

AN INTRODUCTION TO GENETIC ENGINEERING, LIFE SCIENCES AND THE LAW BY GEORGE WEI [Singapore: Singapore University Press, 2002. xxi + 317 pp. Paperback: S\$57.50]

Not many would be surprised to learn that IP scholar, Professor George Wei, has extended his research into the law relating to genetic engineering and life sciences; after all, the legal regime most often associated with life sciences is IP law, in particular, how patents can protect biotech/biomedical products and processes. Indeed, Prof Wei's most recent book, *An Introduction to Genetic Engineering, Life Sciences and the Law*, is structured mainly along the lines of three types of IP: Confidential Information/Trade Secrets (Chapter 2), Copyright (Chapter 3) and Patent (Chapter 4). This may give someone picking up the book and looking through its content page the impression that Prof Wei examines the legal issues arising in life sciences primarily from the perspective of IP law.

But this book is much more. First of all, the final chapter of the book (Chapter 5) provides a useful overview of local legislation which potentially have an impact on aspects of biotechnology and life sciences (eg. the Health Sciences Authority Act 2001 (Cap 122C) establishing a statutory board to, *inter alia*, conduct technological assessments of medicines and other health-related products for purpose of determining their safety and suitability for consumption or use; the Medical (Therapy, Education and Research) Act (Cap 175) which governs the use of bodies of deceased persons for education or research). The reader will also find in this chapter a summary of the various Government/public programs and agencies set up in this area (eg. the Singapore Genomics Programme; the Bioethics Advisory Committee).

Secondly, quite apart from the non-IP regulatory matters set out in Chapter 5, Prof Wei has woven into the chapters on IP detailed discussions of issues ranging from contract law to constructive trust. For instance, within the chapter on "Confidential Information/Trade Secrets", after explaining how genetic information obtained by employers when employees undergo medical screening may be protected as a type of confidential information, Prof Wei raised the interesting question of whether the doctrine of public policy within contract law would strike down a term of the contract of employment that facilitates genetic discrimination (see pp 96-99). In the same vein, the question of whether a person has rights over inventions based on his genetic resources (eg. cells in his spleen) under tort law (trespass, negligence, conversion) and constructive trust etc was explored within the chapter on Patents, after the reader has been adequately educated as to how such inventions can be patented (see pp 241-271). Prof Wei should be applauded for adopting this mode of treating these non-IP matters: when they are examined within the context of IP protection, it provides a far more holistic understanding of the various legal issues that can arise in this field.

As for the chapters of the book on IP, the reader will be struck, first of all, by the excellent digest of the law of confidential information, copyright law and patent law of Singapore. In fact, the book is the answer to the long felt need for a textbook on the general IP law of Singapore [There is an authoritative local specialized text on copyright – none other than Prof Wei's *Law of Copyright* (2nd Ed, 2000).]. For example, the chapter on "Confidential Information/Trade Secrets" reviews local cases such as *Tang Siew Choy v Certact Pte Ltd* [1993] 3 SLR 44 (on duty of confidentiality owed by ex-employees) and *X v CDE* [1992] 2 SLR 996 (on position where the defendant surreptitiously acquires the confidential information). Similarly, in the chapter on "Patents", there are detailed discussions of the two important cases, *Merck & Co Inc v Pharmaforte Singapore Pte Ltd* [2000] 3 SLR 717 and *Genelabs Diagnostics Pte Ltd v Institut Pasteur* [2001] 1 SLR 121, decided by the Singapore Court of Appeal. The local flavour injected into this book is especially important in the case of patents in biotechnology. The Singapore Patents Act 1994 (Cap 221), while modeled closely on the UK Patents Act 1977, is different in some material aspects: in particular, we no longer have the "negative" definition of an "invention" (this definition being deleted with effect from 1996) and we do not have the prohibition against patenting of varieties of animals or plants or any essentially biological process for the production of animals or plants, not being a micro-biological process or product of such a process.

The overview of each of these IP rights then serves as the backdrop against which Prof Wei then draws out specific issues relevant to life sciences and genetic engineering for discussion. Thus, for example, there is a useful reminder of how the elucidated nucleotide base sequences would lose their confidential nature almost as soon as they are elucidated as the Human Genome Project strives to post their discoveries every 24 hours. In patents, the question whether research results such as gene sequences are "inventions" is explored (and the significance of the deletion of the "negative" definition of "invention" in the Singapore legislation), and the applicability of the morality bar (see section 13(3) of the Patents Act 1994) is addressed in relation to different types of patent subject-matter, such as genes or gene fragments, proteins and amino acid sequences; genetically modified organisms and food products, somatic cell therapy, germ line gene therapy, human cloning and therapeutic treatment.

Ironically, the excellent analysis of Singapore copyright law in the chapter on "Copyright" may form the basis of a criticism that can be levied at the book. Does copyright have any relevance in genetic engineering and life sciences, it may be asked? Indeed, Prof Wei himself pointed out that the role of copyright in protecting the technological aspects of the life sciences and genetic engineering is "surprising and controversial" (at p 165). Any criticism of this nature is unfounded. It might even be said that any book on IP law in genetic engineering and life sciences would not be complete without reference to copyright. (It should be noted that in Laddie, Prescott and Vitoria on *The Modern Law of Copyright and Designs* (3rd Ed, 2000),

there is a chapter on “Molecules” touching on the copyrightability of DNAs and protein sequences.) It *is* important to understand why a claim to copyright is made on the database containing the gene sequences rather than the gene sequence itself, and further, this knowledge is incomplete without knowing what the *Feist* debate is all about and its relevance to the copyrightability of gene databases. Prof Wei also highlights how else copyright can be relevant in life sciences: for example, drawings of artificial genes can be protected as a type of artistic work and the implications that ensue.

All lawyers and non-lawyers will find this book an engaging and enlightening discourse of the legal issues in life sciences and genetic engineering. In addition, those looking into law reform in this area will appreciate the leads made by Prof Wei’s research into how some other countries have dealt with similar issues (*eg.* the enactment of Iceland’s Health Sector Database Act 1998 to regulate the gathering and use of health data including genetic information; the Australian Patents Act 1990 which prohibits the grant of a patent for a human being). Last but not least, for the non-scientist, the explanation on the science and technology involved in genetic engineering in Chapter One is invaluable.