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Interdisciplinary Biology: Today's Need and Tomorrow's Essentiality

Editorial Note

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In recent years biology has changed many facets. Life-science research has not been limited to some direct disciplines of science like botany, zoology, chemistry or physics. The splendid voracity for knowledge has enlarged its horizons to numerous areas ranging from agriculture, biotechnology, microbiology, immunology, molecular biology, biochemistry to pharmaceutical, medical and clinical research.

Time has seen tremendous increase in biological data in terms of literature, experiments, results, sequences, tools and softwares. The generation of terabytes to heptabytes of data has increased the complexity and confronts of present-day biological research. Majorly the high-throughput biological data are providing a great deal of information at molecular as well at genetic level. This adds up to the pace for novel drug and medicine discovery process. Concept of personalized medicine, Biomarker discovery and nanotechnology also unwrap its wings. Information technology is enlightening the potential ways to deal with deadly diseases like cancer, malaria, AIDS, tuberculosis, etc.

In this issue we intent to encourage readers to draw a parallelism between the challenges and needs of research in varied fields of life sciences. In present scenario getting indulge into individual research is not enough. One ought to share one's ideas with the research community in the form of small articles, medical writings, review articles, short communications, application notes, survey papers and others. We encourage budding professionals and welcome any sort of original research that one wish to share. I would rather encourage readers not to limit their research to a particular field but move ahead and explore biological world in a much innovative manner. We motivate authors to treat the platform as their own journal to present and publish their own work among scientists, researchers, scholars and institutes. The exposure will definitely provide heights in ones career.

Most important among domino effects, i.e., Data obtained from NHGRI Genome Sequencing Program (GSP)[1] that provides a clear evidence of cost effectiveness of our current research strategies [see Figure 1] and scanning of scholarly-publications among developing countries reveals the fact that growth in publications is mainly

concentrated to Asiatic region of the world as per december-2013 reports[2] [see Figure 2]. In Fig1 the region from 2001 to 2007 represent the costs of generating DNA sequence using Sanger-based chemistries and capillary-based instruments ('first generation') sequencing platforms and from the beginning of 2008, the data represent the costs of generating DNA sequence using 'second-generation' ('next-generation') sequencing platforms.

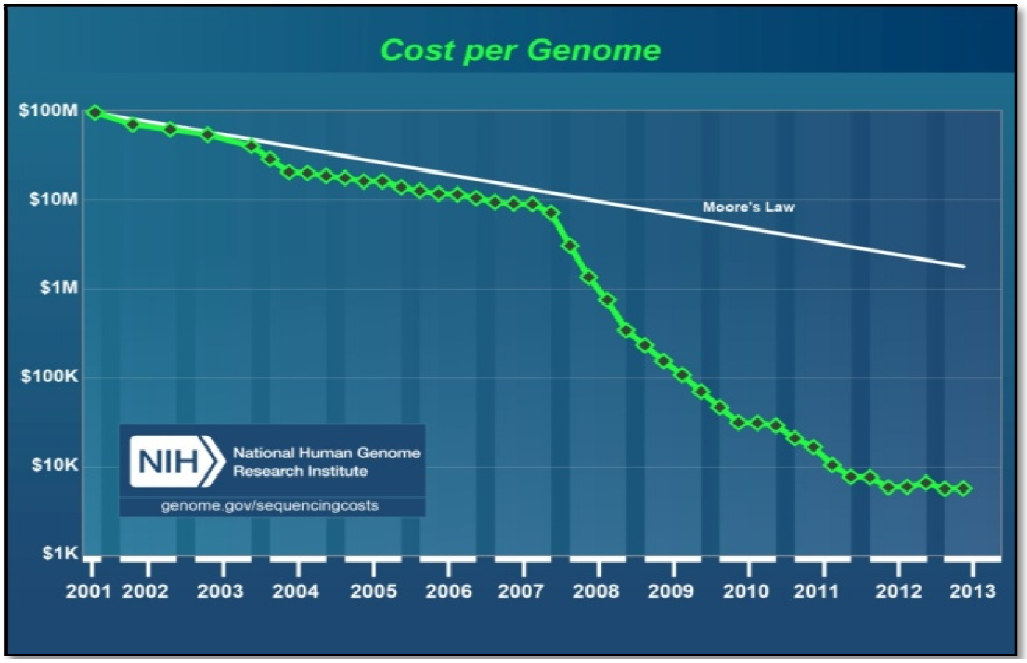

Figure 1: *The change in instruments represents the rapid evolution of DNA sequencing technologies that has occurred in recent years*[1]

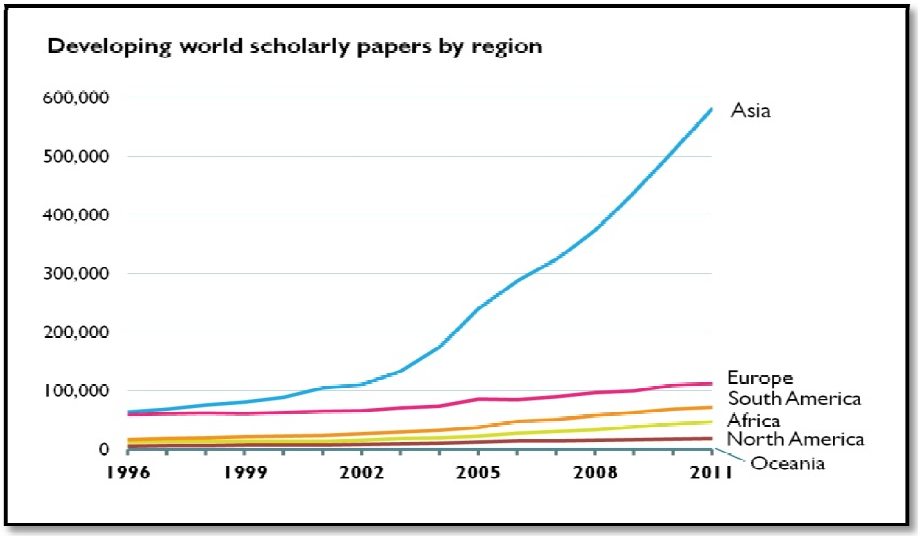

Figure 2: *Latest Scholarly paper publications as per biblio-metrics research reports issued in December 2013*[2]

By the end of year 2011, the developing countries taken together published over 830,000 scholarly papers, representing just 40% of the world's scholarly output. These countries have undeniably been the developing ones both in absolute and comparative terms and proven their increasing share of global scholarly papers (see Figure 3). The steep growth is evident from the scrutiny of the developing world scholarly share that grew at 15% Compound Annual Growth Rate (CAGR) from 2002 to 2011, compared to 6% CAGR globally.

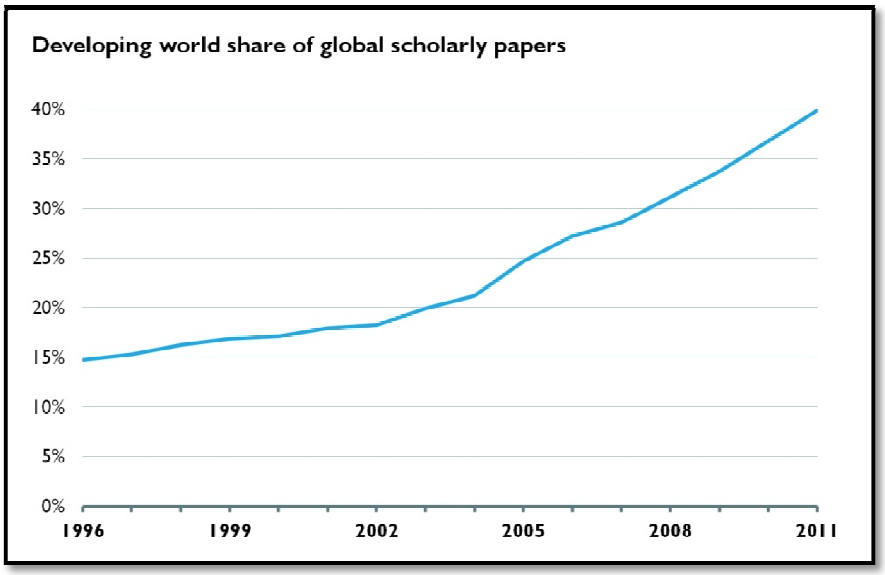

Figure 3: *Latest Scholarly paper publications as per biblio-metrics research reports issued in December 2013*[2]

These facts establish a belief that the career is getting brighter day-by-day with parallel increase in competition. Research is ongoing in every corner of the world and India is one of them. India has now gained magnetic properties for life science industry. The expectations has risen much with the predicted compound annual growth rate to lie between 14% to 17% in amid of 2013 and 2016.

Efforts are seen in the form of emerging hot spots within the country, namely the biotech parks and incubation centers assembled in Lucknow, Uttar Pradesh; and at the Alexandria Knowledge Park in Hyderabad, Andhra Pradesh. In Karnataka, Kerala and Himachal Pradesh some pilot plant projects or the biotech incubation projects have also been approved.[3] All this has opened new opportunities and to be in the race one should have bagged enough documentation of their research work.

Publishing a record has now become a means of moving your research to public domain. Especially when one is looking forward for a long term career as a lecturer, researcher, research-leader. These publication proceedings reflect the efficacy of the research done. Published work has now become important aspect of screening process at every stage. For employers these are important aspect to assess the ability to engender knowledge and perceive new projects through to completion. No doubt there

exist an untapped talent and expertise and only unique and specialized interests can prove to be the fertile ground for enlightening precious research accomplishments.

Sources:

[1] Wetterstrand KA. DNA Sequencing Costs: Data from the NHGRI Genome Sequencing Program (GSP) Available at: www.genome.gov/sequencingcosts. Accessed [23 Dec, 2013].

[2] Dr. Henk F. Moed. The bibliometrics of the developing world, Research Trends, Issue 35: Developing Research in Developing Countries, December 2013

[3] Twelfth Five Year Plan (2012–2017) Science and Technology