Aurora
Consulting

Patently Strategic Musings

ASHLEY SLOAT | January 31, 2023

WELCOME! – Format

- 10 Minutes Ice: Breaker
- 15-20 Minutes: Problem Solving
- 30-35 Minutes: New Material

Ice Breaker

- New people - introduce yourself
- **If you could take 3 things to a desert island, what would they be?**

Shared Problem Solving

- Fun Strategy Tidbits?
- Any problems you are encountering with the USPTO?
- Any practice issues arising?
- Any technical issues you are facing?

37 CFR §1.103 - Suspension of action by the Office

a) Suspension for cause on request from Applicant (can't be outstanding action item) – petition fee due

b) Limited suspension of action in a CPA filed under § 1.53(d) – not greater than 3 months – processing fee due

c) Limited suspension of action after a RCE under § 1.114 – not greater than 3 months – processing fee due

d) Deferral of examination – not extending beyond 3 years – processing fee due

e) Notice of suspension on initiative of the Office (Office's own initiative)

f) Suspension of action for public safety or defense

https://www.law.cornell.edu/cfr/text/37/1.103

35 U.S.C. 112(a)

IN GENERAL.—The specification shall contain a written description of the invention, and of the **manner and process of making and using** it, in such full, clear, concise, and exact terms as to **enable** any person skilled in the art to which it pertains, or with which it is most nearly connected, to **make and use the same**, and shall set forth the **best mode** contemplated by the inventor or joint inventor of carrying out the invention.

Select Sections of 35 U.S.C. 112

A. Written description of the invention
   - Prove **POSSESSION** of the invention

B. The manner and process of making and using the claimed invention (the enablement requirement)
   - Teach a PHOSITA how to **MAKE & USE** the invention
   - Promote the progress of the useful arts

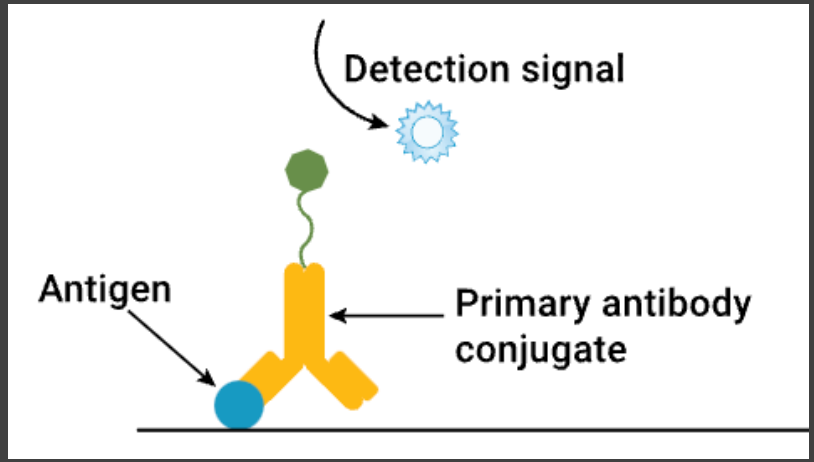
C. The best mode contemplated by the inventor of carrying out his invention

Overview

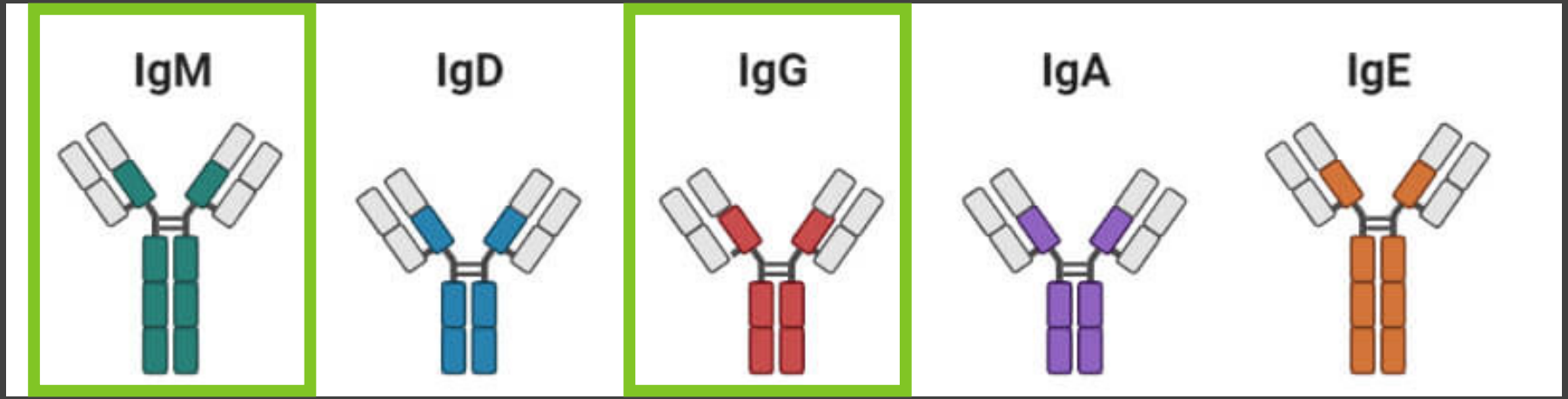
- In re Wands
  - Background on antibodies
  - Wands Factors – enablement test
- Written Description Tests
- Amgen v. Sanofi
  - Background on PCSK9 and LDLR
- Questions for discussion

In re Wands (Fed. Circ. 1988)
(U.S. Patent No. 4,271,145)

Purpose of Wands patent:
to create an immunoassay (using IgM antibodies) to detect Hepatitis B surface Antigen



From Wands to Amgen: Antibody Basics

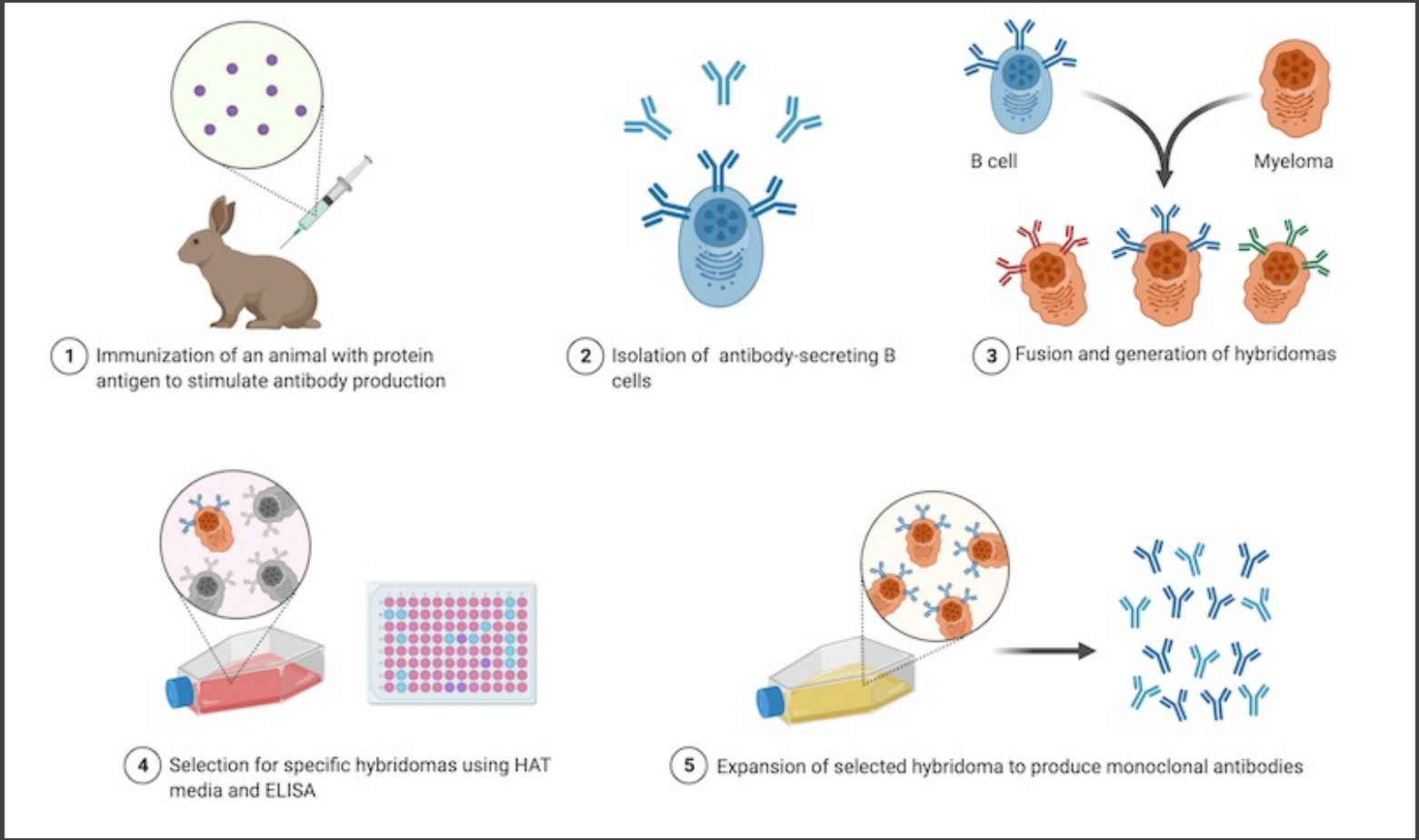


In re Wands

Amgen v Sanofi

https://microbenotes.com/antibody/

ANTIBODY DESIGN



https://blog.addgene.org/antibodies-101-monoclonal-antibodies

In re Wands (U.S. Patent No. 4,271,145)

- Appeal from the Board of Patent Appeals and Interferences
- Jack R. Wands and Vincent R. Zurawski , Jr. were 2 of 3 co-inventors
- **Patent Upheld**: “has provided sufficient experimental support for the breadth of the requested claims, in the context that *experiments in genetic engineering produce, at best, unpredictable results*", quoting from Ex parte Forman, 230 USPQ 546, 547 (Bd.Pat.App. and Int. 1986).”
  - Wands’… provided considerable guidance…high level of skill in the art…methods needed…were well known”

Wands Factors - enablement

1. the quantity of experimentation necessary
2. the amount of direction or guidance presented
3. the presence or absence of working examples
4. the nature of the invention
5. the state of the prior art
6. the relative skill of those in the art
7. the predictability or unpredictability of the art
8. the breadth of the claims.

Written Description

- **Representative species test**: a representative number of species falling within the scope of the genus

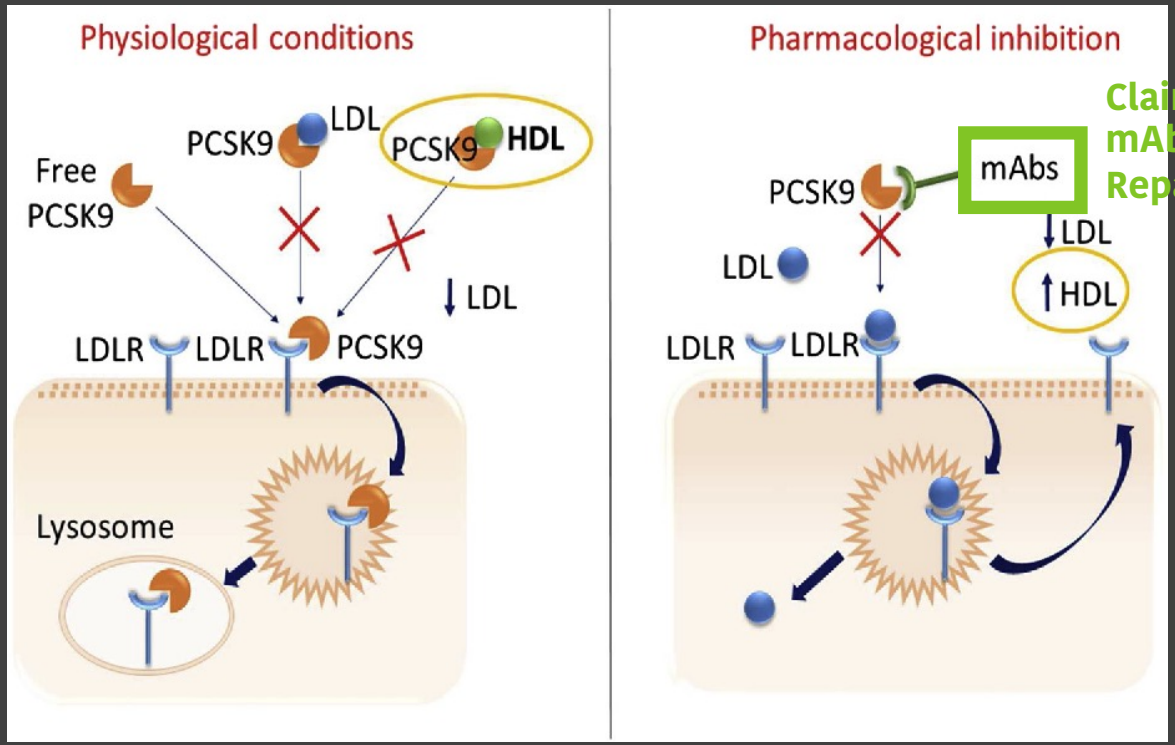
- **Structural features test**: structural features common to the members of the genus so that one of skill in the art can visualize or recognize the members of the genus

Regents of the Univ. of Cal. v. Lilly & Co., 119 F.3d 1559, 43 U.S.P.Q.2d (BNA) 1398 (Fed. Cir. 1997)

Fast Forward 30+ Years...

Amgen v. Sanofi (Fed. Circ. 2020)

Purpose of Amgen patents: produce antibody to bind PCSK9 to prevent it from binding to LDLR, to reduce LDL cholesterol levels



https://pubmed.ncbi.nlm.nih.gov/26548330/

Amgen v. Sanofi (Fed. Circ. 2020)

- **District Court:**
  - **1st pass:** patents not invalid for lack of written description and enablement; patents nonobvious; no willful infringement
- Sanofi appealed to the Federal Circuit → **remanded to District Court**
  - Not enabled, but written description support
- Amgen appealed to Federal Circuit → **discussing today**
- Amgen appealed to the Supreme Court → **yet to come**

Amgen v. Sanofi (Fed. Circ. 2020)

"To prove that a claim is invalid for lack of enablement, a challenger must show by clear and convincing evidence that a person of ordinary skill in the art would not be able to practice the claimed invention without 'undue experimentation."

Alcon Research, 745 F.3d at 1188 (quoting In re Wands, 858 F.2d 731, 736–37 (Fed. Cir. 1988))

Amgen v. Sanofi
(U.S. Patent Nos. 8,829,165 and 8,859,741)

‘165 Claim

1. An isolated monoclonal antibody, wherein, when bound to PCSK9, the monoclonal antibody binds to at least one of the following residues: S153, I154, P155, R194, D238, A239, I369, S372, D374, C375, T377, C378, F379, V380, or S381 of SEQ ID NO:3, and wherein the monoclonal antibody blocks binding of PCSK9 to LDLR.

29. A pharmaceutical composition …blocks the binding of PCSK9 to LDLR by at least 80%.

‘741 Claim

1. An isolated monoclonal antibody that binds to PCSK9, wherein the isolated monoclonal antibody binds an epitope on PCSK9 comprising at least one of residues 237 or 238 of SEQ ID NO: 3, and wherein the monoclonal antibody blocks binding of PCSK9 to LDLR.

Amgen v. Sanofi
(U.S. Patent Nos. 8,829,165 and 8,859,741)

- Description includes amino acid sequence for 26 antibodies, including Repatha® antibody
- Description includes 3D structures for 2 antibodies and shows how they bind PCSK9
- Description states that antibody binds to one or more of 15 amino acids of PCSK9
- Amgen used anchor antibodies and well-known screening techniques
- Sanofi could not identify any antibody that couldn’t be made by following the specification’s teachings but contended that there are millions of antibody candidates within the scope of the claims

Amgen v. Sanofi
(U.S. Patent Nos. 8,829,165 and 8,859,741)

- "The binding limitation is itself enough here to require undue experimentation."
- "We also agree with the district court that this invention is in an unpredictable field of science with respect to satisfying the full scope of the functional limitations." → **B.S., as we've seen antibody technology dates back 30+ years**

Amgen v. Sanofi
(U.S. Patent Nos. 8,829,165 and 8,859,741)

- As the district court noted, the only ways for a person of ordinary skill to discover undisclosed claimed embodiments would be through either “trial and error, by making changes to the disclosed antibodies and then screening those antibodies for the desired binding and blocking properties,” or else “by discovering the antibodies de novo” according to a randomization-and-screening “roadmap.”
  - I would argue that is in routine and conventional in antibody science since physiology is unpredictable
  - Sounds like the courts want a research paper and a patent

Wands Factors - enablement

1. the quantity of experimentation necessary
   - Ab generation is well known science; physiology is unpredictable
2. the amount of direction or guidance presented
   - Amgen provided guidance
3. the presence or absence of working examples
   - Working examples were present
4. the nature of the invention
5. the state of the prior art
6. the relative skill of those in the art
   - Skill in the art was high
7. the predictability or unpredictability of the art
   - Physiology is unpredictable, not sure the art is unpredictable
8. the breadth of the claims
   - Reasonable broad but did identify specific specific amino acids that were important for binding

Written Description

- **Representative species test**
  - AA sequence similarity?
  - 3D structure?

- **Structural features test**
  - Not reviewed in light of representative species test results

Regents of the Univ. of Cal. v. Lilly & Co., 119 F.3d 1559, 43 U.S.P.Q.2d (BNA) 1398 (Fed. Cir. 1997)

Federal Circuit in Ariad v. Lilly 2010

"there is little difference between describing an invention and enabling one to make and use it" and that "written description and enablement often rise and fall together."

So how can the Supreme Court review enablement but not written description?

Questions

- Can enablement requirement be completely separated from the written description requirement as the Supreme Court is suggesting?
  - Is enablement full scope of the claims vs. written description being make and use the embodiments described in the spec?

- When is it unpredictable just because the science/physiology is unpredictable vs. unpredictable because the invention isn't fully enabled?
  - "there is no dispute between the parties that a person of ordinary skill in the art would need either to follow the roadmap to generate a pool of antibodies for further testing, or to make substitutions to known antibodies and then to test the newly created antibodies."

Questions

- Is the goal of enablement to teach someone how to create at least one embodiment that falls within the claims so they can build upon it and promote the progress of the useful arts? Or is it ”all”or a ”significant portion” of all embodiments encompassed by the claims?
  - "roadmap" requires "essentially the same amount of work as the inventors of the patents-in-suit”
  - so the patent does teach someone how to make and use the invention, just doesn’t shorten the timeline

Questions

- Is it better to include claims without any functional requirements, maybe put function in preamble?
  - Idenix, Wyeth, and Enzo largely all fell since the functional requirement created uncertainty for screening compounds covered by the claims

- How much of the scope of the claims needs to be enabled without undue experimentation? 25%? 50%? 75%

MPEP states…

- “Enablement serves the dual function of ensuring adequate disclosure of the claimed invention and of preventing claims broader than the disclosed invention. Broad claim language is used at the peril of losing any claim that cannot be enabled across its full scope.”