenda (PHA).

Now revitalized by the FOURmula One Plus, the PHA strives for a better quality of health services for all life stages and addresses the triple burden of diseases, delivered by a functional service delivery network which offers financial protection.

May your initiatives provide opportunities for all scientists and clinicians to develop innovative, long-term solutions in enhancing the health care situation in the Philippines, thereby bringing us closer to achieving universal health care.

Mabuhay!


DR. FRANCISCO T. DUQUE III, MSc.
Secretary



Republic of the Philippines
Department of Trade and Industry
OFFICE OF THE SECRETARY

The Department of Trade and Industry fully supports Novartis Healthcare Philippines with their two programs that help Filipino scientists learn from the best in the healthcare industry.

The Next Generation Scientist (NGS) and the International Biotechnology Leadership Camp (BioCamp) programs give Filipino scientists and clinicians the opportunity to visit the Novartis headquarters in Switzerland to learn knowledge and skills, and to obtain inspiration from a global organization seeking to improve healthcare in the Philippines.

We are pleased to know that five scientists from the Philippines's top universities have participated in the NGS Program and 25 more have undergone the BioCamp. Through Novartis's continued partnership with the Department of Science and Technology-Philippine Council for Health Research and Development (DOST-PCHRD), we are confident that more scientists will participate in the coming years.

Initiatives like these are the heart of the government's Innovation-led, Industrial Strategy (i3s), wherein the academe, industry, and government sectors collaborate to solve business innovation challenges. The thrust is anchored on President Rodrigo Duterte's socio-economic agenda to attain inclusive growth that will result in shared prosperity among Filipinos and spur meaningful development from the bottom of pyramid.

Through greater collaboration between the public and private sectors, we believe that we can succeed in innovating our industries and making them world-class. This, in turn, will create more jobs and employment for our countrymen. More importantly, the innovations brought back by Filipino scientists from abroad will be valued contributions towards the economic progress of the country and to the overall effort towards nation-building.

Thank you and best of luck in all your endeavors.

Mabuhay!


RAMON M. LOPEZ
Secretary



Philippine Council for Health Research and Development

For the past years, the Philippine healthcare system experienced dramatic changes as a result of our efforts to strengthen our health system. Our health professionals undergo various capacity building activities and now, most hospitals provide efficient and affordable health service and quality public healthcare. However, we still confront several challenges such as disparities in the availability and accessibility of resources and unequal distribution of infrastructures, facilities, and human resources across areas.

As the national coordinating body for health research and the lead coordinator of the Philippine National Health Research System (PNHRS), the Philippine Council for Health Research and Development (PCHRD) emphasizes the importance of developing and strengthening human resources of the health research network. We take pride in our partnership with Novartis in equipping our younger generation of Filipino scientists through the Next Generation Scientist (NGS) and the International Biotechnology Leadership Camp (BioCamp).

Human resource is the main driver of the country's health care system and the critical foundation for an efficient health research system. We commend Novartis for their staunch commitment to increase our pool of experts through capacitating our young scientists. The NGS and BioCamp will allow the participants to learn new breakthrough medicines, understand trends and challenges in biotechnology, and acquire skills, knowledge, and tools to improve the healthcare of their own communities.

To our young scientists, always remember that this once in a lifetime opportunity is not for your advantage alone but for the country as well. As you embark on this journey, think of what you can do to enhance the lives of the people in your community. Use the key lessons from the program to think of innovative long-term solutions to enhance our country's healthcare. Make sure to share what you learn with your local institutions and your colleagues. Remember that you are one of the key drivers of change and the future of our healthcare system relies on you.

Together, let's keep on making strides in bridging the gaps in our healthcare system!

Jaime C. Montoya
JAIME C. MONTOYA, MD, MSc, PhD, CEO III
 Executive Director



Republic of the Philippines

INTELLECTUAL PROPERTY OF THE PHILIPPINES



In the last few decades, innovation and technological change have been unraveling at an unprecedented pace that is only bound to increase as both man and machine continuously discover novel ways to respond to evolving needs. This onward march of technology impacts all sectors of knowledge, key among them the research-driven pharmaceutical industry. This industry, particularly, has been at the forefront of engendering innovative ways to respond to the core of human functioning, his health.

The Intellectual Property Office of the Philippines (IPOP), from its vantage point, has had the opportunity to see these pharmaceutical innovations come to the fore. Since 2013, the most number of patent applications filed has been in the pharmaceutical field. In 2018, the sector of pharmaceutical, health, and cosmetics took the second-largest share of trademark filings. In 2017 and 2018, the pharmaceutical industry filed the 2nd highest number of utility models, a jump from 4th place in 2016 and 2015. Undoubtedly, the pharmaceutical industry finds great benefit in the intellectual property system, and the system in them, as they push the boundaries of scientific knowledge and understanding of enduring human afflictions through continuous research and development. As a result, with each innovative product and process developed, the global pool of knowledge on how to cure diseases is enriched.

However, innovations and breakthroughs in drug development by pharmaceutical giants, do not operate in a vacuum. On the flip side of the coin is the issue of access to medicines and healthcare services, particularly in a developing economy such as the Philippines. We must not forget that in the midst of this relentless drive towards innovation and technological advancement, collective efforts should be directed towards producing quality, sustainable, and inclusive outcomes that are readily available and affordable to the general public. The IPOP, as the government agency administering the IP system, has the delicate role of balancing the promotion of innovation and creation, with protecting legitimate public interests such as health and safety.

The Next Generation Scientist (NGS) program and the International Biotechnology Leadership Camp (BioCamp), as we see it, are aimed towards our shared goal of bringing the benefit of healthcare to the fringes of society. Enriching the country's brightest young minds with the latest, cutting-edge developments in biotechnology and mentorship from Novartis' pioneers in drug discovery may hopefully redound to addressing the healthcare concerns of grassroots communities.

IPOP shares this goal of enabling the Philippines' robust, science-oriented innovators and researchers to harness their intellectual property creation towards societal good. The agency has built an 85-institution strong network of Innovation and Technology Support Offices (ITSOs). These ITSOs are innovation hubs within universities and research and development institutions where the student community, faculty, and researchers are trained to understand and utilise the patent system. These ITSOs have proven to be active intellectual property creators, as evidenced by the surge in utility model applications and the increased effort in filing quality patents coming from these institutions, over the years. With the program, IPOP hopes to instill an innovative-driven research culture beyond the purely academic research with the end in view of these works contributing to societal benefits, of transforming research into socially-responsive innovations.

The IPOP lauds Novartis' continuing campaign to transform young scientists in emerging countries into agents of change to better their healthcare systems. Congratulations on this endeavor! We are one with you in ensuring the fruits of innovation are not the privilege of a few, but are also available, acceptable, and affordable to the benefit of all.


JOSEPHINE R. SANTIAGO LL.M.
 Director General



Novartis Healthcare Philippines

Novartis Healthcare Philippines is pleased to present the coffee table book “Building a Science and Innovation Nation”, which showcases the inspiring journey of the Filipino delegates to the Novartis Next Generation Scientist (NGS) Program and International Biotechnology Leadership Camp (BioCamp).

At Novartis, our mission is to reimagine medicine in order to improve and extend people’s lives. As one of the top companies heavily investing in research and development of medicines, Novartis uses innovative science and digital technologies to create transformative treatments in areas of great medical need.

As a global leader in healthcare R&D, we work to bring biotechnology closer to talented Filipino scientists and students who are driven to excel in the field of science so that they can make a difference in people’s lives. Novartis is privileged to be part in shaping the career path of promising Filipino scientists. As you will discover in reading this coffee table book, the Filipino delegates to the NGS Program and BioCamp are now working in various research laboratories in the Philippines and around the world where they are working to discover and develop the next game-changing innovation that will benefit millions of Filipinos and the country’s economy.

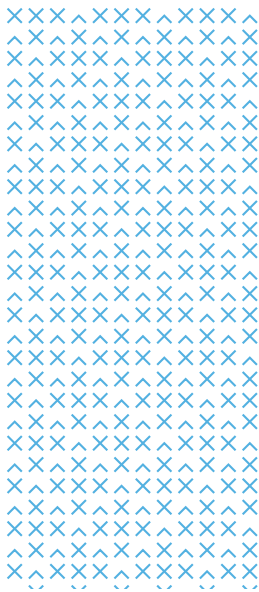
Our continuing work to develop the next generation of Filipino scientists would not be possible without the invaluable support of the incumbent Department of Science and Technology (DOST) Secretary Fortunato de la Peña and his predecessors, Hon. Estrella Alabastro and Hon. Mario Montejo; Philippine Council for Health Research and Development (PCHRD) Executive Director Dr. Jaime Montoya; and the late Senator Edgardo Angara, who is deservedly hailed as the Philippines’ Science & Technology Champion.

In partnership with the government, we envision the Philippines to become one of the countries that will be in the forefront of drug discovery and scientific innovation to save and improve lives. Through the NGS Program, we hope to further inspire Filipino scientists in building a science and innovation nation towards better health, productive citizenry, and economic progress.

A handwritten signature in black ink, appearing to read "Cheryl Maley".

MS. CHERYL MALEY

President and Managing Director



About the Next Generation Scientist Program

The Next Generation Scientist Program by Novartis and University of Basel is an intensive internship program for talented and motivated research scientists from emerging countries. The three-month program, hosted at the Novartis research site in Basel, Switzerland, is designed to foster both their scientific and professional development. Guided by Novartis mentors, the interns work on a jointly-agreed upon, precompetitive scientific or clinical research project and also participate in a leadership development program designed to enhance their decision-making and communication skills. Research projects expose selected scientists to state-of-the-art methodologies and leading experts in the fields while ensuring use within their home infrastructure.

Program Benefit

The Novartis and University of Basel Next Generation Scientist Program provides interns an opportunity to enrich their education by:

- working on a research project of interest to their local scientific and clinical communities
- augmenting their scientific capabilities through seminars, journal club, discussion forums, and various educational courses
- networking and collaborating within the intern group, with their mentors, the greater Novartis scientific community, and where possible, with other academic collaborators
- supporting their educational goals and scientific career development through mentorship
- certification and accreditation from University of Basel.

Research Areas

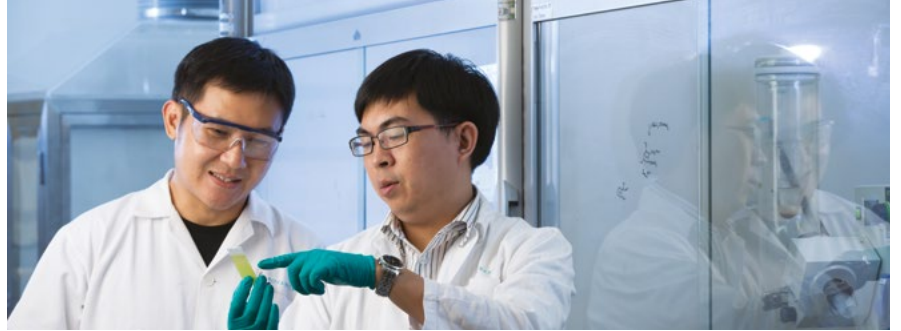
An internship is possible in any of the broad range of therapeutic areas in which Novartis is involved with, e.g.:

- Oncology
- Neuroscience
- Cardiovascular Disease
- Immunology and Dermatology
- Respiratory
- Ophthalmology

Successful candidates will typically work in drug discovery and clinical research disciplines and departments such as:

- Analytical and Imaging Sciences
- Drug Metabolism and Pharmacokinetics
- Biologics
- Modeling and Computer Simulation
- Biomarker Development
- Synthetic Chemistry
- Technical Drug Development and Formulations
- Epidemiology
- Statistics
- Epigenetics and Genomics
- Clinical Trials
- Safety
- Systems and Computational Biology





About the Novartis Biotechnology Leadership Camp

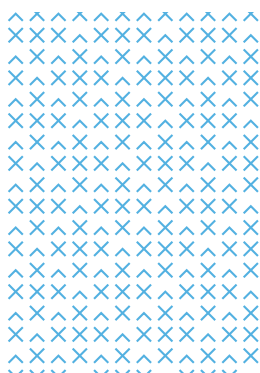
The Novartis International Biotechnology Leadership Camp (BioCamp) brings together 60 selected top students from science, information technology and business universities from around the world.

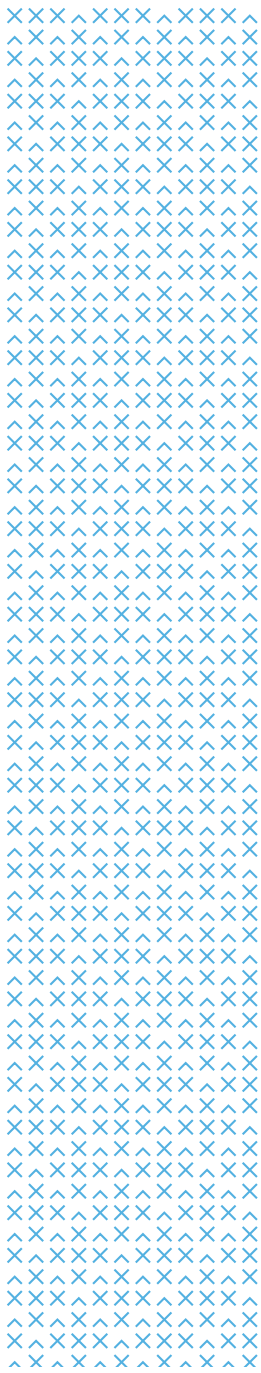
The Novartis International Biotechnology Leadership Camp (BioCamp) is a pioneering three-day seminar that brings the biotechnology sector closer to talented students from top universities around the world. Held at Novartis International Headquarters in Basel, Switzerland, the program offers participants an opportunity to:

- Interact with key Novartis scientists who lead our unique approach to drug discovery
- Learn about breakthrough new medicines to address patients' unmet medical needs
- Understand trends and challenges in the biotechnology sector

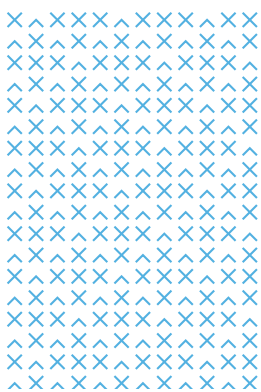
- Receive first-hand experience about starting and running a biotech company
- Explore career opportunities in the healthcare and biotech industries
- Network with talented students from other countries and get in touch with Novartis associates

It invites local university students focusing on medicine, natural sciences, business administration and/or information technology to apply for the International BioCamp. A total of 60 selected students from around the world are chosen based on their academic record, professional experience and extracurricular activities.





Next Generation Scientist Program - Filipino Delegates' Profiles





LESLIE MICHELLE M. DALMACIO

Age: 46

Education:

PhD Molecular Biology and Biotechnology

Current Affiliation:

University of the Philippines Manila

Research Interests:

Molecular diagnostics, Molecular epidemiology, Metagenomics, Microbiome

Organizations:

Philippine Society of Biochemistry and Molecular Biology
Philippine Society for Microbiology

Hobbies:

Travelling

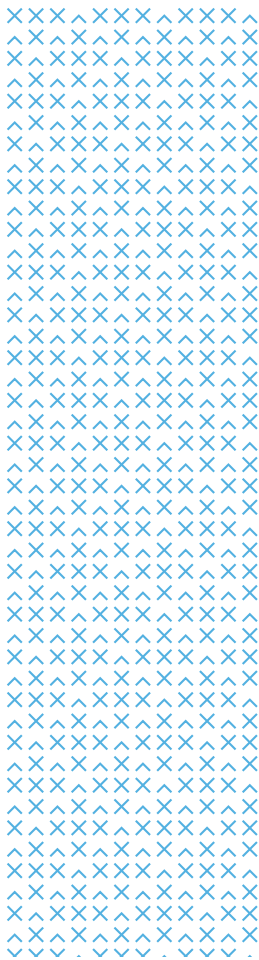
Favorite Book:

The Alchemist

Favorite Movie:

The Greatest Showman





As an early career scientist back then, I was motivated to join the Next Generation Scientist Program to build on my research skills and expand the scope of the research I do. Having a foundation on molecular biology, the NGSP was an opportunity for me to learn cell-based assays and pharmacology from a world-class company. The NGSP provided me the hands-on experience on the essential tools in drug discovery and further inspired me as a scientist.

I did the NGSP internship at the Novartis Institute for Tropical Diseases (NITD) in Singapore then joined the rest of the interns at Basel, Switzerland for the culminating activities of the program. At NITD, I was oriented on medicinal chemistry and pharmacology and had lab rotations in the different research groups – trypanosomiasis, malaria and dengue. My research was about the trypanosomiasis and malaria parasites. The research objective of the project was to learn the various approaches in drug discovery for infectious diseases, which was addressed by (1) finding a model of non-replicating human African trypanosomiasis (HAT) parasites to test compound activity, (2) evaluating the essentiality of proteasome beta subunit 4 in trypanosomiasis, and (3) determining if NITD-1 compound causes a similar death phenotype as spiroindolones in the malaria parasite, *Plasmodium falciparum* DD2. My project was basic research but it was clear how that small, basic research contributes to the bigger picture of drug development for the two infectious diseases.

The NGSP fueled my scientific pursuits. I do basic research but through the NGSP, I learned first-hand how research can be translational. Before joining the NGSP, I was already involved in drug discovery



and diagnostics research. I have since passed on the knowledge and skills I have acquired from the NGSP to my peers and students. We have completed a government-funded drug discovery project with interesting results that we will pursue using current technology and methods in the field. I have become more inspired to do research and now try to inspire my students through my vigor and passion.

Having great mentors who guided me in my research project was the most helpful part of the NGS experience. The NITD and Basel administrative and scientific teams were helpful and supportive through my daily activities. My co-interns were warm and we had worthwhile intellectual and personal discussions. I was fortunate to experience both the Singapore and Basel bases of Novartis. Working in state-of-the-art labs made research more enjoyable. Getting to know and work with people from different parts of the world was truly enriching. The whole NGSP was unforgettable.



HIYAS A. JUNIO

Age: 38

Education:

PhD Medicinal Biochemistry

Current Affiliation:

Institute of Chemistry, University of the Philippines Diliman

Research Interests:

Metabolomics, Synergy interaction

Organizations:

PAASE, NRCP, NPSP

Hobbies:

Gardening, photography

Favorite Book:

Like Water for Chocolate

Favorite Movie:

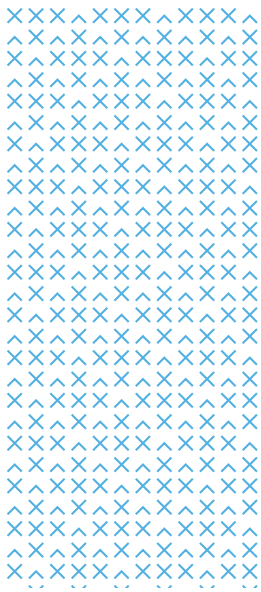
Loving Vincent

Quote:

"Beyond a wholesome discipline, be gentle with yourself. You are a child of the universe, no less than the trees and the stars; you have a right to be here. And whether or not it is clear to you, no doubt the universe is unfolding as it should..."

– Max Ehrmann





My impression of a multinational drug company such as Novartis is mostly based on the business end of their operations. In graduate school, I read about their research in journals, and in class, we learned about how these drugs work. But it is quite different when you are there, being a participant in the process. What I really wanted to know is how does a pharmaceutical company actually undertake drug discovery. Seeing and knowing it firsthand really changed my perspective. In my 3-month project, I worked with the Microbiology and the Chemistry Team of Novartis Institutes for Biomedical Research (NIBR) because my research involved working with endophytes, which are microorganisms living inside the host plant in a symbiotic relationship. It is theorized that the bioactive metabolites isolated from plants are actually products of this relationship or synthesized by the microorganisms themselves. I investigated several fungal endophytes using LC-MS based metabolomics and the results were really exciting.

For me the NGS fellowship was not just about research but also about leadership and interpersonal skills. During our welcome day, I remember writing down in my notebook something I heard, "Leadership is equivalent to self-awareness...". I learned so much from my research mentors, whom I interacted most of the time, but I also learned so much from the Thursday sessions with our core team mentors. I spend most of the week doing experiments in the lab, but one day each week I get to shift how my mind works by engaging in discussions with the other mentors, and meeting the different leaders in the company. We were privileged to meet then CEO Joe Jimenez, and the current CEO Dr. Vas Narasimhan. We were told even Novartis employees don't get to meet the top bosses. I was really inspired when we get to meet Dr. Ann Aerts, who is the head of the Novartis Foundation. Her experiences as a doctor in a war-torn area, her motivation for doing such a courageous work is truly inspiring. All these interactions and experiences made me more aware about myself.

The NGS program is a unique experience, and each part of the fellowship is essential. The research work, the leadership-building experience, and, the interaction with the other fellows with different



backgrounds. I think I got a lot out of the program because everything I gained from it is still relevant to me both as a researcher and as a teacher. My current research is actually inspired by what I did in my 3-month work with NIBR. I am trying to build a library of small molecules using LC-MS, which is an essential tool for drug discovery. I taught a graduate course on drug discovery, which is based mostly on what I learned from our group mentors, Dr. Fernando Romero and Dr. Jörg Trappe, and from the other group presentations. Our sessions with Dr. Renata Lazarova on communicating science with presence and style were really valuable. I try to apply all the techniques she taught us in my own presentations. Our writing homework with Henri Yerri made me realize that I have the potential to be a good writer. I became really more conscious of being on time after coming home from Switzerland. To me this is really valuable. And the friends that I gained along the way will last a lifetime. These are just some of the specifics but truly the experience gave me more beyond these.



MARIO A. TAN

Age: 38

Education:
PhD Pharmaceutical Sciences

Current Affiliation:
Research Center for the Natural and Applied Sciences and College of Science, University of Santo Tomas

Research Interests:
Organic Chemistry-oriented research on drug development from natural products

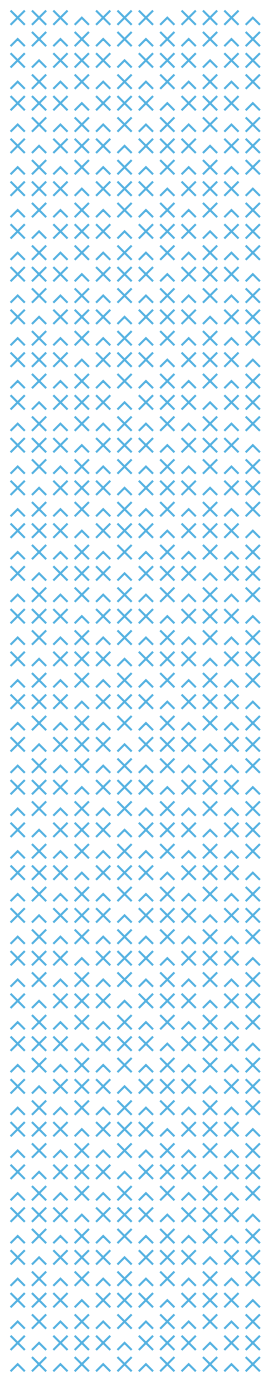
Organizations:
Outstanding Young Scientist, Inc.
National Research Council of the Philippines
Natural Products Society of the Philippines

Hobbies:
Travelling and indoor swimming

Favorite Movie:
X-Men series

Quote:
"Be yourself; everyone else is already taken."





My motivation to participate in the Next Generation Scientist was my research interest is on drug development. I am interested to know the process of drug development from the point of view of a pharmaceutical company. This would also enable me to improve on how to further develop my research in the Philippines to attain my goal of producing a product worthy of commercialization.

My NGS research was on the total synthesis of diaporthone A and B. These are new chromone compounds that we isolated from the endophytic fungi *Diaporthe* spp. I was able to synthesize 8 analogues of diaporthones and subjected to biological evaluation in Novartis Pharma.

Being a Novartis NGS fellow is prestigious award. This helped me to get known “more” to graduate students in UST. As a result, I have an increase in the number of graduate students. Graduate students are very essential in a scientist’s career in the academe

because they serve as your “backbone” to produce results.

Also, I was able to produce a publication in *Tetrahedron Letters* together with my Novartis mentors. *Tetrahedron Letters* is one of the most respected journals in organic chemistry.

The most helpful part of my NGS experience was the Thursday session wherein we study the process of drug development starting from the basic research of extraction to identifying compounds, to pre-clinical and clinical trials, and up to the stage of pharmacovigilance.

The networking with other scientists is also helpful as it encourages research collaborations.



MYLENE MONDARTE UY

Age: 48

Education:

Doctor of Science (Biological Sciences- Bioorganic Chemistry- Natural Products)

Current Affiliation:

Mindanao State University-Iligan Institute of Technology

Research Interests:

Drug discovery and development from terrestrial and marine sources; Natural products and medicinal chemistry; Cancer research

Organizations:

Integrated Chemists of the Philippines
National Research Council of the Philippines

Hobbies:

Reading books of various topics, cooking

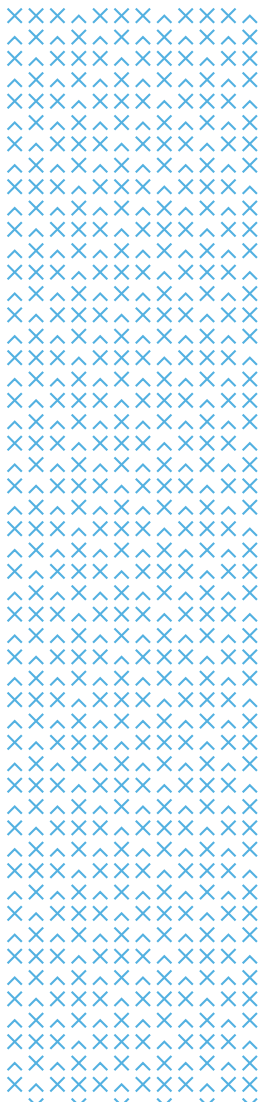
Favorite Book:

The Purpose Driven Life by Rick Warren

Quote:

"Delight yourself in the Lord and He will give you the desires of your heart."





Having been nominated by the Department of Science and Technology to the 2016 Next Generation Scientist Program, I was tasked to gain experience working with a biosafety level 2 laboratory, acquire knowledge and laboratory skills to perform cell-based assays and to learn how to assess compounds for cytotoxicity and anti-dengue effects. All these as part of the capacity building of the “Tuklas Lunas” Program of DOST-Philippine Council for Health Research and Development in which my institution, the Mindanao State University-Iligan Institute of Technology (MSU-IIT), was the first designated “Tuklas Lunas” Development Center in the country.

My grant as an NGS fellow at the then Novartis Institute for Tropical Diseases in Singapore, was quite unique in the sense that I did not have a particular research to work on. Instead, I learned the following: (a) the basics of establishing and managing a Biosafety level II laboratory; (b) the fundamental tissue culture techniques (growth and maintenance) of different cancer cells and mosquito cells; (c) the protocols of various cancer proliferation and mechanism tests as well as (e) dengue virus production and plaque neutralization assays.

The Next Generation Scientist Program has enabled me to confidently establish, operate and manage



a Cell Culture and Cell-Based Assay Laboratory at the Premier Research Institute of Science and Mathematics (PRISM) of MSU-IIT. This is a first in Mindanao.

The training also helped me become more skilled and confident in conducting tissue culture and various assays which has further motivated my involvement with the drug discovery and development program of the government and my institution, with particular interest in cancer.

Moreover, the NGS Program has helped me establish personal and professional relationships with my colleagues and supervisors at NITD.

The in-depth training at NITD was the best part of my NGS fellowship. I'm also grateful for the friendships made.



MARIAN ABIGAIL N. MANONGDO

Age: 24

Education:

Master of Science in Molecular Biology and Biotechnology

Current Affiliation:

Disease Molecular Biology and Epigenetics Laboratory, National Institute of Molecular Biology and Biotechnology, University of the Philippines Diliman

Research Interests:

Molecular Cancer Biology, Epigenetics, Non-Coding RNA Biology, Drug Discovery and Development

Organizations:

Asia Pacific Society of Human Genetics

Hobbies:

Dancing, singing, watching Filipino teleseryes

Favorite Book:

Crash the Chatterbox by Steven Furtick

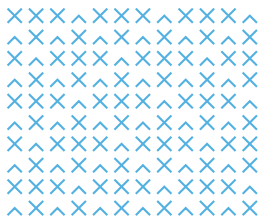
Favorite Movie:

Eternal Sunshine of the Spotless Mind

Quote:

*"We are hard pressed on every side,
but not crushed; perplexed,
but not in despair; persecuted,
but not abandoned; struck down,
but not destroyed."
(2 Corinthians 4:8-9)*





I am involved in the drug discovery program of the Philippines and this has led me to apply for the Next Generation Scientist program. I know for a fact that there are gaps to fill in our drug discovery and development chain and what better way to contribute in this field than by learning from experts from an established, and well-renowned pharmaceutical company itself?

My project at Novartis dealt with a novel approach of targeting a mutation in the cancer gene, KRAS, which, after 30 years of extensive research, still remains undruggable. Mutations in the KRAS gene are major drivers of different cancers. Patients harboring these mutations do not have a targeted therapy available for them nor do they respond to the currently available treatment regimens. The good news is our amazing work at Novartis could bring forth the solution to this unmet need, to bring the first KRAS-targeted therapy from the bench closer to the bedside—where it is most needed.

Working in the lab of Dr. Saskia Brachmann has been very fulfilling and intellectually stimulating as I was able to pursue a short project that is in line with and extends my understanding of my research interests. Working with a team of scientists who are experts in different fields has made me appreciate a research environment where collaborative thinking is fostered and diversity is valued. At Novartis, I saw first-hand how people with different backgrounds build bridges and help each other attack a problem using a multidisciplinary approach. This experience has reinvigorated my desire to be part of a team geared on making an impact through science and innovation. Indeed, good science doesn't just come from transcendent intellectual giants. Most scientific breakthroughs are a result of collaboration of individuals sharing the same vision and pooling their efforts to achieve something greater.

What makes the NGS program unique is that it offers holistic training. Not only did it provide us technical training in our field of interest, but it also addressed our need to do well with our softer skills during what we call the Thursday sessions. Once a week, all 20 interns gathered together and received training on communication, leadership, portfolio management, and other necessary skills in achieving a successful career in science. We also had intern-led sessions wherein we discussed the different aspects of drug discovery and development and even corporate responsibility. On top of these, we had self-reflection sessions wherein we were encouraged to think outside the box, outside our immediate area, and answer questions that we rarely ask ourselves because most of us scientists are too focused with our science. Truly, the Thursday sessions are an integral part of the program, especially in helping us grow not only as a scientist, but more importantly, as a person.

Aside from receiving technical training, acquiring a different mindset of being more collaborative, productive and efficient, and improving on my softer skills, the NGS program has exposed me to the different realities of drug discovery and development in an industry setting. This exposure has given me a better perspective on the bigger picture—that the process of saving patients' lives through science is not as straightforward as I thought; that it takes more than a scientist to come up with a solution; that it requires a collaborative effort among the different players of the healthcare system who are also looking for the same outcomes. And this is one important insight I gained from this internship, because I have never viewed it from that lens before. Coming in

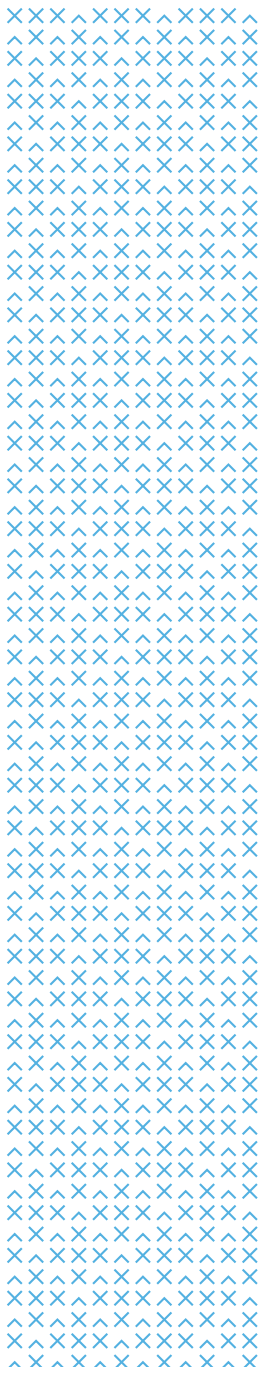


here, I thought finding a cure for cancer was the solution. Now I realized that finding a cure is one thing, making it accessible and affordable to every cancer patient in the planet is another. While scientists play a pivotal role in the realization of the former, an interplay among the different healthcare sectors is needed to make the latter possible.

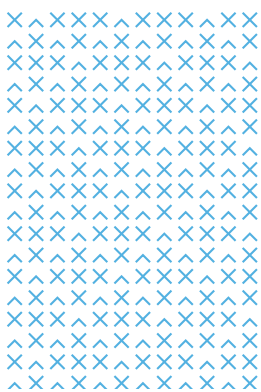
This whole experience broadened my understanding of the work I do and redefined the profession of a scientist for me. It made me realize that being a scientist is far more than being confined in the four corners of a laboratory doing experiments all day. It has made me rethink what my motivations are in my field, why my work is important, and how it can address the medical needs in my country, and potentially translate to a massive global health impact. It is now much clearer to me why I should keep doing research – not just because it is something that I enjoy doing, but because I know that I have a role to play in improving people's lives.

I came into this program hoping to become a better scientist. Three months later, I came out as a person who knows herself more, who has a clearer vision and is mindful of her purpose. Now, I can honestly and confidently say that I am a next generation scientist.





International Biotechnology Camp - Filipino Delegates' Profiles





DENNIS BERBULLA BELA-ONG

International BioCamp Representative: 2006

Age: 40

Education:

PhD, Technical University of Denmark
MSc, National University of Singapore
/University of Basel (Joint)
MSc, University of the Philippines Los Banos
BSc, University of the Philippines in the Visayas

Current Affiliation:

Universitetet i Tromsø-The Arctic University of Norway

Research Interests:

Molecular Biology and Biotechnology,
Host-Pathogen Interactions, Virology,
Immunology

Organizations:

The International Society of Phi Kappa Phi, Gamma Sigma Delta – The Honor Society of Agriculture, Phi Sigma Biological Sciences Honor Society
Philippine Society of Biochemistry and Molecular Biology, Philippine Society for Microbiology

Hobbies:

Reading, singing, travel,
photography

Favorite Books:

One Hundred Years of Solitude,
Po-on, Tree, The Pretenders,
Mass, Ermita, Story of a Soul,
The Count of Monte Cristo

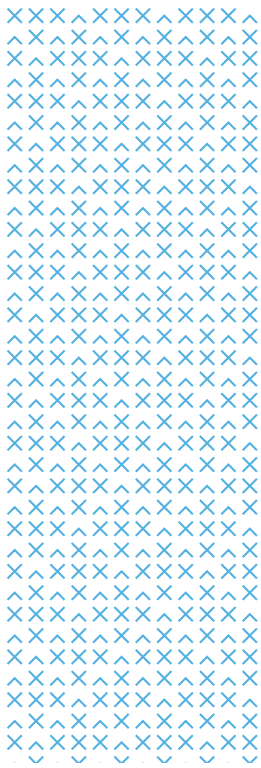
Favorite Movies:

Wild Strawberries, The Bicycle Thief, Citizen Kane, Grave of the Fireflies, All About Eve, The Shawshank Redemption, Tanging Yaman, Kisapmata

Quote:

*“In the designs of Providence,
there are no mere coincidences.”*
– St. John Paul II





As a student of biotechnology, I was keenly interested in learning more about the inner workings of the biotech/pharmaceutical industry, and Novartis the big pharmaceutical company would be an outstanding source of an inside scoop. I joined the BioCamp in order to gain insight into the drug/healthcare product development process of a global pharmaceutical company like Novartis, to learn about trends and challenges in global health, life sciences, and biotechnology, and to engage with key people within the company and other inspiring professionals. As the BioCamp is an international program aimed at postgraduate science, medicine, or business students who are interested in pursuing a career in biotechnology, it is also an excellent opportunity to interact and exchange ideas with other students who are starting to chart their career paths in these diverse but often highly interactive fields. The international nature of this forum also ensures diversity in people, ideas, and strategy, which drives innovation in science and business.

Among the many positive things that BioCamp instilled is the importance of passion and life-long learning, while providing information about the opportunities and possibilities for students and how to reach out for these opportunities. I have learned about some study program and scholarship opportunity in Novartis and I had been fortunate to have been awarded a scholarship to pursue studies in infectious diseases and drug discovery. With this scholarship, I was able to attend classes in Switzerland (at the Swiss Tropical Institute and the Biozentrum at the University of Basel) and in Singapore (at the National University of Singapore). I also conducted research on dengue immunology at the Novartis Institute for Tropical Diseases. While at BioCamp I have learned about the theoretical aspects of product development process; further study through the scholarship reinforced this knowledge and understanding and immersed me in research, which is drug development's practical aspect and its core.



Every aspect of the BioCamp experience was very helpful, including the serious learning and leadership interactions about the pharma/biotech industry and the great opportunity to meet fellow participants. Personally, the highlight of BioCamp was the group project and competition on business planning for an innovative healthcare product. This exercise was truly an eye-opening exchange of ideas among young talents in science, business, and management, which enabled learning from diverse perspectives and has opened up new ways of thinking and understanding, and was fun at the same time. I also liked the visit to the Novartis Institute for Tropical Diseases, where I had the opportunity to work as a research student a year after the BioCamp. This experience has also provided the chance to make new friends with whom I have met up years after BioCamp and had stayed in touch up to now. Big thanks to Novartis for providing us with such an enriching and fruitful experience.

A portrait of Christina Leyson, a young woman with dark hair, wearing glasses and a black blazer over a white and black striped shirt. She is smiling and looking directly at the camera. The background is a solid light orange color.

CHRISTINA LEYSON

International BioCamp Representative: 2008

Age: 31

Education:

BS and MS Molecular Biology and Biotechnology, PhD in Infectious Diseases

Current Affiliation:

Southeast Poultry Research Laboratory, US Dept of Agriculture

Research Interests:

Molecular Virology

Organizations:

American Association of Avian Pathologists, American Society for Microbiology, UP Mountaineers

Hobbies:

Yoga, hiking, biking, cooking

Favorite Book:

The Universe of A Single Atom by 14th Dalai Lama

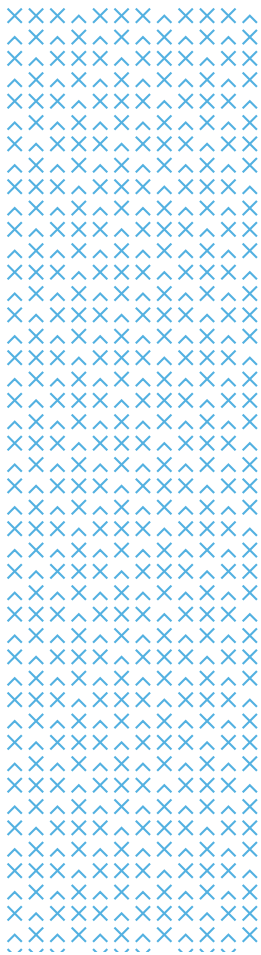
Favorite Movie:

Toy Story 3

Quote:

"Yesterday you said tomorrow. Just do it."

– Nike



I applied for BioCamp right after finishing college. Back then I was just starting out as a new graduate student. I was full of energy and excitement about science and biotechnology but I was not sure of where I wanted to go after I finish school. This is one of the main reasons why I applied for the 2008 International BioCamp. I wanted to connect with people who were also interested in biotechnology and get ideas on what opportunities are out there. Specifically, I wanted to learn on what working on a biotech company would be like and have a sense of biotech entrepreneurship in the global market.

The International BioCamp did not disappoint. The event was three days but it was packed with tons of activities. We were able to hear biotechnology leaders from academia and industry speak about their experiences about how to get a discovery in the laboratory bench to product that helps patients on the bedside. We also learned about intellectual property and patents, which then was a novel concept to me.

As college students in the university, we learned much about science as a technical field of study. During BioCamp, I was able to learn about the intricacies of taking a scientific finding in the laboratory to developing into a product. My mind was opened up to the many aspects of the biotech business development process, from identifying an unmet medical need, to securing intellectual property, and so on and so forth. I learned a lot in particular from a team member Eprim, who is an Indonesian economist. In our brainstorming sessions, he gave insights and perspectives that were not obvious to other team members, who like me, had training in science.



The most exciting part of BioCamp was creating and developing our own biotech product and company. It was fascinating to hear about the ideas that other groups came up and to hear how they pitch their ideas to the judges and rest of the audience. There was a bit of friendly competition between the groups but at the end of the day we all got together and had good fun.

The thing that I treasure most from BioCamp was the connections to the people I met there. The internet has made it possible to keep in touch throughout the years. In fact, to this day, I still connect with some folks from BioCamp, especially Jun Orbina, who was my fellow delegate to the 2008 BioCamp. I share a lot of good memories with those people I met at BioCamp and I think that is what keeps those connections strong, even though we only spent a few days together. It has been amazing to see what my fellow attendees have done and where life has taken them. My hope is to keep these connections for another ten years and beyond.

CARLO C. CASTILLO

International BioCamp Representative: 2010

Age: 29

Education:

Residency in Pediatrics (Institute of Pediatrics and Child Health, St. Luke's Medical Center – Quezon City), Doctor of Medicine (St. Luke's Medical Center – College of Medicine), Master of Science in Molecular Medicine (St. Luke's Medical Center – College of Medicine), Bachelor of Science in Molecular Biology and Biotechnology (University of the Philippines – Diliman)

Current Affiliation:

Institute of Pediatrics and Child Health, St. Luke's Medical Center – Quezon City

Research Interests:

Dengue Research, Infectious Diseases, Molecular Immunology

Organizations:

St. Luke's Molecular Medicine Society, Founding President and Member of the Advisory Council

Hobbies:

Singing, playing the piano, travelling

Favorite Book:

The Happiness Project by Gretchen Rubin

Favorite Movie:

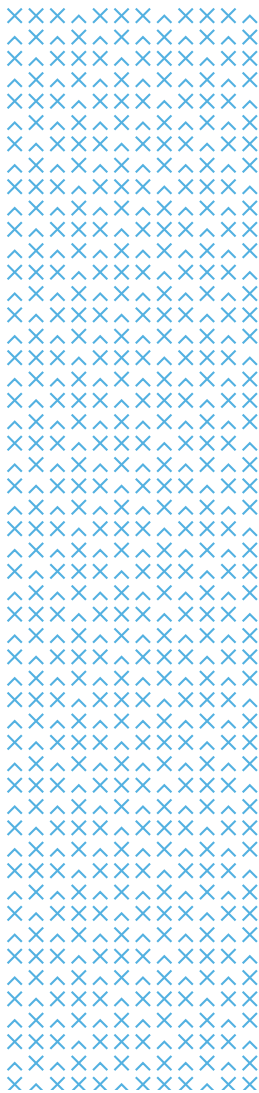
La La Land by Damien Chazelle

Quote:

"Give me a place to stand and I will move the earth."

– Archimedes





Research has always been a passion. I have always believed that if you want to pursue something then start pursuing it now, not later, but now. The International BioCamp was the perfect opportunity for me to kick off my young scientific career. It was the time for me to get out of my shell and explore new ideas and expand my network. It was the best venue for me to update myself with the latest international trends in the various fields in medicine as well as the biomedical enterprise. Representing the Philippines in a highly prestigious international platform will be an honor that I will bring with me forever. Not to mention, it was my first out-of-the-country trip, and I would not let this privilege pass!

Eight years have passed and I can still remember most of my experiences at the International BioCamp in Switzerland. It was a game changer – returning to the Philippines, I was blessed with endless opportunities to pursue my love for research. Before the International BioCamp, I was just a fresh college graduate, but now I am privileged to have already finished my MSc and MD degrees, currently taking up my residency in Pediatrics, and able to continuously contribute in the field of dengue through my several research work. The International BioCamp has provided me with new insights and kept my mind open to explore uncharted areas in medicine. It allowed me to strengthen my communication and presentation skills especially in pitching a new topic or product to the public. Overall, it allowed me to be a



bolder and stronger person than I ever was, fearless to always take a leap of faith in achieving my dreams one day at a time.

Each segment of the International BioCamp is like a puzzle piece that when put together forms a beautiful picture. It was a perfect blend of didactics, hands-on activities, group dynamics, and fun. My most favorite part was our little conversations among the delegates – from the topics discussed to our own personal stories back in our hometown. Not only did the International BioCamp forge an international network of young scientists and researchers, but it formed indelible bonds that we will forever treasure. I am still personally in contact with some of my friends back in the International BioCamp and until now, although we are in our own different fields, we share the same goal of improving the healthcare industry through advancements in biomedical research. I have always been in constant gratitude to Novartis for giving us this once-in-a-lifetime opportunity.



KAREN G. ROSAL

International BioCamp Representative: 2010

Age: 38

Education:

PhD candidate

Current Affiliation:

Institute of Molecular Biology, Academia Sinica,
Taipei, Taiwan

Research Interests:

Molecular and Cell Biology

Organizations:

American Society for Microbiology; Taiwan
Society for Developmental Biology

Hobbies:

Reading, watching movies, singing

Favorite Books:

The Bible, Novels by Sidney Sheldon

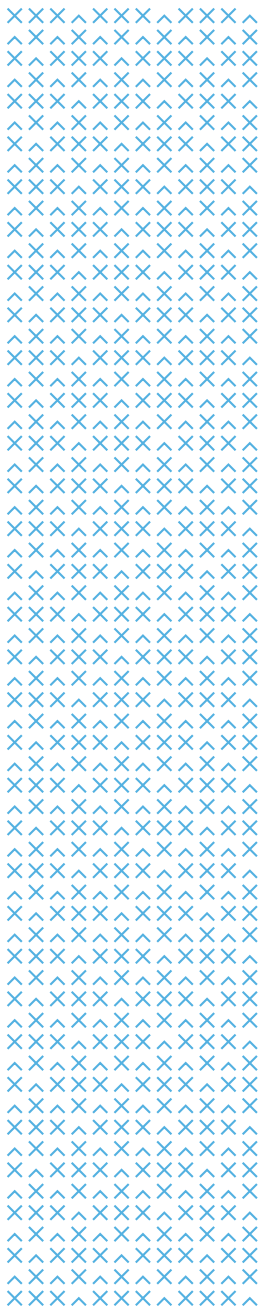
Favorite Movies:

Jerry Maguire, 3 Idiots

Quote:

"There is a time for everything."





I wanted to go to Europe! Seriously, I have friends who have joined BioCamp before and I heard stories from them. I was inspired to join and see what the BioCamp has to offer. I enjoy traveling a lot. And if you combine traveling with your research interest, then that is a once-in-a-lifetime opportunity. Also, I consider the application and selection process as a challenge. It's good to sometimes test yourself if you can do it or not. I was nervous, of course. But I have a dose of confidence that if I wanted to achieve my goal, I should do good. And fortunately, I got selected.

The International BioCamp helped me in a number of ways. Firstly, I increased my research network around the world. Until now, I have maintained contacts with some of the participants in the BioCamp who eventually became my friends. It is just amazing to meet people who share the same research interests as me. Secondly, I personally saw how a pharmaceutical industry looks like, from the human resource aspect up to the research group. Also, the interaction with the invited speakers gave me ideas and inspiration on what kind of career I would pursue after I finish my graduate school. Before, I am only thinking of going



back to the academia. You know, teach and maybe run my own laboratory. But now, I see other potential directions, like bioenterprise, and research and development. R and D has always been my interest. I prefer working in the lab and analyzing stuff, rather than going out on the field and doing administrative work. BioCamp made me realize the other side of biotechnology.

The most helpful part I think would be the personal interaction with the invited speakers, especially those who had a start-up company with the help of Novartis. Then I met new friends who are in the same field as me. The case study was the biggest challenge of all. I have no experience in giving a business pitch. Because of BioCamp, I learned the basics of “selling an idea” and convincing people to fund your idea to become a technology. The icing on the cake would be the tour around the city. The beauty of Basel is unforgettable. I consider my BioCamp experience as one of the best, if not the best, experience of my life.

KAREN KATRINA MANALASTAS

International BioCamp Representative: 2011

Age: 33

Education:
PhD student

Current Affiliation:
European Molecular Biology Laboratory,
Hamburg

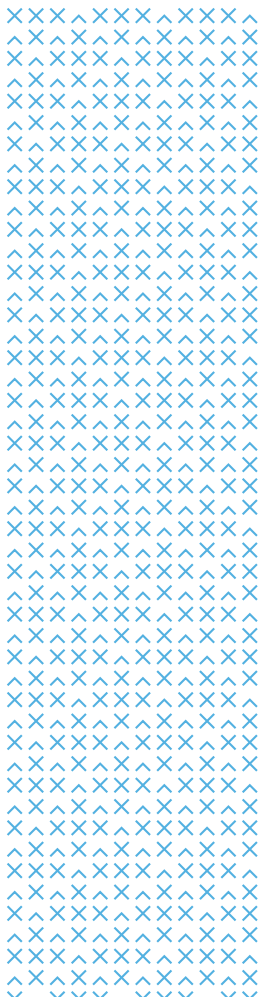
Research Interests:
Structural and computational biology

Hobbies:
Reading, playing the cello, watching TV
series

Favorite Book:
The Dispossessed by Ursula Le Guin

Favorite Movie:
Eternal Sunshine of the Spotless Mind





I joined the International BioCamp because I wanted to see alternative research environments, and see if this was right for me. At the time, I was working as a research associate in UP Diliman, while doing my masters in computer science. I had never worked outside of academia, nor seen any labs outside the Philippines. I had the natural curiosity towards seeing the differences between academia and industry, as well as seeing really nice, well-funded labs. I certainly wasn't disappointed in that regard. Traveling to Europe was a nice bonus as well.

I think BioCamp was one of the factors that led me to choose to do my PhD in Europe. For a student from the Philippines, usually the automatic option for graduate school is the U.S., for good reasons: great science, no language barrier. But visiting the Novartis campus put Europe on my mind as a good option for where to do my PhD, since obviously, great science was being done there too. I also love art and am fascinated with history, and liked the idea of being surrounded by these things as I was doing my PhD.

Another subtle shift for me was that after BioCamp, I was no longer averse to going into industry at a later stage of my career. I must admit that as a product of UP, I had the automatic sense that the private sector was not for me, for ideological reasons. But I've since realized that good science is good science, no matter where it's done, and there is nothing inherently wrong in profiting from it.

For me, the most helpful part of BioCamp was what I learned about myself while I was there. As an introvert, networking had always felt daunting to me (it still does, to a certain extent). And of course, at BioCamp, you have lots of those hypercompetitive types who will talk over you if



you don't speak up. At first, I felt pressured to keep up with them, since I was the only one from the Philippines in my year. But in the end, I came upon my own style of networking, which was more one-to-one and focused on establishing a genuine personal connection, instead of just talking to people whom I felt would be beneficial to my career. Not that there's anything wrong with a healthy competitive spirit. Just different strokes for different folks.

The experience of doing a project with people from other countries was helpful as well. There are things you take for granted when communicating with someone from the same country: a shared background, temperament, popular culture references. It was somewhat surprising not to be able to fall back on this shared context, but I think this made me a better communicator overall. It is still useful to me today, especially when preparing for a talk, to remember not to make too many assumptions about my audience.

The food was great too.



RUTH MARIAN GUZMAN-GENUINO

International BioCamp Representative: 2012

Age: 32

Education:

BSc Biology, MSc Biology
– University of the Philippines, Diliman

Current Affiliation:

PhD Candidate – University of South Australia

Research Interests:

Reproductive Immunology

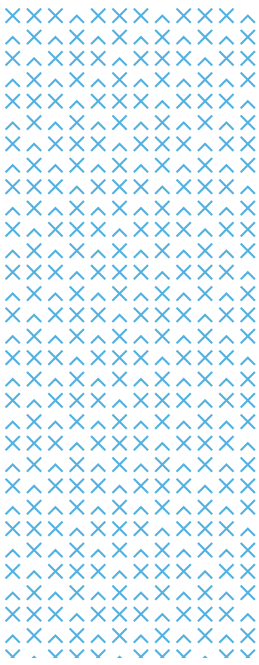
Organizations:

Nominated Member of AAAS/Science
Program for Excellence in Science (2018)
Society for Reproductive Biology (2018)
Australasian Society for Immunology (2016)
Wild Bird Club of the Philippines (2009 – 2015)
Philippine Society for Developmental Biology since 2009
Philippine Society for Cell Biology since 2008
Phi Sigma Honor Society since 2007

Quote:

*“Success is the ability to go from one failure
to another with no loss of enthusiasm.”
– Winston Churchill*





Back in 2012, I had just obtained my MS degree after completing my thesis in a sandwich program at the University of Padua in Italy. My master's thesis delved on using 1-nm to sub-nm gold nanoparticles as a delivery system for chemotherapeutic drugs, then an emerging field of research. The experience was thoroughly exhilarating for me – ever since I was a child, I knew that I wanted to pursue something that could actually make a difference and my research experience had just shown me that I can actually do that. I knew then that I would be pursuing a career in health research. When I saw the ads for the Novartis BioCamp, I realized that it was an excellent opportunity for me to get acquainted with the world of health research and its clinical translation for the general public. I wanted to know what happens beyond the lab bench – from the screening of potential medicinal candidates to how these developed products reach their target end-users. As a scientist, I had little to no clue about the latter bit. The local BioCamp provided an excellent primer and I felt very fortunate to be given a chance to participate in the international BioCamp.

The BioCamp experience was definitely memorable from start to end. The speaker lineup was impressive – then Novartis CEO Joseph Jimenez, Nobel Prize winner Dr Rolf Zinkernagel, and top businesswoman Anne Fudge to name a few. I can only recall bits and pieces of their talks now, but I vividly remember what I felt while listening to them. I was blown away by their passion and commitment to address unmet medical needs and improving lives all around. Not just at the science level like developing breakthrough medicines, but also all the way to the end such as literally delivering these medicines to far-flung villages by air or land transport. It was also a humbling experience when I realized the herculean effort it takes for medicines to actually reach the public. The case study competition for a launch of a hypothetical biotech company was also a highlight for me. I gained insights into the business and entrepreneurial side of biotechnology through my interactions with my business major teammates. We also engaged in some academic talk when it came to conceptualizing the product of our company. The atmosphere was light and fun overall; we had a really good time and breezed through the workshops. We even had time to go out for drinks afterwards and had a blast sharing stories about our respective cultures. The icing on the cake was that our team won the BioCamp competition!



It has been six years since I participated in the BioCamp but the takeaways still remain. That opportunity opened my eyes to the challenges and opportunities in biotechnology and gave me a perspective on how the worlds of business, biotechnology, public health, and academia intersect and work hand in hand to come up with the best possible outcomes beneficial for humanity. I have taken that to heart as I pursued a career in science. I currently work for the Experimental Therapeutics Lab in the University of South Australia which specializes in developing innovative ways to address various illnesses, chronic diseases, and allergies. For my PhD project, I am exploring a B-cell-based immunotherapy for pregnancy pathologies. My chosen path isn't easy; it is wrought with challenges and failures that can dishearten anyone. But keeping in mind the big picture and the end goal, which I was much privileged to have been shown during the BioCamp, I keep to it and soldier on, no matter what it takes.

CHARLES JOURDAN F. REYES

International BioCamp Representative: 2013

Age: 27

Education:

BS Biology, Minor in History
– Ateneo de Manila University; Master
of Medical Science (RNA Biology &
Neuroscience) – Osaka University; Ph.D.
in Molecular Life Sciences (Neurogenetics)
– University of Luebeck

Current Affiliation:

Institute of Neurogenetics, University of
Luebeck, Germany

Research Interests:

Genetics and Molecular Biology of
Neurodegenerative Diseases

Organizations:

German Neurological Society

Hobbies:

Traveling, reading books, and watching movies

Favorite Book:

Barking Up the Wrong Tree by Eric Barker

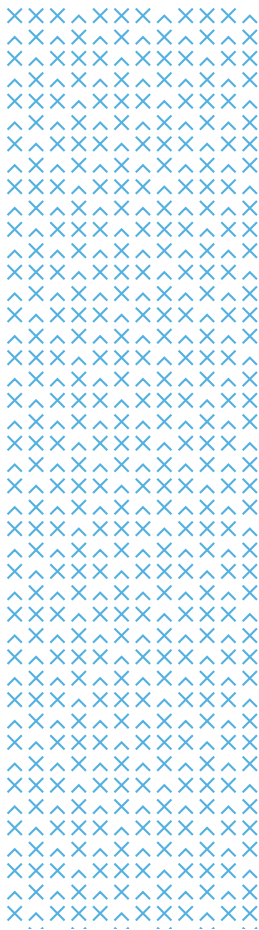
Favorite Movie:

The Dark Knight Trilogy

Quote:

*“A smooth sea never made a
skilled sailor”*
– Franklin D. Roosevelt





I had two major reasons for joining Novartis BioCamp 2013. The neurobiologist in me wanted to join because I was extremely curious about drug discovery and development and how a budding scientist like me could play a role in this billion-dollar industry. Up to now, majority of the neurodegenerative disorders we study in the lab are still incurable and available treatments have shown limited efficacy in slowing the progression of these diseases. My objective was to understand why this is the case and get insights on how to find better drug targets for my diseases of interest. On the other hand, the social scientist in me wanted to know how science is being conducted in Europe and whether the environment would be a good fit for me for graduate studies. I was a fresh graduate back then so I was extremely motivated to make the most out of this golden opportunity. The experience made me achieve these goals and I was able to share my insights to friends and colleagues with similar interests.

Novartis BioCamp 2013 was a life-changing experience for me because it strengthened my resolve to pursue a career in biomedical research and serve my country through this vocation. I saw the challenges and opportunities in developing drugs for neurodegeneration and realized that fresh perspectives are needed to solve the mystery behind this seemingly incurable group of diseases. I was also exposed to the highly collaborative nature of the pharmaceutical industry. This made me appreciate how a wide network of professionals is needed to come up with effective treatments. This compelling need to collaborate with experts from different fields prompted me to develop my networking and communication skills. Now that I am a Ph.D. student, I am able to use these skills to have insightful discussions with fellow graduate students and professors. I am also more confident whenever I present my work in lectures and conferences.



The most helpful part of BioCamp was the business proposal competition. We were grouped with delegates from other countries and tasked to come up with a business proposal on how to develop a compound with antibiotic and anti-cancer properties. We were complete strangers to each other and we had a huge task of presenting a business proposal in front a big auditorium. The proposal took a lot of effort but we managed to finish 2nd overall in the competition. I am grateful for this experience because it was my first time working with young and passionate people from other cultures. Despite the differences in cultural and professional backgrounds, we were able to synergize and present a good proposal. After the competition, my groupmates and I became better friends and we still keep in touch even at present. We also try to see each other whenever there are conferences and we travel near each other's places. In fact, I last saw my groupmates and other BioCamp delegates in Cambridge University last April 2016. It was a mini BioCamp 2013 reunion and I was so happy to have met them again after 3 years.

MALEM FLORES

International BioCamp Representative: 2013

Age: 30

Education:

BS Biology, MS Microbiology,
PhD in Biomedical Science

Current Affiliation:

Universita degli Studi di Brescia, Italy

Research Interests:

Drug Discovery, Pharmacology,
Microbiology and Neuroscience

Organizations:

Philippine Society for Microbiology

Hobbies:

Travel and outdoor activities

Favorite Book:

The Tao of Pooh

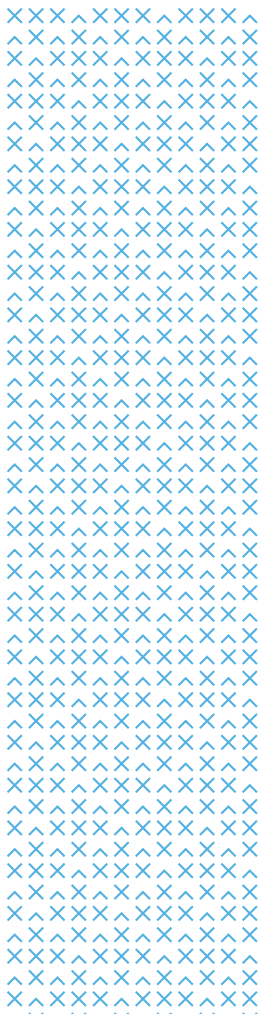
Favorite Movie:

The Sound of Music

Quote:

"Live. Laugh. Wonder."





Curiosity, I guess, is what made me join the International BioCamp. Honestly, I wasn't aware about it until I saw a poster of Maan De Guzman, who was then the BioCamp representative for the previous year. I was like, "Oh, I know her!" and so I got curious about her poster that I decided to check it out. I really had no plans of applying, yet for some reason I remained curious about the BioCamp. As a student researcher, then hoping to discover new antibiotics and anti-cancer drugs, I was eager to know more about breakthrough medicines and how to get these into a large-scale set-up in order to make it available to the people in need. So I decided to send out my application, with the goal that if I ever get chosen, I want to get an intensive understanding of the trends and challenges in healthcare and biotechnology and an extensive exposure to the type of research successful pharmaceutical companies like Novartis do. At the same time, I was hoping it will help build my connections and reinforce my leadership skills, which are important for any career development.

Luckily, I was given the opportunity to be one of the participants in the 2013 International BioCamp at Basel, Switzerland. I remembered the event was filled with inspiring lectures (especially by Dr. Rolf Zinkernagel and Ms. Ann Fudge), exciting laboratory tours and stimulating workshops. Hence, after the International BioCamp, I had bigger dreams. It further motivated me to continue pursuing science and research as a profession and opened me up to other career possibilities besides the academia. Now, I am doing my PhD studies at the University of Brescia, Italy and hoping that in the future I can work in a creative and innovative company such as Novartis.



Likewise, the experience has stirred me to be proactive, have a bigger sense of purpose, and an engaging sense of social responsibility amid the highly changing world.

The International BioCamp was really a meaningful learning experience. It broadened my perspective by exchanging ideas with experts and diverse participants. It was also a factual exposure to the crucial position and responsibility of biotechnology and business that Novartis demonstrated as a world health leader and advocate for the development of affordable and highly effective drugs, like its Malaria Initiative program. But for me, the highlights of the event were the case study, where I was made to think not just as a scientist but also as an entrepreneur, and the opportunities to get a glimpse of how things work in the pharmaceutical industry as well as the chance to establish new networks with my fellow BioCampers and scientists from Novartis. Aside from the enormous potential for collaboration and linkage for future endeavors, the BioCamp experience will always be a treasure of exciting memories of friendships and interactions for me.

KIN ISRAEL R. NOTARTE

International BioCamp Representative: 2014

Age: 25

Education:

BS Biology (Silliman University 2013);
MS Microbiology (University of Santo Tomas 2016)

Current Affiliation:

Medical Student (University of Santo Tomas –
Faculty of Medicine & Surgery)

Research Interests:

MicroRNAs as Cancer Biomarkers, Liquid
Biopsy, Alternative Medicine, Marine Natural
Products, Mycotechnology

Organizations:

International Society for Fungal Conservation
American Society for Microbiology
Philippine Society for Microbiology
Mycological Society of Japan
Mycological Society of the Philippines
Philippine Society for Developmental Biology

Hobbies:

Poetry, watching anime and American series,
travelling

Favorite Books:

The Emperor of All Maladies (Siddhartha
Mukherjee) & Harry Potter (J.K. Rowling)

Favorite Movies:

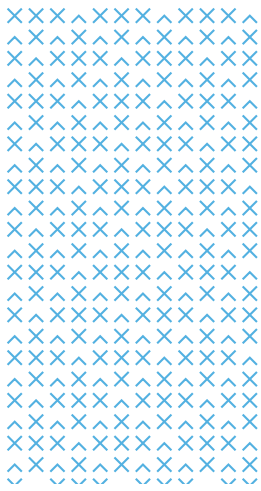
Interstellar (Christopher Nollan) & Stardust (Neil
Gaiman)

Quote:

*“Those who are crazy enough to think they
can change the world usually do.”*

– Steve Jobs

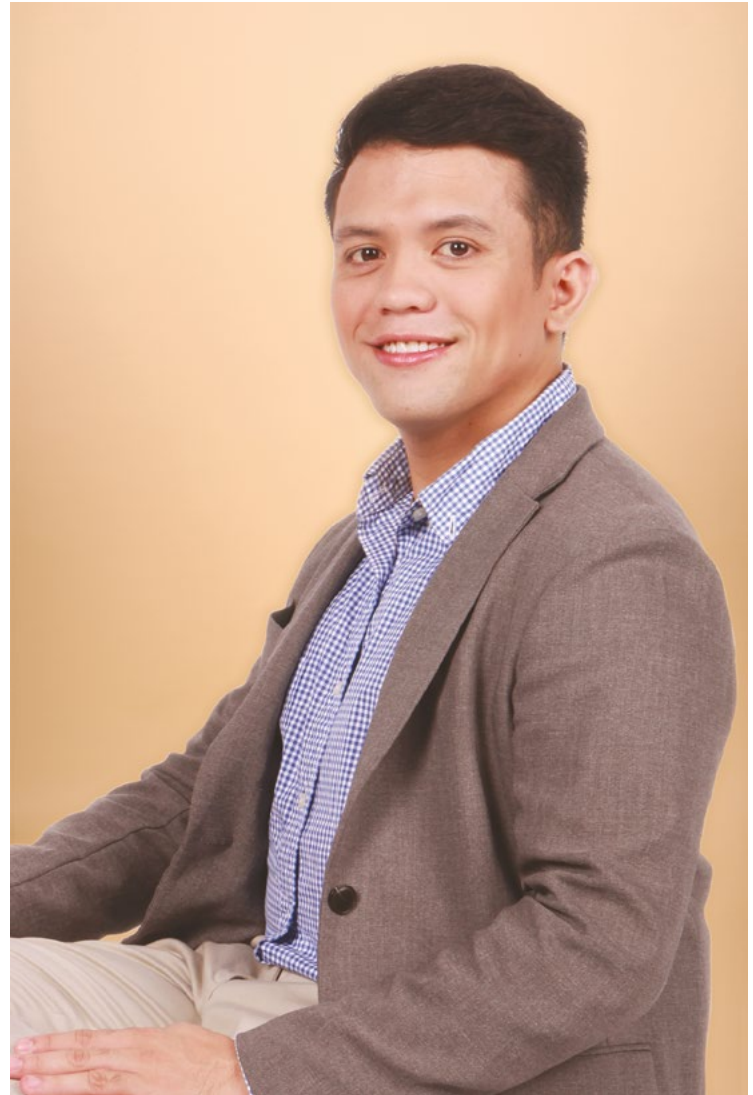




Since high school, I have been engaged to research. At an early age, I was privileged to be trained by the National Scientist Angel Alcala and his colleague Dr. Frederick Vande Vusse. This experience motivated me to pursue a bachelor's degree in Biology and later a master's degree in Microbiology to further hone my research capabilities. While finishing my master's degree at the University of Santo Tomas, I was inspired by my professor Dr. Thomas dela Cruz to apply for the International BioCamp. Being aware that Novartis is in the forefront of translational medical research, I submitted my application with the hope to learn more of the advancement in the pharmaceutical sciences and biomedical engineering that have revolutionized the way we diagnose or treat diseases. In addition to that, I also aspired to broaden my international linkage since I would have the chance to meet other scientists who share the same research interests as I do. More than the scholarly experience, I also looked forward to learn more of the Swiss culture by visiting the tourist attractions in the area and interacting with the locals.

At the Novartis Switzerland, I got to meet the experts in my field and witness beforehand what research is like at the industrial setting. We are now in the age of translational medicine and our focus is not just to discover new things and come up with publications. The goal now is to find the practical uses of our discoveries in the laboratory and apply them in the hospital or in the clinic to save the lives of people, especially those who are diagnosed with terminal illness like cancer. The partnership of research institutions with the industrial sector is vital for a sustainable research and development. During the BioCamp, we were taught how to write a business proposal for a startup biotech company. Near the end of the program, the delegates were grouped and were tasked to come up with a business proposal which we presented before a panel of experts. This multidisciplinary approach to learning is very efficient for me since we all get to think more creatively and connect various information to produce a holistic proof of concept for our startup biotech company. The BioCamp made it possible for professionals and students with different expertise and nationalities to come together, and to think and work together. Indeed, great ideas are borne when brilliant minds meet. Having experienced all these, I was inspired to pursue a postgraduate study in medicine to hopefully become a physician-scientist one day.

The most memorable part of the program for me is when we were tasked to come up with a business proposal for a startup biotech company which we had to present within 24 hours. At first, the task



seemed impossible, given the short amount of time, but all of the participating groups pulled it through. My team, in particular, pulled an all-nighter to finish our write-up and powerpoint presentation. On top of that, I would also not forget meeting and interacting with prominent personalities in my field. The passion and commitment that these people put in their profession inspired me to be grittier in achieving my scholarly and personal endeavors. During the BioCamp, we also visited the different cutting edge facilities of the Novartis headquarters which made me appreciate even more the tremendous amount of effort and the meticulous work invested by every scientist and researcher of Novartis to come up with new drugs with novel targets. This experience made me realized that there are numerous opportunities available for students like me who want to pursue a career in medical research. Lastly, I would also treasure the friendship and the social bond I made with other delegates. Switzerland is one of the most beautiful countries that I visited with so many tourist attractions and food to choose from. The locals are very helpful and accommodating too.



JORTAN TUN

International BioCamp Representative: 2014

Age: 30

Education:

BS Biology, University of the Philippines Baguio,
MS Molecular Medicine- St. Luke's College of
Medicine, PhD student, University of Utah

Current Affiliation:

The Marine Science Institute, University of
the Philippines Diliman, School of Biological
Sciences, University of Utah

Research Interests:

Drug Discovery, Combination Pharmacology,
Cancer, Pain, HIV, Antimicrobial Resistance

Organizations:

Campus Alliance for Dedicated
and Unified Action (CADUA),
Philippine Society for the
Study of Nature (PSSN)
UPB Dance Troupe, Every Nation
Campus Ministries (ENCM)
University Student Council, Black
Theater PCHS Dance Troupe,
Ancore Pantomime

Hobbies:

Watching movies, singing,
photography, playing
badminton, painting

Favorite Books:

The Little Prince, Experiment
Eleven: Dark Secrets Behind
the Discovery of a Wonder Drug

Favorite Movies:

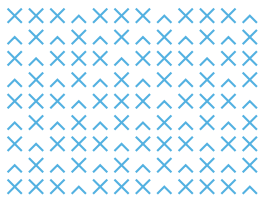
Never Let Me Go, The Dark
Knight, World of Tomorrow,
The Usual Suspects

Quote:

*"When you are dealt poor
cards in the game of life,
there is nothing to do but
make the best of them."*

– Epictetus





I joined the International BioCamp because of my strong interest in drug discovery. I was working on influenza vaccine project and anti-cancer/antimicrobial drug discovery from marine symbionts. I thought, if I could understand how Novartis operates and apply it to our setting, I could somehow contribute to the improvement of drug discovery strategies in the country. Of course, I was being very idealistic.

After I came back from BioCamp, I was really on fire. The experience gave me that extra oomph to finish my Masters. I got the motivation to publish several papers. I also started taking patents seriously, which led us to filing three invention disclosures. Somehow, I also felt quite burdened to see how far behind the Philippines is in the field of drug discovery, despite having the natural resources. So, we (the Concepcion Lab at MSI) try to help other students in their research by offering cell-based assays and workshops. This is through the Biophysicochemical Technology Incubation Core Facility, where I am currently the Lab Manager. I was also very motivated to help build the research capacity in the Philippines. I received a training grant from US NIH to learn HIV and pain assays at the University of Utah and transfer the technology upon return. Most of the HIV research in the country are on the epidemiology and social science aspect of it. Now we have fully established HIV assays and ratiometric calcium imaging for DRG neurons that are available not only to our group, but also to other research groups and drug discovery programs as well.

The International BioCamp experience also shed clarity on what I want to do after my Masters. A lot of graduate students are confronted with this question, whether to go to the academe, industry, or maybe medicine. I have an idea of how it is like in a pharmaceutical company (most of them are negative stereotypes), but the first-hand experience inside the Basel headquarters kind of put things in the right perspective. I remember one speaker said that a scientist's dream could also come true in a pharmaceutical company. You will not find a straightforward answer in the BioCamp, but it will certainly provide better insights about career, about life. I also remember what CEO Joe Jimenez said when asked what keeps him awake at night. His answer was how to keep the drug pipeline from running dry (non-verbatim). Since then, I started thinking about this question as well. I try to be innovative and creative and stray from "me too" science. It's a skill I want to develop: asking the important questions and formulating sound hypotheses. I am privileged to receive another training opportunity at the University of Utah this year, and the BioCamp experience has always been a driving force for me to be excellent and pursue advanced degrees.

The most helpful part for me was the Group Case Study. There were 5 of us Filipinos and we were separated into different groups. Working effectively



with people of diverse nationalities, personalities, and backgrounds was challenging. Everyone is very competitive and full of ideas. You need to listen to your peers, but you also need to be assertive. This part of the BioCamp will really test not only your knowledge on the subject matter, but also your character, ability to work in teams, and creativity. As in group work, I observed that some people in other groups were ostracized for being too aggressive and impervious to their teammate's suggestions. Some were intimidated and ended up shying away from the challenge. Both extreme cases failed to take full advantage of the rare opportunity to tap into the unique ideas, viewpoints or strengths of each member of the group.

It was tough, but also enjoyable. In the end, we managed to work harmoniously. Our hard work paid off and we won the competition. I was very happy because I almost did not make it through the local competition. So when I was given the chance (when they decided to send the 5 of us instead of just 2), I was proud to have made it count, especially as a Filipino delegate.



A portrait of a young man with short, dark hair, wearing glasses and a dark blue button-down shirt. He is smiling slightly and looking directly at the camera. The background is a plain, light-colored wall.

GERALD RYAN R. AQUINO

International BioCamp Representative: 2014

Age: 29

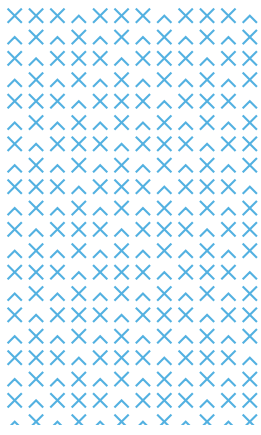
Education:
PhD Candidate

Current Affiliation:
Universität Medizin Göttingen – Institute for
Molecular Biology, International Max Planck
Research School for Molecular Biology

Research Interests:
RNA Biology, Structural Biology,
Epitranscriptomics

Hobbies:
Playing volleyball, hiking, cooking, baking,
swimming, watching series and movies,
photography

Favorite Movies:
Life of Pi, The Martian, Three Idiots



I joined the International BioCamp because it is a unique opportunity to learn bioenterprise and gain useful insights should I wish to start a career in the industry. There is no better way of learning these other than from the leaders of big pharmaceutical/biotech companies. In addition, I also considered it as an excellent chance to work with other aspiring and bright students all over the world and a good avenue for networking and exchange of brilliant ideas. I also hoped that it will allow me to experience a different scientific environment and observe how people do their science. I also perceived it as chance to see the world, travel, learn other cultures and practices, all of which are essential for one's personal growth.

I believe that my International BioCamp experience beefed up my CV and surely gave me an edge when I was applying for graduate school abroad. Working in a group with diverse educational and cultural background was also a very good experience and gave me a lot of realizations – things such as being assertive and having confidence with your ideas, knowing your strength and weaknesses and evaluating them afterwards, understanding people's ways of expressing their ideas and opinions, and dealing with conflicts and working as a team maximizing individual's potential.

In the event, I was also able to meet people working on different fields of research. I was exposed to other different research topics, some of which I found interesting and made it to my list of topics I want to pursue. Some are also working along the line of research that I was doing back then and there was a good window for exchange of ideas. However, this also brought some frustrations as some of these good ideas cannot be implemented back home due to the lack of good infrastructure/facilities as well as with the current system of procurement.

Most of the participants were PhD students. At first, I felt intimidated and hesitated to bring my ideas to the table. However, I was certain of the things I know and so I made my contribution nevertheless. This also made me realize that there still a lot of things that I don't know and need to learn. They were also inspiring. These, together with the message that big Pharmaceutical company such as Novartis hire people with a very good scientific background to join their research labs, solidified my decision of doing a PhD. Right after the BioCamp, I started looking for places where I can do my PhD and motivated me to finish my Master's soon. Initially, I wanted to go to the US or Australia to do my graduate studies; however,



going to Switzerland gave a bit of taste of what it is like in Europe and it instantly changed my mind.

There were also some cool things I have learned such as the importance of art displayed all around the campus to provoke thinking and new ideas, how the buildings were designed to maximize interaction among employees and to make them environment-friendly, among others.

The most helpful part was the case study. This was really a good culminating activity. The talks were really good and insightful, and applying all the things we have learned into the case study made the program more effective. It also brought me into a situation of too much time pressure and competition, which brings out someone's creativity and agility to deliver individually and as a team. I also enjoyed the talk about life in academia and how it can collaborate with the industry as well as the inspirational talk by Anne Fudge and Steven Baert, which all together gave me a holistic experience.



A portrait of a young man with dark hair, wearing round black-rimmed glasses, a white dress shirt, a black tie, and a white lab coat. He is smiling and looking directly at the camera. The background is a solid light orange color.

MARTIN DANIEL QUI

International BioCamp Representative: 2015

Age: 25

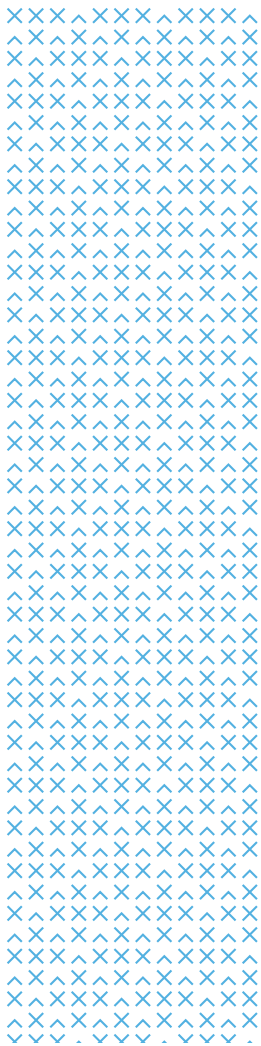
Education:
MD/PhD

Current Affiliation:
Duke-NUS Medical School

Research Interests:
Cancer and Immunology

Hobbies:
Music (guitar),
videogames and movies

Quote:
"Sleep more for better dreams"



The experience was surreal. We were one of the youngest delegates amidst people who have established themselves as scientists, having gone through extensive research training and exposure in their own careers. We met the staff who make up the very heart and soul of Novartis, a Nobel laureate, people who have authored publications in top scientific journals, and many more — all of whom welcomed us warmly into their circles and treated us like close friends. Being thousands of miles away from the Philippines, we felt at home despite being launched into a world of unlimited opportunities for science — a dream we would only usually read about in textbooks and literature.

At first, I felt quite small. Coming from the Philippines, where the frontiers of scientific exploration are still far from reach, I entered with the expectation that I wouldn't be sharing as much as the others would. In fact, I recall being quite nervous as I went down the elevator for the opening event. Though, as I set foot on the lobby, the level of energy was quick to break through me — it was quite a pleasant surprise to be able to easily interact with others as I would with a colleague. The people, whom I knew were far older and wiser than myself, were incredibly humble. They were eager to get to know more about you, and take a careful effort to relate to you despite differences in backgrounds and culture. What really struck me was that in a way, these people learned a thing or two from me as well. Over the course of the BioCamp, I would interact with more people, share stories about



myself, my country and the science that we are able to achieve despite our many constraints. On the other hand, I would learn more about the philosophies of their cultures, and pick up as well on some interesting things in our field of science that I found to be highly relatable.

What I took out from my experience was a need for a change in perspective. It might be easy for us, coming from a developing country, to view ourselves in a negative light: disadvantaged, and backward in our scientific development. In a way, it has become a habit for some, if not many, to talk more about the downfalls of science in our country. From the experience, I learned how to become more optimistic about our own trajectory for development. Being a developing country places us in a unique position to grow, and to take up many opportunities that present before us. Our education is something we should celebrate, as our level of knowledge and understanding of science actually places us at par with most of the great minds in science.



KAMILA ISABELLE A. NAVARRO

International BioCamp Representative: 2015

Age: 23

Education:

Bachelor of Science in Molecular Biology and Biotechnology (University of the Philippines Diliman, 2015, magna cum laude), Master of Science Communication (Australian National University, 2018)

Current Affiliation:

University of the Philippines Diliman and De La Salle University

Research Interests:

History of Science and Science Communication in the Philippines, Scientists' Engagement with the Public

Organizations:

Public Communication of Science and Technology

Hobbies:

Yoga, cooking

Favorite Book:

I Contain Multitudes by Ed Yong

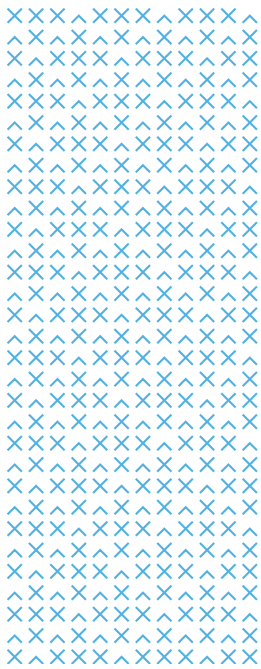
Favorite Movie:

Moulin Rouge!

Quote:

*"Destiny is a series of detours."
(paraphrased from Jane Rodriguez, Jane the Virgin)*





I initially applied for the International BioCamp with my grandparents in mind. My family has a history of cancer on both sides, so I was constantly looking for opportunities to know more about the disease my grandparents had tried to fight against. Novartis, in particular, is known for developing the innovative CART immunotherapy, and so I jumped at the chance to become involved with a pioneering company in cancer research.

As I was also a fresh graduate of University of the Philippines Diliman's Molecular Biology and Biotechnology program when I joined the International BioCamp, I also wanted to experience firsthand the drug development process I had only ever previously encountered in lectures. It was truly enlightening to see the equipment in action and the researchers at work, and even better to hear from the top Novartis management the intricacies of running a pharmaceutical company.

The International BioCamp inspired me to go into my current field, which is science communication. I was always commended on my ability to distill scientific information into more accessible formats during my undergraduate years. This was confirmed during the BioCamp when my peers and even Novartis executives complimented the presentation I had crafted for the final group pitch. In fact, my group won the business pitch competition. I was initially hesitant to pursue science communication full-time, because traditionally most people from my course would go into research or medicine. However, my experience at BioCamp affirmed my skill and passion for communicating science, and gave me the courage to break free from the mold. Without BioCamp, I would not be where I am today.

My favorite part of the International BioCamp experience was undoubtedly the opportunity to meet like-minded people from all over the world. There were many networking opportunities during the event, and this allowed me to form lifelong connections with individuals from India, Indonesia, Japan, and all the way to Germany. Whenever I visit a new country, I always try to meet with BioCamp alumni and catch up.



And it has actually happened! I've been able to meet up with BioCamp alumni in Japan and Switzerland during my holidays there. Beyond the intellectual and professional opportunities BioCamp has given me, it is the personal connections that I treasure the most.

One of the moments I personally find unforgettable actually happened after the program. Because of all the stress caused by business pitch competition, a few other delegates and I decided to go to the Rhine River to wind down. We bought drinks from the nearest convenience store, others even brought their country's native snacks – and we had a mini-picnic of sorts just by the banks of the Rhine River. Some of my companions even spontaneously jumped into the river! It was nice to interact with my fellow delegates in an informal setting and get to know them on a more personal level.

Another memorable moment for me was the networking dinner catered by a Michelin-starred chef. After all, how often does that happen?

JOSHUA REGINALD P. MALAPIT

International BioCamp Representative: 2016

Age: 26

Education:

BS and MS Molecular Biology and Biotechnology, PhD Candidate at the University of Heidelberg

Current Affiliation:

German Cancer Research Center (DKFZ); University of Heidelberg

Research Interests:

Immunology and Cancer

Hobbies:

Bouldering/Climbing, badminton, strength training

Favorite Book:

Too many good books in the world!

Favorite Movie:

Batman: The Dark Knight



My motivation for joining the International BioCamp was to be able to look at science from a different perspective. Coming from a research background which entailed full-time immersion in the lab, my first glimpse into the other side of scientific research was during a Biotechnology Enterprise during my Masters. It was then that I saw one staunch problem about the state of research in the Philippines, and that is the failure to translate the many brilliant studies being carried out into meaningful innovations and technologies. This is especially critical in life science research wherein findings from the bench are rarely able to reach the bedside of patients where it is needed the most. And so my main motivation for joining the International BioCamp was to learn about how to even begin to bridge that gap.

On a professional level, the International BioCamp was, first and foremost, the perfect avenue for networking. Within the confines of the lab, building a network is one of those things that oftentimes gets taken foregranted among researchers and scientists, even though it is something just as important as the actual experiments themselves. For me, it was during the BioCamp that I got to meet people with different expertise, from many different cultural backgrounds, and this allowed me to expand my network on a global level. In relation to research, I even got to meet people who I inadvertently ended up exchanging research methods with for a project I was doing at that time, highlighting the importance of such networks even in the sciences.

On a personal level, the BioCamp was also a confidence-building experience. Being selected to represent the country was of course in itself both an honor and accomplishment. More than that however, it was the process of both learning from the mentors, and then bringing something of my own to the table during the numerous activities during the BioCamp that allowed me to believe in my ideas, and in turn in myself more.

Lastly, and put plainly and simply, the International BioCamp inspired me to aim higher and dream bigger. Seeing what's out there, hearing inspirational talks from speakers who were more like visionaries, and being able to work with some of the most brilliant minds from all over the world—something about all this just inspires. Looking back, I believe I would not have even dreamed of being where I am now without this initial seed of inspiration.

Probably the best part of the BioCamp experience was the opportunity to make life-long friends from different corners of the world. For me, it even felt like the world shrunk a little afterwards, just because now wherever I go, there would most probably be someone I have met from the BioCamp with whom I can grab a beer or coffee with. And true enough it happens!

As a cultural experience, it was of course very enriching and you really learn a lot about the world beyond the four corners of the lab. One funny experience I had was being called-out by one of the Big Bosses for calling her “ma’am”. Such overpoliteness, normally attributed to people from Asia, was apparently shockingly



unnecessary in Europe. The funny thing is, I ended up frantically replying “sorry ma’am” which again ended up in mirthful hilarity.

Beyond life-long friendships, I would say one main take-away for me from the whole BioCamp experience was that everyone’s voice mattered, and that we all have something unique and special to contribute to any discussion because of our distinct personal experiences. So on one hand, we should all learn to be open to ideas and different points of view, and on the flip side, one should never be afraid to speak-up. And this I believe is a crucial starting mindset for any innovation.

Finally, and just to relate all of these experiences to my initial motivation for joining the BioCamp, I think one good starting point in building that bridge between the research bench and patient bedside in our country is collaboration – and not merely being open to them, but really initiating them and involving all the necessary sectors – from scientists who would come up with new ideas, clinicians and health workers who would put them into practice, businessmen and investors who would be open enough to invest on the country’s future, and public servants who are able to generate the political will and legislative infrastructures to make this all happen.



BRYAN JOHN J. SUBONG

International BioCamp Representative: 2016

Age: 27

Education:

MS in Chemistry, The University of Tokyo,
MS in Marine Science (Biotechnology), candidate,
University of the Philippines, BS in Chemistry,
University of the Philippines

Current Affiliation:

Department of Chemistry, The University of Tokyo

Research Interests:

Chemical Biology (Optogenetics and development of other protein expression control technologies such as auxin-inducible degron system), Medicinal Chemistry, Pharmacology, Toxinology, Proteomics and Metabolomics

Organizations:

International Union of Pure and Applied Chemistry (IUPAC) Affiliate Member (International), The Honor Society of Phi Kappa Phi (International), Phi Sigma Honor Society for the Biological Sciences (International), Association of Filipino Students in Japan (International), Integrated Chemists of the Philippines (National)

Hobbies:

Singing, dancing, swimming, snorkeling, writing literary pieces

Favorite Books:

Holy Bible, Memoirs of A Geisha, Madame Curie, Bloodline, Microbiology for the Health Sciences (influenced me during high school to pursue medical/biochemical field)

Favorite Movies:

Big Fish, Memoirs of A Geisha, James Bond series, Avengers series, Lord of the Rings series

Quote:

"The future belongs to those who believe in the beauty of their dreams."

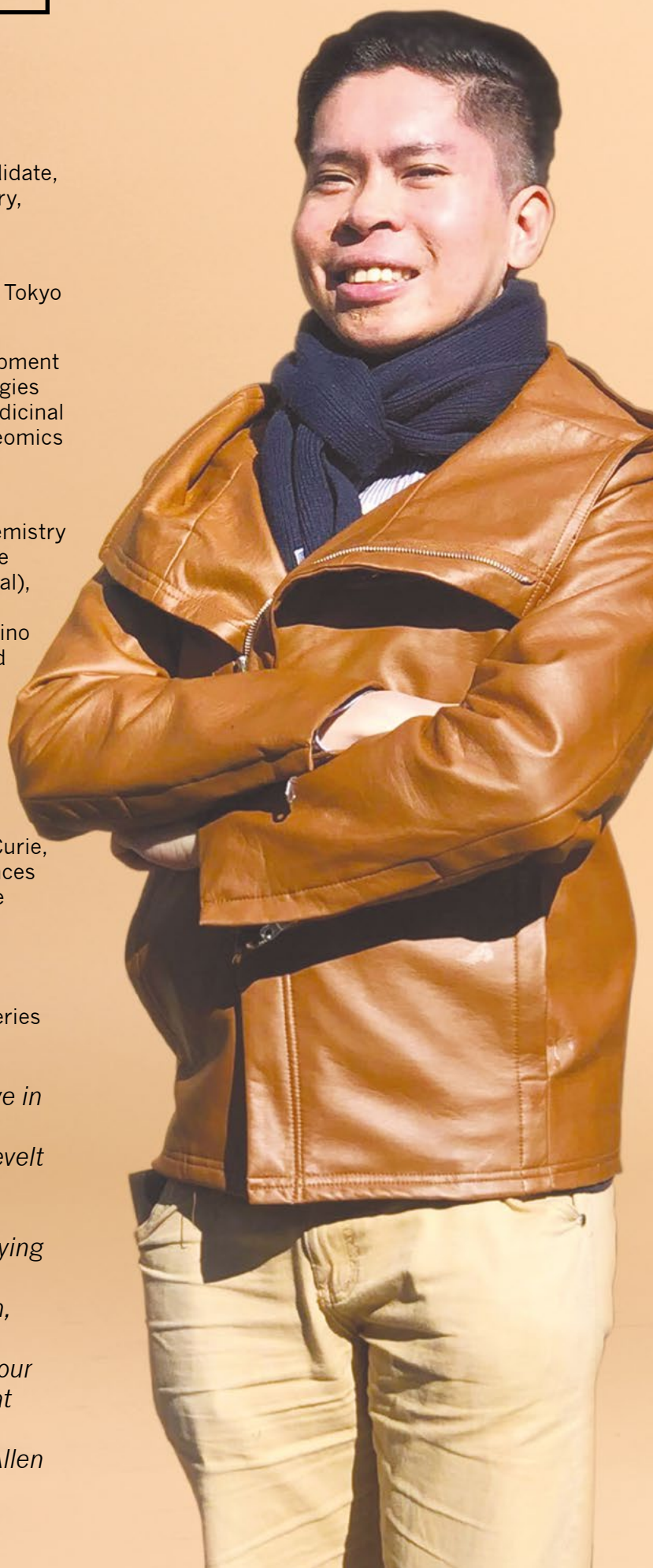
– Eleanor Roosevelt

"The journey is the reward."

– Taoist saying

"Dream lofty dreams, and as you dream, so shall you become. Your Vision is the promise of what you shall one day be. Your Ideal is the prophecy of what you shall at last unveil."

– James Allen





Three things.

“Keep your balance, don’t go too fast and have fun.”
- Ann Fudge, Member of the Novartis Board & Novartis International BioCamp 2016 Speaker

“The journey is the reward.” - Taoist saying

The Novartis International BioCamp is a life-changing three-day camping in the Novartis Headquarter in Basel, Switzerland. Inspired by the words of Ms. Fudge, I did not imagine how three simple words—balance, slowly and fun—can influence my personal plans and future career. Hence, these three things summarize the spirit of my BioCamp journey.

Keep your Balance

Since high school, I have always been fascinated with how pharmaceutical companies develop drugs from the lab bench side to the bedside. This fascination heightened after reading *Bloodline* by Sidney Sheldon. It was my primary motivation to someday join the pharmaceutical world. Opportunity came knocking at my door through the annual Novartis BioCamp. The local BioCamp offers an immersion on the pharmaceutical milieu in the Philippines. All the more, the winners of the local competition get the chance to represent our country in Switzerland. It was a great opportunity to balance learning and travelling to Europe.

Moreover, the BioCamp stimulated the germ of curiosity in me on the many roles that a scientist can have. BioCamp elucidated the importance of putting the fulcrum at balance between scientists and business people in creating dynamic environment toward healthcare innovation.

Don’t go too fast

The BioCamp might have been a fast-paced three-day event (wish that it was longer) but the professional and personal development it brought is immeasurable.

In terms of long-term impact, the BioCamp has shaped the rudder for my future sail in research. Prior to BioCamp, I have a lot of dots (plans) for my future. However, things were a little bit vague on what kind of field to pursue. After the said event, BioCamp enabled me to connect the dots and to realize the greater picture for my endeavors. It has influenced me to pursue medical-inclined chemical biology that includes development of new tools in controlling proteins quantitatively in order to answer biological and medical questions.

Initially, I was hesitant to pursue this field since it takes time and great effort but I’m constantly reminded not to go too fast. Certain researches are generally time-consuming. Despite this, they yield great results for the benefit of mankind. A great take-away I got is on how the system works in developing new drugs that gets through the market. It starts with a million candidate compounds and after a billion dollar investment in a span of at least ten years; it comes down to one new drug that gets FDA approval (if luck is on one’s side).

Other than the long-term impact, the BioCamp helped me attain immediate short-term milestones. BioCamp enabled me to brush up my interpersonal skills. It has prepared me well for my attendance at a conference in Brazil in the same year. Moreover, my exposure at Novartis was helpful for me to clinch a



scholarship from the Japan government. It was also one of my arsenals to win my third-straight Love of Learning Award in 2016 from the International Honor Society of Phi Kappa Phi (USA-based award).

Hence, life is a marathon and not a sprint. One should learn to enjoy the journey. This leads me to the third and final take-away.

Have fun

The event has expanded my network to an array of talented, motivated, fun-loving and young scientists across the globe. Also, some of the executives of Novartis eventually became my Facebook and LinkedIn connections.

The connections are more than just a flash in the pan. I remember having post-BioCamp reunions in Tokyo with other delegates. Hitherto, we are still in touch with each other. Moreover, I had the chance to sit beside one of the Vice-Presidents of Novartis during the opening dinner. We then became connected in LinkedIn and have kept in touch since then. This is a good take off point for future collaborations with the prime movers of the society.

Each activity during BioCamp was a fun moment worth treasuring. Nothing is forgotten.

My BioCamp journey has concluded but the torch of BioCamp spirit in me is never extinguished. The legacy lives on.





ALVIN BACERO BELLO

International BioCamp Representative: 2014

Age: 31

Education:

Taking PhD in Biomedical Engineering

Current Affiliation:

School of Integrative Engineering Chung Ang University, Seoul, South Korea

Research Interests:

Fabrication of biomaterial-based system for the growth and differentiation of various cells

Organizations:

Pinoy Iskolars sa Korea Inc. (PIKO)
– Vice President,

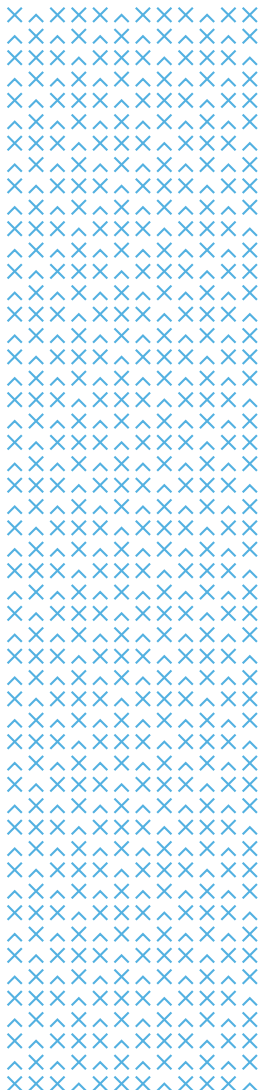
UP Molecular Biology and Biotechnology Society (UPMBBS) - Adviser

Hobbies:

Playing Nintendo Switch games, singing, dancing, reading journal articles, mountain climbing

Favorite Book:

Nicholas Sparks' Books



I was involved in Cancer research before I joined the BioCamp. Back then, I was trying to discover possible epigenetic explanation as to how cancer progresses and hopefully be cured. It was at that moment when I realized how BioCamp could be of great help for me and my pursuit of therapeutics for cancer. Aside from this, I was greatly motivated by the idea of meeting other bright, young, passionate scientists, with different cultural backgrounds and have intellectual discussions on research, drug development, and culture. But most importantly, I wanted to learn and expand my knowledge on drug discovery by getting first hand lectures from the experts in this field. Even now, I can still recall how I was super excited to be selected as one of the Philippine delegates for the International Biocamp.

The International BioCamp, I would say molded me into the scientist that I am now. Although people would say that it was just a 3-day endeavor, it helped boost my love for research and has become my driving force to continue learning and pursuing my passion for Science. Not only did I learn the how drug development works, but I also learned the important roles universities, research facilities, government institution, and funding agencies play in the process of drug discovery. Moreover, talking to other BioCamp participants, I have learned how Science is done in other parts of the world, and got valuable insights as to how to improve Science and Research in the Philippines. In addition, I learned the value of communication, team work, and camaraderie as these were tested during the business proposal competition. Aside from the knowledge, I also gained friends whom I will forever be thankful for. Just last month, I had a casual meeting with my Korean co-participant and we discussed about life and success over a cup of hot coffee. He now works as a licensed pharmacist and I as a PhD student. But both are grateful for the experience we've had and the knowledge we've gained from the International BioCamp.

The BioCamp was a big help to all young scientists like myself. It opened infinite opportunities for myself. It allowed me to grow as a promising scientist by providing a venue for learning, collaborations, intellectual discussions, and of course, fun and entertaining inter-cultural interactions.

MOVING FORWARD

In the years to come, Novartis will continue to foster the scientific and professional development of talented and motivated Filipino scientists through the Next Generation Scientist (NGS) Program. Novartis calls on Filipino scientists to participate in the annual NGS internship program to work, network and collaborate with like-minded scientists who aspire to make a difference.

Filipino delegates of the NGS Program have pursued or are currently working on drug discovery researches and projects that aim to make global health impact by addressing unmet medical needs of people around the world. These projects involve doing extensive researches on Neglected Tropical Diseases such as trypanosomiasis and malaria; building of library of small molecules using LC-MS; establishing and managing a cell culture and cell-based assay laboratory; synthesizing analogues of diaportheones; or targeting a mutation in the cancer gene, KRAS.

Similarly, Filipino delegates to the International Biotechnology Leadership Camp (BioCamp) are exploring opportunities to deepen their understanding about genetics, molecular biology, drug discovery, pharmacology, RNA biology, medicinal chemistry, immunology, and science communication among many others. The International BioCamp delegates are encouraged to continue with their exchange of ideas to spark discussions and inspire actions to improve people's lives through science. With such collaborations, the possibilities are endless.



**Next Generation Scientist Program -
Filipino Delegates**

HIYAS **JUNIO**

LESLIE MICHELLE **DALMACIO**

MARIAN ABIGAILE **MANONGDO**

MARIO **TAN**

MYLENE **UY**

**International Biotechnology Camp -
Filipino Delegates**

2006 DENNIS **BELA-ONG**

2008 CHRISTINA **LEYSON**

2010 CARLO **CASTILLO**

KAREN **ROSAL**

2011 KAREN KATRINA **MANALASTAS**

2012 RUTH MARIAN **GUZMAN-GENUINO**

2013 CHARLES JOURDAN **REYES**

MALEM **FLORES**

2014 KIN ISRAEL **NOTARTE**

JORTAN **TUN**

ALVIN **BELLO**

GERALD RYAN **AQUINO**

2015 MARTIN DANIEL **QUI**

KAMILA ISABELLE **NAVARRO**

2016 JOSHUA REGINALD **MALAPIT**

BRYAN JOHN **SUBONG**

Building A Science And Innovation Nation

Profiles of Filipino Delegates to the Novartis Next Generation Scientist Program and Biotechnology Leadership Camp

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