

## *Editorial*

### Research for Innovation : Time for Adapting the Changes

Every laboratory in India strives hard for finding a source of funding from state or central mechanisms to modernize their research to next level. Publications from standard international journals today fascinate the reader by rendering apt technologies to prove the hypothesis. However, many states run institutions and laboratories in India are still lagging in facilities as well as the expertise. They continue to execute experiments using outdated methods. Students face major challenges after their academic career as they don't get trained in such modern and upcoming techniques. In the era of classical experimental animal models for diseases are being slowly replaced by more appropriate transgenic animal models and with ever upgrading molecular biology as well as imaging techniques, it is odd to see an alarming decline of animal studies in India, over a period of time, as reported in the editorial of the previous issue of Indian J Physiol and Pharmacol (Deepak 2017).

Twenty per cent of Pharmacology manuscripts submitted for publication in the last two years to Indian J Physiology and Pharmacology which clearly show that many of the medical/pharmacy institutions in India have started adopting passive observational studies ending up in poor acceptance for publication. These small samples sized study especially on adverse drug reaction monitoring, prescription auditing, comparison studies etc., lack the archetypal scientific probe and parity. Mushrooming paid online publications with international titles providing free access also create a mirage that hype young students and faculties to accept lackadaisical research. One such postgraduate student who did ADR monitoring for masters degree has been forced to face a jury to defend validity of thesis as a research work when selected for PhD in a University at Germany. The recent trend of replacing active pharmacology experiments in post-graduate thesis with passive observational studies is indicating a dearth for newer ideas.

The dangerous concoction of many such factors lead to a vicious cycle resulting in this generalized decrease in "quality of pharmacology research". Amongst numerous factors, inadequate infrastructure to augment research, lack of initiation to get research grants, reluctance to learn and adopt molecular biology techniques are only a selected few. Poor domain expertise of faculty members in experimental studies, ill confidence and lack of self-drive for newer initiatives including collaborative research are also responsible for opting to such observational studies that are not hypothesis driven.

Currently, changing Government policies are vehemently promoting innovation and entrepreneurship in academic institutions. Appropriate use of these opportunities can boost productive studies leading to rewarding innovations. Governmental, non-governmental and international pharmaceutical organizations are often announcing grand challenges in the fields of medicine giving ample opportunities for ignited minds to become a solver of socially or industrially relevant problems. These challenges are rewarded heavily for a group which is ready to give solution within the stipulated time frame. Grants are being given to "develop models as proof of the concept". Websites such as 'innocentive.com', 'innovate.mygov.in' provide current challenges at international and national level. Several of such are also available on a simple Google search. Interestingly, these challenges can trigger a suitable research topic for students.

To encourage the research leading to commercialization of inventions and innovations, Ministry of Science and Technology stated a memo (DSIR, 2009) permitted Indian researchers to have an equity stake in

scientific enterprises/spin offs while in professional employment with their research and academic organizations like universities, academic and research institutions. Funding for such projects are enabled through several programs of DST, DBT, BIRAC, CSIR, TTD, DietY, MSME, IMPRINT, AYUSH etc. Intellectual property rights and marketing support for such innovations are also accompanied through NRDC, TIFAC, BCIL, etc. Apart from this, several collaborative international programs such as Indo-US, German, French, Canada, Sweden etc are made available through DST website time to time. State governments and academic institutions have also established research clusters, research parks to infuse innovation to develop entrepreneurship in healthcare (Thon and Karlsson 2017). High value instruments required for the research work are enabled through programs like DST-FIST to improve infrastructure to the research institutions. Industrial partnerships are highly encouraged in developing/shaping a concept into an innovation for public use.

Looking beyond passive observational studies, students must be trained and encouraged to undertake challenging research topics. Any research conducted in public funded institutions that do not promote mankind or the society is certainly not less than a criminal offence. It is a frank betrayal of the honest tax payers' money in the name of research in a country where 90% of its people are living with a daily income of less than 5 USD. In the 21<sup>st</sup> century Asia is expected to be successful in building its capacity to solve the critical problems on its own. The Asian continent which is housing 2/3<sup>rd</sup> of world's population is known for its culture and history to respect and accept scholarly activities. However, the passive rote learning practiced over a period of time has to transform into associative learning to achieve out of the box thinking, especially in the field of Medicine, to achieve scientific eminence in academic institutions (Huang and Tan 2010).

At this time of the era when there is paucity for newer molecules in pharmaceutical inventions, while agencies are curtailing fund for fundamental research work, translatable innovative ideas are worth pursuing and rewarding. Nurturing young Physiologists and Pharmacologists in an open research environment for productive research is the need of the hour. Taking advantage of Government aided innovation programs are budding opportunities for all research institutions having brilliant young researchers. A timely adaptation to the change in research attitude is expected to improve the quality of research in Pharmacology and Physiology.

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