A I P P I

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Report
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Biotechnology

Biotechnologie

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Report Q114

Biotechnology

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Introduction

The last report from Special Committee Q114 was prepared for the AIPPI ExCo meeting in Hyderabad and dated 2nd September 2011. In this current report we discuss new developments regarding IP in the sector and update the position with matters we reported last year. For Europe we consider issues surrounding the patentability of stem cell technologies following the Decision of the Court of Justice of the European Union in the case of *Oliver Brustle v Greenpeace eV,* the patentability of plants prepared by essentially biological processes, which is before the Enlarged Board of the EPO again and the final word on meeting the industrial application requirement for new molecules hand down by the Supreme Court in the UK. National Decisions in France and the Netherlands are also reported. In addition we present a report from the US on the impact of the *Mayo Collaborative Services v. Prometheus Laboratories, Inc*. and *Association for Molecular Pathology v. Myriad Genetics, Inc.*, cases on patenting of diagnostics and DNA, a report from Japan on recent findings concerning the enablement requirement for medical uses and the standard for

inventive step and from Australia, a discussion of the current state of the gene patent debate there. A separate section of this report is also devoted to developments in the area of Plant Breeders Rights. The Committee continues to monitor developments as they arise and discuss opportunities for AIPPI to comment and potentially influence outcomes.

1) European Patent Office

i) G02/12

In an interlocutory Decision (T1242/06) of EPO Technical Board of Appeal 3.3.04 of 31 May 2012, the Board referred further questions to the Enlarged Board of Appeal concerning the exclusions from patentability under Article 53(b) EPC. Specifically, the Article relates to the exclusion from patentability of plant and animal varieties and essentially biological processes for the production of plants and animals. In the case in question, the patent had been granted with claims to methods for breeding tomato plants with reduced water content which had the effect of causing extended preservation and wrinkling of the skin and to tomato plants *per se* which could be produced by the disclosed method.

The patent was opposed. In Appeal proceedings from the Opposition Division, the Board had to consider whether the claimed method was an essentially biological process excluded under Article 53(b) and referred the questions to the Enlarged Board of Appeal concerning whether, if additional steps of a technical nature over and above crossing and selecting steps were present in the claim, the exclusion was avoided. The Enlarged Board handed down a decision in December 2010 under G01/08 and ruled that if a process contains within it the steps of sexually crossing and selecting, an additional step of a technical nature, which by itself introduces a trait into the genome or modifies a trait in the genome of a plant produced so that the introduction or modification of that trait is not the result of the mixing of the genes of the plants chosen for sexual crossings, then the process is not excluded from patentability under Article 53(b) EPC.

Since the claimed breeding method in the patent at issue could not meet these requirements, on resumption of proceedings before the Technical Board of Appeal, the patent proprietor removed the method claims from further consideration and pursued only the claims to the tomatoes *per se*. This left the Board having to consider whether the maintenance of such claims thwarted the intended effect of the exclusion of essentially biological processes under Article 53(b). The Board have therefore referred the following further questions to the Enlarged Board of Appeal in referral G02/12.

1. Can the exclusion of essentially biological processes for the production of plants in Article 53(b) EPC have a negative effect on the allowability of a product claim directed to plants or plant material such as a fruit?
2. In particular, is a claim directed to plants or plant material other than a plant variety allowable even if the only method available at the filing date for generating

the claimed subject-matter is an essentially biological process for the production of plants disclosed in the patent application?

3. Is it of relevance in the context of questions 1 and 2 that the protection conferred by the product claim encompasses the generation of the claimed product by means of an essentially biological process for the production of plants excluded as such under Article 53(b) EPC?

These proceedings are unique in that this is the first patent ever to generate issues requiring two Enlarged Board referrals. Notwithstanding that the Opponent actually withdrew their Appeal against the original decision of the Opposition Division the matter remains pending before the Enlarged Board. Amicus briefs from third parties are invited and deadline for submission is end of November 2012. The Committee will consider whether AIPPI may usefully comment on this case and provide a recommendation on whether such a brief should be filed. In the meantime the European Parliament has already commented on the issue as discussed under Section 3 below.

ii) Sequence Listings

For patent applications including amino acid and nucleotide sequences it is necessary to provide sequences to patent offices in an electronic form and to a particular formatting standard. The current formatting standard is the ST.25 standard, which is TXT-based. The EPO has recently been running a consultation with users on the introduction of a new standard, ST.26 which would be in XML format. This format is more computer-readable and includes the possibility of many more features about the sequences being displayed. However, comments received in the consultation suggest that any advantages of the new format would be felt primarily by patent office searchers but there could be significant pitfalls for applicants.

A particular concern is that the syntax of the new listings is intended for reading by computers and thus very difficult to read by eye. Not only does this create a problem if the sequence is printed but viewing on screen would require some sort of transformation of the source information by appropriate software, and one could not be sure if it was the authentic text. Among other concerns is the difficulty in editing in XML which may require those with special expertise in the format to carry it out. The risk of mistakes could be high.

The general conclusion from the consultation to date seems to be that too many uncertainties need to be resolved for adoption of the new format soon, and that users would prefer an upgrading of the existing ST.25 format to include new features while maintaining the advantages of the TXT format.

2) Court of Justice of the European Union

C-34/10 – Oliver Brustle v Greenpeace eV

In October 2011 the CJEU delivered its decision in the case of *Oliver Brüstle v Greenpeace eV*, a reference to the Court of Justice of the European Union (CJ) from the German Federal Court. The appeal case before the Bundesgerichtshof concerns the validity of Mr Brüstle's national patent, which relates to technology based on the use of human embryonic stem cells. In particular, the claimed invention concerns the isolation and purification of neural precursor cells used for the treatment of neural defects.

Greenpeace challenged the validity of the patent for the reason that it requires the neural precursor cells to be obtained from human embryonic stem cells. In reaching their decision, the Bundesgerichtshof considered it necessary to refer questions to the CJ relating to the interpretation of Directive 98/44/EC of 6 July 1998, (the Biotech Directive) on the legal protection of biotechnological inventions.

The reference concerned, in particular, Article 6 of the Biotech directive, which excludes from patentability inventions that are contrary to *"public order"* or morality, and specifically excludes *inter alia "uses of human embryos for industrial or commercial purposes"*. Since Mr Brüstle's invention involved obtaining pluripotent stem cells from few-day old "blastocysts", the German court felt it necessary to seek clarification regarding the following:-

- What is meant by the term "human embryos" in Art. 6(2)(c) of Directive 98/44/EC?
- What is meant by the expression "uses of human embryos for industrial or commercial purposes"?
- Is technical teaching to be considered unpatentable pursuant to Art. 6(2)(c) of the Directive even if the use of human embryos does not form part of the technical teaching claimed with the patent, but is a necessary precondition for the application of that teaching,

    (a) because the patent concerns a product whose production necessitates the prior destruction of human embryos, or
    (b) because the patent concerns a process for which such a product is needed as a base material.

The Court's answers to these questions substantially followed the earlier Advocate General's Opinion issued in March 2011, which is discussed in the previous report of Committee Q114 of 2nd September 2011.

On the issue of the definition of an embryo the CJEU concluded that this includes:

– *A human ovum as soon as fertilised, if that fertilisation is such as to commence the process of development of a human being:*

- *A non-fertilised human ovum into which the cell nucleus from a mature human cell has been transplanted, in so far as it is capable of commencing the process of development of a human being;*
- *A non-fertilised human ovum whose division and further development have been stimulated by parthenogenesis, insofar as it is capable of commencing the process of development of a human being.*

On the scope of the exclusion under Article 6(2)(c) the court concluded:

- *Article 6(2) of the Directive excludes an invention from patentability where the technical teaching which is the subject-matter of the patent application requires the prior destruction of human embryos or their use as base material, whatever the stage at which that takes place and even if the description of the technical teaching claimed does not refer to the use of human embryos.*

These conclusions are controversial. Firstly, the CJ's finding as to the meaning of "embryo" has been suggested to be factually flawed, at least insofar as it relates to a non-fertilised ovum produced by parthenogenesis. At the UKIPO two applications relating to a method of producing human stem cells by stimulating human oocytes to divide into "parthenotes" and the use of these to generate synthetic corneas respectively, have been refused on the basis of the CJ's definition of an embryo. The applicant's challenge to such a finding was that as the "parthenote" could not develop into a human being and as such could not be considered an embryo. In this respect the CJ's decision was factually flawed and should not be followed. This argument did not succeed but the Hearing Officer did note that the applicant's arguments raised an important question about the factual basis of the CJ's decision. An Appeal has now been lodged to the Patents Court which will be of great interest and the Committee will continue to monitor.

On the question of the overall scope of the exclusion under Article 6(2) the finding is also a cause for concern since it appears to prohibit the patenting of human stem cell technologies which could have hitherto been patented at the EPO following the Enlarged Board of Appeal Decision G02/06, the WARF case. In that Decision the Enlarged Board had to consider the scope of Rule 28(c) EPC which prohibits the patenting of *uses of human embryos for industrial and commercial purposes",* in relation to a claim to a cell culture of primate embryonic stem cells which could be prevented from differentiation by culturing on a fibroblast feeder layer.

The Enlarged Board concluded, as did the CJEU, that if the invention necessitated destruction of a human embryo then it was unpatentable by virtue of Rule 28(c). However, this prohibition applied in situations where the invention could only be obtained by such means. Subsequent practice, therefore, was to allow patents for embryonic stem cell technologies where the invention could have been implemented from a human embryonic stem cell line deposited in a cell bank. The finding of the of the CJEU that the exclusion applies where the subject matter of the patent application requires the prior destruction of human embryos at whatever stage that takes place, has cast doubt on the EPO Practice. All current indications are that the EPO is now following the CJEU

principle and excluding from patentability inventions where the implementation involves established human embryonic stem cell lines on the basis that these must have been generated from an embryo at some point in time. The UKIPO has also issued a Practice Notice confirming that, where the implementation of the invention requires the use of a human embryonic stem cell line the establishment of which originally required the destruction of a human embryo, the invention is not patentable.

It will be noted that the CJEU Decision is contrary to the Resolution adopted by the AIPPI at the Berlin ExCo in 2005 concerning the patentability of human embryonic stem cell lines. The decision raises serious concerns for the Biotech Sector. It is yet to be seen to what extent the decision will harm investment in the technology in Europe but the European Parliament has openly supported the CJEU Decision (see below).

3) European Parliament

Resolution of European Parliament

It is relevant to mention that the Parliament mentioned:

> *"Parliament welcomes the decisions of the Enlarged Board of Appeal of the European Patent Office in the'broccoli' (G 2/07) and 'tomato' (G 1/08) cases, dealing with the correct interpretation of the term'essentially biological processes for the production of plants (or animals)' used in Directive 98/44/EC and the European Patent Convention to exclude such processes from patentability.*
>
> *It calls on the EPO also to* ***exclude from patenting products derived from conventional breeding and all conventional breeding methods, including SMART breeding (precision breeding) and breeding material used for conventional breeding.***
>
> *Parliament also welcomes the recent decision of the European Patent Office in the WARF case and of the European Court of Justice in the Brüstle case, as they appropriately interpret Directive 98/44/EC and give important indications on the whole content approach. They call on the European Commission to draw the appropriate conclusions from these decisions also in other relevant policy areas in order to bring EU policy in line with these decisions."*

This means that there is no hope of relying on the EU parliament to counter the CJEU decision.

4) National Courts in Europe

i) UK Supreme Court

HGS v Eli Lilly

On 2nd November 2011, the Decision of the Supreme Court in the UK was handed down in the case of *Human Genome Sciences Inc v Eli Lilly and Company*. The principle issue in the case was the level of disclosure of function required for a claimed new biological molecule to meet the industrial application requirement.

In these proceedings Lilly had applied to revoke HGS Patent EP-B 0939804, both centrally at the EPO and nationally in the UK. The patent related to a nucleic acid sequence and the protein it encoded which was identified as a novel member of the TNF ligand superfamily of molecules. This new molecule was given the name Neutrokine-a. The nucleic acid and protein were claimed, as well as antibodies specifically binding to the protein and pharmaceutical and diagnostic compositions containing the protein or antibodies. HGS had identified the new molecule using bioinformatic tools. The patent attributed to the molecule all the functional properties of other known TNF family members and provided a considerable list of possible pharmaceutical and diagnostic uses on that basis. However, these were predictions and not supported by any experimental data obtained from *in vitro* or *in vivo* studies. Lilly contended that these predictions were wholly speculative and that HGS did not know the biological activity or function of Neutokine-a, the identity of any diseases with which it might be associated and hence the diseases it might be able to treat, at the time it filed the patent application. Thus, no utility existed for the invention claimed at the filing date and hence all the claims were invalid for failing to be capable of an industrial application. This was really the first time the Court had had to consider what is required for an industrial application to be recognised.

In a very detailed judgement at first instance in the UK, the Judge agreed with Lilly and found all the claims invalid for lack of industrial applicability. In reaching his decision, great weight was placed on the existing decisions of the EPO on this point, as well as the application of the Utility Requirement in the US. Specifically, the Judge held that the application did not provide any sound or concrete basis for recognising that Neutrokine-a could lead to a practical application in industry. Rather, it provided sound and concrete basis only for a research project to find out what the molecule actually did and what it could be used for. It's use as a tool to investigate its own activities did not constitute a relevant industrial application.

This decision was upheld on Appeal, notwithstanding that in the interim the EPO Technical Board of Appeal had found in favour of HGS on this issue and maintained the Patent. Thus, in T0018/09 the Technical Board acknowledged two extreme positions:

> *1) All family members share well-characterised and understood function so that the immediate concrete benefit is apparent and industrial applicability can be recognised without further data or*
>
> *2) Family members have different pleiotrophic effects which are not completely understood in which case experimental functional data would always be required in the application for finding of an industrial application.*

They went on to state that the case of Neutrokine-α fell between these two extremes and detailed examination of the facts was required. Upon analysis the Board concluded that industrial application could be recognised on the basis of the common functions that Neutrokine-α shared with the other family members. In particular it was held that the skilled person would expect Neutrokine-α to be expressed on activated T-cells and to co-stimulate T-cells. This is a common functional feature of the family. This expectation was supported by statements in the specification, even though not directly by data. It was nevertheless enough for an industrial application to be recognised as the skilled reader would be able to distinguish this positive technical information form the other allegedly contradictory broad statements.

In view of the complex and contradictory history of the case, the Supreme Court was not in an easy position. It particularly stressed the importance of UK Patent Law aligning itself, so far as possible, with the jurisprudence of the EPO. Therefore, similar to the Judge at first instance, the court carried out a detailed analysis of the Technical Board of Appeal Decisions concerning industrial application which had issued before T0018/09. A number of principles were identified which applied in the case where the patent disclosed a new protein and its encoding gene and where the protein was said to be a family or superfamily member. Particular emphasis was placed on the principles that, for the industrial application requirement to be met, the use need only be “plausible” or “credible”, the absence of experimental data or wet lab evidence need not be fatal and may be confirmed later and the requirements of a plausible and specific possibility of exploitation can be met at the biochemical, cellular or biological level. Emphasis was also placed on whether the disclosure would be regarded as “important to the pharmaceutical industry “ and whether there was any evidence that called into question the disclosed role or family membership.

In a lengthy judgement the Supreme Court concluded that neither the Court of First Instance, nor the Court of Appeal, had applied the EPO Jurisprudence correctly to the case. In particular insufficient weight had been given to the points above, especially the concept of “plausibility” which had not been approached in a manner consistent with the Boards of Appeal. The Judge at First Instance had concentrated on the absence of firm evidence of specific therapeutic roles for Neutokine-a as opposed to its other roles at the biochemical, cellular or biological level which arise from its membership of the TNF ligand superfamily and their known properties. In so far as it’s membership of this family was plausibly shown and it could be expected to exhibit the common properties known to the family i.e its expression on T-cells and co-stimulation of T-cell proliferation, the EPO case law suggested the potential to satisfy the industrial application requirement existed. Further more specific information was not necessary and no evidence to the contrary had been supplied by Lilly. In addition Neutokine-a was undoubtedly of interest to the pharmaceutical industry. The Supreme Court thus overturned the earlier finding and an industrial application was recognised.

This report should be regarded as merely a snapshot of the issues which arose in this case and a full reading is recommended. On balance the Decision has welcomed as it

confirms the bar for meeting the industrial application requirement is not too high in Europe.

ii) France

Court of appeal of Paris, Pôle 5, ch 2, 4 May 2012, Taconic v. Cellectis, Institut Pasteur.

Two interesting decisions have been issued in two separate matters between Cellectis and:

- GenOway: *tribunal de grande instance* of Paris, 12 November 2009, 3rd chamber, 4th section;
- Taconic Farms: *tribunal de grande instance* of Paris, 26 June 2010, 3rd chamber, 1st section.

Cellectis is the owner (or master licensee) of a family of patents resulting from WO 90/11354, notably EP 0 419 621 regarding a "*method for the specific replacement or insertion of a gene*".

Cellectis has granted a non exclusive licence of this patent to Taconic.

The licensee has been selling breeding pairs of transgenic mice to its customers and authorized said customers to have them reproduce.

Cellectis alleged that such sale breaches the licence agreements which prohibits the grant of sublicenses and therefore requested the termination of the licence agreement and the payment of royalties.

In first instance, the *tribunal de grande instance* of Paris considered that:

- the sale of breeding pair of transgenic mice, with the authorisation of reproducing the mice, amounts to an authorisation of reproducing the product directly obtained by the patented process;
- the licensor was therefore authorized to terminate the licence agreement.

The court of appeal confirms the legal analysis regarding articles 8 and 9 of EU Directive No. 98/44 of 6 July 1998; it confirms that the sale of a breeding pair of transgenic mice, with the authorisation of reproducing the mice, amounts to an authorisation of reproducing the product directly obtained by the patented process and thus to an act of infringement and thus to a breach of the licence agreement.

However, the court of appeal reverses the first instance decision on the ground that the licensor was not authorized to terminate the licence agreement and that only a court could terminate the agreement.

iii) Netherlands

Court of The Hague, 31 January 2012, Taste of Nature v. Cresco

This is an interesting case before the Dutch Court dealing with the issue of patentability of products of essentially biological processes in parallel with the EPO in G02/12..

Taste of Nature is the holder of EP No 1 290 938 relates to a plant and a sprout of a plant of the radish species Raphanus sativa with an increased nthocyanin level, and to methods for its production.

Claim 1 reads as follows :

> *" A Raphanus sativa plant, obtainable by screening Raphanus sativa plants for their ability to produce sprouts with at least some purple coloring, selfing and/or crossing said plants for several generations and selecting progeny having sprouts with purple coloring, characterized in that the sprout of said plant comprises anthocyanins at a level of at least 800 nmol per gram fresh weight of sprout."*

Taste of Nature initiated preliminary proceedings against Cresco, on the basis of this patent.

> The Court of the Hagues addresses the issue of *patentability in light of Article 53, opening lines and (b), of the EPC; in doing so it clearly refers to EPO Enlarged board of appeal decisions G2/07 and G1/08 i.e the broccoli and tomato case.*

The court dismissed Taste of Nature request on the ground that it is plausible that claim 1 of the patent is not patentable according to art. 53 c) EPC:

> *"In its provisional opinion it is plausible that under Article 53, opening lines and (b), of the EPC, not only an essentially biological method is unpatentable, such as the "classical breeding" in this case, but also a product directly obtained by using that method, because a method claim also protects the product directly obtained using that method (see Article 64(2) of the EPC). If it were to be ruled that a product-by-process claim is admissible for the directly obtained product of an unpatentable essentially biological method, that would render the exclusion in Article 53, opening lines and (b), of the EPC as interpreted by the EBA in G1/08 pointless, because in that case the same situation would be involved as if the EBA had considered the process claims admissible, which is not the case."*

5) United States

Two cases this year explored the boundaries of patent eligible subject matter. Both decisionshold considerable significance for life science practitioners and their clients. Since the U.S. Supreme Court decision in *Bilski v. Kappos*, 130 S.Ct. 3218 (2010) the question of

which methods were eligible for patenting has been the center of attention for U.S. practitioners in the life science field. The *Bilski* court set forth the by now famous “machine or transformation” test for assessing whether a process or method was eligible for patent protection under section 101 of the U.S. Patent Law.

This section of the Patent Law affords protection for four categories of subject matter: processes, machines, manufactures and compositions of matter (35 U.S.C. § 101). Over the years the courts have ruled that so called “laws of nature”, “natural or physical phenomena” and “Abstract Ideas” are not patent eligible. However the courts have also found that specific/particular uses of a law of nature were eligible for patenting.

In *Mayo Collaborative Services v. Prometheus Laboratories, Inc*., 132 S.Ct. 1289 (2012) the court addressed the question of whether 35 U.S.C. § 101 was satisfied by a patent claim that covers observed correlations between blood test results and patient health, so that the claim effectively preempts all uses of the naturally occurring correlations, simply because well-known methods used to administer prescription drugs and test blood may involve “transformations” of body chemistry.

The short answer provided by the court was “No”! The court found the Prometheus claims did not add enough to their statements about the correlations to allow the processes they describe to qualify as patent eligible processes that apply natural laws. The court found that to be patentable, a claim that relies on a law of nature must do more than simply suggest “consider it” or “apply it”.

> “*If a law of nature is not patentable, then neither is a process reciting a law of nature, unless that process has additional features that provide practical assurance that the process is more than a drafting effort designed to monopolize the law of nature itself*.” 132 S.Ct. 1289

Of more significance is the court’s holding that adding elements that are well known in the art, routine, conventional, or that simply identify who uses the claim, e.g. steps that are required to get to the natural law, won’t save a claim that otherwise relies on a law of nature. Conflating patent eligibility under section 101 of the Patent Law with patentability under section 102/103, the court found that to be patent eligible, the candidate process had to possess an “inventive concept”.

Representatives of companies and institutions in the biotech, pharma, and medical diagnostic fields have questioned the decision because it could mean that many patents in those sectors could be invalidated.

On August 16, 2012 in a 2-1 decision in *Association for Molecular Pathology v. Myriad Genetics, Inc.*, the Federal Circuit Court of Appeals upheld (for the second time) the patentability of isolated genes linked to breast and ovarian cancer, after the U.S. Supreme Court vacated and remanded its initial decision. (*Association for Molecular Pathology v. Myriad Genetics, Inc*., No. 2010-1406 Fed. Cir. Aug.16, 2012) The court denied the company’s effort to patent methods of "comparing" or "analyzing" DNA sequences. The court also affirmed the lower court decision that Myriad’s method claims directed to “comparing” or “analyzing” DNA sequences are not eligible for patent protection. These

claims were found to include no transformative steps and to therefore embrace abstract, mental steps that are not eligible for patent. “Permitting patents on isolated genes does not pre-empt a law of nature,” said Judge Alan Lourie in the Federal Circuit’s lead opinion.

Although the court’s decision sanctions the patent eligibility of DNA and some methods of using isolated DNA, it raises serious questions regarding the patent eligibility of diagnostic gene tests in the U.S.

6) Japan

i) Summary of 2nd BoA Decision of 2006-27319 on December 5, 2011 after Remand from IP High Court

1. Contested Patent Application

The application is a national entry of WO 2003/35072, which corresponds to EP1446122. Contested claim 1 reads as “Use of flibanserin, optionally in form of the pharmacologically acceptable acid addition salts thereof, for preparation of a medicament for treatment of disorders of sexual desire”.

2. Brief History of the Instant Case

The examiner decided to reject the patent application on the ground that the patent application does not meet the requirements of Section 36 (6) 1 (Support Requirements) and Section 36 (4) (Enablement Requirements).

The Board of Appeal rejected the Appeal against the Examiner’s decision that the patent application does not meet the requirements of Section 36 (6) 1 (Support Requirements). The IP High Court vacated the decision of the Board of Appeal and remanded the case back to the Boards of Appeal.

The Board of Appeal further considered the case and maintained the Examiner’s decision that the patent application does not meet requirements of Section 36 (4) (Enablement requirements).

3. Summary of the 2nd Decision by Boards of Appeal

3-1. Common General Knowledge as of filing

Firstly, the Board of Appeal found that no common general knowledge existed as of filing indicating the relationship between structure of flibanserin and enhancing sexual desire. This is in line with applicant’s argument advance during examination.

3-1-1. Examination at the Examining Division

In the examination procedure, D1 (WO93/03016) was cited to show that the claimed invention lacks novelty or inventive step.

D1: WO93/03016 which is equivalent of EP0526434.
EP0526434 at [0007]

We have now synthesized, and this is the object of the present invention, a novel class of structurally distinct compounds showing affinity for the 5-HT1A and 5-HT2 receptors. These new compounds may be useful in the treatment of CNS diseases such as affective disorders, (for example depression and bipolar disorders), anxiety, sleep and sexual disorders, psychosis, schizophrenia, personality disorders, mental organic disorders and mental disorders in childhood, aggressiveness, age associated memory impairment. Moreover they may be used for cardiovascular disorders such as hypertension and thrombosis.

3-1-2. Applicant’s Arguments

(1) Novelty

D1 discloses only that chemical compounds such as flibanserin might be useful for the treatment of sexual disorders, but this is only an example generically included in a broad range of diseases.

The claimed "sexual desire disorder" falls within the sexual disorders mentioned in D1, but sexual disorders includes various clearly distinguishable disorders such as sexual dysfunction (sexual aversion disorder, and hypoactive sexual desire disorder), sexual arousal disorder, orgasm disorder, pain during sexual intercourse disorder, substance-induced sexual dysfunction, and sexual disorders not otherwise specified.

However, D1 does not mention anything regarding use of flibanserin for the treatment of sexual desire disorder. Thus, the claimed inventions are novel.

(2) Inventive Step

D1 discloses 34 compounds or 8 compounds as preferred compounds, and various diseases to which these compounds might be applicable, but does not mention nor suggest a specific combination of flibanserin and sexual desire disorders.

1-2. Common General Knowledge as of Filing in View of the Above Arguments
As is clear also from the applicant’s arguments above, it is NOT within the common general knowledge that flibanserin is applicable for the treatment of sexual desire disorders.

3-2. Disclosure of the Specification: Board of Appeal

Secondly, the Board of Appeal considered whether from the description it is possible to understand the efficacy of flibanserin in the manufacture of a medicament for the treatment of disorders of sexual desire.

(a) The specification states that: "in studies of male and female patients suffering from sexual dysfunction, it has been found that flibanserin optionally in form of the pharmacologically acceptable acid addition salts thereof displays sexual desire enhancing properties."

However, the specification is silent on test method or test data. Furthermore, there is no theoretical explanation in the specification that flibanserin has properties of enhancing sexual desire.

(b) The specification also states that "according to a further aspect of the invention the use of flibanserin optionally in form of the pharmacologically acceptable acid addition salts thereof for the preparation of a medicament for the treatment of female sexual dysfunction is preferred.

However, above description relates to generic concept of sexual dysfunction, NOT disorders of sexual desire.

The Board also considered other descriptions (c)-(f) in the application, and found descriptions of the formulation, dosage or an example of preparation of flibanserine, but no mention was made on characteristics of flibanserin to enhance sexual desire.

3-3. Data Filed after Filing

During the examination procedure, the applicant argued that above cited (a) clearly indicates flibanserine has a characteristic of sexual desire enhancing properties, and furthermore formulation and dosage is described in the specification, and the applicant submitted actual clinical research data as pharmacological data based on ASE index (Arizona Sexual Experience Scale). Thus, the applicant argued that the applicability of flibanserin for the treatment of sexual desire disorder is supported by the specification.

The Board is of the opinion that the above cited (a) is merely a conclusive statement without any description how the experiment was conducted and what data bases lead to such a conclusion, and the description of formulation does not support characteristics of flibanserin to enhance sexual desire. Furthermore, data submitted after filing is NOT described in the description of the application, and supplementing description of the application with data submitted after filing to meet the enablement requirements is NOT allowed because it is against the basis of patent system which is to grant a patent based

on the presupposition that the invention is published. Thus, the above submitted clinical data may not be considered.

The Board mentions that “if later submitted pharmacological data may be considered when a specification merely mentions it is effective for specific medical use, then, it is possible to file a patent application at a stage when the efficacy of a medicine is not still certain, and confirm the efficacy by submitting pharmacological data after filing application. This may, in a sense, encourage a filing of a patent application before completion of an invention. Furthermore, this is not appropriate and it is not fair because a person who confirms the efficacy by experiment would be delayed in filing a patent application.

ii) Gene Therapy IP high Court H22 Gyoke 10203

1. Brief History

On January 18th 2006, the examiner decided to conclusively reject Application No. JP2000-514993, being the national phase of WO99/18195 filed on October 4, 1998, and claiming a priority date of October 3, 1997.

The applicant appealed to the Board of Appeals on April 24, 2006, but the Board decided to reject the appeal on February 9, 2010, and transmitted a copy of the decision on February 23, 2010. The applicant further appealed to IP high Court.

2. Contested Claim 1:

A vector for expressing a sequence in a cancer cell comprising a polynucleotide comprising H19 regulatory sequence operably linked to a heterologous sequence encoding a cytotoxic gene product, wherein the cancer cell is bladder tumor cell or bladder cancer.

2. Board of Appeals

2-1. Cited documents:

D1: JP A H09-504955 equivalent of WO
D3: Mol.Pathol.,Vol.50 Feb,1997 pp.34-44
D4: The EMBO Journal, Vol.7, No.3 1988 pp.673-681
D5: Molecular and Cellular Biology, Vol.8, No.11 1988 pp.4707-4715
D6: Am. J. Hum. Genet., Vol.53 1993 pp.113-124

2-2. Commonality of claimed invention and D1:

A vector for expressing a sequence in a cancer cell comprising a polynucleotide comprising a regulatory sequence operably linked to a heterologous sequence encoding a cytotoxic gene product.

2-3. Difference from D1.

(i) Claimed invention uses H19 as regulatory sequence.
(ii) In the claimed invention, cancer cell is bladder tumor cell or bladder cancer

2-4. Summary of Board of appeals holdings:

(i) Use of H19 promoter as a promoter

D1 discloses use of a defective recombinant adenovirus used as a vector for gene therapy, and an expression signal, that is a promoter, contained in the vector which is inactive in normal cell and active in tumor cell.

D3 discloses that H19 abundantly expresses in many various embryonic cells during early stage of embryo to fetus, but expression of H19 gene is inhibited after birth. However, it is also publicly known that H19 is expressed in various tumor cells in children or adults including in bladder cancer cells. Thus, a person in the art can understand that promoter of H19 preferentially functions in adult cancer cells as an alpha-fetoprotein promoter, but is inhibited in normal cells in children or adults.

Promoter of H19 is disclosed in D4, D5, and D6. Hence, it is obvious for a person in the art to use the H19 promoter as a promoter in D1.

(ii) Bladder Cancer as a target

Furthermore, bladder cancer is indicated in the D3, thus is would be easy to choose bladder tumor cells or bladder cancer.

3. IP High Court

3-1. Appellant:

Issue: Assessment of Inventive Step

It was not easy for a person in the art to choose, from among promoters known to express in tumor cells, a promoter which specifically express in tumor cells to produce a heterologous sequence in high levels.

For example, AFP gene expresses in hepatocarcinoma cell, but AFP promoter expresses AFP gene only in a tumor cells where AFP is over produced. In a cell where AFP is low expressed, AFP promoter has low activity, and expression efficiency of an introduced gene is low.

It was a general common knowledge that most tumor specific promoters were not able to sufficiently express introduced genes even in 2005, 8 years after the priority dates.

Furthermore, H19 gene is not translated into protein, but remains as RNA, thus it is not conceivable to choose a promoter of a gene, the final product of which is not protein, for the expression of a protein.

Thus, the board erred in the assessment of inventive step.

3-2. The IP High Court finds:

3-2-1.

As of priority date, a person in the art understood that sufficient success was not achieved even though various attempts were made to damage tumor or cancer by introducing a foreign gene.
The reason for the failure includes reasons such as insufficient activity of the promoter for the expression of the introduced gene, or an impediment posed by immunological reaction of the host.

Biological function of H19 was not fully elucidated as of the priority date.

D1 is silent on H19 gene.

D3 mentions the following:

- The H19 gene is an imprinted, maternally expressed gene in humans, and the H19 gene product is not translated into protein and functions as an RNA molecule. H19 is abundantly expressed in many tissues from early stages of embryogenesis through fetal life, and is down regulated postnatally. It is also expressed in certain childhood and adult tumours.
- H19 was expressed in four (16%) of 24 grade I, in 13 (65%) of 20 grade II, and in 14 (58%) of 24 grade III papillary transitional cell carcinomas of the urinary bladder.
- H19 was also expressed in 10 (71%) of 14 samples of carcinoma in situ of the urinary bladder mucosa, most of which were taken from sites adjacent to invasive cancer.
- Expression of H19 was detected in 4 out of 7 kidney Wilms' tumor cases, but expression of H19 was NOT detected in renal cell cancer.

2-3. The IP High Court holds:

Firstly, the court mentions that D3 indicates that endogenous H19 gene is highly probably expressed in progressive bladder tumor cells, thus the gene could be a good clue to provide a promote and an enhancer.

Then the court states "as mentioned above, as of priority date, a person in the art understood that it would be difficult to cause damage to a tumor (cancer) by introducing exogenous gene because of reasons such as insufficiency of promoter activity, and insufficient elucidation of biological function of H19.

Furthermore, D3 also mentions that the expression of H19 was detected in 4 out of 7 kidney Wilms' tumor cases, but expression of H19 was NOT detected in renal cell cancer. D6 mentions expression of H19 was not detected in a Wilms' tumor cell strain, G401. That means that expression of H19 is variable even in tumors of the same organ.

Thus, even though D3 discloses an expression pattern of H19, there remained a significant degree of uncertainty as to whether application of the portions of D3 to D1 cited above would produce the desired effects.

Thus, it is questionable to evaluate it as easy for a person in the art (difference (i)) to replace expression signal such as alpha feto-protein promoter disclosed in D1 with H19 promoter within regulatory sequence of H19 gene; and (difference (ii)) to select bladder cancer as target cancer.

On the other hand, the instant specification indicates that present invention successfully reduce size of bladder cancer in model mouse.

Furthermore, Exhibit 10, which includes an inventor of instant application among its authors, reports that (i) administration of a vector using promoter to express diphteria toxin DT-A to a mouse developing bladder cancer reduces tumor by 40 % on average in comparison with control mouse; (ii) administration of a vector (DTA-H19) comprising a promoter to express diphteria toxin DT-A to a human bladder cancer-bearing nude mouse significantly reduces growth speed of tumor, while in the control mouse without administration, volume of tumor increases 2.5 times; (iii) administration of the same vector (DTA-H19) to bladder cancer-bearing rat reduces tumor by 95% in comparison with control rat; and (iv) Intravesical instillation with DTA-H19 decreases tumor volume by 75%, and no recurrence of TCC occurred even 14 months (for one patient 17 months) after the first DTA-H19 treatment.

Even though [0078] does not disclose effects of the invention by specific concrete numericals, (i) and (ii) above are clearly within the effects of the instant invention, thus consideration of the Exhibit 10 does not pose any danger in terms of equal treatment in relation to other third parties.

The instant invention produces unexpected effects, thus the instant invention is NOT obvious.

4. Discussion

The JPO has often considered an invention to lack inventive step if it is "obvious to try" regardless of the expectation of success as at the time of filing.

This court decision cautioned against simplistic assessments of inventive step based on "obvious-to-try", when there is uncertainty as to whether the trial would produce the desired effects. The court made a careful inquiry into the technical level as of time of filing that revealed uncertainty with regard to production of the desired effects. For the last decade, we have had the impression that the JPO often treated effects argued by applicants to unexpected effects, as bonus effects or expected effects, where they were theoretically possible.. Here, the court differentiated wishful or theoretical effects from reasonably expected results.

This approach seems similar as "would/could" test or analysis of "reasonable expectation of success".

Furthermore, this decision clarifies circumstances where data filed after filing should be considered.

7) Australia

The Gene Patents Debate in Australia - An Update

The patentability of genetic materials has been the subject of considerable community debate in Australia and elsewhere in recent years. Several inquiries have been held in Australia, including the Senate Gene Patents Report (24 November 2010), the 2011 ACIP Report on Patentable Subject Matter, and the 2004 Australian Law Reform Commission's Report on Genes and Ingenuity: Gene Patenting and Human Health (ALRC 99 Report). One of the recommendations of the Senate Gene Patents Report was that the Government provide a combined response to these Reports.

The Government accepted that recommendation and, on 23 November 2011, the Government's combined response to those Reports was released. In the Media Release accompanying the Government response, the Minister for Innovation stated that *"the response is designed to give confidence to the significant investments in biotechnology innovation and research and development. It will also ensure that patients will not be denied reasonable access to affordable treatments and essential diagnostic tests through inappropriate use of the Patents Act*."

The Government response addresses many aspects of the debate, including what, for some biotechnology companies, might be described as the ultimate question, namely whether genetic materials may properly be considered appropriate subject matter for patentability. Recommendation 7-1 of the ALRC 99 Report was that "*[t]he Patents Act 1990 (Cth) should not be amended: (a) to exclude genetic materials and technologies from patentable subject matter; (b) to exclude methods of diagnostic, therapeutic or surgical treatment from patentable subject matter.*" In the Government response, Recommendation 7-1 (a) is accepted in principle and Recommendation 7-1 (b) is accepted in full.

During the course of the inquiries and public debates the desirability of a technology-neutral approach to patentability arose. For example, the ALRC 99 Report recommended (6-1) that *"[p]atent applications relating to genetic materials and technologies should be assessed according to the same legislative criteria for patentability that apply to patent applications relating to any other type of technology."* In accepting this recommendation the Government drew attention to Australia's obligations under TRIPS to maintain technology-neutral patentability criteria.

The *Patent Amendment (Human Genes and Biological Materials) Bill 2010* seeks to exclude biological materials, including genetic materials, from patentability. That Bill remains pending. Other than noting that the Senate Gene Patents Inquiry recommended that Bill be sent to the relevant Senate Committee for review and report, the Government's response to the three inquiries does not directly express an opinion on that Bill. However, the Bill has now been the subject of a Senate Inquiry, the majority finding of which was that the Bill should not be passed.

With the Government response to the three inquiries now having stated agreement in principle with the ALRC 99 Report that the Patents Act should not be amended to explicitly exclude genetic materials from patentability, it is difficult to see how the Government could now support that Bill.

Notwithstanding the above, the debate on the patenting of genes has recently resurfaced yet again with plans to introduce a new private members' bill banning the patenting of genetic materials. The sponsor of the purported Bill, Labor backbencher, Ms Melissa Parke is seeking to ban the patenting of all genetic material. Her supporters hope it will be better received because it applies only to genetic material.

8) Plant Variety Rights

i) National Legislation

New French Act on Plant variety rights and ratification of UPOV 1991

French provisions on plant variety rights have been very significantly amended by the new French Act on Plant variety rights No 2011-1843 of 28 November 2011, published on 8 December 2011 (*Loi relative aux certificats d'obtention végétale).* Subsequently, France deposited on 27 April 2012 its instrument of ratification of the UPOV 1991 Convention which entered into force, in France, on 27 May 2012.

Of significant interest for AIPPI is that the new French law provides that protection is conferred not only in relation to the reproduction and multiplication material and to the harvested material (this is standard PVR protection) but also in relation to products made directly from the harvested material.

France is one of the very few States to extend PBR protection to products made directly from the harvested material (this is only optional in UPOV 1991 Convention, art 14§3).

Unfortunately French law voluntarily defines a plant variety, as a variety which is "bred" and does not mention a variety which would be "discovered and developed"; this provision does not comply with article 1 iv of the 1991 UPOV Convention and is clearly inappropriate.

New Belgium law on plant variety rights was approved in Parliament on 10 January 2011; entry into force to be double checked

Belgium was one of the last UPOV member states with a PVR Law under the 1961 UPOV Convention.

The new Belgian PVR Law was approved in Parliament on 10 January 2011

The new law is generally in line with the requirement of 1991 UPOV convention.

Again important to note that the new law extends PBR protection to products made directly from the harvested material

ii) Need for harmonization in PVR law

It could be of interest for AIPPI to note that CIOPORA, a breeder's association asked UPOV to define the key-term "propagating material" in a harmonized and sufficiently broad way.

CIOPORA explains that the basis for this request was a study of the UPOV office about the definitions of "propagation" and "propagating material" in the PBR laws of 39 out of the 70 UPOV members which showed that only 4 out of 39 PBR-laws include a definition of "*propagation*", although in 21 out of the 39 laws the term "propagation" is used.

CIOPORA explains that the definitions of propagation and propagation material may be classified into four groups:

- 15 out of the 39 countries1 plus the EU have implemented a rather **broad** definition of "propagating material". In general, these countries consider "*plants or parts of plants, from which another plant with the same characteristics can be produced*" as propagating material.
- 9 out of the 39 countries2 have implemented a very **narrow** concept of propagating material. In general these countries consider only "*plants or parts of plants intended or used for the reproduction or multiplication of plants*" as propagating material.
- 9 out of the 39 countries 3 use a definition which includes at least "*plants or parts thereof intended for the cultivation (growing, planting or sowing*)".
- 4 countries4 use a definition which says: "*plants or parts of plants intended/designated for the propagation"* without providing a definition of"propagation".

CIOPORA suggested that UPOV develops a standard definition of *propagation* and *propagating material*, which the UPOV members should implement into their national PBR laws.

According to CIOPORA such standard definition should determine that "*any plant or part of a plant from which another plant with the same characteristics can be produced is propagating material."*

This position should be supported by AIPPI.

iii) CJEU case law

CJEU, C-140/10, of 20 October 2011, Greenstar-Kanzi Europe NV v. Jean Hustin et Jo Gossens

In this decision, the CJEU addressed the principle of exhaustion of community plant variety rights.

The facts can be summarized as follows:

- Better3fruit, the holder of a community plant variety right on an apple tree variety Nicoter, granted Nicolaï a license to grow and market said apple trees. That contract stipulates that Nicolaï '… will not dispose of or sell any product covered by the licence unless the other party signs in advance the grower's licence referred to in Annex 6 (where the other party is a grower) or the marketing licence referred to in Annex 7 (where the other party is a trader)';
- In 2004, Nicolaï sold 7 000 apple trees of the Nicoter variety to Mr Hustin without asking the latter to undertake to comply with any particular conditions with regard to the growing of the apples or the sale of the harvest;
- In 2005 the license between Better3fruit and Nicolaï was terminated and a further

licence of the CPVR on the Nicoter variety was granted to GKE

– In 2007, it was established that Mr Goossens was selling Nicoter apples that had been supplied to him by Mr Hustin;
– On the basis of that finding, GKE brought an action for infringement of the Community plant variety right against both Mr Hustin and Mr Goossens.

This raised the question whether the CPVR holder's rights must be considered as exhausted because the apples trees have been sold by Nicolaï (when it was licensee) to Hustin or whether the exhaustion did not apply because the licensee had breached the licence agreement.

The Belgium courts decided as follows:

– On 29 January 2008, the president of the Antwerp Commercial Court, hearing an application for interim measures, decided that both Mr Hustin and Mr Goossens had infringed GKE's Community plant variety right;
– The Antwerp Court of Appeal reversed that decision by judgment of 24 April 2008; it took the view that Nicolaï had not complied with its commitments under the licensing contract but decided that the limitations referred to in the licensing contract between Better3fruit and Nicolaï were not enforceable against Mr Hustin and Mr Goossens.

The Court of Cassation referred two questions to the Court of Justice for a preliminary ruling.

The CJEU decided as follows:

1. In circumstances such as those at issue in the main proceedings, Article 94 of Council Regulation (EC) No 2100/94 of 27 July 1994 on Community plant variety rights, as amended by Council Regulation (EC) No 873/2004 of 29 April 2004, read in conjunction with Articles 11(1), 13(1) to (3), 16, 27 and 104 thereof, must be interpreted as meaning that the holder or the person enjoying the right of exploitation may bring an action for infringement against a third party which has obtained material through another person enjoying the right of exploitation who has contravened the conditions or limitations set out in the licensing contract that that other person concluded at an earlier stage with the holder to the extent that the conditions or limitations in question relate directly to the essential features of the Community plant variety right concerned. It is for the referring court to make that assessment.

2. It is of no significance for the assessment of the infringement that the third party which effected the acts on the material sold or disposed of was aware or was deemed to be aware of the conditions or limitations imposed in the licensing contract.

In other words, not every breach of the licence agreement by the licensee is sufficient to prevent the application of the principle of exhaustion of rights; only a breach on essential feature will have such result.

In the specific case, it seems fair to say that the violation relates to an essential feature and thus that no exhaustion occurred.

CJUE, 1e ch., 5 July 2012, C-509/10, Geistbeck v. Saatgut-Treuhandverwaltungs GmbH,

This decision is issued in the context of proceedings between two farmers, Josef and Thomas Geistbeck ('the Geistbecks'), and Saatgut-Treuhandverwaltungs GmbH ('STV'), a company which represents the interests of the holders of the rights relating to the protected plant varieties.

It is reminded that Regulation No 2100/94 on Community plant variety rights provides for the so-called farmers' exemption, which authorises farmers to use farm-saved-seed, in certain conditions set in article 14 of the Regulation. When such conditions are met, article 14-3 provide that, "the farmers shall be required to pay an equitable remuneration to the holder, which shall be sensibly lower than the amount charged for the licensed production of propagating material of the same variety in the same area" (only small farmers shall not be required to pay any remuneration to the holder).

On the other hand article 94 of the Regulation which deals with the civil law actions which may be brought in the event of the use of a plant variety in a manner which amounts to an infringement, provides that "Whosoever effects one of the acts set out in Article 13 (2) without being entitled to do so, in respect of a variety for which a Community plant variety right has been granted may be sued by the holder to enjoin [sic] such infringement or to pay reasonable compensation or both".

In the present case the two farmers had not complied with the provisions of Art. 14-3 on the Farmers exemption and had been sued for infringement. But they argued that the "reasonable compensation" mentioned in article 94 should correspond to the "equitable remuneration" of Article 14-3 of thhe Regulation.

The Bundesgerichtshof decided to stay the proceedings and to refer the following questions to the Court for a preliminary ruling.

The Court (First Chamber) decided as follows:

> *1. In order to determine the 'reasonable compensation' payable, under Article 94(1) of Council Regulation (EC) No 2100/94 of 27 July 1994 on Community plant variety rights, by a farmer who has used the propagating material of a protected variety obtained through planting and has not fulfilled his obligations under Article 14(3) of that regulation, read in conjunction with Article 8 of Commission Regulation (EC) No 1768/95 of 24 July 1995 implementing rules on the agricultural exemption provided for in Article 14(3) of Regulation (EC) No 2100/94, as amended by Commission Regulation (EC) No 2605/98 of 3 December 1998, it is appropriate to base the calculation on the amount of the fee payable for the licensed production of propagating material of protected varieties of the plant species concerned in the same area.*

2. The payment of compensation for costs incurred for monitoring compliance with the rights of the plant variety holder cannot enter into the calculation of the 'reasonable compensation' provided for under Article 94(1) of Regulation No 2100/94.

In its reasoning the CJEU made it clear that Article 14 of Regulation constitutes a derogation from the rule that authorisation must be granted by the holder of the Community plant variety right. As a result a farmer who does not pay equitable remuneration to the holder when he uses the product of the harvest obtained by planting propagating material from a protected variety cannot rely on Article 14(1) of Regulation No 2100/94 and must therefore be considered to have carried out, without being authorised, one of the acts referred to in Article 13(2) of that regulation. In other words, he must be treated as an infringer.

The Court then clearly stated that the terms used in Article 14(3) and in Article 94(1) of Regulation No 2100/94 are almost identical but refer to different concept. As a result, the remuneration for authorised planting, for the purposes of Article 14 of Regulation No 2100/94, cannot be taken as a basis for calculating the 'reasonable compensation' referred to in Article 94(1) of that regulation.

This decision must be approved.

Tribunal de l'Union européenne (affaires jointes T-133/08, T-134/08, T-177/08 et T-242/09), Ralf Schräder contre Office communautaire des variétés végétales (OCVV)

Claire Baldock
Chair Q114 Committee
5 October 2012