EDITORIAL

FRINGE THOUGHTS ON INDIAN SCIENTIFIC RESEARCH WITH FOCUS TO BIOCHEMICAL AND BIOMEDICAL STUDIES

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Due to astonishing advances globally in Biochemistry, Molecular Biology, Biotechnology and Genetic Engineering the diagnosis and management of human healthcare has improved tremendously. Moreover as research reveals a biochemical, genetic and molecular basis to disease; it has become increasingly significant to develop simple but reliable biochemical and molecular tests to diagnose, detect the complications of disease, and to help in the prognosis and followup during treatment. Of late the medical/clinical practice has become very specialized and so are the non-clinical specialities. Added to the above, drugs can now be produced artificially and in bulk which are ofcourse actually complicated enzyme proteins.

Experts from all over the World in these fields could ofcourse talk fascinatingly about the above said new technologies, their genesis and development and the advancement of scientific research be it in basic, clinical and or applied areas.

Being asked to write the editorial for Indian Journal of Clinical Biochemistry, I thought of taking this opportunity to talk briefly my own mind as a conventional and traditional Scientist about some important background of our functioning in India in biochemical/biomedical research. These pertains to our strength and shortcomings in scientific research.

Are There Freedoms And Limits of Science ?

Yes,
Scientific research both requires and creates freedom. Not only that but the elucidation of absolute limits in science has

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greatly increased the freedom of our thinking not only in science but in other fields as well.

Scientific research workers, especially the academic ones, are increasingly limited in their freedom to follow up good and creative ideas by an uncomprehending scientific bureaucracy in India (although this exists also globally at varying levels). This leads to promoting work that confirms and conforms because it is safe, while the chance of discovering something really new is seriously reduced. Such a relationship between bureaucracy and originality is not limited to scientific research but to all creative activities in any field. In research, as in any field, close eyed bureaucracy has the ability of destroying imaginative creativity. If such a concept is truly valued, it must remain free from bureaucratic excesses.

Indian Scenario With Respect to Freedoms And Limits of Science.

Scientific research needs freedom and research brings freedom. It would be nice to know as to how Science developed and survived through the centuries. It would have been the chance factor of coming together of a few educated individuals in an atmosphere which permitted them to indulge their curiosity and imagination and to communicate their exciting discoveries to others. It has rightly been said that science can flourish only in free and democratic society. Many scientists in the past including Pasteur Newton, Einstein and Watson and Crick did science by freeing their mind of preconceptions and by allowing their imagination to have free flow. This is how most of the fundamental advances in science have come about and is the most common way in which research liberates into freedom. Sadly these aspects of liberation of scientific research and its outcome is at the minimum ebb in the Indian context. Some of my thoughts in this respect are as follows :

1. Inspite of being economically inferior as compared to other lucrative opportunities like those being MBA and

IT Sector etc., the science students are still a bright lot with a high I.Q. and have been doing extremely well in postgraduate research leading to doctorate (Ph.D/M.D) degree. These researchers have the capabilities of expanding their research programme independently if there is no limitation of their freedom to follow up good ideas. This certainly is not happening.

2. Opportunities are lacking in the absorption of these brightly Post-doctoral research personnel in our established Institutions. The new scientific institutions are created around certain individual scientists and these develop around their specialities alongwith the handpicked persons not necessarily the best in profession. Ultimately when the leader's term is over, the Institution's next head abolishes the original aims and brings the new themes suited to one's own requirement. Such a process cultivates mediocrity and the institution functionally platted.
3. While the country produces excellent young research workers from various Institutions, their miseries start immediately after obtaining the doctorate degree. These researchers have very little opportunities in obtaining a suitable position in India and have to be content with working as a Senior Research Fellow/Research Associate financed by the Government's grant giving agencies.
4. The tenure of Senior Research Fellowship/Research Associate ship would eventually be over within 2-3 years. During this period the researcher functions as postdoctoral fellow of the Project investigators and as mentioned earlier would be limited in their freedom to followup good and creative idea and hence would land up in working in the areas that conforms and confirms".
5. Due to bureaucratic procedures of selection of candidates for the appointment, a large number of positions in Universities/Institutes are not filled up although advertisements had appeared but the interviews are not held for various reasons. In fact inspite of the fact that invariably an application fee is charged for applying to a position, the research scholars are never informed about the status of their candidature except those who are eventually selected. With such happening frequently, the young research workers get so much frustrated than inspite of their sincere wish of

working in the country has no other way than accepting a Post doctoral position overseas and eventually dread to return back to face the same agony.

6. By and large most of the Senior Scientists supervise the project work of- course with ample dedication but do not work on bench. Hence the Young research workers who are the backbone of research working on the bench, have to face the agony and disappointment and it can be well imagined as to the status of scientific research in the country.
7. There is a shortage of real worthwhile research projects which are submitted to grant giving agencies. This is a point which our Senior Scientists need to address to themselves. It is not enough to say that a particular project has been undertaken in other population of the world and need to be done in Indian population.
8. The number of research publications from Indian Scientists in indexed and refereed journals are much less as compared to equivalent Asian Countries such as China, Thailand etc.
9. Even Indian Industry being very conservative looks only for the opportunities to get fast returns on their investment and hence prefer to concentrate on trade and to create market for biotechnology product develop by other companies overseas. They have either not created or created in a rudimentary form their R & D facilities. Hence one can not expect any original research to come out from the Indian Industries especially those involving biological and Pharmaceutical areas.

To conclude, in the end I would like to point out that Indian Science has wealth of Young research workers who if given proper encouragement, support, job placement and requisite freedom of promoting creative work alongwith the wisdom and guidance of Senior Scientists would carry the scientific research to a very high level of excellence at par or more of International level. This would also curtail the exodus of our scientists to overseas.

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