Recognizing the **best in science.**

Thanks to the nearly 400 researchers who submitted a nomination as part of AJE's Gold Medal Researcher contest! Altogether, we received nominations for 475 researchers in over 60 countries and regions.

This book contains lightly edited excerpts from the nominations for all 25 finalists, each a very impressive candidate. We're thrilled to share their stories.

For more information about the winners, please visit www.aje.com/en/arc/gold-medal-researcher-2016

Akshay Makar

GreeNesto, India

Nomination

Akshay is currently dealing with 3 sustainable development goals and is very passionate about creating awareness and change the world. He is a social entrepreneur and his start-up is dealing with solar energy. Their prime mission is to eradicate fossils and light up rural India in particular that do not even receive electricity for 4 hours in a day. His start-up not only deal in products but also provides education services in various educational institutions in the country. He is working to bridge the societal gap by providing quality education to the under-privileged and to provide a platform for socially conscious youth wanting to contribute to the nation's inclusive progress and to mould them into tomorrow's leaders.

According to him, "we are the first generation to face the impacts of climate change and the last to do something about it. And only education has the power to make something happen to attain peace."

Areta Kowal-Vern

Rush University Medical Center, United States

Nomination

Even among medical sub-specialists, one can still encounter a Renaissance physician. In the span of 45 years, Dr. Kowal-Vern made several contributions to medical research in different specialties.

As a medical student at the Parkland Hospital in Dallas, Texas in the 1970's, she was considered a "super stud" for her tireless devotion to trauma and burn patients under her care. Removing glass shards from car accident victims' skin so that it could be used for burn patients, little did she know that she would spend more than 25 years in burn, trauma, hematology and coagulation research.

This work resulted in identifying antithrombin as a powerful natural anticoagulant and anti-inflammatory factor, which was decreased in severely burned patients through oozing, consumption, and dilution. This treatment would be of value worldwide, especially in countries where transfusion use is limited.

AJE® HOW RESEARCH BREAKS THROUGH

Barbara Kabai Burmen

Kenya Medical Research Institute Center for Global Health Research, Kenya

1st Place

Dr. Barbara Burmen is a medical doctor, a public health specialist and a doctoral student in public health. She serves as a Senior Research Officer at the Kenya Medical Research Institute. For the past 6 years, she has served as the Kenyan based principal investigator for the Tuberculosis Intensified case finding study at 15 HIV clinics in the former Nyanza province of Kenya. From this study she authored the first publication from the study and received an award in recognition for her efforts to improve lung health in Kenya.

Dr. Barbara has also served as the principal investigator of a study that sought to determine the acceptability of HIV testing among grieving populations visiting a funeral home at a regional referral hospital in Kenya. She also volunteers her services as a mentor on AuthorAID, a global network that provides support, mentoring, resources and training for health researchers in developing countries. For these reasons, I strongly recommend her for the AJE Gold Medal Research Award.

AJE® HOW RESEARCH BREAKS THROUGH

Cassandra Hayne

University of North Carolina at Chapel Hill,
United States

Nomination

Ms. Hayne is a Ph.D. candidate at the University of North Carolina at Chapel Hill (UNC-CH) in the lab of Saskia Neher and is making great contributions to the lipoprotein field both domestically and internationally. I believe her scientific contributions inside and outside the lab and enthusiasm for answering physiologically relevant research questions are fully worthy of consideration for this honor.

For her graduate work, Ms. Hayne is performing structure-functions studies on lipoprotein lipase (LPL), the enzyme that breaks down fat in the blood. By understanding more about LPL structure and function, drugs can be designed to stabilize LPL and reduce triglycerides in the blood, an important part of treating and preventing cardiovascular disease. Her impressive list of accomplishments underscores her desire to improve human health and scientific education through her passion for both research and outreach to students and the international research community.

Chengyuan Li

Macquarie University, Australia

Nomination

Dr. Li is one of the most promising young researchers I have ever had the pleasure to work or exchange ideas with. He completed his PhD at Peking University (in astrophysics) in 2015. He was offered a group leader position at Purple Mountain Observatory (Nanjing, China) straight out of his PhD (which is very rare indeed) and has since taken up a high-profile Macquarie fellowship at Macquarie University (Australia); he will return to his position in Nanjing upon completion of the fellowship.

In addition, as a PhD student he coordinated monthly physics education days at severely underresourced schools for children of migrant families in Beijing (who are not eligible for government supported education), which offered them a unique chance to develop a critical mindset beyond their daily toil. Chengyuan is brimming with new and exciting ideas, and he is clearly making a mark in the scientific community while also working to improve the lives of the less well-off in society.

Chi-Ming Lai

National Cheng Kung University, Taiwan

Nomination

Professor Lai is a creative scientist. He chooses interesting problems and pursues them imaginatively. He is an active and prolific contributor to the field of indoor environmental quality, building ventilation, building acoustics, and energy efficiency in buildings. In recent years, Professor Lai's work has also involved applications of renewable energy to buildings. Professor Lai is a leading scientist in Taiwan on indoor environmental research.

In addition to his academic and practical work, Professor Lai participates in public service work; holds posts in Government Procurement Evaluation, Construction Quality Evaluation, and Evaluation for Private Participation in Infrastructure Projects for our central government; assists in reviewing papers for academic journals; and has won awards for Excellence in Peer Review issued by Elsevier in both 2012 and 2013.

Furthermore, Professor Lai won the Outstanding Young Researchers Award from the Ministry of Science and Technology, Taiwan, in 2013, which is given to only one winner each year in the field of energy technology.

Daniel Micallef

University of Malta, Malta

Nomination

Dr. Micallef obtained his PhD from the Technical University of Delft in the Netherlands at the age of 26. After this period he conducted post-doctoral research and managed to become resident academic at the Faculty for the Built Environment at the University of Malta by the age of 28 in 2014. Today, at the age of 30, Dr. Micallef has published 40 articles. The contribution of this work to society is in enabling new strategies for the design of wind turbines which will help contribute to the global wind energy output.

Apart from his research portfolio, Dr. Micallef is also very active in representing the profession of engineering and is currently the General Secretary of the Chamber of Engineers of Malta. He is also an entrepreneur and director of a local R&D company Innova Ltd, which he founded in 2012. He is an ardent believer in bridging the gap between academic research and industry and advocated knowledge transfer through a number of collaborations with industry.

Elaine Cristina Vargas Dadalto

Federal University of Espirito Santo, Brazil

Nomination

The worthiness of the gold medal is due to her dedication to multidisciplinary research, seeking the knowledge of related fields to development of the research theme. [Her] research area is related to the issue of pacifier sucking habits, often addressed as an etiological factor of myofunctional disorders and dental arch alterations. This theme is particularly important for Pediatric Dentistry, but also has great interest in the areas of orthodontics, pediatrics, otolaryngology, and speech therapy, although it had not yet been studied with longitudinal methodological resources of psychology. Her recent research showed how the pacifier sucking habit can interfere in the mother/child relation.

She wrote a children's book about her research theme, aiming to encourage children to give up the pacifier in a playful manner, as a way to socialize the knowledge generated by research. Also, she continued to give dental assistance to children who participated in her research, and she expanded that dental assistance to all preterm infants who have been born at the public university hospital.

Eleni Antoniadou

NASA Ames Academy, Greece

Nomination

Dr. Antoniadou is one of the most exceptional scientists I have ever seen. She represents the role model of a young, passionate, dynamic, innovative person full of empathy proven by her strong humanitarian work. Not only she created the first artificial trachea to be transplanted, she is also the inspiratory and CEO of the startup named Transplants Without Donors, which is the outcome of a 3.5 year endeavor to produce an off-the-shelf technology of tissue engineered organs which are customizable for each patient and tissue engineered bioreactors that can regulate the organ microenvironment in order to develop biocompatible and biofunctional organs ready for transplantation.

I highly recommend Dr. Antoniadou not only for her strong academic work, but mostly because she is an amazing role model for every young scientist in the medical field.

Eloisio Moulin de Souza

Universidade Federal do EspÃrito Santo, Brazil

Nomination

The research developed by Eloisio Moulin de Souza deserves to win a gold medal in research. Eloisio Moulin de Souza is coordinator of the Grupo de Estudos sobre Poder em Organizacoes (GEPO), located at the Universidade Federal do Espirito Santo, Brazil. His research is dedicated to studying ... the power devices present in workplace and their relationship to the production of social inequalities based on gender, sexuality, race, social class and embodiment.

Beyond these contributions to the research field, the research brings contributions to the local society. The Espirito Santo State in Brazil, where the GEPO acts and develops its research, is the Brazilian state with the highest rates of violence against women and more indices of deaths of women by men, in this violence is present in workplace also.

Therefore, to analyze gender and sexuality aspects in workplace under this reality has brought important contributions to combat and change local reality improving social rights and organizational policies related to gender and sexuality.

Gnanaraj Jesudian

Karunya University, India

2nd Place

Dr. Gnanaraj is a urologist and laparoscopic surgeon working among the poor and the needy for three decades in remote and rural hospitals. His interest is to take modern surgery to the poor and marginalized in rural areas, which has inspired him to help 23 hospitals start minimally invasive surgeries and train many rural doctors. He developed high tech diagnostic and surgical camps that have benefited thousands of rural patients, with over 50,000 of them receiving modern surgical care in the remote areas over the past three decades.

The single incision gasless laparoscopic surgeries are possible under spinal anesthesia with low cost equipment thus doing away with the logistic nightmare of getting gases and expensive anesthesia doctors and equipment. The task specific training and competency based credentialing model of training rural doctors and surgeons is now endorsed by Lancet commission on global health and WHO.

Jae-Sung Kwon

Yonsei University College of Dentistry,
Republic of Korea (South)

Nomination

Jae-Sung has a very interesting career despite his age in 30s. He graduated medical school from the University of Nottingham, UK, where he was trained to become a house officer for 2 years and fully registered with the General Medical Council of UK. During the 2 years, he fell in love with teaching students, and he went on to do a Master's in Medical Education.

But then, something struck him very hard, as he saw a girl who desperately needed an artificial trachea for her life. This made him stop his clinical work, and he went on to basic science. He joined the Research Institute of Dental Biomaterials and Bioengineering of Yonsei University College of Dentistry 6 years ago, and made a huge impact on both local and international community. He also has a lot of involvement internationally. He is a key person that made multi-disciplinary international collaboration possible, where joint institutes include Drexel University of USA, INP Greifswald of Germany, and the City University of Hong Kong.

Jonah Chukwuemeka Agunwamba

University of Nigeria, Nsukka, Nigeria

Nomination

Jonah Chukwuemeka Agunwamba is dedicated, hardworking and disciplined; he has always impacted his community and the society at large. His areas of specialization are: appropriate technologies for water and wastewater treatment, water quality, drainage and erosion control, water stabilization ponds, modeling and application of operations research, wastewater reuse, and pollution prevention and control. He has also held different administrative positions within his institution; he was the Dean, Faculty of Engineering 2010-2012, and also presently the Director, National Centre for Equipment Maintenance and Development.

He has contributed significantly to knowledge in the area of waste water in rivers and innovations in wastewater treatment, especially through accelerated treatment efficiency by integration of solar radiation and hydraulic jump. He has rendered community service to different national committees. He has immensely contributed to the world of learning through his passion and continuous contributions to research.

Monica L. Andersen

Universidade Federal de São Paulo, Brazil

Nomination

Monica Levy Andersen, PhD, is Associate Professor in Psychobiology and head of the Sleep Division at Universidade Federal de São Paulo, Brazil, and Visiting Associate Professor at the Yerkes National Primate Research Center, Emory University, USA.

Awarded L'Oréal/UNESCO Award for Women in Science (2001), Dr. Andersen was nominated to be an affiliated member of the Brazilian Academy of Sciences in 2013. With more than 360 papers published in international scientific journals since 2000 and being the author of 4 books and more than 20 book chapters, Dr. Andersen (h-index = 33, Scopus) is one of the world's leading researchers in the sleep field. Dr. Andersen is the 12th most productive researcher in sleep science in the world, according to the Scopus database.

Dr. Andersen's intellectual strength, high motivation and hard work together with her love for science make a winning combination, which is expressed in her successful career.

Moses Egesa

Makerere University,
Uganda Virus Research Institute, Uganda

Nomination

After successfully accomplishing my duties as a research assistant to a PhD fellow, I got involved and still work with TheSchistoVac project that aims to develop novel vaccine candidates for a vaccine against schistosomiasis. In this new role, I have participated in field trips to collect blood samples from schistosomiasis endemic area for immunology studies. I underwent training in flow cytometry and have since provided technical support to other projects within Prof. Alison Elliott's laboratory at Uganda Virus Research Institute (UVRI). In 2013, I completed my masters funded by TheSchistoVac consortium in which I was research assistant. I am currently doing a Wellcome trust Uganda PhD fellowship to understand human immune responses to novel Schistosoma mansoni skin-stage antigens among infected individuals in collaboration with Leiden University Medical Center. The findings from this PhD will be published, presented at conferences to scientific peers and may have a positive impact on society by contributing to control of schistosomiasis that devastates mainly the poor in the tropics.

Natt Leelawat

Tohoku University, Japan

Nomination

Dr. Natt Leelawat is a researcher at the Tsunami Engineering Laboratory. His works focus on ICT for Disaster Risk Reduction. He works on qualitative and quantitative research in order to understand and investigate solutions to reduce people's risks from natural disasters. His study's scope includes tsunamis, earthquakes, and typhoons. Through his background in information systems related to disaster risk reduction, not only academic contribution, but many of his studies also pay attention to social and practical contribution such as disaster planning decision, disaster evacuation, and disaster mobile application.

Since he believes in the importance of education, he always accepts the invitation to give lectures, such as disaster education and disaster information systems, to audiences from elementary schools to universities and public institutes. He is a young researcher who has a strong passion to bring the valuable knowledge from the academic area to society for people. He would like everyone to live in the sustainable and safe society.

Paul Cherukuri

Rice University, United States

Nomination

Paul Cherukuri deserves a gold medal for research because, just like an Olympic athlete, he is relentless in his pursuit of achievement in his passion: nanotechnology. His most recent discovery of “Teslaphoresis” has actually demonstrated the capability of carbon nanotubes to self-assemble over long distances that are visible to the naked eye. The use of an electric field to control the self-assembly of nanotubes has tremendous implications in chemistry, biomedicine, and electronics.

A gold medal is given to the athlete who wins the competition. But, the winners we remember and admire don’t just post the best time, they also have a good attitude and are examples of good sportsmanship. Paul is a gold medal researcher because he works hard for his goals, puts in the long hours, and has made groundbreaking discoveries in nanotechnology. He also has that golden spirit of a true scientist.

Prince Jacon Igwe

University of Nigeria, Nsukka, Nigeria

Nomination

Prince Jacon Igwe is a 24-year-old researcher in the field of Library and Information Science. He is currently an Assistant Librarian at the Nnamdi Azikiwe Library, University of Nigeria, where his research and professional interests include digital librarianship, social media librarianship, development communication through the library, library assessment and evaluation and literacy development through the library.

Since 2013, Igwe has continued to contribute to intellectual production in his area through research. He was the leader of a six-man team involved in a Grassroot Literacy Project (GLP) in Awka-Etiti, a rural area in Anambra State, Nigeria. This project involved the bottom-to-top development and preparation for use of the collection at the Awka-Etiti Community Library and handling of the mobile library (also known as keke library) program which saw to the use of a tricycle refashioned as a library to conduct literacy outreach in nursery, primary and secondary schools, cultural and social gatherings and commercial spaces in Awka-Etiti.

Richard de Grijs

Peking University, China

Nomination

Prof. de Grijs is a top-level, all-round scientist with a strong sense of both community service and societal obligations. He heads one of the leading Chinese astrophysics groups. In 2013 and 2014, he led the most productive group at the Kavli Institute for Astronomy and Astrophysics, having published, respectively, 40% and 30% of the Institute's articles. Prof. de Grijs is deeply involved in teaching and academic community service. In addition to his teaching role at Peking University, he has taught graduate courses at Leiden University, Kyung Hee University, the National University of Mongolia, and the University of Tokyo. He has delivered workshops on scientific and science-management topics in China, Japan, Korea, and the USA.

Prof. de Grijs was the founding director of the East Asian Office of Astronomy for Development. He has been instrumental in providing schools for the children of migrant families in Beijing with access to science education. These children do not have access to state-supported education.

Sanne De Jong

Leiden University Medical Center, The Netherlands

Nomination

Sanne has contributed to research and the research community both locally and internationally. Locally, as part of the research group at Leiden University Medical Center (LUMC), her impact is immense. As an individual, Sanne has a vast technical knowledge of the tools such as flow cytometry and CyTOF that profile and advance our knowledge of how the immune system works in disease. She is the go-to person, for the trending topics in immunity and infection. She is always learning from her colleagues and keeping up with the latest research to contribute to the LUMC's research output.

Internationally, she has been involved in collaborative work of South North consortia such as IDEA (http://idea-research.eu/) and TheSchistoVac (http://www.theschistovac.eu/about.html). Indeed, through these alliances, Sanne has been able to train scientists from regions such as West Africa (Gabon, Ghana, Senegal), East Africa (Kenya and Uganda) and South East Asia (Indonesia) among other places.

Siew Hua Gan

Universiti Sains Malaysia, Malaysia

Nomination

Siew Hua Gan graduated from Manchester University with a BSc (Hons) in pharmacy and later received her Ph.D. in pharmacology from Universiti Sains Malaysia. Gan is currently a professor at the Human Genome Center at the School of Medical Sciences of Universiti Sains Malaysia.

Gan has developed many new methods using both high performance liquid chromatography and gas chromatography/mass spectrometry. As a result of her extensive chromatographic work on tramadol, Gan was appointed to the panel of experts for tramadol at the teaching hospital at Universiti Sains Malaysia. The Malaysian Department of Standards (SIRIM) has appointed Gan to the committee for working papers related to nanotechnology.

To date, Gan has published approximately 200 papers in international peer-reviewed journals. Yearly, she publishes between 30-40 papers. Gan has been described as "well recognized in the field of separation science" and as carrying out work that helps provide new services to local hospitals and on the whole, benefits mankind for her sustainable research.

Tonni Agustiono Kurniawan

Xiamen University, Indonesia

3rd Place

[Tonni's contributions] to applied technology in the field has earned him top accolades recently. To improve dialogue between stakeholders and policy-makers about sciences, he participate in 2010 Nobel Laureate Meetings and 2015 World Science Forum in Lindau (Germany) and Budapest (Hungary) in June 2010 and November 2015, respectively. Recently his work in waste management was recognized by New England Biolabs (Boston) with the 2014 Passions in Science Awards for Environmental Stewardship and by ASEAN Academy of Engineering and Technology with the 2015 Green Award.

Tonni was actively involved in pioneering organic waste reduction in Surabaya (Indonesia) using Japan's innovation Takakura technology. Its implementation has attained a steady 30% reduction of organic waste. About 3,421 Mt of CO_2 equivalent emissions could be reduced annually from local landfills. It is not always necessary to promote cutting-edge technology in developing countries, rather efficient energy, inexpensive, and convenient device is more suitable for this. What is common in Japan is really novel and seminal in Indonesia.

Xing Zheng Wu

University of Science and Technology Beijing, China

Nomination

Xing Zheng Wu works as Associate Professor in Department of Applied Mathematics, University of Science and Technology Beijing, China since 2011. He has published over ten peer-reviewed articles and chapters, predominantly related to probabilistic risk analysis.

In Beijing, he successfully applied a mature concept in the coastal engineering (copula) to model the dependence of random soil shear strength parameters and extended this technique to slope, foundation, retaining walls, geosynthetics, rocks, and system reliability analysis.

Dr. Wu is an analytical expert with an aptitude for integrating cutting-edge programming platform R with various engineering-related solutions. He established the first-ever database of geomaterials and source functions for use in the reliability analysis of structures, which is compiled in the R package ‘GeoRiskR’. The package is conducive to promoting the application of probabilistic analysis in engineering design and management.

Youzuo Lin

Los Alamos National Laboratory, United States

Nomination

Dr. Youzuo Lin is a researcher with extraordinary research capability and influential accomplishments in applied mathematics. He is a member of a research team at Los Alamos National Laboratory (LANL) developing a novel ultrasound tomography imaging tool for detecting breast cancer at its earliest stage and save lives. Dr. Lin developed several high-resolution ultrasound tomography imaging algorithms. These novel tomography imaging methods can produce breast images with much higher image resolution than the state-of-art clinical imaging techniques, making it possible to detect breast cancers that are currently undetectable.

Dr. Lin conducted seminal research to improve subsurface imaging using seismic reflection data. He has developed several innovative full-waveform elastic-inversion methods for detecting changes in subsurface reservoirs. The research provides a non-invasive monitoring tool for optimizing the placement of production wells and maximizing the heat extraction from geothermal reservoirs.

Zakir Hossain

European International School, Ho Chi Minh City, Vietnam

Nomination

Mr. Zakir Hossain, an avid researcher and an advocate of library based lifelong learning believes libraries are even more important now that everyone can search for information online. Zakir obtained his Master's degree in Information Science and Library Management from the University of Dhaka with first class-first position. After that he started writing on how and what ways Vietnam libraries could participate in building a learning society. He wrote articles for local newspapers and journal about the role of Vietnam libraries in promoting reading and creating lifelong learners. He also shared his research findings with the international community of how Vietnamese libraries contribute towards national development in general and in particular what ways they could be a potential stakeholder for the lifelong learning society project.

I am proud to recommend Zakir for the AJE Gold Medal nominee as I believe his greatest contribution is yet to come in the field of library and lifelong learning area.

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