

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 44

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte JAMES E. ROBINSON

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Appeal No. 1995-2903  
Application No. 07/693,055<sup>1</sup>

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ON BRIEF

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Before WINTERS, GRON, and ROBINSON, Administrative Patent Judges.  
ROBINSON, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-8, 11-23, and 26-30, which are all of the claims pending in this application.

Claim 1 is illustrative of the subject matter on appeal and is reproduced below:

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<sup>1</sup> Application for patent filed April 30, 1991. According to appellant, this application is a continuation of Application No. 07/424,930, filed October 23, 1989, now abandoned.

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1. A method for detecting antibodies to a virus comprising the steps of:  
coating an assay surface with a lectin;  
immobilizing viral glycoprotein on the lectin-coated surface;  
incubating a test sample with the immobilized glycoproteins for a time sufficient for anti-virus antibodies present in the test sample to bind the immobilized glycoprotein; and  
adding a marker system to detect anti-virus antibodies bound to the immobilized glycoproteins.

The references relied upon by the examiner are:

Larson et al. (Larson)	4,374,127	February 15, 1983
Neurath et al. (Neurath)	4,877,725	October 31, 1989 (Filed April 1, 1985)

### **Grounds of Rejection**

Claims 1-8, 11-23, and 26-30 stand rejected under 35 U.S.C. § 103. As evidence of obviousness, the examiner relies on Neurath and Larson.

We reverse.

### **BACKGROUND**

At page 4 of the specification, the applicant describes the invention as a method for preparing solid-phase viral glycoproteins for use in immunoassays to detect virus-specific antibodies using a lectin-coated surface to immobilize viral glycoproteins. The assay surface is stated to be passively or covalently coated with lectin which serves to selectively immobilize viral glycoproteins which have been removed from the serum-free conditioned medium of virus-producing cell cultures. The viral glycoproteins are said to retain their

function as antigens and are useful in immunoassays to detect viral glycoprotein-specific antibodies.

### **Discussion**

Claims 1-8, 11-23, and 26-30 stand rejected under 35 U.S.C. § 103 as unpatentable over the combination of Neurath and Larson.

The claims before us are directed to a method of detecting antibodies to a virus comprising coating an assay surface with a lectin, immobilizing viral glycoprotein on the lectin-coated surface, incubating a test sample with the immobilized glycoprotein for a time sufficient for anti-virus antibodies present in the sample to bind to the immobilized glycoprotein, and adding a marker system to detect the anti-virus antibodies bound to the glycoprotein. All of the claims on appeal require the use of a lectin coating on the assay surface for the binding of the glycoprotein.

Neurath discloses a method for detecting antibodies to a virus wherein the antibodies present in a sample bind to viral glycoproteins<sup>2</sup> that have been immobilized on an assay surface which has been previously coated with a binding member which serves to immobilize the viral glycoprotein. (Answer, pages 5-6). However, Neurath makes use of

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<sup>2</sup> Neurath does not explicitly mention "viral glycoprotein" but refers to "HIV-1 antigen Penv" which the examiner has interpreted as corresponding to the viral glycoproteins of the claims. (Answer, page 6). Since appellant has not contested this interpretation, we have considered Neurath as disclosing the use of a viral glycoprotein as characterized by the examiner.

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a viral antibody, as the binding material, to bind viral glycoprotein to the assay surface.

The examiner acknowledges at page 7 of the Answer that:

NEURATH does not teach the use of a solid support that has been coated with a lectin where on said coated support the lectin serves as the binding member for the immobilization of viral glycoproteins.

The examiner relies on Larson as teaching (Answer, page 7):

that (a) lectins are to be utilized in the (purification) immobilization of viral glycoproteins to a surface; (b) the selection of the appropriate lectin is a process known to those skilled in the art; and (c) the use of lectins results in the immobilization of viral glycoproteins that are free of detectable double stranded DNA and can be further utilized as a vaccine.

The examiner acknowledges that Larson (Answer, page 8):

does not teach of the detection of antibodies which bind to the immobilized viral glycoproteins . . . .

The examiner determines that (Answer, paragraph bridging pages 8-9):

. . . the lectin in the affinity-purification taught by LARSON is used for the same purpose as the antibody in the immunoassay taught by NEURATH, that being the immobilization of a solubilized viral glycoprotein to a coated support. Accordingly, the lectin and the antibody which are used to immobilize solubilized viral glycoproteins to a support would have been considered interchangeable.

The examiner then concludes that (Answer, paragraph bridging pages 9-10):

it would have been obvious to one of ordinary skill in the art at the time the invention was made to have (1) coated a solid support with a lectin with the intent to immobilize viral glycoproteins thereon as taught by LARSON; (2) to have prepared the immobilized viral glycoproteins in a manner by which they were first treated with a detergent such as Triton X and Nonidet P-40 as taught by LARSON; (3) immobilized viral glycoproteins on a lectin-coated surface; and (4) to have combined the now immobilized viral glycoproteins in

the method of detecting anti-viral glycoprotein antibodies as disclosed by NEURATH . . . .

We have carefully considered the evidence and discussion in support of the rejection presented by the examiner. The examiner has determined that the ability of lectin to bind viral glycoprotein, as described by Larson, is sufficient to equate it to the antibodies similarly used by Neurath. In our opinion, commonality of this single characteristic is insufficient to establish that lectin and the binding antibodies of Neurath are equivalent or interchangeable in an immunoassay method as claimed. The examiner has provided no evidence to demonstrate that lectin and the antibodies of Neurath would have been recognized, by those of ordinary skill in this art, as equivalent for any purpose and particularly as a binding material on an assay surface for use in an immunoassay.

As motivation the examiner states that the substitution of lectin for the binding antibody of Neurath (Answer, page 10):

. . . would afford the artisan a readily available means whereby a generic binding agent that is immobilized or coated on to a solid support or assay surface is used to immobilizing viral glycoproteins thereon. Additionally, it is noted that by using a lectin coated support instead of an antibody-coated support, one need not develop a new specific binding member when one wishes to immobilize the viral glycoproteins from a variety of viruses. Accordingly, this reduction in the variety of starting materials would readily translate into a less expensive assay, thereby providing commercial incentives for the combination of the prior art of record.

We have no doubt that Neurath could be modified in the manner described by the examiner and would result in the advantages described. However, we find no suggestion to do so other than appellant's specification. (Note the Specification page 4, lines 6-14

and the paragraph bridging pages 8-9). The examiner points to no evidence to be found in the prior art in support of the stated motivation. Neither Larson nor Neurath suggest any need for or purpose in substituting a lectin binding material for the antibody binding material of Neurath in an immunoassay for detecting the presence of an antibody to a virus in a sample. To establish a prima facie case of obviousness, there must be some reason, suggestion, or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the substitutions required. That knowledge can not come from the appellant's invention itself. Diversitech Corp. v. Century Steps, Inc., 850 F.2d 675, 678-79, 7 USPQ2d 1315, 1318 (Fed. Cir. 1988); In re Geiger, 815 F.2d 686, 688, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987); Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1985). The extent to which such suggestion must be explicit in, or may be fairly inferred from, the references is decided on the facts of each case, in light of the prior art and its relationship to the invention. It is impermissible, however, simply to engage in a hindsight reconstruction of the claimed inventions using appellant's claimed invention as a template and selecting elements from references to fill the gaps. In re Gorman, 933 F.2d 983, 986-987, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991). On the record before us, we find that the examiner has failed to establish that it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute lectin for the viral antibody binding agent of Neurath for binding glycoproteins to an assay surface as claimed. Having determined that the examiner has failed to establish

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a prima facie case of obviousness as to the claimed subject matter, it is not necessary for us to reach the arguments and declaration evidence presented by appellant. The rejection under 35 U.S.C. § 103 is reversed.

**Summary**

The rejection of claims 1-8, 11-23 and 26-30 under 35 U.S.C. § 103 is reversed.

**REVERSED**

SHERMAN D. WINTERS	)	
Administrative Patent Judge	)	
	)	
	)	
	)	BOARD OF PATENT
TEDDY S. GRON	)	
Administrative Patent Judge	)	APPEALS AND
	)	
	)	INTERFERENCES
	)	
DOUGLAS W. ROBINSON	)	
Administrative Patent Judge	)	

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