

**Indian Institute of Technology
Chennai
Thirty Ninth Convocation July 26, 2002**

Convocation Address

By

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**Dr. Kasturirangan, Chairman, Members of the Board of
Governors, Prof. M.S. Ananth, Director, Members of the
Senate, Registrar, Faculty, Distinguished Guests, and Dear
Students,**

Last month I was awarded an honorary doctorate by Kakatiya University. Among the other recipients was a gentleman being awarded a doctorate for coaching students for admission into IIT. Today I am here as Chief Guest delivering the convocation address at IIT-Chennai. I deem it a great privilege and honour.

I admire the high standards maintained by IITs and my congratulations to all of you for successfully graduating from this great Institution.

I know the destination for most of you is information technology industry, as has been the case during the last decade or so. The attraction towards IT industry is, no doubt, that it has given immense opportunities to create wealth.

Today in my convocation address, I would like to put before you the enormous potential that exists in another knowledge-based industry - the pharmaceutical industry, with equal or better opportunities to create wealth. Unlike IT industry, or for that matter any other industry, pharmaceutical industry requires a commitment of different sort and would provide you an opportunity to serve the society.

Some four decades ago I had the benefit of working in IIT Mumbai after doing my B.Sc. (Tech) from UDCT. UDCT (University Department of Chemical Technology, Mumbai University) is a 75-year-old institution that has produced a number of entrepreneur-scientists and distinguished professors. In fact the founder-Deputy Director of IIT-Bombay, Prof. N R Kamath was from UDCT. In its diamond jubilee celebrations UDCT has honored some of its old students as UDCT diamonds. Apart from your Chief Guest today, these include Mr. Mukesh Ambani, the CMD of Reliance Industries, Mr.I.A.Modi, Chairman of Cadila Pharmaceuticals, Dr. A. V. Rama Rao, former Director of IICT, Hyderabad and Managing Director of Avra Laboratories.

While IITs have produced many distinguished persons in the field of Information Technology like Narayana Murthy, UDCT has the distinction of producing successful businessmen in the chemical and life sciences field. Prof. Gharda, who has revolutionized pesticides production, was a Professor in UDCT in 1961.

Last one decade has been a tumultuous decade in the field of Information Technology. This field has witnessed

unprecedented growth with many successful enterprises, recording annual growth rates never seen before in the Indian industry. This industry has been a big paymaster and has attracted students from every discipline including life sciences. In fact, the Director of a reputed institution in Bangalore has expressed anguish saying that people trained in as diverse fields as Aeronautical engineering, molecular biology, civil engineering have opted to move into information technology industry. However, we see some slow down in this industry and consequently the exodus into this industry may also diminish.

Many of you may not have noticed a revolution that has begun in the pharmaceutical industry in India, much before the advent of IT industry. Among those populist slogans like 'garibi hatao' that were put forth by former Prime Minister, Mrs Indira Gandhi, there was an observation that 'profiteering at the expense of human suffering' must be stopped. The result was the enactment of Indian Patent Act, 1970, which recognized only process patents but not product patents. While other populist slogans have not yielded desired results, the Indian Patent Act, which was meant to stop exploitation by big pharma, has succeeded beyond anybody's imagination. This is primarily because of the excellent work done by brilliant chemists and chemical engineers, some of them from IITs.

For the pharmaceutical industry, it was a great opportunity to use science and technology for the benefit of the society. What followed was a slew of pharmaceutical preparations ranging from anti-infectives to anti-

hypertensives, all of them produced using indigenous technology and priced at a fraction of the prices prevailing in developed countries. The entire pharmaceutical industry rose to the occasion and consequently, there was practically no medicine that was not accessible or affordable by the poor man in the country.

In the year 1991, India has accepted the challenge of globalization. The pharmaceutical industry has been overwhelmed by the challenge of product patent regime. Many in the industry felt that the Indian companies have no wherewithal to undertake drug discovery research that would help survive in the product patent regime. By western experience the drug discovery and development is prohibitively expensive - \$500-800 million for taking bench idea to a marketable product. I have advocated that drug discovery research is possible with an annual expenditure of Rs.10 crores and this kind of expenditure is within the reach of at least a dozen pharmaceutical companies in India.

In 1993 I have put together a team of brilliant scientists from various disciplines of life sciences and started Dr. Reddy's Research Foundation. The research program at this Foundation was focused on diabetes and cancer. In both these fields we have accomplished admirable success. As you may be aware, Dr. Reddy's have licensed three of its new molecules for treatment of diabetes and dyslipidemia to leading multi-national companies Novo Nordisk of Denmark and Novartis of Switzerland. Now, several other companies in India have started drug discovery research and are

making significant investments in this field. Some of these companies have even announced inventions relating to new molecules recently. Should this trend continue, the Indian pharmaceutical industry has a chance to make it big with molecules enjoying product patent and marketed internationally.

As all of you know the Human Genome Sequencing has been completed. Scientists in Life Sciences are now presented with a vast body of new knowledge that would permit discovery of new targets and mechanism for drug discovery.

For the first time in the evolution of pharma industry, we have the science and the tools that make it possible to design and develop disease-specific drugs and even customized medicines. The application of such most modern aspects of biotechnology facilitates development of diagnostics, therapeutic proteins, drug targets and even gene therapy that would revolutionize the management of human healthcare.

As you may recall, the discovery of scientific cloning in the 70s by Herbert Boyer and Stanley Cohen has lead to the formation Genentech and the establishment of an entire new industry called Biotechnology industry. Today the biotech industry in the US alone is worth more than 200 billion dollars.

The opportunities from new Biology, besides revolutionizing the management of human healthcare, would offer much greater potential to create wealth.

As I said in the beginning, the pharmaceutical industry requires a commitment of different sort. Young scientists and engineers emerging from this Institute can seize this opportunity of not only creating wealth but also serving the social cause of providing medicines at affordable prices.

I take this opportunity to wish the Students great success in all their endeavors. I also wish to compliment the Faculty of this august institute for nurturing and developing the talent.

Thank you!