

Elena CATTANEO (GROUP EIGHT)

Elena Cattaneo (Milan, 1962) is an Italian biologist and pharmacologist.

She studied neural stem cell differentiation in the related area of the human brain and she is also famous for her research about the Huntington disease.

In her career she worked in the USA and in Sweden learning grafting techniques that could be used on stem cells. Coming back to Italy she started her academic career in the University of Milan.

Elena Cattaneo was appointed to the Senate of Italy as a Senator for life because of her academic and research results.



1. How old were you when you started being interested in Science? Were you interested since you were young?

I don't remember a beginning. It has been a progressive approach made out of crossroads. You must not be scared of failing when you choose what you feel "growing" on your own skin. I remember the University years, during the Pharmacy degree course, and the desire to understand what it meant to do a research in a laboratory. I was the first to get a degree: most of my relatives were artisans. After an experimental thesis developed in a pharmaceutical industry, I ended up in a basic-research lab, in a public University, where the main purpose is to widen the knowledge of what is studied. Since my first experience, I felt the extraordinary chance that science has to read, understand and tidy up the knowledge of invisible things such as the molecules that make up our DNA. It still fascinates me that science allows to investigate what anybody else doesn't know yet, and that science does it in a way which has its beginning in an idea, and then it develops in a lab to widen the collective knowledge. Every new research tries to answer questions that are still open. And, in the end, the diligence, the efforts and the failures are rewarded with a new "piece" of knowledge.

2. Which was the first award or prize you received?

It was my degree. In that moment, I realized that I could reach goals which were recognized. After receiving a prize, achieving goals, anyway, you know that it does not mean to “arrive”, but it involves many efforts to deserve them every day. I remember the prize “Sciences”, announced by a scientific magazine that I used to read frequently, and the medal given by the President of Republic. At the lab we had discovered something more about the Huntington disease, that we were already studying. After that I received a registered letter from the President of Italian Republic: it said that the President Ciampi had nominated me “Knight of The Republic”. I remember that I was really amazed: I just had worked with passion.

3. Have you ever failed trying to reach an objective that seemed apparently easy to achieve?

It happens many times, still today. The journey towards a new discovery is long and its results must not be taken for granted. This is the reason why every scientist must know that they could fail. The beginning is an idea: only when you start collecting concrete data you can understand if that one was the right one to reach the goal. By failing, you learn to suffer, to start again, to find another way. I remember when, some years ago, I decided to open a spin-off with my University and a young researcher. We both suffered when we had to close it, but at least we made the right choice trying that way and making efforts to make it grow up.

4. How can you adjust your Senator’s office to your scientific activities?

Even before becoming a Senator, I used to spend much time with the “political dimension” of science: research is for everyone. Nowadays I can dedicate myself better to this part of science thanks to my Roman “Office”, made out of three collaborators specialized in different features of public communication. During the last five years, I was rarely absent. They allow me to be aware of what happens in the Parliament wherever I am. The themes that deserve my attention are many. In my Office we have something that we call “update”, which is a list of about fifty points with a common goal: how to help our country and solicit culture in order to make it grow up for everyone. During my first meeting with the President Napolitano, I was scared of not having enough time for my lab. However, the President was exactly asking me to continue with my researches and to bring science to Italian politic. This is a big challenge and also the most important. Every day my lab is an open window on the world which feeds itself with discoveries that come from all over the world and where knowledge and scientific skills grow up. Science does not exist without a team. I could not live without a lab which is always stimulated by new experiments. You learn how to work with others, to relate with your teammates, and to achieve goals that would be impossible to reach if you were alone. This is the method that we also use in the “Office” at the Senate. It works :)

5. Would you advise a student to undertake scientific studies?

Absolutely yes! I think that paths are perfected by doing, returning to the crossroad that was left, if you realize that you need or want a different thought or journey. A degree was the first step, from graduation in Pharmacy I then undertook a PhD, then a few years at MIT in Boston, which led me to study a neurological disease once back in Italy, starting a research laboratory at the Università Statale in Milano. As in many other fields, research also requires energy, patience, commitment, willingness to overcome failure. Science puts us to the test every day, but can also give great satisfaction. At the same time, however, science asks every scholar to safeguard his own ethics and the relationship with the citizens, whose well-being is the true and only goal of every discovery.

I have, in particular, a suggestion for young women who are undecided about the possibility of cultivating their professional aspirations and the inclination to raise a family together. Not only we can but more we have to build - together - an "accomplice" family. A woman can be a researcher, professor, director of departments or research centers, have senior roles either in companies and public authority and have a family and children at the same time. She can go abroad, go home late at night, cook at night or get help. The important thing is not to put your life in an unchanging and standard setting, dictated by *clichés* and not by decisions and conscious and responsible aspirations taken autonomously. We need, in fact, a lot of family complicity, but this too is a dimension of the construction of one's life to feed with satisfaction, curiosity and diligence. The "ideal" model of "personal and professional" life will not materialize instantly and will not be perennial, but day by day it can grow, change, improve. I still look for my next crossroad in the road today.

6. Have there been practical applications of the results of your research on brain stem cells so far?

In the laboratory, for over twenty years, we have been studying the Chorea of Huntington, a hereditary neurodegenerative disease and one of our lines of research deals with stem cells. We are currently looking for the best strategy to obtain, starting from embryonic stem cells, the neurons present in the area of the brain most affected in Huntington disease. We are evaluating the ability of these cells to replace the neurons that die because of the disease studying it in animal models. We want to understand the disease, understand how that little mutation in one of our 30 thousand genes can cause the degeneration of those neurons. We want to interfere with this mechanism of toxicity. There is always a path of study to be opened and no planning that has a solid foundation can be shelved. This means carrying on many experiments, trials and continuous comparisons. Time is not an irrelevant parameter in research.

7. Do you think that Genetically Modified Organisms are to be banned?

I have often taken part on the topic of OGM, especially in classroom and with some interviews on the journals. Unfortunately a wrong information has led to a misunderstanding about genetically modified plants.

Advertising of marketing have defined them such as “absolute evil” stating that it's better to avoid these plants and use products healthier than that we can find in big supermarkets.

There are many reasons to say that the ban on producing GMO is wrong: first of all because some scientific researches have demonstrated that GMO are safe both for environment and for humans, since they led to decrease the use of pesticides and to protect variety of food that we are losing or we have already lost, such as tomatoes called “San Marzano”. Italy imports every year tonnes of GMO corn and soy to feed animals from which we obtain famous Italian products like San Daniele's ham or Parmesan cheese.

Without GMOs our food industry would start to fail. So, in conclusion, a large amount of our best cheese and cured meat arise from OGM.

Nobody explains these informations as well as nobody explains that organic food we can find in big food retail chains do not have nutritional properties better than the traditional ones. Organic food costs more and this creates the idea of a best food.

It is good to know that “organic” food we can find in a supermarket it is not different from a normal product, if not for procedures with which it was obtained. The labelling of “organic food” is based just on a formal evaluation which certifies the product as such in accordance with the procedures adopted, without analyzing the product and the field in which it was planted.

GMO plants, like buckwheat which is a natural GMO, are natural and for all of people. If we are terrified of depending from multinational of OGM seed, we have to produce them with our public research.

Nowadays this is not allowed in Italy: a combination of rules and legislative codes stop our researcher to work in an open field on the plants to identify gene variations that protect our plant from parasites.

8. What do you think we can do to correctly promote the scientific research results among people?

I've always thought that science could live because of her role in our society.

Science isn't only for scientists but for everyone that live out of scientific labs. Science must be told because behind each discovery there is a story based on passion, courage, failures and wonder to share.

There are some scientists who take advantage of new web channels to communicate with young audience.

It's a method that works because charlatans and "smokey's sellers" are easily identified and then stopped.

Science has a difficult language ..it's not always easy to understand and this could scare citizens.

Science's achievements place us facing a new world's vision. We could be not ready to understand some events. We need help and we have to train. Scientists need to be better at occupying public discussion spaces providing them with evidence of the facts, combating "sweetened" or "cheap" versions to one faction or another. Scholars must act as sentries, simply by saying "how things are" based on their findings, always with the support of evidence that can dispel doubts wherever they arise.

9. Is there a sentence or a quotation that for you represents the beauty of science?

More than a quote, for me the scientist Rita Levi Montalcini is representative, emblem of the strength, determination, trust and enthusiasm you need in science. She has been a Jewish woman who - to study those "chicken embryos that are of little interest to a small group of scholars around me", as he wrote to his mother and sister in his famous letters that I invite all young people to read - has had to overcome ancient stereotypes and suffer persecution, even going so far as to build a laboratory at home to continue working and verifying his ideas. She is for me a reference. She is an emblem of freedom and courage and always reminds me that now, under conditions that are certainly better, we do not have "excuses" for not engaging and doing each of us, every day, our part, for our country and the whole world. I am sure that the young people who wanted this interview will have a large part in our future.