On May 13–14, 2015, Center for Life Sciences, Nazarbayev University launched the II International Conference on Personalized Medicine and Global Health. Scientists from leading universities of European Union, Japan, Israel, Korea, Russia, Ukraine and United States; senior management of research organizations, educational institutions, healthcare industry representatives, officials and representatives of Government of Kazakhstan attended this year’s conference. The Conference united scientists from different countries, with different backgrounds and research interests. During the two-day conference the participants were focused on developments in the field of global and topical issues of biomedicine such as achievements and prospects of personalized medicine, multiomic technology and their applications, bioinformatics, systems biology, global health and microbiome research.

Zhaxybay Zhumadilov, Director of the Center for Life Sciences, in his welcoming speech said:

“The conference aims to provide an innovative and comprehensive overview of the latest scientific development of genomic and personalized medicine, bioinformatics and global health. We hope that this annual event will serve as an interactive platform for open and constructive exchange of views on the innovative achievements of genomic and personalized medicine, establishing a scientific basis of global health, development of international cooperation in innovative areas of research in the biomedical field”.

In this issue:

- 2nd International Conference “Personalized Medicine and Global Health”
- VIII Astana Economic Forum
- Awards and honors
The Conference program included two panel sessions — “Genomic and Personalized Medicine Era: Challenges and Opportunities” and “Microbiome and Human health”. Moreover, the workshops and poster sessions for young scientists and students, masters, postdoctoral students and “Best poster presentation” competition among young scientists were held within the conference.

The first panel session “Genomic and Personalized Medicine Era: Challenges and Opportunities” brought together prominent researchers and scientists from Kazakhstan, USA, Korea, Germany, France, China, Switzerland and Russia in the field of genomics and biomedicine, such as Kap-Seok Yang, Ph.D., Genomic Medicine Institute, Seoul National University, Korea (Macrogen Inc., Korea); Peer Bork, Ph.D., Professor, Structural and Computational Biology unit, EMBL Heidelberg, (Germany); Joseph Petrosino, Ph.D., Professor, Baylor College of Medicine (USA); Andrei Zinovyev, Ph.D., Scientific Coordinator of the Department of Bioinformatics and Computational Systems Biology of Cancer, Institute Curie, Paris, France/Ecole des Mines ParisTech, Fontainebleau (France); Christian Schoenbach, Ph.D., Professor, Nazarbayev University; Theodore Schurr, Ph.D., University of Pennsylvania (USA); Andrey Garazha, C. B. Sci., Laboratory of Bioinformatics, D. Rogachyov Federal Research Center of Pediatric Hematology, Moscow, (Russia)/Pathway Pharmaceuticals, Hong Kong (China); Rashid Akbergenov, Ph. D., Institute of Medical Microbiology, University of Zurich, (Switzerland); Massimo Pignatelli, MD, Professor, School of Medicine, Nazarbayev University, Kazakhstan; Yingqiu Xie, Ph.D., Assistant Professor, Department of Biology, School of Science and Technology Nazarbayev University, Ainur Akilzhanova, MD, D. M. Sci., Ph.D., Associate Professor Chief research scientist, Head of Laboratory of Genomic and Personalized Medicine, Center for Life Sciences, Nazarbayev University; Gulnara Svyatova, MD, D. M. Sci., Professor, Chief medical geneticists of Ministry of Healthcare of Kazakhstan, Chairman of the Association of Medical Geneticists RK, Yergali Miyerbekov, MD, D. M. Sci., Professor, Research Center of Surgery after A. N. Syzganov; Evgeniya Yudina, C. B. Sci, CE Sequencing Sales Specialist, Genetic Medical & Applied Sciences, Life Sciences Solutions, Thermo Fisher Scientific.

Participants of the Conference
The second panel session “Microbiome and Human health” united leading scientists and researchers in the field of microbiome and human health such as Lita Proctor, PhD, National Institute of Health (USA); Tadao Saito, Ph.D., Professor, Tohoku University (Japan); Tamar Japaridze, Ph.D., Associate Professor, Agricultural University of Georgia (Georgia); Massahira Hattori, Ph.D., Professor, Graduate School of Advanced Science and Engineering, Waseda University (Japan); Astghik Pepoyan, Ph.D., Dr.Sci., Armenian National Agrarian University (Armenia); Serik Shaikin, D.Sci., Republican Collection of Microorganisms (Kazakhstan); Keti Sidamonidze, D.M.Sci., National Center for Disease Control and Public Health (NCDC) (Georgia); Vyacheslav Melnikov, Ph.D., Central Research Institute of Epidemiology (Russia); Vladimir Chistyakov, Ph.D., Dr.Sci., Rostov Institute of Biotechnology (Russia) debated on hot topics in microbiome and probiotic research.

It should be noted that scientists and experts in the field of genomics, gerontology, biomedicine and bioengineering gathered together in Astana for the second time to discuss innovations in the field of genomic and personalized medicine. The most important in this area is the study of malignant diseases, cardiovascular diseases, autoimmune diseases, pathology of pregnancy, pharmacogenomic studies, population genomics, bioinformatics and other studies.

Participants of the Conference
Within the framework of the II International Conference on Personalized Medicine and Global Health the satellite workshop “Hot topics in microbiome and probiotic research” was organized. Moderator of the satellite workshop were Francesco Marotta, MD, Ph.D., Professor, ReGenera Research Group for Aging Intervention (Italy) and Almagul Kushugulova, MD, D.M.Sci., Chief research scientist, Head of Laboratory of Human microbiome and longevity, Center for Life Sciences, Nazarbayev University.

World renowned scientists came to discuss problems and achievements in microbiome and probiotic research all over the world. It should be mentioned that in the field of global health Nazarbayev University has launched a study of the human microbiome. (Human microbiota is regarded as a body organ that promotes human health and is sensitive to any, even minor changes of internal and external environment. And so, it is an excellent indicator of the health. Current study of the Human microbiome will help to develop effective non-invasive methods of early diagnosis of diseases). The world scientific community launched the project in 2007; Kazakhstan joined the study in 2012 and in 2015 was officially recognized as a member of the International Consortium of Human microbiome.

One of the invited speakers Lita Proctor, PhD, National Institute of Health, USA, expressed her opinion on the work and future of Human Microbiome Association of Kazakhstan: “I nominated Kazakhstan to the International Human Microbiome Consortium NIH (IHMC) and the Board has finally approved it in March 2015. My motivation in inviting Kazakhstan to the IHMC NIH is because Human Microbiome research is going on all over the world but for a long time it was dominated by North American and European research, to some degree Japanese research, but mostly North American and European research. And yet it’s critical for us to understand the Human Microbiome in all populations, so I wanted to bring non-Europeans to IHMC to, actually, promote or elevate the awareness of non-European and non-North American Human Microbiome results and research. I think there will be collaboration but it won’t be instantaneous. And it takes time to develop those collaborations. Basically becoming a member of IHMC, I hope, helps Kazakhstan to introduce their research and their research community to the larger research community and then it’s up to Kazakh scientists to develop actual collaboration”.

Hot topics in microbiome and probiotic research

Joseph Petrosino, Lita Proctor

Workshop participants

Daniele Rossi, Francesco Marrota

Tadao Saito, Astghik Pepoyan, Nadya Boyko
Senior managers of research organizations, educational institutions, healthcare industry representatives and researchers in the field of genomics discussed their research works and presentations at the meeting in the form of a round table “Genomic research in Kazakhstan: Directions, Challenges, Integration”. One of the key points on the agenda of the meeting was the launch of Kazakhstani Genetic Association.

Theodore Schurr, Ph.D., University Of Pennsylvania (USA) shared his point of view about Kazakhstani Genetic Association: “Most countries have some kind of a national genetics organizations or similar organizations where scholars or experts in those areas come together, present their work, exchange ideas to talk to people about grant funding and to meet students and postdocs younger scholars, it’s some kind of intellectual incubator. For the US it’s an American Society of Human Genetics. There are other societies that have annual conferences and they focused on organismic evolution, non-human, species genetics, they are actually quite valuable and they have chance to present their work which is relevant on the international level to other scholars, it’s opportunity to help to train students get them opportunity to present them their own research and get feedback from senior scholars. There you make connections in terms of possibly making collaborative research projects with people who come to the meetings. And in case of the companies who come to advertise their products you may actually learn about new technics to may be able to apply in your research. The national meeting in Kazakhstan could serve that purpose and I would strongly encourage you to do so”.

Dr. Theodore Shurr

Dr. Ainur Akilzhanova (center)

A. Burabayev, A. Kauysheva, M. Yessirkepov, S. Kolumbayeva

Round table participants

Round table participants
The meeting of the Center for Life Sciences (CLS) International partners Advisory Board moderated by Mr. Shigeo Katsu, President of the Nazarbayev University and Mr. Simon Jones, Provost of the Nazarbayev University was held prior to the II International Conference on Personalized Medicine and Global Health.

Members of the International partners Advisory Board of CLS are the experts and professionals leading and teaching in world’s most innovative research centers and establishments in the field of global health, genomic and personalized medicine, bioinformatics and computational biology, molecular genetics, Human microbiome and probiotics namely Philippe Frossard, M.D., Professor, Vice Provost for Research, Nazarbayev University, Massimo Pignatelli, M.D., Ph.D., FRCPath, Professor, Dean of School of Medicine, Nazarbayev University, Andrei Zinovyev, Ph.D., Scientific Coordinator of Computational Systems Biology of Cancer Group, Institute Curie, Paris (France), Theodore G. Schurr, Ph.D., Professor, University of Pennsylvania (USA), Tadao Saito, Ph.D., Professor, Graduate School of Agricultural Science, Tohoku University (Japan), Massahira Hattori, Ph.D., Professor, Graduate School of Advanced Science and Engineering, Waseda (Japan), Lita Proctor, PhD, National Institute of Health (USA), Peer Bork, Ph.D., Professor, EMBL, Heidelberg (Germany), Nadiya Boyko, Dr.Sc., Professor, Uzhhorod National University (Ukraine), Joseph Petrosino, Ph.D., Professor, Alkek Center for Metagenomics and Microbiome Research at Baylor College of Medicine (USA), Daniele Rossi, PhD, Food for life EU Technology Platform, Confederation of Italian Farmers, (Italy), Vyacheslav Melnikov, Ph.D., D.M.Sci, Central Research Institute of Epidemiology (Russia), Vladimir Chistyakov, Ph.D., Dr.Sc., SFedU Academy of Biology and Biotechnology (Russia), Rashid Akbergenov, Ph.D., University of Zurich, Institute of medical microbiology (Switzerland).

The major milestones for developing bioinformatics including new projects, personnel and infrastructure were discussed and approved by International partners Advisory Board. The Advisory Board Meeting has come to the conclusion that trajectories of the research activities at the Center for Life Sciences will be reconsidered and some changes will be made in accordance with the suggestions and comments of the board members.

Significance of development of the research concept for new generation of probiotics, establishment of platform for probiotics and functional foods in Kazakhstan, and formation of the international community for screening, monitoring and promotion of research of probiotics was recognized by the members of the board.
About 18 poster presentations of young scientists from Kazakhstan were accepted for the “Best poster presentation” competition. 15 of them were presented to the members of Independent judging committee: Dr. Tursonjan Tokay, MD, PhD, Associate Professor of physiology, Center for Life Sciences, Nazarbayev University, Dr. Ulykbek Kairov, PhD, Leading researcher, Head of Laboratory of bioinformatics and Computational Systems Biology, Center for Life Sciences, Nazarbayev University, Dr. Christian Schoenbach, Ph.D., Professor of Biology, School of Science and Technology, Nazarbayev University, Dr. Luca Vangelista, Associate Professor, School of Medicine, Nazarbayev University, Dr. Damira Kanayeva, PhD, Assistant Professor, School of Science and Technology, Nazarbayev University.

The first place was awarded to Ainur Akhmetova, researcher, Laboratory of Genomic and Personalized Medicine, Center for Life Sciences, Nazarbayev University.

The second place was awarded to Aliya Abilmazhinova, researcher assistant, Laboratory of Genomic and Personalized Medicine, Center for Life Sciences, Nazarbayev University and Lina Zaripova, senior researcher, National Scientific Medical Research Center.

The third place was awarded to Assylbek Burabayev, leading researcher, Laboratory of Genomic researches, South-Kazakhstan State Pharmaceutical Academy and Yuri Skiba, senior researcher, Institute of Molecular Biology and Biochemistry named after M.A. Aitkhozhin and Alma Akhmetova, junior researcher, Laboratory for Experimental and Clinical Pharmacology and Pharmacy, Center for Life Sciences, Nazarbayev University.
The VIII Astana Economic Forum (AEF) took place on May 21-22, 2015.

On May 21 within the AEF Nazarbayev University organized panel session “Disruptive technologies: implications for society and labour market”. The panel session moderated by Mr. Shigeo Katsu, President of Nazarbayev University, was held in the format of speeches by keynote speakers on disruptive technologies and exchange of expert opinion, active discussions between speakers and audience of the session. The key issues on the following topics were on the agenda: modern development of disruptive technologies: artificial intelligence, robotics, genetics, future technologies (3-D printers, advanced materials and others); the emergence of advanced technologies in the near future and their impact on society, in particular the labor market; is there the reduction of working places or are there new working places created requiring new skills; how the society minimizes the negative effects of disruptive technologies by creating a support system in the form of unemployment benefits, retraining programs, in particular how the society creates new types of work.

The keynote speakers of AEF were Michael Goldfarb, H. Fort Flowers Chair in Mechanical Engineering, Professor of Electrical Engineering, Electrical Engineering & Computer Science Vanderbilt University (USA); Ben Goertzel, Chief Scientist of financial prediction firm Aidyia Holdings; Chairman of AI software company Novamente LLC and bioinformatics company Biomind LLC (USA); Patrick Duparcq, Associate Dean of Graduate School of Business, Nazarbayev University and the audience of about 150 people: university professors, researchers, representatives of state bodies and social sector, international experts in the field of economics, artificial intelligence and other sciences, graduate students participated in hot discussions.

By the end of the discussion Dr. Michael Goldfarb gave some points to Kazakhstani scientists who try to engage in the research in the field of disruptive technologies:

“I think that in general interacting and collaborating with business in the right spirit is important in the work on real world problems, to feel society needs, to look at each side on it and to look at where the leverage inflection points of science and technology are and then combine them with society needs is a good strategy”.

In his final speech Mr. Shigeo Katsu resumed that the topics discussed within the panel session are very important for the world society nowadays and offered the audience to continue to think about disruptive technologies and its implications for society and labour market and thanked everyone for active participation.

**Participants of the Panel session**
On June 15 2015, The First Graduation Ceremony with the participation of the President of the Republic of Kazakhstan Nursultan Nazarbayev was held at Nazarbayev University. The ceremony was attended by students, their parents and teaching staff, managers of large national companies and other guests.

446 students became first Nazarbayev University graduates. The great number of students is the students of the School of Humanities and Social Sciences; School of Science and Technology; School of Engineering; Graduate School of Education; Graduate School of Public Policy; Graduate School of Business.

“Today all of us together enjoy solemn minutes. First, my dream of creation in Astana of the world-class scientific and educational center came true. We see that the university has already been established. Second, I see the first owners of university diplomas in front of me, university to which I gave my name. I did it on purpose so that the great attention of the government, and Kazakhstan was paid to the university. You are the firsts and other graduates will follow you. But it is great honor for you to be in the forefront the historical list. The level of preparation of university will be evaluated according to you and your doings”, - Nursultan Nazarbayev, the President of the Republic of Kazakhstan, addressed to university graduates.

The total number of students in seven schools since the foundation of the university has increased to 2,800. Annually 500 people become owners of an educational grant.

Addressing the audience, Mr. Shigeo Katsu, the President of Nazarbayev University, said: “Today, we all share your feelings and are proud that you have persevered, that you fought through the moments of doubt, frustrations, and, yes, the volume of homework and writing that came along with it. We are proud of you and in equal measure thankful to you for having taken the big plunge to dive into unknown waters and then rise to the surface in order to build our new university together”.

NU First Graduation Ceremony 2015
The Center for Life Sciences is one of the prospective research centers in Kazakhstan. It works on the researches in different scientific areas which are at the top-priority of the Republic of Kazakhstan.

On May 18, 2015 two researchers from Lawrence Berkeley National Laboratory, USA visited the Center for Life Sciences.

Dr. Eric Linder — Co-Director, Institute for Nuclear and Particle Astrophysics, Lawrence Berkeley National Laboratory; Director (LBL campus), Berkeley Center for Cosmological Physics; Full Research Physicist, University of California, Berkeley.

Dr. Bruce Grossan — the Principle Investigator on the Cosmic Far-IR Background projects on the Spitzer Space Telescope, and also works on the GEM project, Lawrence Berkeley National Laboratory. Both of them work together with Dr. George Smoot, an American astrophysicist, cosmologist, Nobel prize laureate. The Smoot Group conducts exciting research in the area of cosmology and astrophysics that typically has a link to fundamental physical principles.

On May 19, 2015 CLS scientists — leading researchers A. Gulyayev and B. Yermekbayeva met the AbbVie delegation, namely V. Fursov, Senior Specialist in Clinical Research, Department of management and monitoring of clinical trials and Y. Malyshko, Senior Manager in Clinical Research, Department of management and monitoring of clinical trials in Russia, Ukraine, Baltics and Belorussia. The aim of the visit was consultation on conducting clinical trials in Kazakhstan. However, questions about timing of permission to conduct clinical trials, the list of documents to the National Committee on Ethics and “National center for expertise of drugs, medical products and equipment” (NCED), prepared by a pool of doctors, researchers and laboratory capacity clinical sites were also discussed within the visit.

On May 20, 2015 the CLS welcomed the delegation of Sultan Qaboos University Hospital Al Khod, Oman. Dr. Kulzhan Berikkhanova presented Center’s achievements and results to Dr. Hilal Al Sabti, MD, MSc, FRCSC, Chairman of Cardiothoracic Surgery, Dr. Merdavron Mukaddarov, MD, Cardiac Surgeon, Dr. Suresh Chengode, MD, Head of Cardiothoracic Anesthesia, Mr. Ahmed Al Maskari, Senior In charge Nurse. The delegates were greatly impressed by CLS laboratory facilities and made a proposal on joint collaboration in future.

The delegation from Pakistan came to the Center for Life Sciences on May 21, 2015. It was their first visit to Kazakhstan. The members of the delegation were interested in public and global health as well as in research approaches to the disease treatment in Kazakhstan.
On May 30, 2015 Center for Life Sciences was visited by the delegation of deputies of RK. The visit was organized within the framework of the offsite meeting of Sub-Working Group on Knowledge-based Economy at Nazarbayev University. The delegation had observed laboratories of the CLS, Center for Energy Research, Interdisciplinary Instrumental Center, Technopark and the Campus of Nazarbayev University.

The necessity for development of two Innovative Clusters as the basis of Knowledge-based economy was stated by the President Nursultan Nazarbayev in the “Plan of the nation — 100 concrete steps for implementation of the five institutional reforms”. According to this Plan the Research centers and Laboratory for joint research and development of projects (as well as their future commercialization) will be placed in “ASTANA BUSINESS CAMPUS” at Nazarbayev University. For implementation of specific industrial projects the Park of Innovative Technologies will attract local and foreign high-tech companies.

On June 5, 2015 CLS welcomed Dr. Alexander Frumkin from Germany Charité Hospital Berlin. Since 2008 Dr. Alexander Frumkin holds the position of Chief Physician of Cardiology outpatient clinic at the German Heart Institute Berlin.

Having visited NU campus and CLS laboratories he gave a presentation about his work and lab facilities to CLS scientists.

On June 8, 2015 the delegation from Xinjiang University, China, came to CLS. As a side note, two of our scientists Dr. Tursonjan Tokay and CLS researcher Ayken Askapuly used to work and study in the Xinjiang University.
Center for Life Sciences (CLS) is one of the research centers of Nazarbayev University. The CLS strives to transform medicine and healthcare in Kazakhstan through the innovative scientific research, rapid translation of breakthrough discoveries, educating future clinical and scientific leaders, advocating and practicing evidence-based medicine, and pursuing research in personalized and predictive medicine to improve health and quality of life.

**Awards and honors**

On May 23-24, 2015 NU Staff Football Cup tournament for faculty, staff and other Nazarbayev University's workers was held. The goal of the tournament was to bring together the fans of football at Nazarbayev University and develop this community into a team. 8 teams, 80 players and fans participated the tournament.

CLS football team won the 3rd place and got bronze medals, team diploma, and a 5000 gift certificate from SportsMaster store. And the CLS fans were recognized as the Best Fans and were honored a diploma.

The second place and silver medals, team diploma, and a 10 000 gift certificate from SportsMaster store went to Robotics Department.

NU Administration won the first place, a cup, gold medals, team diploma, and a professional leather futsal ball.