Boston Seminar

2019 Year in Review

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Agenda

- On Sale Bar
- Patent Eligibility
- Claim Construction
- Doctrine of Equivalents
- Section 112
- Obviousness
- Safe Harbor
- Patent Term Adjustment (PTA)
- IPR

On Sale Bar

Helsinn v. Teva

- **U.S. Supreme Court, decided January 22, 2019**
- **Did the AIA change the meaning of "on sale" under 35 USC 102, specifically to limit sales to those that were publicly known?**
- **Answer: NO, "on sale" continues to have the meaning it always had**

Helsinn v. Teva

- **Helsinn entered into an agreement with a third party to distribute, promote, market and sell 0.25 mg and 0.75 mg doses of their drug Aloxi.**
- **The details of the agreement were private, except the existence of it had been publicly announced.**
- **Helsinn filed their patent application (examined under AIA) on the new dosages more than 1 year after the agreement.**
- **Helsinn argued that since the details of the agreement were secret, the on sale bar would not apply under AIA.**

Helsinn v. Teva

- **35 USC 102(a)(1)**
- **(a) Novelty; Prior Art.—A person shall be entitled to a patent unless—**
- **(1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention;**

- **Even though the legislative intent of AIA was to harmonize, there was not enough evidence to convince the judges that "on sale" meant "publicly on sale."**

- **If the legislature had intended for sales to be public, then they would have written the statute that way.**

Patent Eligibility

Section 101 – Notable Cert Denials

- ***Athena v. Mayo***
  - Ineligible: Methods of diagnosing disease by detecting autoantibodies in patient fluid sample
- ***Hikma Pharms. v. Vanda Pharms.***
  - Eligible: Methods of treating schizophrenia by first determining a genetic trait and then administering a dose based on the trait to limit potential for a cardiac side effect
- ***HP Inc. v. Berkheimer***
  - Procedure: Questions of fact underlying an eligibility determination may preclude summary judgment – i.e., whether something was "conventional"

Athena Diagnostics v. Mayo

- **915 F.3d 743 (Fed. Cir. 2019)**
- **Patent-in-suit claimed methods of diagnosing neurological disorders by detecting autoantibodies to a known protein**
- **Patent specification expressly admitted that the claimed methods employ "immunological assay techniques *known per se in the art*"**
- **Step 1: Claims directed to a natural law**
- **Step 2: Claims only require admittedly standard techniques to be applied in a standard way**

Natural Alternatives v. Creative Compounds

- **918 F.3d 1338 (Fed. Cir. 2019)**
- **Patents-in-suit generally related to the use of an amino acid in a dietary supplement to increase the anaerobic working capacity of muscle and other tissues**
- **Beta-alanine + histidine = dipeptides involved in the regulation of intra-cellular pH during muscle contraction and fatigue, and variations in dipeptide concentrations can affect the anaerobic work capacity of athletes**
- **Method claims that require an effective amount of amino acid to increase body's synthesis of the dipeptide**

Endo Pharms. v. Teva, 919 F.3d 1347 (Fed. Cir.)

1. A method of treating pain in a renally impaired patient, comprising the steps of:

a. providing a solid oral controlled release dosage form, comprising:

i. ***about 5 mg to about 80 mg of oxymorphone*** or a pharmaceutically acceptable salt thereof as the sole active ingredient; and

ii. a controlled release matrix;

b. measuring a creatinine clearance rate of the patient and determining it to be

(a) less than about 30 ml/min,

(b) about 30 mL/min to about 50 mL/min,

(c) about 51 mL/min to about 80 mL/min, or

(d) above about 80 mL/min; and

c. ***orally administering*** to said patient, in dependence on which creatinine clearance rate is found, ***a lower dosage*** of the dosage form to provide pain relief;

wherein after said administration to said patient, the average AUC of oxymorphone over a 12-hour period is less than about 21 ng·hr/mL.

- **Claims held eligible, like *Vanda***

Genetic Veterinary v. Laboklin

- **933 F.3d 1302 (Fed. Cir. 2019)**

- 1. An in vitro method for genotyping a Labrador Retriever comprising:
  a) ***obtaining a biological sample*** from the Labrador Retriever;
  b) genotyping a SUV39H2 gene encoding the polypeptide of SEQ ID NO: 1 and
  c) ***detecting*** the presence of a replacement of a nucleotide T with a nucleotide G at position 972 of SEQ ID NO: 2.

- **Claim 2 specified genotyping by PCR.**
- **Claim 3 specified the use of primer pairs.**

- **Claims held ineligible.**

Claim Construction

Allergan v. Sandoz

- ***Allergan v. Sandoz*, 935 F.3d 1370 (Fed. Cir. 2019)**
- **Affirmed District Court decision that "wherein" clauses should not be read out of the claims because they were material to patentability.**
- **A method of treating a patient with glaucoma or ocular hypertension comprising topically administering twice daily to an affected eye a single composition comprising 0.2% w/v brimonidine tartrate and 0.68% w/v timolol maleate,**
  - **<u>wherein</u> the method is as effective as the administration of 0.2% w/v brimonidine tartrate monotherapy three times per day, and**
  - **<u>wherein</u> the method reduces the incidence of one or more adverse events selected from…**

Allergan v. Sandoz

- **Sandoz argued wherein clauses should be read out because they merely state the intended results of administering the formulation twice daily and are not material to patentability.**
- **Court disagreed stating claims must be read in view of the entire specification.**
- **Spec showed purpose of invention is increased efficacy and safety.**
- **Clinical data in spec establishes superiority of the invention.**

Allergan v. Sandoz

- **Allergan relied on the efficacy and safety in prosecution.**
- **Allergan argued that the improved efficacy and safety of the claimed methods were "unexpected results" that underscored the patentability and non-obviousness of the claims.**
- **Examiner explicitly stated that the claims were patentable because the prior art failed to disclose the formulation's efficacy and safety as stated in the "wherein" clauses.**

Doctrine of Equivalents

Ajinomoto v. ITC

- **932 F.3d 1342 (Fed. Cir. 2019)**
- **Appeal from the ITC decision of infringement of Ajinomoto's patent under the DOE by importing animal feed made by Ajinomoto's claimed process for preparing L-tryptophan using engineered E. coli.**
- **Held: DOE not barred by prosecution history estoppel because the rationale underlying the amendment bears no more than a tangential relation to the equivalent in question.**
- **Held: The function-way-result test established equivalency.**

Ajinomoto v. ITC

- **Claims referred to a protein of (a) SEQ ID NO: 2 and (b) its variants.**
- **Prior art rejection made over a similar protein that was a variant of SEQ ID NO: 2.**
- **Only part (b) of claim was amended to avoid the prior art.**
- **Since the infringement theory relied only on part (a) and not part (b), the amendment was considered "tangential to the equivalent."**

Ajinomoto v. ITC

- **Equivalent satisfied function-way-result test.**
- **Protein of claimed process was an E. coli protein while protein of infringing process (equivalent) was a non-E.coli protein.**
- **Function: Both *E. coli* and non-*E. coli* YddG proteins function as export proteins that actively export aromatic L-amino acids and their analogs out of the bacterial cell.**
- **Way: The two proteins were 85% to 95% identical in structure.**
- **Result: both proteins can increase the ability of bacteria to produce and accumulate L-tryptophan.**

Amgen v. Sandoz

- **923 F.3d 1023 (Fed. Cir. 2019)**
- **Amgen alleged Sandoz's process for purifying their biosimilar product infringed Amgen's patent claiming a 3-step, 3-solution process for protein purification.**
- **Sandoz used a one step, one solution process.**
- **Sandoz's process was not equivalent because it failed the function-way-result test by working in a different way.**
- **The DOE cannot be applied so broadly as to read out claim limitations.**

Pharma Tech v. LifeScan

- **942 F.3d 1372 (Fed. Cir. 2019)**
- **Litigation over blood glucose monitoring system where claim required performing multiple current measurements and comparing the results.**
- **No dispute that LifeScan's product does not literally infringe. Instead, it measures and calculates currents using a slope and intercept method based on calibration.**

Pharma Tech v. LifeScan

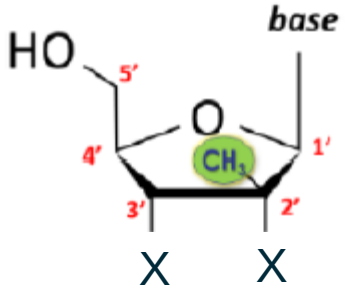
- **Amendment-based and Argument-based PHE bars DOE**
  - Claims originally covered “any test strip with two working electrodes.”
  - At time of amendment and after, applicants repeatedly relied on the comparing/converting limitations to distinguish prior art.
  - Tangential relationship exception didn’t apply because the “objectively apparent reason for the amendment was to distinguish over the prior art systems that measured and displayed a diffusion limiting current reading.”

Section 112

Idenix v. Gilead

- **941 F.3d 1149 (Fed. Cir. 2019)**

> 1. A method for the treatment of a hepatitis C virus infection, comprising administering an effective amount of a purine or pyrimidine β-D-2'-methyl-ribofuranosyl nucleoside or a phosphate thereof, or a pharmaceutically acceptable salt or ester thereof.



X is not hydrogen.

- "Thus, while the claim requires methyl at the 2'-up position, it allows nearly any imaginable substituent at the 2'-down position."
- The preamble + effective amount language "limits the scope of the claims to the use of some set of compounds that are effective for treatment of HCV."
- "Claim 1, therefore, encompasses any β-D nucleoside meeting both the structural and functional limitations."

Idenix v. Gilead

- **Enablement**
  - "It is undisputed that there are billions of potential 2'-methyl-up nucleosides. The key enablement question is whether a POSITA would know, without undue experimentation, which 2'-methyl-up nucleosides would be effective for treating HCV. We conclude that they would not."

Idenix v. Gilead

- **Wands Factors**
  - Quantity and Routineness of Experimentation:
    - Claims cover at least “many, many thousands” of compounds which would need to be screened for efficacy.
    - Synthesis required, but largely routine.
  - Working Examples & Guidance in Specification:
    - Identifying 2’-methyl-up modification alone is not good enough, must also identify which ones will effectively treat HCV.
    - Even if POSA would look for compounds that target NS5B, identifying a target for future testing that requires a trial-and-error approach is not enabling.
    - Given the scope of the claims, “four examples on a single sugar are insufficient to support enablement.

Idenix v. Gilead

- **Wands Factors**
  - Nature & Predictability in Field
    - Both sides experts testified as to unpredictability
  - Level of Skill in the Art
    - Agreed it was high
  - Scope of Claims
    - Broad
- **Held: Claims are not enabled.**

Idenix v. Gilead

- **Written Description**
  - "In this case, we hold that the '597 patent is invalid for lack of written description, as it **fails to provide sufficient blaze marks to direct a POSA to the specific subset of 2'-methyl-up nucleosides that are effective in treating HCV**."
  - "[O]ther than generic language regarding "pharmaceutically acceptable salts and prodrugs thereof" (a category not at issue here), the specification provides no indication that any nucleosides outside of those disclosed in its formulas could be effective to treat HCV—much less any indication as to *which* of those undisclosed nucleosides would be effective."

Idenix v. Gilead

- **Written Description**
  - "The absence of 2'-fluoro-down is indeed conspicuous."
  - "In light of the conspicuous absence of that compound, a POSA would not "visualize or recognize the members of the genus" as including 2'-fluorodown, and the specification could not demonstrate to a POSA that the inventor had possession of that embodiment at the time of filing.

Nuvo v. Dr. Reddy's

- **923 F.3d 1368 (Fed. Cir. 2019)**

- **Hatch-Waxman litigation over Vimovo® delayed-release tablets, which contain naproxen (NSAID) and esomeprazole magnesium (PPI).**

- **Claims cover pharmaceutical compositions comprising**
  - an acid inhibitor in an amount effective to raise gastric pH to at least 3.5 upon administration;
  - wherein at least some portion of acid inhibitor is not surrounded by enteric coating, and after administration is released no matter the pH;
  - an NSAID in an amount effective to reduce pain/inflammation upon administration;
  - wherein the NSAID is surrounded by coating that prevents release of NSAID until pH of surrounding medium is 3.5 or higher.

Nuvo v. Dr. Reddy's

- **Specification Discloses:**
  - The invention is directed to oral composition containing acid inhibitor in an amount to raise pH to 3.5, and an NSAID in an amount to reduce pain/inflammation.
  - Identifies PPIs and amounts.
  - Identifies NSAIDs and amounts.
  - Teaches methods for preparing and making the claimed formulations, including acceptable ingredients.
  - Teaches PPIs are enteric coated to avoid destruction by stomach acid.
- **Specification Lacks**
  - Experimental data demonstrating therapeutic effectiveness of any amount of uncoated PPI and coated NSAID in a single dosage form.
  - Disclosure explaining that uncoated PPI could still be effective to raise pH.

Nuvo v. Dr. Reddy's

- **Written Description Challenge on Appeal – "Efficacy"**
  - Is effectiveness of uncoated PPI supported by adequate written description?
  - No, because:
    - the claims require amounts of uncoated PPI effective to raise gastric pH to at least 3.5.
    - the specification generally calls for effective amounts of uncoated PPI, but *ipsis verbis* recitation of claim language does not automatically satisfy WD.
    - Here, the record demonstrates POSITA would not have known or understood uncoated PPI is effective.

Nuvo v. Dr. Reddy's

- **Written Description Challenge on Appeal – "Inherency"**
  - Is WD satisfied because the therapeutic effectiveness of uncoated PPI is a matter of inherency of the disclosed methods for making and using formulations with uncoated PPI?
  - No, because:
    - the parties *dispute* whether uncoated PPI is inherently effective in raising the gastric pH to 3.5.
    - there is no WD anywhere that relates to efficacy of immediate release PPI.
    - record reflects a failure of proof of inherency.

Obviousness

Novartis v. West-Ward

- **923 F.3d 1051 (Fed. Cir. 2019)**
- **Held: Motivation to combine prior art references did not require that the claimed approach be the preferred approach.**
- **Novartis claimed methods of using the compound everolimus to treat advanced renal cell carcinoma.**
- **West-Ward argued claims were obvious over numerous prior art disclosures showing everolimus was an mTOR inhibitor and temsirolimus, another mTOR inhibitor, had shown responses in RCC patients in phase I clinical trials.**

Novartis v. West-Ward

- **The District Court found there would not have been motivation to combine the references because a POSA would not have been motivated to *select* everolimus from among the many promising treatments in the prior art.**

- **Federal Circuit stated the District Court took the analysis too far because the case law does not require that a particular combination must be the preferred, or the most desirable, combination to provide motivation for the current invention.**

- **Contrary to Novartis's position, the "lead compound" analysis, requiring selection of everolimus is not relevant here because the claims are directed to methods, not compounds or compositions.**

Novartis v. West-Ward

- **The "lead compound" analysis is limited to the following situations:**
  - Motivation to select a prior art compound as a lead compound for further development efforts (*Takeda Chemical Industries, Ltd. v. Alphapharm Pty., Ltd*., 492 F.3d 1350 (Fed. Cir. 2007))
  - Motivation to select the claimed composition from the prior art ranges (*Allergan, Inc. v. Sandoz Inc*., 796 F.3d 1293, 1305 (Fed. Cir. 2015); see also *Galderma Labs., L.P. v. Tolmar, Inc*., 737 F.3d 731, 737–38 (Fed. Cir. 2013))
- **The proper inquiry is whether a person of ordinary skill would have been motivated to modify the prior art disclosing use of temsirolimus to treat advanced RCC with the prior art disclosing everolimus.**

Novartis v. West-Ward

- **This question was answered affirmatively when the district court found that a person of ordinary skill "would have been motivated to pursue everolimus as one of several potential treatment options for advanced solid tumors, including advanced RCC."**

- **Even though the District Court erred WRT motivation, it did not err in finding no reasonable expectation of success, supported by evidence that the molecular biology of advanced RCC was not fully understood, and Phase I clinical trial data of related compounds was not sufficient to predict success of everolimus.**

OSI v. Apotex

- **939 F.3d 1375 (Fed. Cir. 2019)**
- **Appeal from IPR.**
- **Held: Patent held valid as non-obvious, reversing Board, despite prior art references including OSI's 10-K statement predicting success based on completion of Phase I studies.**
- **OSI's patent claimed use of erlotinib (Tarceva) for the treatment of NSCLC.**
- **Board held claims were obvious over Schnur in view of Gibbs or OSI's 10-K.**

OSI v. Apotex

- **Schnur disclosed erlotinib as a preferred inhibitor of the erbB family of oncogenic and protooncogenic protein tyrosine kinases. Useful as therapeutics for the treatment of a variety of human tumors including lung cancer, but NSCLC was not specifically referred to.**

- **Gibbs states erlotinib appears to have "good anti-cancer activity in preclinical models, with an acceptable therapeutic index, particularly in patients with non-small cell lung cancer."**

- **But Gibbs cites articles that do not describe the clinical or preclinical response of a NSCLC tumor to erlotinib.**

OSI v. Apotex

- **OSI's 10-K, filed for the fiscal year that ended on September 30, 1998, disclosed the completion of Phase 1 clinical trials and the initiation of Phase II clinical trials in the United States in cancer patients.**

- **10-K discloses no data regarding erlotinib's effect on NSCLC.**

- **The Board found that the teachings of Gibbs or the 10-K would have provided a person of ordinary skill with a reasonable expectation of success in light of Schnur's teachings.**

OSI v. Apotex

- **PTAB's conclusions were not supported by the evidence. The asserted references do not disclose any data (in vivo or in vitro) or other information about erlotinib's efficacy in treating NSCLC.**

- **This, in view of the fact that NSCLC treatment was highly unpredictable with an over 99.5% rate of failure for drugs entering Phase II clinical studies suggests a person of ordinary skill would not have reasonably expected success based on the combination of Schnur with Gibbs or OSI's 10-K.**

Safe Harbor

Amgen v. Hospira

- **944 F.3d 1327 (Fed. Cir. 2019)**

- **The jury instructions on safe harbor were not legally erroneous**
  - "[T]he patented inventions are Amgen's claimed methods of manufacture" and the "accused activity is Hospira's use of Amgen's claimed methods of manufacture," so "[t]he relevant inquiry, therefore, is not *how* Hospira used each batch it manufactured, but whether each act of manufacture was for uses reasonably related to submitting information to FDA."
- **Substantial evidence supported the jury's finding that certain batches were not protected**
  - For example, evidence was submitted that Hospira was not required by FDA to manufacture additional batches after 2012
  - It was relevant (but not dispositive) that Hospira planned for some of the batches to "serve as commercial inventory," even though Hospira later changed the designation of some of its batches after it received a Complete Response Letter from FDA

Patent Term Adjustment

Supernus v. Iancu

- **913 F.3d 1351 (Fed. Cir. 2019)**
- **Reversed District Court decision that PTA was correctly calculated because the amount of Applicant delay assessed went beyond the period during which the applicant failed to undertake reasonable efforts.**
- **Relevant Section 1.704(c)(8) provides:**
  - Submission of a supplemental reply or other paper, other than a supplemental reply or other paper expressly requested by the examiner, after a reply has been filed, in which case the period of adjustment set forth in § 1.703 [that extends the patent's term due to USPTO delay] shall be reduced by the number of days, if any, beginning on the day after the date the initial reply was filed and ending on the date that the supplemental reply or other such paper was filed.

Supernus v. Iancu

- **Supernus is the owner and assignee of U.S. Patent No. 8,747,897 titled "Osmotic Drug Delivery System.**
- **On August 20, 2010, the USPTO issued a final rejection.**
- **On February 22, 2011, Supernus filed an RCE together with an IDS thereby removing finality of the rejection and permitting the examiner to consider additional IDS references.**
- **On August 21, 2012, the EPO notified Supernus's European patent counsel that a Notice of Opposition was filed in the EP counterpart application.**

Supernus v. Iancu

- **100 Days from the EPO notification of the Opposition, Supernus submitted a supplemental IDS on November 29, 2012, informing the USPTO of the Opposition and providing the related documents.**

- **Supernus's case eventually issued with a PTA of 1,260 days.**

- **However, 646 days of Applicant delay were assessed for the period between the February 22, 2011 filing of the RCE/IDS and the November 29, 2012 submission of the supplemental IDS.**

Supernus v. Iancu

- **Supernus petitioned the PTO calculation, but it was denied.**
- **The PTO reasoning was that submission of an IDS after the filing of a response is subject to a reduction under 37 C.F.R. § 1.704(c)(8) because any relevant information submitted to the USPTO after an initial reply interferes with the USPTO's ability to process an application.**
- **District Court agreed. Appealed.**

Supernus v. Iancu

- **Supernus conceded that it failed to engage in "reasonable efforts" for only the last 100 days of the 646-day period. There was nothing it could have done during the period of time from the filing of the RCE (and original IDS) to the EPO communication.**

- **The court agreed that there was no action Supernus could have taken to advance prosecution of the patent during the 546-day period, particularly because the EPO notice of opposition did not yet exist.**

- **The 646-day total reduction is improper because it is not equal to a period of time during which Supernus failed to engage in reasonable efforts to conclude prosecution of the '897 patent.**

IPR

IPR Updates – Constitutionality

- **Retroactive application of IPR proceedings to pre-AIA patents is not an unconstitutional Fifth Amendment taking.**
  - *Celgene Corp. v. Peter*, (Fed. Cir. July 30, 2019)

- **APJs are acting as "superior officers" without appointment per the Appointments Clause, so Federal Circuit strikes part of IPR statute – employment protection – as a fix**
  - *Arthrex, Inc. v. Smith & Nephew, Inc.*, (Fed. Cir. Oct. 31, 2019)
  - *Polaris v. Kingston* – case to watch

IPR Updates – Federal/State Impact

- **Federal agencies lack standing to petition for AIA review because they are not "persons" under the statute.**
  - *Return Mail, Inc. v. USPS,* 139 S. Ct. 1853 (2019).

- **States are not immune from IPR proceedings.**
  - *Regents of Univ. of Minn. V. LSI*, 925 F.3d 1327 (Fed. Cir. 2019).

IPR Updates – Standing

- **ANDA applicant with tentative approval and Paragraph III certification has Article III standing to appeal adverse PTAB decision, because the patent's Orange Book listing is an obstacle to product launch.**
  - *Amerigen Pharms. Ltd. v. UCB Pharma GmbH*, 913 F.3d 1076 (Fed. Cir. 2019).

- **Petitioner lacked standing after terminating development of potentially infringing biosimilar, rejecting alleged injury-in-fact based on estoppel.**
  - *Momenta Pharms. Inc. v. Bristol-Myers Squibb*, 915 F.3d 764 (Fed. Cir. 2019).

IPR Updates – Standing

- **Being a competitor is not enough to establish standing to appeal a PTAB decision.**
  - AVX Corp. v. Presidio Components, Inc., 923 F.3d 1357 (Fed. Cir. 2019).

IPR Updates

- **Precedential Opinion Panel**
  - Function 1: Review PTAB decisions
    - Requested by Director or a party
    - First reviews handled in 2019 (3)
  - Function 2: Designate PTAB decisions as precedential
    - 19 cases in 2019
    - 90 cases in prior six years

https://www.uspto.gov/patents-application-process/patent-trial-and-appeal-board/precedential-informative-decisions

Thank You!

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