ECRONICON OPEN ACCESS

EC PHARMACOLOGY AND TOXICOLOGY
Editorial

Building Network

Susana Gorzalczany*

Department of Pharmacology, School of Pharmacy and Biochemistry, University of Buenos Aires, Argentina

***Corresponding Author**: Susana Gorzalczany, Department of Pharmacology, School of Pharmacy and Biochemistry, University of Buenos Aires, Junín 956 5 P, Ciudad Autónoma de Buenos Aires, Argentina.

Received: February 29, 2016; **Published:** July 06, 2016

Drug discovery is a long and expensive process. During the first half of the 20th century drug research was shaped and enriched by several new technologies, all of which left their impression on drug discovery and on therapy.

Drug discovery represents the first step in the creation of new drugs, and takes place in academic institutions, biotechnology companies, and large pharmaceutical corporations. Notwithstanding, drug development shows that large pharmaceutical companies decline in the productivity. They are currently facing challenges such as patent expirations, competition from generic drugs and increasingly strict regulatory rules, so classical strategies of drug discovery and development, which are based on internal resources, are changing.

On the other hand, academia has the appropriate climate for creative and innovative science, understanding the value of individual freedom, intellectual diversity, flexibility, and originality and has expertise in many disciplines. Academic institutions have traditionally been the home of research innovation and universities are constant source of innovative drug target discovery and disease knowledge. Nevertheless, scientists in academia are often not well trained in business strategies and sometimes have little access to the necessary funding for generating the proof of principle data needed to attract investment. Consequently, many good ideas lying unexploited.

Unlike traditional research-based discovery, which seeks to understand basic cellular mechanisms and apply these learning to design new therapies, translational research targets mechanisms underlying clinically relevant problems and designs therapies to address those issues directly. Therefore, translational research or translational science is leading novel integrated discovery nexuses, establishing a forum to collaborate, exchange and develop new strategies to discover best therapies.

Several aspects can be analyzed. Although clinical pharmacology could be considered pivotal in the drug discovery process by cycling information from target selection to phase IV clinical studies, I will refer specifically at this time, to preclinical research. Preclinical studies provide a key resource for justifying clinical development. Animal experiments have contributed much to our understanding of mechanisms of disease, but their value in predicting the effectiveness of treatment strategies in clinical trials has remained controversial. Animal care, adequate experimental design (including randomization, outcome measure selection, blinding, appropriate sample size, suitable use of statistics) as well as strategies for reporting study results could help preclinical pharmacologist and toxicologist to make their experimental findings more reliable.

Rethink methods and standardization of research practices was suggested by many authors, but their exact implementation can be a challenge.

Open exchange of information about successes and failures to reproduce published data, sharing best practices, present their ideas should improve scientific research and drug discovery.

Open exchange of information about successes and failures to reproduce published data, sharing best practices, present their ideas should improve scientific research and drug discovery.

It is clear that research no longer dependent on a single one researcher. Today, it involves multidisciplinary work. Knowledge from big pharma, academia and clinical practice are seeking to share their own expertise to create more efficient system for developing new therapies.

Bibliography

1. Begley C and Ioannidis J. "Be Reproducibility in Science. Improving the Standard for Basic and Preclinical Research". *Circulation Research* 116.1 (2015): 116-126.

2. Dahlin J., *et al.* "Mitigating risk in academic preclinical drug discovery". *Nature Reviews* 14.4 (2015): 279-294.

3. Drews J. "Drug Discovery: A Historical Perspective". *Science* 287.5460 (2000): 1960-1964.

4. Fishburn S. "Translational research: the changing landscape of drug discovery". *Drug Discovery Today* 18 (9-10) (2013): 487-494.

5. Frearson J and Wyatt P. "Drug discovery in Academia-the third way?" *Expert Opinion Drug Discovery* 1.10 (2010): 909-919.

6. Loregian A and Palú G. "How academic labs can approach the drug discovery process as a way to synergize with big pharma". *Trends in Microbiology* 21.6 (2013): 261-264.

7. Steckler T., *et al*. "The preclinical data forum network: a new ECPN initiative to improve data quality and robustness for (preclinical) neuroscience". *European Neuropsychopharmacology* 25.10 (2015): 1803-1807.

8. Van der Worp H., *et al*. "Can Animal Models of Disease Reliably Inform Human Studies?" *PLoS Med* 7.3 (2010): e1000245.

Volume 2 Issue 1 July 2016