



【编者按】高伟坚博士,英籍华人,1986 年出生于英国。18 岁以全优成绩考取曼彻斯特大学生命科学院。2008 年以优等生荣誉毕业,获学士学位。2012 年,获得该校博士学位。2004~2012 年,先后获得“默沙东杰出学术成就奖”、英联邦帕金森氏病学会的“杰出研究和展示奖”、“曼彻斯特领袖项目”金奖、双重博士奖学金。他从小热爱生物医学,经过系统求学过程及严格的科研训练,在科研课题设计和科技论文撰写方面,表现出不菲的成绩。毕业后仅仅两年,便发表有影响的科技论文 4 篇。并参与 Springer 组织的‘L-DOPA-induced dyskinesia in Parkinson’s disease’一书的编撰工作。同时,还组织申请国际合作课题两项,参研课题四项。高博士现供职于法国波尔多第二大学,在华开展联合研发工作期间,多次表达了“自己作为华人,愿意为祖国生物医学发展贡献自己力量的想法”。也深知华人科学家因为语言障碍,而在科技论文发表和科研课题申请上遇到的重重困难。经我刊编委推荐及编辑部与部分专家讨论商议,特聘请高博士为两刊特约通讯员,开设专栏,希望高博士从信息获取、论文撰写、课题设计等方面开展工作,并定期向我刊介绍业内国际前沿动态,为我刊读者扩大视角。

本期推出神经科学研究中的动物选择和模型制作,欢迎读者就相关内容展开互动。

Topics of interest—‘Animal models for scientific research’

As scientific research in the biomedical field rapidly advances across the globe, the ethical and social responsibilities of the researcher for the choice of animal model(s) used are ever more apparent. The researcher is left to consider the reliability of each model for the purpose of their investigation and its reproducibility for data accumulation, while also evaluating important factors such as animal welfare, safety, cost and time consumption. In this article, I bring your attention to an excellent review written by Mcgonigle(2014), which outlines the limitations of current animal models used in the research of central nervous system (CNS) disorders.

Although the choice of an appropriate model can often be overlooked out of habit, it is vital that the researcher takes the time to choose the most suitable method for their investigation, in order to accumulate the most useful data. From an ethical standpoint, the use of animals in research should always follow strict regulations, as is upheld in countries, such as the United Kingdom (‘Three R’s principle; reduction, replacement, refinement’), to avoid unnecessary use. In designing experiments, careful consideration into the most appropriate way to produce informative data can be challenging. For example, uncovering the pathogenesis of a disease state may require different methods of investigation/ animal models, than that for determining the efficacy of a novel drug. As is highlighted by Mcgonigle (2014), animal models have different aspects of validity, which include: *face validity* – where symptom manifestations are seen, *construct validity* – where underlying biological characteristics are found, and *predictive validity* – where response to therapeutic agents are presented. The use of such criteria in selecting a model, in relation to the aims of the investigation, can provide for the basis of an excellent experimental design.

The variety of models available in for example, the field of CNS disorders research, which can be produced by drug administration (pharmacological), surgical (lesion) or genetic manipulation (transgenic), can help broaden the experimenters range of tools for a complete investigation. As each model, in any field of research, has its advantages and disadvantages, it is of the researcher’s interest to utilise what is the appropriate tool for the overall study. Often is the case where more than one model is required, in order to produce relevant and publishable data. This brings us to the final important point of continually striving to improve the standard of scientific research. Such can be achieved from refining the current models available and developing new accurate models, which is worthy of large investment to help pave the way for exciting advancements in the field of research.

References

Mcgonigle P. Animal models of CNS disorders. *Biochem. Pharmacol.* 2014. 87:140 – 149.

(感谢两刊编委李秦博士为此专栏付出的努力!)