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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/352,435	01/18/2012	Lars Dyrskjøt Andersen	SRG-321-MBNL2-II	9431

93599 7590 06/15/2016

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ART UNIT	PAPER NUMBER
1636	

NOTIFICATION DATE	DELIVERY MODE
06/15/2016	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte LARS DYRSKJØT ANDERSEN and
TORBEN FALCK ORNTOF[1]

Appeal 2013-008591
Application 13/352,435
Technology Center 1600

Before ERIC B. GRIMES, ROBERT A. POLLOCK, and JACQUELINE T. HARLOW, *Administrative Patent Judges*.

GRIMES, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to a business method based on determining the likelihood of bladder cancer progression, which have been rejected based on patent-ineligibility, indefiniteness, lack of written description, nonenablement, and anticipation. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

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[1] Appellants identify the Real Party in Interest as Catalyst Assets LLC and Aros Applied Biotechnology A/S. (Appeal Br. 3.)

STATEMENT OF THE CASE

The Specification states that bladder cancer can take the form of either recurring superficial tumors (stages Ta and T1), or it can progress to a muscle invasive form (stages T2 and up). (Spec. 1.) "The ability to predict which tumors are likely to recur or progress would have great impact on the clinical management of patients with superficial disease, as it would be possible to treat high-risk patients more aggressively." (*Id.* at 2.)

"The invention relates to determining expression levels of certain markers associated with progression or death from bladder cancer. More particularly, expression levels of markers MBNL2, FABP4, UBE2C, and BIRC5 have been associated with progression or death from bladder cancer." (*Id.* at 3.)

Claims 1, 13, and 14 are on appeal. Claim 1 is illustrative and reads as follows:

1. A business method of generating revenue for conducting assays where the assays are predictive of progression of a stage Ta or T1 bladder cancer, comprising:

> a. determining the likelihood of progression of an individual's bladder cancer, by, using an assay in which assay reagents hybridize with nucleic acids in a bladder tumor sample from the individual, or an assay in which assay reagents bind to proteins in the sample, for determining:
> the level of gene expression from the markers FABP4 and MBNL2 and if the expression level determined for both FABP4 and MBNL2 is increased as compared to their expression levels in a control or different bladder cancer sample, it indicates a decreased risk of progression relative to said control or different bladder cancer sample; and if the expression level for FABP4 and MBNL2 is decreased as compared to their expression levels in a control or different bladder cancer sample, it indicates an increased risk of progression relative to said control or different bladder cancer sample; and

b. reporting to a customer whether the risk of progression is increased or decreased and charging the customer in connection with the report.

The claims stand rejected as follows:

Claims 1, 13, and 14 under 35 U.S.C. § 101 as being directed to non-statutory subject matter (Ans. 2);

Claims 1, 13, and 14 under 35 U.S.C. § 112, second paragraph, as indefinite (Ans. 6);

Claims 1, 13, and 14 under 35 U.S.C. § 112, first paragraph, as containing new matter (Ans. 7);

Claims 1, 13, and 14 under 35 U.S.C. § 112, first paragraph, as nonenabled (Ans. 8); and

Claims 1, 13, and 14 under 35 U.S.C. § 102(e) as anticipated by Mack[2] (Ans. 14).

I

The Examiner has rejected all of the claims on appeal under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter. The Examiner applied the test set out in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 132 S. Ct. 1289 (2012), as directed in a 2012 guidance memo. (Ans. 3–6.) The Examiner concluded that the claims were directed to "a law of nature or natural correlation, with additional steps that involve well-understood, routine, conventional activity previously engaged in by researchers in the field," and therefore not eligible for a patent. (*Id.* at 6.)

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[2] US 2004/0076955 A1, published April 22, 2004.

Appellants argue that the claims require using reagents that hybridize with nucleic acids in a sample or reagents that bind to a protein in a sample, "which are steps well beyond any 'natural law' in the claims." (Appeal Br. 9.) Appellants also argue that claim 14 requires an RT-PCR (a.k.a. QPCR) assay, "which is a further step beyond a natural law or its application." (*Id.* at 9–10.)

Appellants also argue that the claims do not preempt the natural principle, because "[n]o one is foreclosed from simply correlating gene expression with bladder cancer progression and reporting it." (*Id.* at 11.) Finally, Appellants argue that "[i]t was not known to compare FABP4 and MBNL2 gene expression levels to determine the likelihood of bladder cancer progression . . . and then report it and charge a customer, as in all the claims." (*Id.* at 12.)

We agree with the Examiner that, under the two-step test of *Mayo*, the claims are not directed to patent-eligible subject matter. The *Mayo* court applied its test to claims that are similar to those of the instant application. In *Mayo*, the claimed invention was a "method of optimizing therapeutic efficacy for treatment of an immune-mediated gastrointestinal disorder" comprising administering a certain class of drug and then determining the level of 6-thioguanine (6-TG) in a patient, where a level of 6-TG below or above certain amounts indicated a need to increase or decrease, respectively, the drug dosage. *Mayo*, 122 S. Ct. at 1295.

Claim 1 of the instant application is similar, in that it is directed to a method of predicting whether a given patient's bladder cancer is or is not likely to progress from an early, superficial stage to a muscle-invasive stage,

by measuring the expression of the FABP4 and MBNL2 genes and comparing the results to a control, then reporting the result and charging the customer for the service.

The *Mayo* Court concluded that the claims at issue in that case "set forth laws of nature—namely, relationships between concentrations of certain metabolites in the blood and the likelihood that a dosage of a thiopurine drug will prove ineffective or cause harm." *Id.* at 1296.

Similarly here, claim 1 on appeal sets forth a law of nature—namely, a relationship between the levels of expression of FABP4 and MBNL2, and the likelihood that a bladder cancer will progress to a more invasive form. Under the first step of the *Mayo* test claim 1 on appeal is directed to a law of nature or natural phenomenon.

The *Mayo* Court next turned to the question "[w]hat else is there in the claims before us?" *Id.* at 1297. The claims in *Mayo* included an "administering" step, a "determining" step, and a "wherein" clause. *Id.* The Court concluded that "[t]he upshot is that the three steps simply tell doctors to gather data from which they may draw an inference in light of the correlations." *Id.* at 1298. In other words,

> the claims inform a relevant audience about certain laws of nature; any additional steps consist of well-understood, routine, conventional activity already engaged in by the scientific community; and those steps, when viewed as a whole, add nothing significant beyond the sum of their parts taken separately.

Id. The Court concluded that "the steps are not sufficient to transform unpatentable natural correlations into patentable applications of those regularities." *Id.*

Like the steps of the claims in *Mayo*, the manipulative steps of claim 1 on appeal also "consist of well-understood, routine, conventional activity already engaged in by the scientific community." *Id.* Using assay reagents that hybridize to nucleic acids (including using quantitative PCR (QPCR, a.k.a. RT-PCR)) or reagents that bind to proteins in order to measure the expression level of a given gene is conventional, as shown by Mack: "Often, amplification-based assays are performed to measure the expression level of bladder cancer-associated sequences. . . . Methods of quantitative amplification are well known to those of skill in the art." (Mack ¶ 153.) *See also id.* at ¶ 60 (examples of "a reagent that specifically detects expression levels" include "antibodies capable of specifically binding to proteins expressed by the gene of interest").

The step of comparing gene expression levels is also routine, as also shown by Mack, which states that its "invention provides nucleic acid and protein sequences that are differentially expressed in bladder disease or cancer relative to normal tissues." (*Id.* at ¶ 104.) The final step of claim 14, reporting the result and charging the customer, simply informs a customer of the correlation in exchange for payment.

Thus, when claim 1 is considered as an ordered combination, it informs a relevant audience of certain laws of nature: specifically, that the expression levels of FABP4 and MBNL2 can be used to distinguish between bladder cancer patients whose cancer is more likely or less likely to progress. All of the additional steps of claim 1 consist of well-understood, routine, conventional activity already engaged in by the scientific community such as Mack. The same is true of claim 14 because, as

discussed above, using QPCR to measure gene expression levels is routine and conventional, as shown by Mack.

We conclude that, under the *Mayo* test, claims 1 and 14 are directed to patent-ineligible subject matter. The rejection of claims 1 and 14 under 35 U.S.C. § 101 is affirmed. Claim 13 was not argued separately and therefore falls with claim 1. 37 C.F.R. § 41.37(c)(1)(iv).

II

The Examiner has rejected claims 1, 13, and 14 as indefinite. The Examiner reasons that "[c]laim 1 provides for the 'using' of 'an assay' and claim 14 recites 'use in a RT-PCR assay' but . . . it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced." (Ans. 6.)

Appellants argue that "[c]laim 1 actually provides for using 'an assay . . . for determining'" the level of gene expression of FABP4 and MBNL2 compared to a control or different bladder cancer sample. (Appeal Br. 13) "Accordingly, the claim recites positive steps, in a conventional format for method claims." (*Id.*)

We will reverse this rejection. Assays using reagents that hybridize to nucleic acids or reagents that bind to proteins in order to determine expression levels are conventional in the art, as discussed above in the context of the § 101 rejection. The Examiner has acknowledged as much. (*See* Ans. 4–5: "these additional steps consist of well-understood, routine, conventional activity." *See also* Mack ¶¶ 60 and 153, which discuss assays using such reagents.) Thus, the evidence supports Appellants' position that

those skilled in the art would know the scope of a step of "using" the recited assays to determine the expression level of a particular gene. The rejection under 35 U.S.C. § 112, second paragraph, is reversed.

III

The Examiner has rejected claims 1, 13, and 14 as containing new matter. The Examiner finds that "[t]he specification as originally filed does not provide support for a business method of generating revenue as now claimed. None of the terms 'business', 'customer' or 'revenue' are present in the application as filed." (Answer 7.) The Examiner therefore finds that "[s]uch limitations recited in the present claims, which did not appear in the specification as filed, introduce new concepts and violate the description requirement of the first paragraph of 35 U.S.C. 112." (*Id.*)

"[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability." *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). "In the context of the written description requirement, an adequate prima facie case must . . . sufficiently explain to the applicant what, in the examiner's view, is missing from the written description." *Hyatt v. Dudas*, 492 F.3d 1365, 1370 (Fed. Cir. 2007). "When no such description can be found in the specification, the only thing the PTO can reasonably be expected to do is to point out its nonexistence." *Id.* The Examiner's finding that the Specification does not include three of the key terms in claim 1 is sufficient basis for a prima facie case that the Specification lacks adequate written description of the claimed method.

Appellants argue that, before the filing dates of their priority applications, it was well known in the art that Affymetrix was commercially producing oligonucleotide arrays, and Incyte Pharmaceuticals was developing a business based on selling genomic information. (Appeal Br. 14–15.) Appellants also contend that the Specification "demonstrates how well known it was by those in the art to generate revenues by reporting assay results." (*Id.*, citing Spec. ¶ 136.)

Appellants also argue that the Specification's disclosure under the heading "Assays" demonstrates "to one skilled in the art that performing the assays and the data gathering, analysis and reporting are conducted by a laboratory as fee for service, as such persons know that only a commercial lab would be able to retain and maintain the personnel, facilities, equipment and reagents needed" to carry out such assays on multiple samples. (*Id.* at 15–16.)

We do not find Appellants' argument persuasive. First, Appellants have not pointed to evidence in the record supporting their position that, based on the businesses of Affymetrix and Incyte Pharmaceuticals, a person of ordinary skill in the art would have recognized the Specification as showing possession of the method now claimed. "Attorney's argument in a brief cannot take the place of evidence." *In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974).

In addition, Appellants have not shown that Affymetrix's business of synthesizing oligonucleotide arrays, or Incyte Pharmaceuticals' business of selling information from a gene sequence database, would have led a skilled artisan to recognize in the Specification a description of a business that

involves carrying out gene expression assays to predict the progress of a patient's bladder cancer, which is a completely different business from described for Affymetrix or Incyte Pharmaceuticals.

Appellants also have not pointed to evidence supporting their position that the Specification's description of assays would be recognized as describing a laboratory that carries out the disclosed assays as a fee-for-service business. The paragraphs from the Specification that Appellants cite refer to hybridization and antibody reagents; gathering data from oligonucleotide or microcapillary arrays; and reporting those data to a "data analysis operation" such as a programmed digital computer. Appellants have not explained why this description of assays would have been read to show possession of a fee-for-service business of carrying out the described assays, and Appellants' conclusory statement to that effect is not supported by evidence.

"After evidence or argument is submitted by the applicant in response [to the prima facie case], patentability is determined on the totality of the record, by a preponderance of evidence with due consideration to persuasiveness of argument." *In re Oetiker*, 977 at 1445.

We conclude that the rejection of claim 1 for lack of adequate written description is supported by a preponderance of the evidence and Appellants' arguments are unpersuasive. The rejection of claim 1 under 35 U.S.C. § 112, first paragraph (written description), is affirmed. Claims 13 and 14 have not been argued separately and therefore fall with claim 1. 37 C.F.R. § 41.37(c)(1)(iv).

IV

The Examiner has rejected claims 1, 13, and 14 as nonenabled. The Examiner finds that the claims are broad, in that they only require assaying two marker genes. (Ans. 9.) The Examiner cites several references as evidence that "the MBNL2 gene marker is considered to be a gene that would be predictive of likelihood of progression or poor prognosis." (*Id.* (citing Mack[3], Clarke,[4] and Bignotti[5]).) The Examiner also cites Sánchez-Carbayo[6] as evidence of unpredictability (*id.* at 11), and notes that the Specification does not include a working example of the claimed method (*id.* at 12). The Examiner concludes that "the skilled artisan could not make and use the claimed invention from the disclosures in the application coupled with information known in the art without undue experimentation." (*Id.* at 14.)

Appellants argue that they have provided evidence showing that the correlation between MBNL2 and FABP4 expression levels and either progression or non-progression of bladder cancer is statistically significant. (Appeal Br. 16–17.) Appellants also argue that the references cited by the Examiner as evidence that MBNL2 expression is associated with increased likelihood of progression are either unreliable or not on point. (*Id.* at 17–

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[3] US 2004/0076955 A1 published April 22, 2004.
[4] US 2006/0019256 A1 published January 26, 2006.
[5] Bignotti et al., *Gene expression profile of ovarian serous papillary carcinomas: identification of metastasis-associated genes*, 196 American Journal of Obstetrics & Gynecology 245.e1–245.e11 (2007).
[6] Sánchez-Carbayo, *Use of High-Throughput DNA Microarrays to Identify Biomarkers for Bladder Cancer*, 49 Clinical Chemistry 23–31 (2003).

18.) Finally, Appellants argue that the evidence does not show the claimed method to be unpredictable. (*Id.* at 18.)

We agree with Appellants that the Examiner has not shown, by a preponderance of the evidence, that undue experimentation would be required to practice the claimed method.

> [T]he PTO bears an initial burden of setting forth a reasonable explanation as to why it believes that the scope of protection provided by that claim 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, 1561–62 (Fed. Cir. 1993). "After evidence or argument is submitted by the applicant in response, patentability is determined on the totality of the record, by a preponderance of evidence with due consideration to persuasiveness of argument." *In re Oetiker*, 977 at 1445.

In this case, the Examiner has cited several references as evidence that practicing the claimed method would require undue experimentation because (a) MBNL2 expression has been associated by others with an increased, rather than decreased, likelihood of cancer progression, and (b) using gene expression data for cancer prognosis was unpredictable at the time of the invention. (Ans. 9–12.)

In response, Appellants cite evidence that they submitted in application 13/316,765, which was published as US 2012/0082994. (Appeal Br. 16.) The evidence describes the methodology used to determine whether increased expression of certain genes was correlated with increased or decreased likelihood of bladder cancer progression, and shows that the

results indicated that both MBNL2 and FABP4 were found to be "protective markers" that correlated with non-progression. (Appeal Br. 22–25, Evidence App'x.)

The Examiner's position, on the other hand, is that Sánchez-Carbayo provides evidence of the unpredictability of using gene expression data in prognosis of bladder cancer. (Ans. 11–12.) Sánchez-Carbayo, however, states that "[n]umerous markers have been described to correlate to some extent with tumor stage and prognosis of patients with bladder cancer." (Sánchez-Carbayo 23, Background.) The Examiner has not explained how Sánchez-Carbayo indicates unpredictability in using known biomarkers, such as MBNL2 and FABP4, in the claimed method.

The Examiner also cites Mack, Clarke, and Bignotti as evidence that others have found increased MBNL2 expression to be associated with an increased, not decreased, likelihood of cancer progression. (Ans. 9–11.) We conclude that, while the Examiner's evidence shows some unpredictability, it is insufficient to outweigh the evidence submitted by Appellants. Clarke addresses "gene expression profiles associated with solid tumor stem cells." (Clarke, ¶ 8.) Clarke also discloses "providing a prognosis to [a] subject" based on "at least one stem cell cancer marker . . . from Table 8" (*id.* at ¶ 11), but Table 8 does not include MBNL2 (or MBLL39, which the Examiner states is synonymous (Ans. 10)).

Bignotti lists MBNL2 as among the genes that are up-regulated at least two-fold in metastatic, as compared to primary, OSPC. (Bignotti 245.e5.) However, "OSPC" is short for "ovarian serous papillary carcinoma." (*Id.* at 245.e1.) The Examiner has not provided evidence that a

gene that is overexpressed in metastatic ovarian carcinoma would be expected to predictive of cancer progression for bladder cancer.

Finally, the Examiner cites Mack as evidence that MBNL2 expression shows a higher, not lower, likelihood of bladder cancer progression. (Ans. 9–10.) The Examiner points out that Mack includes MBNL2[7] in its list of "Genes predictive of bladder cancer progression," although it includes FABP4 in its list of "Genes predictive of no bladder cancer progression." (*Id.*)

Mack, unlike Bignotti and Clark, directly addresses the prognostic value of MBNL2 in bladder cancer progression. Mack also discloses that increased expression of MBNL2 leads to the opposite prognosis than is recited in the claims on appeal. However, the Examiner has not persuasively explained why Mack's conclusion should be considered more likely to be accurate than Appellants'.

As Appellants point out (Appeal Br. 17), Mack provides little detail in how the genes that are up-regulated in tumors that later progressed were identified. Mack states that "[m]olecular profiles of various normal and cancerous tissues were determined and analyzed using gene chips. RNA was isolated and gene chip analysis was performed as described" in prior art references. (Mack ¶ 347.) As Appellants point out, "[t]here is no analysis showing whether up-regulation of MBNL2 . . . is correlated in any

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[7] There is no dispute that MBNL2 is the same as the gene referred to by Mack as PRO2032. (Ans. 5, Appeal Br. 19 (acknowledging that Mack's Table 8A includes MBNL2).)

statistically meaningful way with bladder cancer progression." (Appeal Br. 17.)

By contrast, Appellants' evidence (or the published application from which it came), states that RNA ('994 publ., ¶ 94) from 205 patients with stage Ta or T1 bladder cancer (*id.* at ¶ 91) was converted to cDNA (*id.* at ¶ 94) and analyzed by QPCR (*id.* at ¶ 95). The '994 published application also states that "[a]nalysis of these results led to selection of markers of interest, which appeared to have high or low expression levels that correlated well with the clinical determinations of either progression (including death from bladder cancer) or non-progression." (*Id.* at ¶ 97.)

Appellants' evidence states that sets of markers of interest were then identified, and statistical analysis was carried out for each marker: "the Pearson correlation coefficient . . . was calculated" (*id.* at ¶ 101) and "a t-test, Wilcoxon signed rank test $P<0.01$, Kolmogorov-Smirnov (KS) test, $P<0.01$, and Chi-squared test, $P<0.01$, were run" (*id.* at ¶ 102). Appellants' evidence states that "the markers that performed the best in all or most of the above criteria" were separated into groups based on whether higher expression correlated with progression or non-progression. (*Id.* at ¶ 104.)

Appellants' evidence is specific to the expression of MBNL2 and FABP4 in bladder cancer cells and their correlation with progression or non-progression of the cancer. And Appellants provided a detailed explanation of how the data were derived and the statistical methods that were used to correlate changes in expression with progression or non-progression of the cancer. We conclude that Appellants' evidence is entitled to greater weight than the evidence cited by the Examiner.

The Examiner responded that Appellants' evidence "is *not* a study of the MBNL2 and FABP4 markers (i.e., called a two-gene signature) but is a study of a *twelve-gene signature*, specifically the twelve marker genes listed in Table 4 of the accompanying Evidence Appendix." (Ans. 23.) Appellants' evidence, however, states that calculation of the Pearson correlation coefficient and statistical analyses were performed "for each marker." (Appeal Br. 22.) We therefore agree with Appellants (Reply Br. 5) that the Examiner's position is not consistent with the evidence presented.

V

The Examiner has rejected the claims on appeal as anticipated by Mack. The Examiner finds that Mack discloses assessing the likelihood of bladder cancer progression based on gene expression levels. (Ans. 14.) The Examiner finds that Mack includes FABP4 in a table of genes predictive of no bladder cancer progression and MBNL2 (which Mack calls PRO2032) in a table of genes predictive of bladder cancer progression. (*Id.* at 14–15.) The Examiner concludes that "the method steps of reporting to a customer and charging a customer do not materially change the method steps and are not afforded patentable weight regarding prior art." (*Id.* at 15.)

Appellants contend that "the listing of MBNL2 in [Mack's] Table 8A was based on such preliminary data that its mere listing there does not indicate if it is or is not associated with bladder cancer progression." (Appeal Br. 16.) Appellants also contend that "Mack et al. is not anticipatory because if Mack et al. imply anything about MBNL2, it is that MBNL2 is a harmful marker, and the claims are to the 'protective bladder cancer progression marker MBNL2.'" (*Id.* at 17.)

We agree with the Examiner that the broadest reasonable interpretation of claim 1 reads on Mack's disclosure. Mack discloses "genes that are up- and down-regulated in bladder cancer cells." (Mack ¶ 8.) Mack states that "[t]he identification of sequences that are differentially expressed in bladder cancer versus non-bladder cancer tissue allows the use of this information in a number of ways." (*Id.* at ¶ 103.) Mack states that its invention relates to "the use of such expression profiles and compositions in the diagnosis, prognosis, and therapy of bladder cancer." (*Id.* at ¶ 2.) Mack discloses that differential expression can be determined using quantitative reverse transcriptase PCR. (*Id.* at ¶ 208.)

Mack states that its "Table 8A shows about 1440 genes up regulated in Ta or Ti [sic] bladder tumors from patients who later presented with muscle-invasive bladder tumors (stage T2-T4)." (*Id.* at ¶ 355.) Table 8A is headed "Genes predictive of bladder cancer progression." (*Id.* at ¶ 382) Table 8A includes MBNL2.[8] (*Id.* at page 133, seventh entry.)

Mack states that its "Table 9A shows about 1200 genes up regulated in Ta or TI [sic] bladder tumors from patients who later presented with either more Ta tumors or no tumors at all." (*Id.* at ¶ 356.) Table 9A is headed "Genes predictive of no bladder cancer progression." (*Id.* at ¶ 382) Table 8A includes FABP4.[9] (*Id.* at page 145, thirty-third entry.)

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[8] Mack refers to MBNL2 as "PRO2032" but Appellants acknowledge that Table 8A includes MBNL2. (Appeal Br. 19; *cf.* Spec. 25, gene number 295.)

[9] Mack refers to FABP4as "fatty acid binding protein 4, adipocyte" but Appellants acknowledge that Table 9A includes FABP4. (Appeal Br. 20.)

Thus, Mack discloses using QPCR (a.k.a. RT-PCR) to determine FABP4 and MBNL2 expression levels in bladder cancer cells and comparing them with expression in non-bladder cancer cells to determine genes that are up- or down-regulated. Mack discloses that FABP4 and MBNL2 are genes that are useful in determining a patient's prognosis because they are predictive of either bladder cancer progression (MBNL2) or no bladder cancer progression (FABP4).

Mack does not expressly disclose reporting a prognosis to a customer and charging the customer for the report. However, as the Examiner pointed out, an "informing" (or "reporting") step does not distinguish a claimed method from an otherwise anticipating prior art method. *See In re Kao*, 639 F.3d 1057 (Fed. Cir. 2011). One of the claims in *Kao* recited "providing information" that the bioavailability of oxymorphone was increased in subjects with renal impairment. *Id.* at 1064. The court held that "[t]hough the correlation between the renal impairment and bioavailability was not known, informing someone of the correlation cannot confer patentability absent a functional relationship between the informing and administering steps." *Id.* at 1072. The same is true here: absent a functional relationship between the prognosis recited in claim 1 and some active step, reporting a particular prognosis does not confer patentability on the claimed method.

We also agree with the Examiner that a step of charging a customer for a service does not patentably distinguish a method of providing that service from prior art that discloses an otherwise identical method. A step of charging for a service, after all, is simply a request for money in exchange for the service. As noted above, an informing step (such as informing a

customer of the cost for conducting an assay) does not patentably distinguish a claimed process from the prior art unless there is some functional relationship between the informing step and some active step.

This conclusion is also supported by *In re Ngai*, 367 F.3d 1336 (2004). The claimed invention in *Ngai* was a kit comprising one or more known assay components, along with instructions describing a specific method. *Id.* at 1337–38. The court held that the printed matter (instructions) was not functionally related to the kit, or vice versa, because "[a]ll that the printed matter does is teach a new use for an existing product." *Id.* at 1339. The court noted that if it "were to adopt Ngai's position, anyone could continue patenting a product indefinitely provided that they add a new instruction sheet to the product." *Id.*

Claim 1 on appeal is comparable to Ngai's invention because all of the active steps of the claim are in the prior art. If we were to hold that the "charging" step of the claim distinguishes the claimed method from the prior art, anyone could obtain a new patent on an old process by adding a step at the end of charging money for carrying out the process. That outcome would be contrary to the rationale of *In re Ngai*.

Mack does not disclose the specific interpretation given to MBNL2 expression levels that is recited in claim 1. That is, Mack discloses that MBNL2 expression indicates increased likelihood of bladder cancer progression, while claim 1 states that increased MBNL2 expression indicates decreased likelihood of progression.

However, the interpretation of data is a purely mental step; whether a user interprets data in a particular way does not change the actual steps of

generating those data. *See, e.g., In re Kao*, discussed above: If a step of informing someone of a specific prognosis does not confer patentability, then neither does a step of interpreting data to determine the prognosis. That is, even if Mack does not disclose the meaning ascribed to MBNL2 expression levels recited in claim 1, interpreting the meaning of an increase or decrease in MBNL2 expression does not confer patentability absent a functional relationship between the interpretation of the data and some active step carried out as a consequence of the interpretation.

Thus, Appellants' argument that "Mack et al. is not anticipatory because if Mack et al. imply anything about MBNL2, it is that MBNL2 is a harmful marker" (Appeal Br. 20) does not persuade us that the claimed method differs in any of its active steps from the method disclosed by Mack.

Claims 13 and 14 have not been argued separately and therefore fall with claim 1. 37 C.F.R. § 41.37(c)(1)(iv).

SUMMARY

We affirm the rejection of claims 1, 13, and 14 under 35 U.S.C. § 101.

We reverse the rejection of claims 1, 13, and 14 under 35 U.S.C. § 112, second paragraph.

We affirm the rejection of claims 1, 13, and 14 under 35 U.S.C. § 112, first paragraph (written description).

We reverse the rejection of claims 1, 13, and 14 under 35 U.S.C. § 112, first paragraph (enablement).

We affirm the rejection of claims 1, 13, and 14 under 35 U.S.C. § 102(e).

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED