An extraordinary adventure begins

In the late afternoon of January 9, we — the two of us, together with Edda Desiderio Pinto — were working hard, trying to disentangle and fix the many matters and problems related to the management of our department. And then — it was about 6:30 p.m. — the good news came in: ANVUR, the Italian National Agency for the Evaluation of the University and Research Systems, had just published the list of the 180 “excellent” departments within public Universities that will receive special government funding in the following five years. We are talking of millions of euros funding (in the range of 5-8 million per institution) for recruiting senior and junior investigators, implementing new facilities and equipment, launching innovative educational programs.

Why was this good news to us? The DiSFeB was among the 180 “excellent” departments admitted to funding — the top one out of 13 financed in the Biological Sciences – with a total amount of approx. 8,500,000 euros to be invested in the next five years.

What is behind the good news?

University funding has always been a painful issue for academics and a hot matter of debate for academics and policy makers. Not long ago, in December 2016, the Nature Correspondent Alison Abbot wrote “Italy’s research and university funding per head is among the lowest in Europe — although the country does produce a greater share of highly cited research papers than the European Union average”. It follows that with adequate funding, public Italian universities could do even better, in other words, “EXCEL” in international rankings. In this scenario, when the Italian Parliament approved the 2017 Budget Law, the allocation of additional 271 million euros “to support a 5-year program of research and educational activities carried out by excellent departments within public universities” was quite encouraging news.

Thanks to our scientific achievements – quality of research papers and success rate in obtaining competitive funds — our department was classified “excellent” and eligible to obtain additional resources, providing submission and positive evaluation of a proposal addressing both scientific and educational objectives.

We spent last summer working intensively: all of us, from senior to junior members, from professors to technicians and administrative staff, contributed to the discussion and the drafting of the project. Just to give you an idea, from July to September, we exchanged hundreds of e-mail messages, wrote and re-wrote several drafts. In the end, we came up with a proposal that could be summarized in a few words: “precision pharmacology & therapeutics for the future”. Indeed, these few words imply a great deal of scientific competences and technical expertise, i.e. dissecting the molecular bases of diseases, assessing the impact of environmental, lifestyle, age-related factors on genes and pathogenetic mechanisms, identifying new markers of disease, investigating precisely the pharmacological/toxicological profiles of drugs, bioactive molecules and xenobiotics, applying a variety of technological approaches.

What is beyond the good news?

When somebody wins the lottery, the possibilities to spend — or throw away — money are countless. It will not be our case. As shown in the figure, we built the budget, according to the Ministry’s guidelines, with a relevant allocation of money to recruitment of high profile scientists and promising young investigators (about 60% of the total budget) and implementation of an integrated technological platform (about 2.8 million euros). Significant resources (about 800,000 euros) will also be available for educational initiatives, i.e. PhD program and Master courses in Pharmaceutical Biotechnology and Safety assessment of xenobiotics and biotechnological products.

“Consolidate, innovate, educate new generations of successful young investigators and professionals” is our commitment and the soundtrack underlying the research activities and the educational initiatives we will undertake in the next 5 years!

Please, follow us on the way of this extraordinary “adventure”!

Website - disfeb.unimi.it - Blog - ricercamix.org
Facebook - facebook.com/DiSFeBMilano & facebook.com/ricercamix
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Inheritance plays an important role in the pathogenesis of atherosclerosis. Thanks to the recent technological advances, data acquired from thousands of individuals is available to discover new associations between loci and disease risk. LPP3, a broadly expressed lipid phosphate phosphatase, was found to have significant association with CAD risk. “Indeed, the experimental observation that LPP3 had something to do with the vasculature was backed by some papers, but there was nothing on atherosclerosis” – says Marco Busnelli - “Much of the data came from studies where knockout embryos were found unable to grow a functional cardiovascular system. The knockout of Plpp3 (the gene encoding for LPP3) was lethal, but, for obvious reasons, we needed an adult animal to study atherosclerosis”. The Authors circumvented the issue by conditionally knocking out Plpp3 only in the liver, where hopefully the gene activity of an hepat ic enzyme can drive changes by acting and modifying lipid mediators that are carried in the bloodstream.

To pinpoint the molecular actors, the Authors performed a mass-spect based lipidomics of mouse plasma, which suggested a molecular basis for the observed results, where increased plasma levels of low-abun dant pro-atherogenic lipids might promote atherosclerosis. Such lipid mediators, or the gene itself, can be potential targets for future therapies.

**HDAC3 is a molecular brake of the metabolic switch supporting white adipose tissue browning**


Obesity is a silent killer that is spreading worldwide. It is a multi-factorial condition characterized mainly by increased body weight, but frequently associated to other complications, such as dyslipidemia and diabetes, that raise the risk to develop cardiovascular and cerebrovascular diseases and tumors. One of the hallmark of this pathological condition is an imbalance between energy intake and expenditure that leads to fat accumulation in the visceral depot, known as white adipose tissue (WAT). White adipocytes are able to undergo a phenotypic switch to the so-called beige adipocytes that share some common features with brown adipocytes, committed to increase energy expenditure and produce heat. This process, known as “browning”, has been recognized as a potential therapeutic strategy to treat obesity. The group of Professor Maurizio Crestani has identified histone deacetylase 3 (HDAC3), that controls gene expression by deacetylation of histones and non-histone proteins, as a regulator of WAT physiology. By using a conditional KO mouse model in adipose tissue and a combination of RNA-seq, metabolomic, lipidomic, proteomic and ChIP analyses, in their paper Ferrari et al. elegantly showed that HDAC3 affects lip-
Gender proteomics I. Which proteins in non-sexual organs. II. Which proteins in sexual organs
Gianazza E, Miller I, Guerrini U, Palazzolo L, Parravicini C, Eberini I.

The systematic study of protein composition, or proteome, of a cell type, a tissue, an organ or a biological fluid has begun some decades ago but only recently has taken into consideration the sex variable in a non-sporadic way. As our knowledge and the methods to build it get refined, gender differences need to receive more and more attention, as they influence the outcome of all aspects of biology. It is well known that the differences between males and females are linked to their genetic heritage, the genome: in the males of our specie, the Y chromosome contains all the information for the development of male genital organs, whereas the absence of the Y chromosome leads to the development of female genital organs. One of the functions of the genital organs is the secretion in the circulation of hormones, different in the two sexes, which directs and coordinates the activities of the different organs and tissues, leading to a different protein composition.

Two researchers from our department, Elisabetta Gianazza and Ivano Eberini, are the editors of a thematic issue of Journal of Proteomics, dedicated to the study of the proteome in connection with sex. In this issue, a series of original research papers and review articles offers an overview of current knowledge on the subject. Prof. Gianazza and her colleagues contributed to the thematic issue with two review articles about proteomic differences in both non-sexual and sexual organs. In this survey, they focused on humans and, to a minor extent, on laboratory animals, and presented data for both physiological and pathological conditions, collected from approx. 250 original papers. Indeed, according to Prof. Elisabetta Gianazza: “The studies published until now detect sex differences in almost all the analyzed samples, with very few exceptions. Gene products, hormones and sex-specific environment, have independent as well as synergistic differentiating effects. This applies to all tissues, but has been more extensively characterized for CNS, which has a great impact on gender identity and sexual orientation. Evidence gathered so far stimulates further studies in a field of great interest both for our basic knowledge and for future applications in gender medicine, which aims to optimize the treatment of a disease primarily in relation to the patient’s gender”.

Work of art by Marzia Migliora. The two skeletons reproduce the burial of a man and a woman who lived and died together, sometime during the Neolithic Age, and were dug near present day Mantua. This highly emotional scene, spelling love and mutual commitment beyond the boundaries of physical existence, hints at the same time at gender differences. A distinct shape of the bones, most notably in chest and pelvis, is in fact one of the features of sexual dimorphism.
Several studies have shown that exercise improves cognitive functions and emotional behaviors. Positive effects of exercise have been associated with enhanced brain plasticity, adult hippocampal neurogenesis, and increased levels of brain-derived neurotrophic factor (BDNF). However, a substantial variability of individual response to exercise has been described, which may be accounted for by individual genetic variants. To verify whether and how the presence of human genetic BDNF variant Val66Met changes the individual response to physical exercise, the researchers have used genetically modified mice carrying this genetic variant. Wild-type (BDNFVal/Val) and homozygous BDNF male mice were housed in cages equipped with or without running wheels for 4 weeks. Overall, this study indicates that, in adult male mice, the human BDNF Val66Met polymorphism impairs beneficial behavioral and neuroplasticity effects induced by physical exercise. The author highlights also that exercise failed to enhance PGC-1α and FNDC5 mRNA levels in the BDNFMet/Met muscle, which are normally increased in muscle after exercise. These factors released by muscle could be involved in the regulation of gene expression in brain. “Our results, showing the absence of beneficial effects of exercise in mice carrying the human genetic variant BDNF Val66Met, not only confirm the central role played by BDNF in the beneficial effects of running, but also show the influence of genetic factors in moderating the response to exercise and suggest that it is important to consider the genetic variants in clinical trials”, stated Alessandro Ieraci, author of the study.

Malignant melanoma is an aggressive, and unfortunately relatively common, skin tumor. There are two recurring mutations, one in the BRAF oncogene, and another in NRAS, that account for over 80% of all observed mutations. This spurred the development of targeted therapies, where inhibitors were used to block the activity of kinases. Despite the initially good clinical results, in the vast majority of patients, tumors develop resistance. Another approach exploits immune checkpoint blockade monoclonal antibodies, with little improvement on overall survival and overt toxicity issues.

Several natural compounds exert antitumor effects on different cell lines; besides the well-known anti-inflammatory and antioxidant effects of vitamin-E related compounds, the evidence for antitumor activity is mounting as well. *Vitamin E is a family of 8 compounds,
Understanding chemical allergen potency: role of NLRP12 and Blimp-1 in the induction of IL-18 in human keratinocytes

Papale A, Kummer E, Galbiati V, Marinovich M, Galli CL, Corsini E


Allergic contact dermatitis (ACD) is an occupational and environmental disease caused by an allergic response to topical exposure to low molecular weight chemicals. ACD occurs as the result of a sensitization, the induction phase, followed by an elicitation phase, in which the response of the immune system is triggered at each future contacts to the substance. Therefore, identification of potential sensitizing agents and understanding how contact allergens promote ACD is a compelling challenge of immunotoxicology research and their use, mainly in cosmetic products, has been widely regulated by legislation. European Commission has paid specific attention to the research of alternative methods to assess the toxicity of chemicals (76/768/ECC and REACH regulation – Registration, Evaluation, Authorization and Restriction of Chemicals) and in this scenario, the group of Professor Emanuela Corsini has identified IL-18 production by keratinocytes as an in vitro tool to discriminate between contact versus respiratory allergens. In this work, Papale et al. point out the molecular pathways involved in contact-allergen-induced IL-18 production in keratinocytes. They identified NLRP12 (Nod-like receptor P12), a negative regulator of inflammation, and the transcription factor Blimp-1 (B-lymphocyte-induced maturation protein-1) as inflammation-regulated genes. Specifically, using a silencing approach, the authors identified the double role of the Blimp-1 as a negative regulator of NLRP12 and positive regulator of IL-18 gene expression. With these results, the authors are on their way to fully characterize a new inflammation pathway. They believe that these data will improve the reliability of in vitro assays to predict the entity and magnitude of skin hypersensitivity to toxic molecules.
Research vs Administration

Project set up

The main difficulty during the set-up phase is writing the non-scientific sections of a grant application. It would be useful if the administration provided/circulated a complete description of the facilities available at DisFEB. As far as the budget is concerned, we are grateful for the competent support we receive from the departmental and central (Officina h2020) offices; however, their efficiency can be limited by the high number of applications applying to the same call with the same deadline. Therefore, we do hope in an increase of the personnel dedicated to this task. Finally, even if the University provides a web page listing the open calls, sometimes, the website is not user-friendly and not always up-to-date. The page could be improved with: i) more frequent updates ii) a section for open calls from private and small international funding bodies and, iii) why not, a separation of the different sections according to subject areas.

Bureaucracy is one of the main obstacle when starting a funded project. It is not always easy to understand the type of documents required by the funding body, and, on top of that, we are not always aware of forms and certificates requested by our University. Therefore, the help from the administration at DisFEB is precious. Scientists are not familiar with paperwork, and the risk is that we could miss deadlines and forms which are mandatory to formalize the grant and to begin the research activity. For this reason, a checklist of all the documents needed by UNIMI central administration along with the related deadlines would be a great help.

Negotiation

It may happen to find some difficulties in receiving the necessary technical information relative to the project (starting date, duration, salaries, personnel involved in the project, etc.) once the grant is won and the research is funded. Research grant winners are kindly required to provide the administration with the project proposal in order to allow the office to support the researcher during the following steps of the grant — for example, budget reformulation during the development of the project.

Development

In this part, we do not face major problems. We are required to contact DisFEB administration only if the funding body asks for a mid-term audit/report. However, we would like to suggest to our office to provide the exact and total amount of the residual funding on a 6-month basis. We keep track and manage the costs for the research activity included in the grant, however it is not always possible to have the exact leftovers of each specific grant.

During the development of the project, the administration does not play a major role. However, if the project is modified according for any experimental needs, it is fundamental to inform the office, in order to reformulate the budget. The researcher has to be the manager of her/his own project, both from a scientific and economic perspective. Therefore, she/he is responsible of communicating the administration relative to:
1. major changes occurring within the research project due to pitfalls of the experimental procedures, indeed, in these cases, the budget has to be revised with us;
2. the deadline for the preparation of any documents required for intermediate audits, if requested by the founding agency.

Closure

The project set-up is a tricky phase for us due to paperwork requested for the final audit/report. A great support is required as well as a reminder of deadlines for this phase. As in question 1, we do believe that increasing the number of department personnel dedicated to this task will be of great help, especially when many researchers have the same deadline.

This is one of the most critical steps in handling a research project from an administrative point of view. As a matter of fact, together with researchers, we have to finally double check if all the expenses (related invoices, timesheet of the staff enrolled within the project, etc.) have been correctly distributed according to the experimental plan and budget. For this reason, when and if the researcher approaches the deadline without considering the timing required by the administrative offices, it becomes very difficult for the administration to provide all the files and documents required by the founding agency. The researcher should be aware that it is extremely important to start thinking about all the steps involved in the closure part way ahead the end of the experimental project.
Once again, on June 29th, DiSFeB opened the doors of the lecture hall for the annual meeting dedicated to the newest results obtained by young researchers working at the department, Next Step. As usual, also the eighth edition of the event represented a great opportunity for discussing the latest findings in the fields of neuroscience, oncology, nutraceutical and inflammation, cardiovascular and metabolic diseases. For the first time, this year, senior and experienced researchers were invited to moderate the sessions together with young post-docs, thus improving the participation to the discussion and the exchange of ideas. The plenary lecture held by professor Corrado Sinigaglia, entitled “A secret life for motor representation” was remarkable and multidisciplinary. The Dean of Human studies, professor Sinigaglia, from the Department of Philosophy “Pietro Martinetti” of our University, explained with a philosophical approach the complex concept of motor representation and planning, focusing on the brain functions required to grasp a perceived object.

The event was indeed the right moment to acknowledge Professor Giorgio Racagni, the outgoing director of DiSFeB, for his significant contribution to our successes and activities.

Again, this meeting was an important opportunity for young researchers and was largely appreciated. We are looking forward to the next edition.

On February 24, 2017, the opening ceremony of the new academic year was held in the Aula Magna of the Università degli Studi di Milano - La Statale. The ceremony opened with the soundtrack of the movie “Mission” and the pictures of Alessandra Covaizzi and Flavia Roncalli, the two young students who died from meningitis just a few months ago, and who were remembered by our Dean, Gianluca Vago.

Some key messages of the Dean’s speech were:
- The importance of the role of university to encourage professional and personal growth, to enhance culture and critical skills, being also a place where the concept of “doubt” bears its positive connotation of “going beyond”.
- The crucial mission of teachers, not only providers of knowledge, but also role models for young people through their hope and faith in culture, as a tool for self-realization.
- The efforts of the La Statale in training and research; some of the most representative examples include: the creation of a new pediatric research center (thanks to the support of Fondazione Invernizzi); the increase in the number of PhD fellowships; the establishment of the new PhD school in organized crime; the reunification of educational and professional training activities in the area of dental care (that might find a new location at the Niguarda Hospital).

In addition, the project supporting the realization of the new campus “Città degli Studi” in the Expo area has also been confirmed (the project completion is planned for 2024). Following the Dean’s speech, it was the turn of the President of the Students Conference, Filippo Fleishhacker who focused his speech on the true soul of the University: “the dissemination of values, knowledge and curiosity in a free, secular and plural space as well as the magic of the music is for cinematography”. He was followed by Kurt Deketelaere, General Secretary of LERU - the Association of European Research Universities, of which La Statale is the sole Italian member. In his lecture, entitled “The Role of European Research Universities - Intensive in the Post-Truth Society”, Deketelaere recalled the responsibility of European universities in reaffirming the guidance of rational reasoning, an evidence-based approach to facts.

The second part of the ceremony was dedicated to the awarding of the degree honoris causa in “Science of Music and Performing Arts” to Ennio Morricone, as proposed by Department of Science of Cultural and Environmental Property, with the following motivation: “to have played a decisive role in broadening the boundaries of musical thought, first of all through his writings capable of linking expressive universes different from one another.” The ceremony was closed by the Orchestra of our university - directed by Alessandro Crudele - who played “Tema di Debora” (from the soundtrack of the film Once Upon a Time in America), composed by Ennio Morricone. The suggestive atmosphere created by Morricone’s music engaged and emotionally touched the participants, including the audience attending the ceremony in live streaming.
What’s up at DiSFeB

2017 Beauty between art and brain

Last February, 6,500 students from 31 different secondary schools attended “Cervell.a...Mente 2017”, organized by the Center of Excellence on Neurodegenerative Diseases (CEND).

This is the last of a long series of events that started in 2011 when UNIMI scientists accepted the challenge of explaining the intricacies of current neuroscience research to high school students. A series of seminars devoted to highlight the different aspects of brain functions, “Cervell.a...Mente” aims at awakening young generations’ interest for neuroscience. The topic of 2017 edition was the correlation between arts and brain. Adriana Maggi, the CEND coordinator, remarked that this topic was selected to involve students ether from scientific or humanities and art fields. How does our brain react in front of an artistic production? Can sex differences influence the beauty of perception? May drugs influence the artistic production? These are some of the questions addressed during the seminars.

To fully involve high school students in the organization of the event, CEND commissioned the realization of the art work to advertise this year edition of “Cervell.a...Mente” to a Design School in Milan (Galileo Galilei - Luxemburg). Fabrizio Gardoni, Alessandra Colciago, Daniela Tardito from our department and Raffaella Molteni from Biometra presented their scientific results to illustrate brain functions and pathologies affecting artistic performance. They all agree that “Cervell.a...mente” can encourage the sharing of scientific knowledge about a complex, fascinating and mysterious organ such as the brain with a heterogeneous audience. The large participation to this year edition proofs younger students’ interest in scientific disciplines.

The opportunity given to these young students to meet and talk to scientists actively involved in brain research may be a major hint to orient them in their future studies. It is also thanks to the high school teachers long-lasting interest, support and enthusiasm that this event has been successful and has improved by following their useful suggestions.

Following this trend and students inputs, next year meeting will be focused on the relationships between brain and sports.

An impressive series of meetings was organized last winter and spring by the strategic research team of NeuroNest (Neuroscience Network at Statale). The group was born in 2014 and established an interdisciplinary network of scientists involved in basic and clinical research in the field of neuroscience. The mission of NeuroNest is to open discussions on several aspects of the multifaceted complexity of the nervous system, from the newest striking findings in neuroscience to a wider analysis of their social and cultural implications.

In April and June, NeuroNest organized two multidisciplinary workshops with the active help of scientists from the DiSFeB. The topics were always discussed with an innovating approach, debating medical, biomolecular, social and philosophical aspects.

The first workshop, focused on memory and empathy, involved the contribution of neuroscientists, philosophers and jurists. Several aspects concerning empathy, the ability to understand or feel what another person is experiencing, were dissected, analyzing its cognitive and emotional features. An interesting discussion on the cellular reprogramming in autism.

The second workshop offered a critical and polyhedral discussion on current therapeutic challenges concerning mood disorders and addiction, analyzing their biological and social implications. During the first part of the day, scientists focused on the effects of environment and life experiences in the pathophysiology of neuropsychiatric diseases, introducing new clinical tools in the diagnosis of depression and bipolar disorders and provoking an interesting discussion on the link between mental disorders, crime and imputability. During the afternoon, the discussion converged on the analysis of new aspects of addiction, focusing on its biological basis and on the definition of new compulsive habits of our society, including internet dependence. Indeed, also one of the speaker from the DiSFeB, Dr Lucia Caffino, pointed out that this new point of view on addiction disorders was an interesting take home message of the meeting: “it emerged that, beside compulsive use of chemicals, also the new behavioural dependencies alter brain ability to feel pleasure and to perceive external stimuli increasing social and economic burdens of addictive disorders and the onset of drug-related psychopathologies”. Moreover, in the last part of the meeting, the analysis of social implications of addiction did not miss an economic approach, highlighting the importance of observing consumer behaviours and emotional reactions towards advertisements in developing new marketing strategies.

From February to June, NeuroNest arranged a cycle of stimulating seminars entitled “NeuroNest Mondays”. On a monthly basis, a member of NeuroNest hosted an important scientist from an outstanding European University, offering the possibility to debate on several topics that covered neurodegenerative diseases, pain, stress and social behaviors. These initiatives brought to Milan scientists of international relevance, and were a great opportunity to exchange new ideas and to better understand the state of the art in neuroscience.
On a hot afternoon last July, we met Martin Kater, in a fascinating green paradise coin inside the business district of Milan, the “Secret Garden” of Brera. Martin is the director of the botanical gardens of the University of Milan. Brera Garden was founded by the queen Maria Theresa of Austria in the 1700s, and it was the meeting point where humanists, astrologers and scientists discussed and shared their hypotheses and results. The garden is a part of a large cultural complex housed in the nearby Palazzo con Brera, the national museum that includes also the worldwide known Brera Art Gallery and the Academy of Fine Arts, Lom bard Institute of Science and Literature, the Braidense National Library, and the Astronomical Observatory. The charm of the original structure with its sicle plants is still alive. Founded in 2001, the second botanical garden of our university is located in Città Studi and is defined the “Science Garden”. The botanical gardens are official representation places where it is possible to organize cultural events, not only for scientific purposes but also with social and dissemination aims. Martin Kater, in collaboration with many foundations, organizes meetings on actual topics, such as plant stem cells, OGM, etc. The Brera Garden hosted “The fourth International Fascination of Plants Day” (18th May 2017), coordinated by the European Plant Science Organisation (EPSO). The aim of this activity is to sustain the relevance of plant science for agriculture, in sustainability producing food, as well as for horticulture, forestry, and all of the non-food products, such as paper, timber, chemicals, energy, and pharmaceuticals. Last but not least, the botanic gardens often host artistic and educational workshops on biodiversity and cultivation both for community and families.

MEETmeTONIGHT edition 2017

On September 29th and 30th, the sixth edition of “MeetMeTonight” - the “Researchers Night” initiative promoted by the European Commission every year in more than 300 European cities aimed at spreading scientific culture and research among citizens - was held in Milan at the Indro Montanelli Gardens and the National Museum of Science and Technology. Over 500 researchers, 44 booths, 4000 square meters of interactive laboratories, 18 workshops and 50,000 visitors made the event a real “science party”, an opportunity for discussion and a unique moment of knowledge sharing. The main theme of the event - this year coordinated by our University - was the theme of “transformation”, which was addressed through 3 macro-areas: health, environment and society, space and technology. DiSFeB participated as part of the “health” theme with the topic “Vite spericolate, alcol e sostanze visti dalla scienza (“Reckless lives, alcohol and substance abuse: a scientific perspective”) addressing interactively a hot topic from diverse points of view: from neurological alterations involved in the addiction to substance abuse to the plants involved in substance abuse and the food supplements most subject to alterations with illicit substances. The big turnout of visitors of any ages confirmed the success of the approach and the great interest of citizens in this theme and more in general in scientific research. Among other highly appreciated laboratories there were: “Piero il buco nero” (Piero the black hole”) (Università degli Studi di Milano – Bicocca), focussing on black holes; “Spazio allo Spazio” (“Space to Space”) (Università Politecnico di Milano), simulating the assembling of a spacecraft; and “Fioritura in pista” (“Flowering on track”) (Università degli Studi di Milano - La Statale), a journey in the field of botany. Curiosity and interest for the humanities was satisfied by philosophers, geographers and anthropologists who showed how the “tools” of humanistic knowledge are fundamental to understand the complexity of modern society.
“Those engaged in research need to communicate their work to society”; this is a recent EU directive that Fondazione Cariplo has embraced by promoting a training workshop titled “Communicating Science” for researchers, whose research activity was granted in 2016 by Foundation. The workshop was conceived and hosted by the Leonardo da Vinci National Museum of Science and Technology, with the contribution of specialists like Ben Johnson, director of Graphic Science, a communication consultancy based near Bristol, and the sociologist Giuseppe Pellegrini, member of the scientific committee at Observa, an independent research centre that promotes critical thinking about the relationship between science and society.

Seven researchers from our department had the opportunity to take part to this course and were involved in “Face to face with research” workshops promoted by the Leonardo da Vinci museum. These devised outreach activities offer scientists the possibility to directly interact with general public. Visitors, including families and children, were engaged in many activities with researchers last November and December. “Speed date” was the formula used at the MeetMeTonight event 2016 (“The European Researchers’ Night” in Italy) and during a set of meetings specifically conceived for students: 7-minute-long talks given by scientists for public, but also activities aimed at listening to the public. Science communication indeed should be characterised by a bidirectional paradigm; this experience has increasingly acquainted our researchers with this idea. “People are curious about our work and our experiments. They want to better understand and to share their opinions with us. People trust in scientific research, and I believe we have the great responsibility to promote connections between scientists and civil society”, said Marta Fumagalli. All the involved researchers now can better understand the significance of talking, but also listening to the public. Raffaella Longo told us: “I’m fully convinced now that public engagement is necessary and requires bidirectional communication. We should get in the game and do not consider this activity as a waste of time. It’s really a moment of mutual enrichment”. “This workshop was a great challenge for us, I was a bit worried about how to interact with so many different people, but now I can say it has been a beautiful experience! We should train our engagement abilities, trying to be storytellers of our research”, added Enrico Sangiovanni. Giusy Coppolino recalled a moment at the museum: “I showed my slides at the microscope: people were very surprised and happy to see cell organization in the adult brain. I could see it in their eyes”.

It is clear that researchers have to face a new approach towards science that requires developing new skills and knowledge in science communication. It is important to know benefits and risks that researchers will face, when they begin to directly engage the public. They shall become mindful about the ethical challenges that new communication strategies are going to pose. Scientists, are you ready?

More contents can be found on YouTube Channel of Cariplo Foundation (https://www.youtube.com/channel/UCmCXueVERHUMncOY12dxw)