

Those who prize organic and/or seasonal produce may well find that the premium prices increase in parallel to the use of 4. However, the complete loss of 4 after removal of the fruit from containment is apparently encouraging AgroFresh to seek US National Organic Standards Board to allow fruits treated with SmartFreshSM to be labeled as *organic*.

References and Notes

- Feist, F. *Ber. Deutsch. Chem. Ges.* **1893**, *26*, 747-764.
- Dem'yanov, N. Y.; Doyarenko, M. N. *Izvest. Rossiiskoi Akad. Nauk*, **1922**, *16*, 297-320 (*Chem. Abstr.* **1926**, *20*, 24031).
- Dem'yanov, N. J.; Doyarenko, M. N. *Ber. Deutsch. Chem. Ges. B*, **1923**, *56B*, 2200-2207.
- See e.g.: Halton, B. *Chem. in NZ*, **2007**, *71*, 53-60.
- Fisher, F.; Applequist, D. E. *J. Org. Chem.*, **1965**, *30*, 2089-2090.
- Salaun, J.; Baird, M. S. *Curr. Med. Chem.*, **1995**, *2*, 511-542.
- Ethene, C₂H₄, is formally ethene; for convenience the historical use of ethylene is retained here.
- Pirrung, M. C.; Cao, J.; Chen, J. *Chem. & Biol.*, **1998**, *5*, 49-57.
- Bleecker, A. B.; Kende, H. *Ann. Rev. Cell Dev. Biol.*, **2000**, *16*, 1-18.
- Reid, M. S.; Staby, G. L. *HortScience*, **2008**, *43*, 83-85.
- Blankenship, S. M.; Dole, J. M. *Postharvest Biol. Tech.*, **2003**, *28*, 1-25.
- Serek, M.; Reid, M. S.; Sisler, E. C. *J. Am. Soc. Hort. Sci.*, **1994**, *119*, 572-577.
- Sisler, E. C.; Serek, M. *Physiol. Plant.*, **1997**, *100*, 577-582.
- Sisler, E. C.; Blankenship, S. M. US Pat. Appl. WO 95-US6501 9533377 19951996:81686.
- Burg, S. P.; Burgh, E. A. *Plant Physiol.*, **1967**, *42*, 144-152.
- Koester, R.; Arora, S.; Binger, P. *Synthesis*, **1971**, 322-323.
- Magid, R. M.; Clarke, T. C.; Duncan, C. D. *J. Org. Chem.*, **1971**, *36*, 1320-1321.
- Sisler, E. C.; Blankenship, S. M. USA 5,518,988 1996.
- Floralife. see: <http://www.floralife.com> (accessed 30 Jun 2008).
- In some countries, notably the USA, a trademark used to identify a service rather than a product is called a service mark, SM.
- See <http://www.agrofresh.com>.
- Chong, J. A.; Farozic, V. J.; Jacobson, R. M.; Snyder, B. A., et al. US Pat. Appl. 2001-951049 2002043730 20022002:294094; but see: <http://www.freepatentsonline.com/6953540.html?query=Chong+Joshua+A&stemming=on> (accessed 4 Jul 2008).
- Daly, J.; Kourelis, B. US Pat. 6,017,849 2000.
- Karp, D. *The New York Times*, **2006**, *Dining and Wine*, 25 Oct. 2006.
- See: Leah Vyse, FoodandDrinkeurope.com, 13 Dec 2005 <http://www.foodanddrinkeurope.com/news/ng.asp?id=64546-sainsbury-s-apples-smartfresh> (accessed 25 Jun 2008).
- US Environmental Protection Agency: 1-Methylcyclopropane (224459) fact sheet see: <http://www.epa.gov/pesticides/biopesitcides/ingredients/factsheets/factsheet> and the associated technical data file (accessed 22 Jun 2008).
- Sisler, E. C.; Alwan, T.; Goren, R.; Serek, M., et al. *Plant Growth Regul.*, **2003**, *40*, 223-228.
- Grichko, V. *Russ. J. Plant Physiol.*, **2006**, *53*, 523-529.
- Apelbaum, A.; Sisler, E. C.; Feng, X.; Goren, R. *Plant Growth Regul.*, **2008**, *55*, 101-113.
- See for example: Li, Z.; Wang, L.; Wang, W.; Zhu, Y. *Zhiwu Shenglixue Tongxun*, **2007**, *43*, 201-206.
- Yang, X.-r.; Zhang, W.; Liu, S.-f.; Sun, X.-s., et al. *Tianjin Nongxueyuan Xuebao*, **2007**, *14*, 5-8.
- Wang, W.; Wang, Z.; Jia, X.; Tong, W., et al., (Research Institute of Pomology, Chinese Academy of Agricultural Sciences, Peop. Rep. China). Application: CN CN 1013-4263 1951202 20072007: 467731.
- Balogh, A.; Kiss, E.; Koncz, T.; Heszky, L. *Acta Hort.*, **2006**, *725*, 635-641.

Patent Proze

But what does it actually do?

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The first Court decision from the United Kingdom to consider the validity of a gene sequence patent, *Eli Lilly vs. Human Genome Sciences*,¹ has accentuated the need for an invention to have a practical purpose.

The Background of the Decision

Patents are granted for inventions which are considered inventive and to be useful to society. Patents are not granted for mere discoveries. So, whilst the synthesis of a new compound may be the result of a significant investment, the compound itself cannot be patented without knowl-

edge of a potential use, or more specifically, a commercial application. Similarly, while it is often possible to patent a gene sequence - even if identical to a gene found in its natural environment - the function or some commercial use for the gene sequence must also be disclosed.

In 2005, Human Genome Sciences (HGS) was granted a European patent covering the Neutrokin- α protein, the DNA sequence encoding it, antibodies binding to it, and corresponding pharmaceutical and diagnostic compositions. Neutrokin- α is a member of the TNF (Tumour

Necrosis Factor) ligand superfamily which has generated significant interest due to the role the ligands play in inflammation. With so many diseases associated with inflammation this family was a highly valuable target.

HGS-identified Neutrokin- α using bioinformatics – a process where computers are used to compare sequences and identify genes of interest by their similarity to previously identified and characterised genes. The patent application included a long description of predicted activities and uses for Neutrokin- α based on the genetic similarity to other members of the ligand family, which in some cases were not well understood at the time. However, the application contained no experimental evidence to support the asserted uses.

The Judgement

In 2007, Eli Lilly applied to revoke the patent on the grounds, amongst others, that there was a lack of industrial application (also referred to as utility, usefulness, or industrial applicability). The UK High Court agreed with Eli Lilly and revoked the patent. The court was of the opinion that the practical purpose was not clearly contained in the application in relation to what was known about the area of research at the time.

In coming to its decision, the Court set out some useful guidelines as to how to determine if an invention meets the *practical purpose* requirement. Highlights of the guidelines can be briefly summarised as follows:

1. The purpose need not be for profit;
2. it does not need to be explicitly laid out in the patent application but should be derivable by a person knowledgeable in the field taking into account what is known at the time of filing the patent;
3. the requirement will not be met if what is described is merely an interesting research result that might yield a yet to be identified purpose - a speculative indication of possible objectives is not sufficient;
4. if a substance is disclosed and its function is essential for human health, then the identification of the substance having that function will immediately suggest a practical application; and
5. it is not a bar to patentability that the invention has been found by bioinformatic techniques, although this may have a bearing on how a person knowledgeable

in the field would understand what was described in the specification.

Specific, Substantial and Credible

Similar principles apply in other countries. For example, in the US patents are granted only for inventions which have a *specific, substantial, and credible* use.

That is:

- The use must be *specific* rather than generic; in this case a long and diverse list of functions was provided, some of which were contradictory, and therefore the purpose was not considered to be specific;
- a *substantial* use is an *immediate real world use* - if further research is necessary to identify a specific use, as in the present case, the purpose is not substantial; and
- the use must be *credible* to a person knowledgeable in the field of the technology, for example, a perpetual motion machine is unlikely to meet this requirement.

The Situation in New Zealand

In New Zealand, a third party can challenge a patent on the ground the invention is not useful. However, usefulness of the invention is not assessed during the examination phase before the Intellectual Property Office. Amendments to the legislation seem set to change this. The much delayed and anticipated draft Patents Bill sets out five criteria which must be met by a patentable invention, one of which is that it must be *useful*. It also goes on to define an invention as being *useful* if it has a *specific, credible, and substantial utility*. It seems likely that New Zealand Patent Examiners will be expected to examine patent applications for a practical purpose in the future.

In conclusion, a patent application must demonstrate a practical purpose for the invention. As one Judge put it in a previous judgement: *a patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion.*

A reminder: if you have any queries regarding patents or patent ownership, or indeed any form of intellectual property, please direct them to:

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¹ Eli Lilly vs. Human Genome Sciences, Inc. [2008] EWHC 1903 (Pat), 31 July 2008.



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