

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte GERALD SCHOCHETMAN and RICHARD J. MASSEY

Appeal No. 2005-2138
Application No. 08/447,924

ON BRIEF

Before SCHEINER, ADAMS and GRIMES, Administrative Patent Judges.

SCHEINER, Administrative Patent Judge.

DECISION ON APPEAL

This appeal involves claims to catalytic monoclonal antibodies. The examiner has rejected claims 41-53, the only claims remaining in the application, under the doctrine of obviousness-type double patenting, and under 35 U.S.C. § 112, first paragraph, as lacking enablement. We have jurisdiction under 35 U.S.C. § 134. We will reverse these rejections.

Background

“During the course of a chemical reaction, the reactants undergo a series of transitions passing through different states . . . involving formation of an intermediate

which decomposes to produce the products. The overall rate of the reaction can be expressed in terms of the equilibrium constant characterizing the equilibria between the reactants, the intermediate and the products.” Specification, pages 2-3. “Catalysis can be regarded as a stabilization of the intermediate with respect to . . . the reactants” (id., page 3), and a catalyst – an enzyme, for example – “is a substance that increases the rate of the reaction and is recovered substantially unchanged chemically at the end of the reaction” (id.).

“[T]he field of catalysis [] developed independently from the field of immunology” (id., page 2). “The present invention relates to . . . [catalytic] monoclonal antibodies for increasing the rate of a chemical reaction involving conversion of at least one reactant to at least one product.” Id., page 5. Antibodies “are thought to react with antigens via the same types of short range forces characteristic of all protein-protein interactions” (id., page 1), but “[t]he binding constant of an antibody for its antigen is generally much higher than that of an enzyme for its substrate” (id., page 2). According to appellants, catalytic monoclonal antibodies are “convenient, readily obtainable and inexpensive” (id., page 3), and can be used to increase the rate of reactions for which enzymes or chemical catalysts are unknown (id.).

According to the specification, monoclonal antibodies capable of increasing the rate of a chemical reaction are “prepared by modification of the technique . . . well known to those of ordinary skill in the art” (id., page 7). As further explained in the specification, the conventional method of producing monoclonal antibodies is modified to the extent that “[t]he antigen may be the desired reactant; the desired reactant bound to a peptide or other carrier molecule; a reaction intermediate or an analog of the reactant, the

product or a reaction intermediate” (id.), and “[t]he [resultant] series of monoclonal antibodies . . . is screened under appropriate conditions to identify monoclonal antibodies which catalyze the desired reaction” (id., page 9).

Discussion

The Claims

Claims 41, 43 and 45 are representative of the subject matter on appeal:

41. A monoclonal antibody capable of catalytically increasing the rate of a chemical reaction by more than a hundred-fold wherein at least one reactant is converted to at least one product.
43. The monoclonal antibody of claim 41, wherein said catalytic antibody is capable of catalytically increasing the rate of a chemical reaction by more than a thousand-fold.
45. The monoclonal antibody of claim 41, wherein said catalytic antibody is capable of catalytically increasing the rate of a chemical reaction by more than ten-thousand-fold.

Double Patenting

The examiner rejected claims 41-53 under “the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent 5,156,965” (‘965). Examiner’s Answer, page 3. Obviousness-type double patenting, also called nonstatutory double patenting, “is a judge-made doctrine that prevents an extension of the patent right beyond the statutory time limit. It requires rejection of an application claim when the claimed subject matter is not patentably distinct from the subject matter claimed in a commonly owned patent.” In re Berg, 140 F.3d 1428, 1431, 46 USPQ2d 1226, 1229 (Fed. Cir. 1998).

Claim 1 of the '965 patent is representative of the patented subject matter and reads as follows:

1. A monoclonal antibody for catalytically increasing the rate of a chemical reaction wherein at least one reactant is converted to at least one product, said antibody having been produced by a process comprising the steps of:
 - (a) generating a plurality of monoclonal antibodies to an antigen selected from the group consisting of:
 - (i) the reactant;
 - (ii) the reactant bound to a peptide or other carrier molecule;
 - (iii) a reaction intermediate;
 - (iv) an analog of the reactant;
 - (v) an analog of the product in which the monoclonal antibody so generated is capable of binding to the reactant or a reaction intermediate; and
 - (vi) an analog of a reaction intermediate; and
 - (b) screening said plurality of monoclonal antibodies to identify a monoclonal antibody which catalyzes the reaction.

The invention defined (or protected) by the patented claims is an abstract monoclonal antibody capable of catalytically increasing the rate of a chemical reaction over a range of rate increases that has a lower boundary (i.e., something approaching no increase in rate), but no specified upper boundary. Each of the claims of the application is narrower than the patented claims in the sense that it excludes that subset of antibodies that increases the reaction rate by a hundred-fold or less, a thousand-fold or less, or ten-thousand fold or less.

According to the examiner, the claims of the application and the patent are not patentably distinct from each other because "the claims of the pending application are encompassed [by] those of the issued patent" (Examiner's Answer, page 3).

Clearly, the patented claims would dominate the claims of the application, in that the claims of the application could not be practiced without infringing the patented claims. But domination, “by itself, does not give rise to ‘double patenting’.” In re Kaplan, 789 F.2d 1574, 1577, 229 USPQ 678, 681 (Fed. Cir. 1986); see also In re Sarett, 327 F.2d 1005, 1014, 140 USPQ 474, 482 (CCPA 1964). A proper obviousness-type double patenting rejection “rest[s] on the fact that a patent has been issued and later issuance of a second patent will continue protection, beyond the date of expiration of the first patent, . . . of a mere variation of that invention which would have been obvious to those of ordinary skill in the relevant art” (Kaplan, 789 F.2d at 1579-80, 229 USPQ at 683 (emphasis omitted)). That being the case, “there must be some clear evidence to establish why the variation would have been obvious which can properly qualify as ‘prior art.’ Even if obviousness of the variation is predicated on the level of skill in the prior art, prior art evidence is needed to show what that level of skill was” at the time of the invention (id.).

Appellants argue that “[t]he ‘965 patent claims . . . are directed to monoclonal antibodies that catalytically increase chemical reaction rates in general” and “[n]o other prior art is relied on or asserted and thus, no other scope or content of the prior art is available in [the examiner’s] analysis” (Appeal Brief, page 20). According to appellants, “one of ordinary skill in the art . . . would not know, or have any reason to think based on the ‘965 patent claims, that monoclonal antibodies could be used to catalytically increase the reaction rate from one unit per second to one hundred, one thousand or ten thousand units per second” (id., pages 21-22).

In response, the examiner argues that “[o]ne of ordinary skill in the art would conclude that the patented claims included all rate increases and therefore the rate increases of the pending claims would have been obvious variations” (Examiner’s Answer, page 4). In our view, this is just another way of saying that the claims of the application are “encompassed” or “dominated” by the claims of the patent. As discussed above, domination alone does not give rise to double patenting.

On this record, we are constrained to agree with appellants that the examiner has not provided evidence which would establish what levels of catalysis one skilled in the art might have expected monoclonal antibodies to be capable of on the basis of the abstract claims of the patent. Accordingly, the examiner’s rejection of the claims under the doctrine of obviousness-type double patenting is reversed.

Scope of Enablement

The examiner rejected claims 41-53 under 35 U.S.C. § 112, first paragraph, for lack of enablement. In particular, the examiner found that the specification is not enabling for claims directed to “catalytic antibodies that increase the reaction rate by 100, 1000 or 10,000-fold” (Examiner’s Answer, page 9), or for claims that “do not include the product-by-process language” (*id.*, page 6) found in the claims of the various parents of the present application, e.g., the ‘965 patent.

“[A] specification disclosure which contains a teaching of the manner and process of making and using the invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as in compliance with the enabling requirement of the first paragraph unless there is reason to doubt the objective truth of the statements contained therein which must be relied on for

enabling support.” In re Marzocchi, 439 F.2d 220, 2223, 169 USPQ 367, 369 (CCPA 1971) (emphasis original). “[I]t is incumbent upon the Patent Office . . . to explain why it doubts the truth and accuracy of any statement in the supporting disclosure and to back up assertions of its own with acceptable evidence or reasoning which is inconsistent with the contested statement.” Id. at 224, 169 USPQ at 370.

As the examiner summarizes his position, it is that “the only showing in the application that appellant[s] may have discovered a catalytic antibody is contained in Example 5 and Table 1” (id., page 9), wherein polyclonal sera with “very little activity” were produced using “a particular inoculation regime” (id., page 11), and “it is just speculation that other immunization schemes could have been used and that the rates of the instant claims could have been realized if monoclonal antibodies were made” (id., page 9). According to the examiner, “[t]o obtain patent claims drawn to catalytic antibodies that increase the reaction rate by 100, 1000 or 10,000-fold, there should be at least some indication in the specification that catalytic antibodies at least approaching these rate[s] had been obtained” (id.).

“[T]o be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without ‘undue experimentation.’” In re Wright, 999 F.2d 1557, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993). “That some experimentation may be required is not fatal; the issue is whether the amount of experimentation required is ‘undue.’” In re Vaeck, 947 F.2d 488, 495, 20 USPQ2d 1438, 1444 (Fed. Cir. 1991) (emphasis original). Whether the amount of experimentation required is undue is determined by reference to the well-known Wands factors. See In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

In this regard, appellants acknowledge that considerable “experimentation with different reactions, different antigens and so forth . . . [is] the only way to make catalysts for a vast spectrum of reactions” (Appeal Brief, page 9). Nevertheless, appellants argue that the experimentation required would not be “undue” because the specification provides ample guidance with respect to the direction the experimentation should take. As explained in PPG Indus., Inc. v. Guardian Indus. Corp., 75 F.3d 1558, 1564, 37 USPQ2d 1618, 1623 (Fed. Cir. 1996), in determining whether experimentation would be undue, the quantity of experimentation required is less important than the quality of the guidance or direction provided:

[T]he question of undue experimentation is a matter of degree. The fact that some experimentation is necessary does not preclude enablement;” Atlas Powder Co. v. E.I. DuPont de Nemours & Co., 750 F.2d 1569, 1576, 224 USPQ 409, 413 (Fed. Cir. 1984). The Patent and Trademark Office Board of Appeals summarized the point [] when it stated:

The test is not merely quantitative, since a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed to enable the . . . practice [of] a desired embodiment of the invention claimed.

Ex parte Jackson, 217 USPQ 804, 807 (1982).

Here, the specification teaches that the antigen used to raise a catalytic antibody to a given reaction “may be the desired reactant; the desired reactant bound to a peptide or other carrier molecule; a reaction intermediate or an analog of the reactant, the product or a reaction intermediate” (Specification, page 7), and “[t]he [resultant] series of monoclonal antibodies . . . is screened under appropriate conditions to identify monoclonal antibodies which catalyze the desired reaction” (id., page 9). The

specification also teaches that catalytic antibodies may be produced by immunizing with an enzyme, recovering monoclonal antibodies specific for the reactive site, and raising anti-idiotypic antibodies using a reactive site-specific monoclonal antibody as the immunogen. The anti-idiotypic antibodies are screened under appropriate conditions to identify antibodies capable of catalyzing the reaction catalyzed by the enzyme used as the initial immunogen. Id., pages 15-16.

Examples 1-5 of the specification describe the actual preparation and screening of polyclonal antisera capable of catalyzing the cleavage of o-nitrophenyl- β -D-galactoside (ONPG) to β -D-galactose and o-nitrophenol using ONPG followed by dinitrophenol (DNP), (a product analog), conjugated to keyhole limpet hemocyanin. With respect to the examiner's concerns about "other immunization schemes," we note that the specification contains prophetic Examples 6-19. Examples 6-12 concern the production of monoclonal antibodies using the same immunogens as those used to produce the polyclonal antibodies of Example 5. Examples 13 and 14 describe a protocol for producing and screening monoclonal antibodies capable of catalyzing the production of porphobilinogen using 3-glycyl-4-hydroxy-4-methyl-1,5-heptanedioic acid (an analog of a reaction intermediate) as the immunogen. Similarly, Examples 15 and 16 describe a protocol for producing and screening monoclonal antibodies capable of catalyzing production of L-tryptophan using a Schiff base (a reaction intermediate) as an immunogen, wherein the Schiff base is prepared by mixing indole-3-pyruvic acid and pyridoxamine phosphate in dry methanol under a nitrogen atmosphere. The remaining examples describe additional protocols using specific immunogens, including one for producing catalytic anti-idiotypic antibodies (Example 19).

The examiner acknowledges that actual “working examples are not required if the invention is disclosed in such a manner that one skilled in the art will be able to practice [the invention] without undue experimentation” (Examiner’s Answer, page 11, emphasis omitted), but argues that “working examples would be very greatly preferred” “for an invention about which there was no prior art or knowledge” (id.) and about which “one of ordinary skill in the art would be reserved and perhaps skeptical” (id., page 7). Nevertheless, the examiner does not appear to question the ability of one skilled in the art to understand and follow any of the disclosed protocols for making monoclonal antibodies and testing them for catalytic activity. The fact that catalytic antibodies were apparently unknown in the art before appellants produced them is not evidence that one skilled in the art would not expect these additional protocols to ultimately yield catalytic antibodies.

To the extent the examiner insists that “[o]ne must know what specific antigens to use in order to make antibodies with catalytic activity” (id., page 8, emphasis original), we note that “appellants are not required to disclose every species encompassed by their claims even in an unpredictable art.” In re Angstadt, 537 F.2d 498, 504, 190 USPQ 214, 218 (CCPA 1976) (emphasis original).

Finally, appellants rely, at least in part, on the declaration of Dr. David E. Hansen, (dated April 30, 2004), to address the examiner’s concerns regarding the rates of reaction that “could have been realized if monoclonal antibodies were made” (Examiner’s Answer, page 9). In a nutshell, Dr. Hansen explains, at some length, the reasons why he believes that one skilled in the art “would expect that the activities reported in [Example 5, Table 1, Group 2] with the polyclonal preparation of antibody were due to

only a small subset of catalytically active antibodies [with varying activities] within a large population of catalytically inactive antibodies” and would also “expect that much greater reaction rate increases would be observed with monoclonal antibody preparations comprising a single antibody species with high catalytic activity” (Declaration, ¶ 27).

The examiner does not question Dr. Hansen’s qualifications as an expert in the relevant field, but nevertheless dismisses Dr. Hansen’s comments as merely “address[ing] [] things Dr. Hansen ‘believes’ concerning the instant specification based on the knowledge in 1984, not to things based on fact or data” (Examiner’s Answer, pages 6-7). We must agree with appellants that the “the very purpose of an expert’s declaration” is to “express[] his opinion and belief,” and examiner’s dismissal of the declaration on that basis is unfounded. Reply Brief, page 3.

Again, “the PTO bears an initial burden of setting forth a reasonable explanation as to why it believes that the scope of protection provided by [the] claim[s] is not adequately enabled by the description of the invention provided in the specification of the application; this includes, of course, providing sufficient reasons for doubting any assertions in the specification as to the scope of enablement.” In re Wright, 999 F.2d 1557, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993).

On this record, we find that the examiner has not adequately explained why practicing the full scope of the claims would have required undue experimentation. We accept, for the sake of argument, that it would be iterative and time consuming to produce and test multiple panels of monoclonal antibodies for catalytic activity, and that many, if not most, of the antibodies produced would be incapable of catalytic activity. Nevertheless, we agree with appellants that “the required experimentation would not be

considered undue” (Appeal Brief, page 10), given the guidance and direction provided by the specification.

The rejection of claims 41-53 under 35 U.S.C. § 112, first paragraph, for lack of enablement is reversed.

Summary

The rejection of the claims under the doctrine of obviousness-type double patenting is reversed, as is the rejection of the claims under the first paragraph of 35 U.S.C. § 112 for lack of enablement.

REVERSED

Toni R. Scheiner)	
Administrative Patent Judge)	
)	
)	
)	BOARD OF PATENT
Donald E. Adams)	
Administrative Patent Judge)	APPEALS AND
)	
)	INTERFERENCES
)	
Eric Grimes)	
Administrative Patent Judge)	

Kramer Levin Naftalis & Frankel LLP
Intellectual Property Department
1177 Avenue of the Americas
New York NY 10036