

Professor Rafael Rosell: curiosity for knowledge and passion for all human beings keep me motivated

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Editor's note

On the 1st Chinese Lung Cancer Precision Medicine Forum & 4th National Cancer Institute Annual Symposium held in Beijing China in May 2016, Professor Rafael Rosell was invited to present his speech on the topic “A limited number of signaling pathways are used reiteratively in resistance to targeted therapy in lung cancer and other solid tumors” (Figure 1). After the speech, we were honored to have an interview with Professor Rosell (Figure 2).

In the interview, Prof. Rosell has shared his valuable experience of how to overcome the frustrations from failed research, even though he has been a giant in the field of lung cancer research. Probably you will be inspired by his lasting curiosity for knowledge, passion for human beings and pursuit of cooperation after reading the interview below.

Expert introduction

Dr. Rafael Rosell is Director of the Cancer Biology and Precision Medicine Program at the Catalan Institute of Oncology, Hospital Germans Trias i Pujol (Badalona, Barcelona, Spain), Chief Scientific Officer, Chairman and Founder of Pangaea Biotech SL (Barcelona), Chief Medical Officer and President of the Dr. Rosell Oncology Institute at the Quirón Dexeus, General de Catalunya & Sagrat Cor University Hospitals (Barcelona & Sant Cugat dels Vallès, Web: <https://www.youtube.com/watch?v=-DYj97Gr39A>), and Founder and President of the Molecular Oncology Research Foundation (Barcelona). He is Founder and Director of International Relations and Projects, Spanish Lung Cancer Group (SLCG) and a member of the Foundation Council and Steering Committee of the European Thoracic Oncology Platform (ETOP).

Dr. Rosell's contributions to translational medical oncology, with particular emphasis on the field of non-small-cell lung cancer with EGFR mutations, have earned him international recognition: in 2013 he was recognized



Figure 1 On the 1st Chinese Lung Cancer Precision Medicine Forum & 4th National Cancer Institute Annual Symposium held in Beijing China in May 2016, Professor Rafael Rosell was presenting his speech on the topic “A limited number of signaling pathways are used reiteratively in resistance to targeted therapy in lung cancer and other solid tumors”.



Figure 2 After the interview, Professor Rosell and our Science Editor Melanie He were happy to have a photo for memory.

by The *Lancet* as the highest authority in lung cancer in Europe; he received the Raymond Bourguine Award from the International Congress on Anti-Cancer Treatment (ICACT) for contributions to cancer research in 2012; in 2011 he was honored by the European Society of Medical Oncology (ESMO) with the Hamilton Fairley Award for lifetime

achievements in science and clinical/laboratory research, and in 2008 the Bonnie J. Addario Lung Cancer Foundation presented him with the “Asclepios” Award to pioneers in research. Dr. Rosell has also been named Professor Honoris Causa by the University of Cordoba in Argentina, Eminent Clinical Scholar in Residence by the Winship Cancer Institute, Emory University School of Medicine, Georgia, USA, and awarded the Silver Caravel by the city of Bari, Italy in recognition of his work in lung cancer.

The innovative work of Dr. Rosell’s multidisciplinary team has long focused on the design and selection of personalized cancer treatments based on genetic analysis and characterization of each patient’s tumor in order to optimize outcomes to treatment. Investigation centers on characterization of new genes involved in the development of cancer and resistance to targeted therapies. Among others, the group has performed groundbreaking analyses of EGFR, KRAS and ALK as well as RNA expression analysis of multiple genes such as BRCA1, AEG1 and RAP80, demonstrating significant improvements in response to targeted treatments. In the field of lung cancer in particular they have achieved special recognition for their investigations in neoadjuvant chemotherapy, demonstrating a survival benefit in locally advanced lung cancer, as well as in metastatic patients.

Dr. Rosell has authored over 600 articles published in peer-reviewed medical and scientific journals, and he has given more than 800 presentations at medical and scientific conferences around the world. He is Editor-in-Chief of Translational Lung Cancer Research, Associate Editor for Clinical Lung Cancer and is on the Editorial Board of several professional journals, including *Annals of Oncology*, *Clinical Cancer Research* and *Future Oncology*. He is past president of the Asociación Española de Investigación sobre el Cáncer (ASEICA) and past editor of *Revista de Oncología*, the official publication of five Spanish oncology societies.

Dr. Rosell is a member of the International Association for the Study of Lung Cancer (IASLC) and was Scientific Chair of their 2005 World Conference on Lung Cancer. He is an active member of the Protocol Review Committee of the European Organization for Research and Treatment of Cancer (EORTC), and serves on the Scientific Program Sub-Committee (non-small-cell lung cancer, metastatic) for the annual congress of the European Medical Oncology Society (ESMO). He was Scientific Chair of the 1st & 2nd European Lung Cancer Congress jointly sponsored by IASLC and ESMO. He also participated in the ASCO Scientific Programs Committee from 2002 through 2004.

Interview

TLCR: *You are a renowned expert in the field of lung cancer research. When you look back to the past days as a young student, what drove you to choose a career as a doctor and scientist?*

Professor Rosell: This is a definitely good question, but difficult to answer. Mainly for me, it’s the curiosity for knowledge and passion for all human beings.

TLCR: *As we know, your research team has done a great job in the field of lung cancer research, would you like to share some of their ground-breaking findings?*

Professor Rosell: Twenty-five years ago, many big hospitals were working as part of the same network. In 1994, the first study in the *New England Journal Medicine* demonstrated that preoperative chemotherapy has sustainable benefits in patients that have lung cancer. Then, in more recent years, we developed many new things. In Europe, we were the first to implement the largest clinical program for screening for EGFR mutations. In 2009, we were the first to implement genetic diagnosis using non-invasive liquid biopsy technique, not only for EGFR mutations, but also for many other mutations that can be detected in circulating DNA in blood. Now our main interest is in signaling pathways which is something that is not taken advantage of in clinical practice. Nowadays, unfortunately in medical oncology a lot of things have not been considered. This is not enough. Therapy is administered without understanding or without tracking changes that can take place over several months related to cancer biology. Knowledge of cancer biology is necessary in order to improve clinical practice. Now, biology has to be developed in depth and our team has been able to show how this can be implemented. What is good is that some practical discoveries we have been working on for years are beginning to be recognized. Signaling in cancer is very important, and this is one of the things that we have always stated.

TLCR: *It is exciting that when your research has been successful. But when a line of investigation is found to be going in the wrong direction, this must be frustrating. How do you overcome the frustration?*

Professor Rosell: There are some very smart investigators out there. However, there is not a single group that by itself can make great advances. It is important to cooperate with experts in different fields to make great progress, and this

is the only way to avoid and mitigate your frustration if you cannot achieve what you expected. This is also difficult to ensure, because the issue of financing for research also throws up many challenges for investigators. Another important point is to avoid this type of negative pressure; since you can't just anticipate what needs have to be met. Investigative reporting is also very important and based on complex knowledge, but nowadays there is no passion for it. Bioinformatics, engineers, everyone is working towards common goals with different diseases but this is not enough unless you have common sense. Otherwise, knowledge is wasted and this is one of the things that is painful to see. This is the most difficult thing: to scrutinize and see what is new, and then put all the information together, estimating what the lines of research could be. It's my responsibility to ensure the members of the team don't become frustrated. You have to avoid fallibility. Many doctors are very tied up with visiting patients. Medical oncologists have to accept that 99% of the time they will be busy with patients and, therefore, many experts and several of my colleagues and friends, have sparse time to read and, thus, receive limited information on the updated knowledge of cancer biology.

TLCR: *I know that even you have achieved so much in the field of lung cancer research, but you still have keen enthusiasm for scientific research in this field. What's the secret to keeping your enthusiasm?*

Professor Rosell: Well, this is something that I really admire in Professor Cao. Nowadays, you have to have a team, you have to have a laboratory and you have to have cooperation, because technically speaking everything is difficult because you can do a lot of things, but not all. This is very important; we are considering a cooperation with Prof. Peng Cao from the University of Nanjing and we think it is excellent to collaborate with people from different disciplines. I'm not worried about us having different approaches or backgrounds, because we have the same curiosity, passion and thirst for knowledge which will keep us motivated.

TLCR: *And also I know, just as we mentioned just now if we find the research direction is wrong, it can be very frustrating. How have you managed to keep research going in the right direction over the years?*

Professor Rosell: Yes, this is a good point. As human beings we are easily distracted by different issues. Something that leads to failure in medicine is just to stop what you are

doing and start something new. However, failure is also something that can sometimes spur you on to better quality and to continue. It's important not to focus only on one specific field since nowadays technology and information can help broaden your outlook and widen the scope of research. It's a very good question that you asked me.

TLCR: *Thank you. I think your views will be very helpful for young researchers.*

Professor Rosell: Yes, tonight we will discuss our response with many foreigners from the medical industry. It also allows us to increase our enthusiasm to continue our research, and achieve good results. Nowadays an increasing number of young medical oncologists will spend one or two years in a laboratory. Finally we have the necessary tools and are just beginning to examine what is in cancer cells and what's happening in the patient. This is real innovation and it's our duty to educate our colleagues. We combine a scientific contribution with enthusiasm.

TLCR: *You are the Editor-in-Chief of our new book—Lung Cancer Precision Medicine. Which field do you think will be promising in Lung Cancer Precision Medicine?*

Professor Rosell: Well, this is a good point because works like *Lung Cancer Precision Medicine* written by myself and many outstanding writers that have contributed many chapters puts together and makes more information accessible to the readers. It is my honor to be the Editor of your publishing house. It is an excellent work because the management of information in this book is great. The journal *Translational Lung Cancer Research (TLCR)* is also great, because it is becoming fully recognized at international scientific meetings. The cooperation required to spend three months writing and dedicating time to a book like this is enormous. I am very proud of your initiative and your publishing house when you undertake initiatives like this. I think it could be the beginning of a very global work that places much knowledge at the disposal of over-busy doctors so they can learn. Only the best publishing houses do this kind of work, just to put all the information together and unify the style. This will be very useful for busy doctors or even patients. It can help educate patients or relatives to understand what is science, what is medicine. Nowadays, patients and relatives are increasingly well informed and can understand these topics, even if they don't have a medical background. Sometimes they are able

to understand even better than our colleagues. Although our colleagues are highly educated and qualified, they have no time to understand how cancer medicine works. But this information can be found in books. In summary, my congratulations to you and your publishing house.

TLCR: We also appreciate your great support! Thank you very much, professor!

Professor Rosell: Thank you!

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Footnote

Conflicts of Interest: The author has no conflicts of interest to declare.

[Science Editor: Chao-Xiu (Melanie) He, TlCR, editor@tlcr.org]