

Italian cancer researcher dream

Dr. Giordano brings new life to Italy's biomedical science

By Caterina Rotunno

Results attained by his laboratories in the search for innovative cancer treatment, including the study of genetics, have been recognized as being some of the most significant and sensational in recent years. He is the third-most published scientist in the world on the topic of cell cycle research, and he holds nine patents for new gene discoveries and methods of diagnosing the "illness of the century." He has won prizes, gained international recognition, and was awarded the title of "Cavaliere" of the Italian Republic in 2001 at just 38 years of age.

Things have moved very fast in the professional life of Professor Antonio Giordano, M.D., Ph.D. It's been a continuous stream of successes – a battle against time to save human lives and eradicate the disease he has declared war on.

After graduating in medicine in his hometown Naples and specializing in anatomic pathology, Giordano moved to the U.S. to further his education and continue his research alongside Nobel Prize winner James Watson.

He predicted that genetics would revolutionize medicine and the treatment of cancer patients, and he believed there to be much room for improvement in the entire research process. A few years later, his commitment and perseverance were rewarded: he became the first scientist to discover the direct relationship between cell division and cancer. This discovery revolutionized all subsequent studies and research in the area of genetics and oncology.

In 1993, at just 30 years old, Giordano founded the Sbarro Institute for Cancer Research and Molecular Medicine in Philadelphia, which has become one of America's most prestigious research centres.

Giordano not only masterfully handles lab work, but also has excellent communication skills that allowed him to win over the audience of young researchers of the *Comunità Scientifica italiana* in Canada-Sezione del Québec (CSIC-SQ) [an association for Italian researchers in Quebec] gathered last week at the Italian Cultural Institute in Montreal. The meeting was one of a series of periodic promotional activities to highlight Italian research in Canada put on by the Scientific Attaché Office of the Italian Embassy in Ottawa, in collaboration with CSIC-SQ.

During his visit to Montreal, Professor Giordano also held a series of conferences from September 8 to 10 at McGill University, University of Montreal, and IIC, titled "Tumor Suppressor Genes and Cell Cycle Kinases in Human Cancer."

Also present at the Italian Cultural Institute was Dr. Andrea Romeo, founding coordinator of the CSIC-SQ, and Professor Emanuele Fiore, Scientific Attaché of the Italian Embassy in Canada, who reminded us of the importance of exchanges such as

the "technology transfer" that is elevating Italian research across all scientific disciplines to historic levels of recognition in Canada.

Speaking to young researchers in Montreal, Giordano alternates between describing his experiences and elaborating on themes from the world of research. He focuses on the comparison between the American and the Canadian research system, and on his goal of transferring the American model to Italy – the model that he conceptualized and realized with the creation in 2006 of the Human Health Foundation, which also involves numerous partnerships with Italian research centres.

A brain drain or a cultural and intellectual movement?

"I don't think we should be talking of brains that flee – and let's hope they're always good brains! It seems to me that's just exploitation by politicians and media to the detriment of researchers and their research. It would be more interesting and effective to call the flux of young people who want to continue their education in places of excellence, wherever those places may be, a 'cultural movement,'" he said.

"The flight – but it would be better to call it 'formative training' – is desirable for all young graduates who can, in this way, test out both highly stimulating work environments as well as avant-garde technology. And this latter reason is what brought me to the U.S., notwithstanding the



Above: Prof. Antonio Giordano (centre) with (at his left) Prof. Emanuele Fiore; and (at his right) Dr. Andrea Romeo. Top right: Giordano.

opportunity of working alongside a Nobel Prize winner and therefore measuring myself up against the best. What would be desirable is the creation and consolidation of a network of all researchers abroad. Scientific research would benefit and would be enriched with precious content."

Is it important to also be a manager and communicator?

"The initial difficulties in my American experience were significant. The work was very hard, but almost from the first year I managed to earn \$17,000, and after two years I received many offers of work. All in all, I understood very early that the key for continuing in my line of research, independently and at a high level, would be in the ability to raise private funds beyond the circle of pharmaceutical companies that would have imposed

conditions. I had to develop a 'fundraising management' skill, and also to become an expert communicator to be able to persuade exponents from the world of commerce and finance of the importance of the scientific research I wanted to conduct.

"I would meet American restaurant magnate Mario Sbarro each Sunday morning and take long walks with him on Long Island, speaking about my project, which required at least a million dollars to get underway. After a year, his lawyer calls me and says 'Mr. Sbarro is tired of seeing you every Sunday, so tell me how much you want.' In that case, the response was direct and the money finally came but – very intelligently – Sbarro put at my disposal a team of experts of finance and management that helped me create, in 1993 in Philadelphia, the Sbarro Institute for Cancer Research and Molecular Medicine, a nonprofit entity for genetic and molecular medical research. Mine is an example of the opportunity that a country like the U.S. can offer those who want to realize a project, to found a society, without having to subject themselves to bureaucracies and political intrigue."

How can one 'infect' the Italian system?

"Over the course of my 20 years spent in the U.S., where I still live and work, alternating with periods in Italy, I have always thought that I would some day return, bringing my experience and my ideas with me. Being very familiar with the re-



search system in our country, I thought that the best strategy to permeate it would be a gradual re-entry through a university institution and from there to be able to begin 'infecting' the entire system. About five years ago, I became "Chiara fama" Professor in the Department of Pathology & Oncology at the University of Siena, in Siena, Italy (I obtained a professorship in pathological anatomy and histology 'per chiara fama' at the University of Siena). In 2006, a year after my arrival to Siena, I managed to finalize an academic-scientific collaborative agreement between the University of Siena and Temple University in Philadelphia. This agreement represented the beginning of a close medical-scientific collaboration between our country and the U.S., with the

opportunity for Italian researchers to gain American experience. In the meantime, an important oncological centre was created at the University of Siena which is very actively involved in research to this day."

A replica of the American model

"The first part of the 'strategic plan' of entry into the Italian system was realized. Now I had to move onto the successive phase, that is, the creation of a foundation with the goal of investing in infrastructure, technology, and

in human capital, especially in the centre-south. That's how the Human Health Foundation was created, first out of the Hospital of Spoleto, in Umbria-Italy, the following month, at the new headquarters at Villa Palma in Terni. Shortly after, we opened the research CROM Centro in Mercogliano, where more than half the Italian researchers work and whom I brought back from the U.S.A. And more: always keeping in mind the foundation's goals, we're opening a separate headquarters that will give way to an Oncology Institute at Pagani in the Agro-Sernese-Nocerino area, thanks also to the proactive collaboration of mayor Alberico Gambino. Finally – at least for now – by 2010 we'll finalize the creation of a research centre for applied "robotics for abdominal surgery," again at the Ospedale di Spoleto. In all, there are over 60 Italian researchers engaged in these organizations – a very significant achievement if you consider that everything was realized with funding raised outside the classic avenues for research in our country. All the laboratories in Italy and in the U.S.A. are tied to each other and constitute an integrated system based on a continuous flux and interchange of knowledge and human resources."

Italian funding for research – it exists but it's not distributed correctly.

"For about five years, using funds from private sources of 150,000 Euros, I studied the Italian system of funding research. My discoveries illustrated the anomalies of a mechanism that receives and withdraws funds through donations that come mainly from the centre-south, without giving back to these zones in terms of health services for the population. Each year, about a million persons are forced to leave southern Italy and travel north to receive treatment. As far as European funding, Italy contributes 14% and receives in terms of funding just 7%, which is redistributed among few institutions, all concentrated in the region of Lombardia. If you wish to make a comparison to the United States, consider that just in the Philadelphia area alone, with its million and a half population, there are five research centres and oncology hospitals. And within two or three hours by automobile, there are a good 200. In Italy there are just a few research centres for its 60 million inhabitants. Also, investigation revealed that public funding went to the coffers of few organizations. It also exposed the custom of awarding multiple funding for single research projects that are not subject to any merit-based evaluation system." ♦

SCIENTIFIC RESEARCH LINKS

The model was born in the U.S. Sbarro Health Research Organization

The Sbarro Health Research Organization (S.H.R.O.) is a non-profit American entity that is designed to finance excellence in the world of medical and genetic-based research for treating and diagnosing cancer, cardiovascular diseases, diabetes, and other chronic illnesses, and to promote the education of young researchers and doctors. It was created in 2005 with an accord between Temple University in Philadelphia represented by 20 researchers led by Professor Antonio Giordano, and Sbarro Institute for Cancer Research and Molecular Medicine – created in 1993 by Giordano.

Today, S.H.R.O. can count on over 200 biologists, molecular biologists/physicists, geneticists, physicists, and chemists who work to develop new technologies and methodologies of treatment. The S.H.R.O. – of which Giordano is president – supports funding for the same Sbarro Institute for Cancer Research and has to this day raised about \$3 million in private funding to add to the \$27 million raised from public sources such as the State of Pennsylvania as well as

the American ministry of defense.

In the United States, the Sbarro Health Research Organization has achieved top world status for its research and has received recognition from public institutions as well as from President Barack Obama. Also, in the area of American investments for scientific research, the "Sbarro Organization model" has been selected as a point of reference by the American federal government for the development of a project at the University of Beirut in Lebanon, that is similar to the Human Health Foundation in Spoleto Italy.

As well as its scientific achievements, the "Sbarro Organization Model" has also garnered wide consensus for its managerial aspects that allow it to utilize just 10% of funding for administration while all remaining funds are used for research. The S.H.R.O. is involved in numerous collaborations in the U.S.A. and in Italy. ♦

For more information visit www.shro.org.

Investments needed in Italy's centre-south Human Health Foundation in Umbria

The Human Health Foundation (HHF) was created in June 2006 in Spoleto. Its conception, realization, goals, and funding modality all mirror – as intended by founder and Chairman of the Scientific Advisory Board, Professor Antonio Giordano – the non-profit model of the Sbarro Health Research Organization (S.H.R.O.) in Philadelphia. Giordano also acquired from S.H.R.O. the 'know-how' and partial funding for its startup, along with funding made available by the Banca Popolare di Spoleto and the Credito e Servizi, both in Spoleto.

It was Giovanni Antonini, president of the Umbro banking group – a "brilliant entrepreneur," as Giordano likes to describe him – who believed in the Foundation project, financing a complete renovation of the new HHF headquarters, which will house its laboratories in an ancient village in Terni.

The inauguration will take place in November.

Of the 60 million Euros destined for the Foundation, just a small portion will be reserved for the new structure, leaving the lion's share to be made available for the labs, equipment and research.

As per its mission statement, the Foundation has the declared objective of introducing to Europe, and especially to Italy, a scientific research system that is competitive and technologically avant-garde, based on the U.S. model, in an attempt to stem the flight of Italian youth abroad.

Within the next two years, about 50 researchers will be engaged in a breast cancer research project. A basic interdisciplinary approach will be used in the research. Many fundraising events have been organized as well. ♦

For more information and donations visit www.hhfonlus.org.