

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 19

**UNITED STATES PATENT AND TRADEMARK OFFICE**

---

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

---

Ex parte BRUCE A. CORNELL and RONALD J. PACE

---

Appeal No. 2001-0059  
Application No. 08/530,370

---

ON BRIEF

---

Before WILLIAM F. SMITH, SCHEINER and MILLS, Administrative Patent Judges.

SCHEINER, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the final rejection of claims 1-11, the only claims in the application.

Claim 1 is representative of the subject matter on appeal and reads as follows:

1. A membrane for use in detecting the presence of an analyte, the membrane comprising an array of closely packed self-assembling amphiphilic molecules and a plurality of first and second receptor molecules, the first receptor molecules being reactive with one site on the analyte and second receptor molecules being reactive with another site on the analyte, the first receptor molecules being prevented from lateral diffusion within the membrane whilst the second receptor molecules are free to diffuse laterally within the membrane, the membrane being characterized in that the ratio of first receptor molecules to second receptor molecules is 10:1 or greater.

The references relied on by the examiner are:

Miyazaki et al. (Miyazaki)	5,229,302	Jul. 20, 1993
Cornell et al. (Cornell I)	5,443,955	Aug. 22, 1995
Cornell et al. (Cornell II)	WO 90/08783	Aug. 9, 1990

Claims 1-10 stand rejected under 35 U.S.C. § 103 as unpatentable over Cornell II; claim 11 stands rejected under 35 U.S.C. § 103 as unpatentable over Cornell II and Miyazaki; while claims 1-7 and 9 stand rejected under the doctrine of obviousness-type double patenting as unpatentable over claims 1-25 of U.S. Patent No. 5,443,955 (Cornell I).

We reverse all three of the examiner's rejections.

## DISCUSSION

### Obviousness

The examiner has rejected claims 1-10 as obvious over Cornell II, and claim 11 as obvious over Cornell II and Miyazaki. Claim 1, which represents the invention in its broadest aspect, is directed to an analytical membrane comprising an array of closely packed self-assembling amphiphilic molecules and a plurality of first and second receptor molecules reactive with two different sites on an analyte. The first receptor molecules are "prevented from lateral diffusion within the membrane whilst the second receptor molecules are free to diffuse laterally within the membrane," and the claim requires that "the ratio of first receptor molecules to second receptor molecules is 10:1 or greater."

Cornell II describes membranes that meet all of the limitations of claim 1 except for the specified ratio. According to the examiner, however, one skilled in the art would have been "motivat[ed] to optimize the ratio of first receptor molecules to second receptor molecules" in the manner required by the claims because Cornell II teaches

that “the density of receptor molecules in the membrane can be controlled and hence optimized for the most sensitive detection of the desired analyte.” Answer, page 7. We disagree with the examiner’s conclusion.

While we agree with the examiner that “discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art,” In re Boesch, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980) (citations omitted), our reviewing court has found an exception to this general rule where “the parameter optimized was not recognized to be a result effective variable,” In re Antonie, 559 F.2d 618, 621, 195 USPQ 6, 8 (CCPA 1977).

In our view, the examiner has not established that one skilled in the art would have recognized the ratio of first receptor molecules to second receptor molecules as a result effective variable. In other words, the examiner has not identified anything in Cornell II which would have led one skilled in the art to recognize or expect that manipulating the relative proportions of first and second receptor molecules within the membrane (as opposed to altering the overall density of receptor molecules in the membrane) would affect the performance of the membrane.

As explained in In re Kotzab, 217 F.3d 1365, 1369-70, 55 USPQ2d 1313, 1316 (Fed. Cir. 2000):

A critical step in analyzing the patentability of claims pursuant to section 103(a) is casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. [ ] Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one “to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher.” [ ]

We have no doubt that the prior art could be modified in a manner consistent with appellants’ specification and claims. The fact that the prior art could be so

modified, however, would not have made the modification obvious unless the prior art suggested the desirability of the modification. In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). Here, we find no reason stemming from the prior art relied on by the examiner which would have led a person having ordinary skill in the art to the claimed invention. Miyazaki is cited in the rejection of dependent claim 11 for its description of a fluorescence-based immunoassay, but does nothing to cure the underlying deficiencies of Cornell II's teachings. In our judgment, the only reason or suggestion to modify Cornell II in the manner proposed by the examiner comes from appellants' specification.

Finally, we know of no basis for the examiner's requirement that appellants establish that "the only intent of the inventors of [Cornell II] was to alter the overall amount of antibody and not the individual antibody amounts." Answer, page 10.

On this record, we are constrained to reverse both of the examiner's rejections of the claims under 35 U.S.C. § 103.

#### Double Patenting

Claims 1-7 and 9 stand rejected under the doctrine of obviousness-type double patenting as unpatentable over claims 1-25 of Cornell I (U.S. Patent No. 5,443,955). The patented claims are directed to analytical membranes that meet all of the limitations of claim 1 on appeal except for the specified ratio. Again, the examiner concluded that one skilled in the art would have been "motivat[ed] to optimize the ratio of first receptor molecules to second receptor molecules" in the manner required by the claims on appeal because Cornell I teaches (at column 9, lines 1-3) that "the density of receptor molecules in the membrane can be controlled and hence optimized for the most sensitive detection of the desired analyte." Answer, page 4.

Again, we disagree with the examiner's conclusion for the reasons discussed above in our analysis of the rejections under 35 U.S.C. § 103. In addition, we remind the examiner that a finding of double patenting should be based on the claims of an application or patent; the teachings of the specification of the application or patent may only be used for certain, limited purposes - and not as prior art. See, e.g., In re Vogel, 422 F.2d 438, 441-42, 164 USPQ 619, 622 (CCPA 1970).

The rejection of claims 1-7 and 9 under the doctrine of obviousness-type double patenting is reversed.

REVERSED

William F. Smith	)	
Administrative Patent Judge	)	
	)	
	)	
	)	BOARD OF PATENT
	)	
Toni R. Scheiner	)	APPEALS AND
Administrative Patent Judge	)	
	)	)INTERFERENCES
	)	
	)	
	)	
Demetra J. Mills	)	
Administrative Patent Judge	)	

Appeal No. 2001-0059  
Application No. 08/530,370

Page 6