

EXHIBIT 1022

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ILLUMINA, INC.
Petitioner,

v.

THE TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF
NEW YORK
Patent Owner.

Case IPR2012-00006
U.S. Patent 7,713,698

Before SALLY G. LANE, RICHARD M. LEBOVITZ, and DEBORAH
KATZ, *Administrative Patent Judges*.

LEBOVITZ, *Administrative Patent Judge*.

**DECISION ON REQUEST FOR REHEARING UNDER 37 C.F.R.
§ 41.71(c) OF DECISION TO INSTITUTE INTER PARTES REVIEW
& SCHEDULING ORDER**

I. REHEARING REQUEST

Illumina requests rehearing of the decision under 35 U.S.C. § 311 (“the ‘698 Decision”) (Paper 28) denying inter partes review of claims 15 and 16 of US 7,713,698 (“the ‘698 patent”) based on Tsien and Dower as anticipatory publications (Illumina Request for Reconsideration under 37 C.F.R. 42.71(c), dated March 26, 2013 (“Illumina Req. Reh’g.”; Paper 30))

Under 37 C.F.R. § 42.71(c), “[w]hen rehearing a decision on petition, a panel will review the decision for an abuse of discretion.” An abuse of discretion occurs when a “decision was based on an erroneous conclusion of law or clearly erroneous factual findings, or . . . a clear error of judgment.” *PPG Indus. Inc. v. Celanese Polymer Specialties Co. Inc.*, 840 F.2d 1565, 1567 (Fed. Cir. 1988). *See also* 37 C.F.R. § 42.71(d) (“The request must specifically identify all matters the party believes the Board misapprehended or overlooked”).

I.A. THE BOARD ERRED IN NOT AUTHORIZING INTER PARTES REVIEW OF CLAIMS 1 AND 11 BASED ON TSIEN & DOWER (ILLUMINA REQ. REH’G 3)

Nucleotides comprise a sugar, phosphate, and nitrogen base (‘698 patent, Fig. 7). Claim 1 is drawn to nucleic acid sequencing method comprising employing at least one nucleotide which comprises a deazapurine as the nitrogen base. Claim 11 is drawn to a primer hybridized to a nucleic acid template, where at least one of the nucleotides in the primer comprises a deazapurine as a base. Neither Tsien nor Dower is said by Illumina to expressly describe a deazapurine base in their written disclosures. Rather, Illumina contends the nucleotides are present by virtue

of the incorporation by reference to the Prober I publication by Tsien and Dower. Dower is said to disclose nucleotides with deazapurine bases (Petition 26 & 39-40). The issue addressed in the '698 Decision with respect to these rejections was whether Illumina met its burden in establishing whether Prober I is incorporated into the host document in a manner that complies with the requirement of 35 U.S.C. § 102 ('698 Decision 10-11).

“To incorporate material by reference, the host document must identify with detailed particularity what specific material it incorporates and clearly indicate where that material is found in the various documents.” *Advanced Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1282 (Fed. Cir. 2000). When making such determination, the standard “of one reasonably skilled in the art should be” applied. *Id.* at 1283. Illumina contends that we erred by not using “the person of reasonable skill in the art” standard to evaluate whether Tsien (Exhibit 1002) and Dower (Exhibit 1005) incorporated Prober I’s (Exhibit 1003) disclosure of a 7-deazapurine base (Illumina Req. Reh’g 4). Specifically, Illumina contends that we “used a heightened standard that would require recitation of the exact word ‘deazapurine’ (or at least ‘deaza-substituted’) as used in claims 1 and 11” (*id.*). To support their argument, Illumina points to declarations by Dr. Weinstock and Dr. Blanchaud (*id.* at 5).

I.A.1. Dower and Prober I

We agree with Illumina that we erred in not instituting inter partes review of claims 1 and 11 based on Dower as an anticipatory publication.

On page 12 of the '698 Decision, we reproduced the following passage of Dower which referred to Prober I:

(c) An alternative polymer stepwise synthetic strategy can be employed. In this embodiment, the fluorophores need not be removable and may be attached to irreversible chain terminators. Examples of such compounds for use in sequencing DNA include, but are not limited to, dideoxynucleotide triphosphate analogs as described by Prober et al. (1987) *Science* 238:336-341.

Dower, col. 25, ll. 41-47.

On pages 33 and 34-35 of the Petition, Illumina referred to the following additional disclosure:

DNA polymerase, or a similar polymerase, is used to extend the chains by one base by incubation in the presence of dNTP analogs which function as both chain terminators and fluorescent labels. This is done in a one-step process where each of the four dNTP analogs is identified by a distinct dye, such as described in Prober et al. *Science* 238:336-341

Dower, col. 23, ll. 18-24.

Fluorescent chain terminators (analogues of dATP, dCTP, dGTP, and TP, each labeled with fluorophore preferably emitting at a distinguishable wavelength) are added to the reaction at a sufficient concentration and under suitable reaction conditions (time, temperature, pH, ionic species, etc., See Sambrook et al. (1989) *Molecular Cloning*, vols. 1-3, and Prober et al.).

Dower, col. 25, ll. 4-10.

It is evident from the above quoted disclosure from Dower that Dower is referencing Prober I for all its dNTP analogues, at least one of which is a deazapurine. For example, Dower, at column 23, lines 18-24 and column 25, lines 41-47, refers to Prober I's disclosure of nucleotide analogs (dNTP and dideoxynucleotide triphosphate) in DNA sequencing.

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