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NEWS & COMMUNITY

For pioneering research at the interface of engineering and oncology...

Dr Rakesh Jain receives National Medal of Science



DREW ANGERER/GETTY IMAGES

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Dr Rakesh K. Jain, 65, of Harvard Medical School and Massachusetts General Hospital, along with 16 other recipients, was to be honored at the prestigious National Medals of Science and National Medals of Technology and Innovation awards ceremony at the White House January 22. But a massive snow-storm closed down Washington, DC that day and the ceremony had to be postponed.

It finally took place May 19, when Dr Jain and his fellow scientists, technologists and innovators, were presented with the medals by President Barack Obama in an elegant East Room ceremony with the POTUS declaring, 'The amount of brainpower in this room right now is astonishing.'

'But when you talk to these brilliant men and women, it's clear the honor has not yet gone to their heads — they still put their lab coats (on) one arm at a time,' he quipped, to laughter, before adding, 'As President, I'm proud to honor each of you for your contributions to our nations. As an American, I'm proud of everything that you've done to contribute to that fearless spirit of innovation that's made us who we are, and that doesn't just benefit our citizens but benefits the world.'

The National Medal of Science is the nation's highest honor for achievement and leadership in advancing the fields of science and technology and is awarded to individuals who have made outstanding and important contributions to the advancement of knowledge in the fields of behavioral and social sciences, biology, chemistry, engineering, mathematics and physics.

Dr Rakesh K Jain receives the National Medal of Science from President Barack Obama, in the East Room of the White House, May 19.

He has received more than 75 awards, including the Guggenheim Fellowship, Humboldt Senior Scientist Award, Science of Oncology Award from the American Society of Clinical Oncology, and the Princess Takamatsu Memorial Lectureship Award from the American Association of Cancer Research.

He has received honorary doctorates from several universities, Thomson-Reuters ranked him among the top 1 percent cited researchers in Clinical Medicine in 2014 and 2015, and has the rare distinction of being a member of all three National Academies: the National Academy of Sciences, the National Academy of Engineering, and the National Academy of Medicine — the first from Mass Gen.

The National Medal of Technology and Innovation recognizes those who have made lasting contributions to America's competitiveness and quality of life and helped strengthen nation's technological workforce.

They were created by statute in 1959 and are administered for the White House by the National Science Foundation.

As a military aide read out citations, Obama presented the awards.

The citation for Dr Jain — who won the National Medal of Science — lauded him 'for pioneering research at the interface of engineering and oncology, including tumor micro environment, drug delivery and imaging and for ground-breaking discoveries of principles leading to the development and novel use of drugs for the treatment of cancer and non-cancerous diseases.'

Dr Jain is the Andrew Werk Cook Professor of Radiation Oncology (Tumor Biolo-

gy) at Harvard Medical School, and director of the Steele Laboratory of Tumor Biology at Massachusetts General Hospital.

He has dedicated his career to the study of the microenvironment of cancerous tumors in the laboratory and in human trials. He is regarded as a pioneer for groundbreaking research 'at the interface of engineering and oncology' for his seminal discoveries in tumor microenvironment, drug delivery, in vivo imaging and bioengineering. These include uncovering barriers to the delivery and efficacy of molecular- and nano-therapeutics, developing new strategies to overcome these barriers, and then translating these strategies from bench to bedside.

Dr Jain is most celebrated for proposing fundamental principles guiding the development and novel use of drugs for treatment of cancer and non-cancerous diseases characterized by abnormal vessels. These diseases afflict more than 500 million people worldwide. His findings are summarized in over 600 publications.

A chemical engineer by training, Dr Jain has mentored more than 200 doctoral and postdoctoral students from over a dozen different disciplines, and a collaborator of a similar number of clinicians/scientists worldwide.

When it was announced December 22 that he was to receive this award, Dr Jain — the first time Mass General investigator to win the award — had said in a statement that he was 'working on a manuscript when he received an e-mail from the White House announcing this award. 'I just couldn't believe it,' he had said. 'I was so totally taken aback, and I had to read it one more time, as to what the message was. And then just the sheer joy and just feeling absolutely thrilled.'

'This is beyond any expectation I ever had,' he had added. 'This really honors my entire team — my colleagues, my collaborators and my students. It is their collective work and a journey that I have not been alone in.'

Dr Jain had said that most of his thoughts then were about gratefulness — to family, collaborators, Mass Gen and HMS, the hundreds of patients who participated in clinical trials, the federal agencies and private foundations that offered research grants and to the mentors who introduced him to this area of research.

'I feel very grateful to them because as you may know, I am a chemical engineer by training and they are the ones who introduced me to this world of cancer,' he said. 'And, this world just swallowed me and it's been a wonderful, 40-year, very inspiring journey — a compelling journey in this world.'