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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/704,007	12/13/2012	Ching Ming Lai	ANA1073-US_ANA106971	5660
23266	7590	04/27/2018	EXAMINER	
DRIGGS, HOGG, DAUGHERTY & DEL ZOPPO CO., L.P.A. 38500 CHARDON ROAD DEPT. DLBH WILLOUGBY HILLS, OH 44094			VANNI, GEORGE STEVEN	
			ART UNIT	PAPER NUMBER
			1631	
			NOTIFICATION DATE	DELIVERY MODE
			04/27/2018	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* CHING MING LAI<sup>1</sup>

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Appeal 2017-003941  
Application 13/704,007  
Technology Center 1600

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*Before* ULRIKE W. JENKS, JOHN G. NEW, and DAVID COTTA,  
*Administrative Patent Judges.*

NEW, *Administrative Patent Judge.*

DECISION ON APPEAL

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<sup>1</sup>Appellant identifies Analogic Corporation, of Peabody, MA as the real party-in-interest. App. Br. 2.

## SUMMARY

Appellant files this appeal under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1, 3–13, 15, 16, and 23–28 under 35 U.S.C. § 101 as being directed to nonstatutory subject matter.<sup>2</sup>

We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

## NATURE OF THE CLAIMED INVENTION

Appellant's claimed invention is directed to a method for verifying an Internal Lane ("ILS") Standard signal for DNA processing includes obtaining the ILS signal, determining acquisition times between peaks of the ILS signal, obtaining acquisition times between peaks in reference ILS information for the ILS signal, and verifying the ILS signal based on the ILS acquisition times and the reference ILS acquisitions times. Abstract.

## REPRESENTATIVE CLAIM

Claim 1 is representative of the claims on appeal and recites:

1. A method for verifying an Internal Lane Standard (ILS) signal for DNA processing, comprising:

generating, with an optical reader of a sample processing apparatus, an output indicative of light sensed by the optical reader where the light is emitted by dyes in dye labeled and separated fragments of a sample in response to the optical reader

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<sup>2</sup> Claims 1, 3–13, 15, 16, and 23–28 were also rejected as unpatentable under 35 U.S.C. § 103(a) as being obvious over the combined cited prior art, and under the judicially-created doctrine of obviousness-type double patenting. *See* Final Act. 6, 11. The Examiner has withdrawn these rejections. Ans. 2.

directing a light beam of a predetermined wavelength range at the dye labeled and separated fragments;

identifying, with a processor of the sample processing apparatus, a signal of the output that includes the ILS signal, wherein the ILS signal has a first number of peaks and the first number of peaks are unequally spaced with respect to each other;

determining, with the processor, acquisition times between peaks of the ILS signal;

obtaining, with the processor, acquisition times between peaks in reference ILS information for the ILS signal, wherein the reference ILS information has a second number of peaks and the second number of peaks are unequally spaced with respect to each other, the second number of peaks is the same as the first number of peaks, and a spacing of the peaks in the ILS signal is different than a spacing in the reference ILS information;

determining, with the processor, ratios of the ILS signal acquisition times to the reference ILS information acquisition times; and

verifying, with the processor, that the ILS signal includes only true peaks based on the ratios.

App. Br. 13.

### ISSUE AND ANALYSIS

We agree with, and adopt, the Examiner's findings and conclusion that the appealed claims are directed to nonstatutory subject matter and are consequently unpatentable. We address the arguments raised by Appellant below.

#### *Issue*

Appellant argues that the Examiner erred because the claims do not preempt a judicially-created exception to the statute and because the

limitations of the claim add “significantly more” than just the exception itself. App. Br. 5–6.

*Analysis*

The Examiner finds independent claim 1 is directed to the abstract idea of verifying that internal lane standard (“ILS”) data includes only true peaks. Final Act. 3–4. The Examiner finds that each of the steps recited in the claim involves only the manipulation of data, which is an abstract idea. *Id.* at 4.

The Examiner further finds that any additional steps recited in claim 1 amount to no more than conventional data gathering steps. Final Act. 4. The Examiner finds that it is not clear from the record that the claim as a whole is an improvement over embodiments available in the art at the time of the instant invention. *Id.* The Examiner therefore concludes that, viewed as a whole and considering all of the limitations within claim 1, both individually and in combination, the limitations do not transform the claim into a patent-eligible application of the judicial exception such that the claim amounts to significantly more than the judicial exception itself. *Id.* at 4–5.

Appellant first argues that claim 1, when viewed as a whole, does not seek to “tie up” a judicial exception. App. Br. 5 (citing *2014 Interim Guidance on Patent Subject Matter Eligibility*, 79(241) Fed. Reg. 74618, 74625 (Dec. 16, 2014) (the “Guidance”). Appellant asserts that the limitations of claim 1 do not attempt to preempt the general acts of identifying, determining, obtaining and/or verifying, let alone verifying an Internal Lane Standard (ILS) signal for DNA processing. *Id.* at 6. Appellant contends that there exist other approaches to verifying that the ILS signal,

for instance, including only true peaks, and that these do not require determining and using the claimed ratios. *Id.* Appellant notes, by way of example, that the art of record teaches techniques for verifying an ILS signal. *Id.* However, Appellant argues, none of these techniques disclose or suggest determining ratios as claimed and using those ratios to verify an ILS signal, as recited in claim 1. *Id.*

Appellant points to the Guidance, which, Appellant contends, states that claims that do not preempt an exception to Section 101 do not need to proceed through the second step of the *Alice/Mayo* analysis as their eligibility is self-evident. App. Br. 6 (citing Guidance 74625).

Appellant next argues that the limitations of claim 1 are sufficient to ensure that the limitations of claim 1, when considered as an ordered combination, amount to significantly more than the abstract idea because they solve a DNA sequencing system-centric problem with a claimed solution that is necessarily rooted in the technology. App. Br. 6–7.

Specifically, Appellant asserts, the claim addresses the problem of translating the acquisition times of the DNA fragments into fragment sizes, which may include false peaks and/or missing peaks, and which in turn may lead to erroneous translation and sequencing with the DNA sequencing. *Id.* at 7. According to Appellant, this includes determining ratios of the ILS signal acquisition times to the reference ILS information acquisition times and verifying that the ILS signal includes only true peaks based on the ratios. *Id.* Furthermore, Appellant argues, these limitations add specific limitations other than what is well-understood, routine, and conventional in the field of DNA sequencing and comprise unconventional steps that confine the claims to a particular useful application. *Id.*

We are not persuaded by Appellant’s arguments. With respect to Appellant’s first argument – that, because Appellant’s claims do not preempt a judicially-created exception to Section 101, the claims are consequently patent-eligible – we point out that such an analysis is not a part of the two-part test set forth by the Supreme Court in *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66 (2012) and *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S.Ct. 2347 (2014). Admittedly, the Supreme Court has made clear that the principle of preemption is the basis for the judicial exceptions to patentability. *See, e.g., Alice*, 134 S.Ct. at 2354. However, although preemption may signal patent-ineligible subject matter, the absence of complete preemption does not necessarily demonstrate patent eligibility. *See Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015). Thus, even if we accept, *arguendo*, Appellant’s argument that the claims on appeal do not preempt one of the judicially-created exceptions to Section 101, that in itself is not sufficient to demonstrate that the claims are patent-eligible. Indeed, “where a patent’s claims are deemed only to disclose patent-ineligible subject matter under the *Alice/Mayo* framework, preemption concerns are fully addressed and made moot.” *Id.*

Nor are we persuaded by Appellant’s reliance upon the Guidance. Section I.B.3 of the Guidance states, in relevant part:

For purposes of efficiency in examination, a streamlined eligibility analysis can be used for a claim that may or may not recite a judicial exception but, when viewed as a whole, clearly does not seek to tie up any judicial exception such that others cannot practice it. Such claims do not need to proceed through the full analysis herein as their eligibility will be self-evident. However, *if there is doubt as to whether the applicant is effectively seeking coverage for a judicial exception itself, the full*

*analysis should be conducted to determine whether the claim recites significantly more than the judicial exception.*

(Emphasis added).

The Guidelines thus state that, in cases in which, as here, Appellant is seeking coverage for a judicial exception (see our analysis *infra*) it is required that we proceed to the full, two-part analysis.

With respect to Appellant’s second argument, that the claims add “significantly more” than just the judicial exception itself, we are similarly not persuaded. Appellant’s claim 1 is directed to a method of: (1) generating an output of an optical reader of dye-labeled and separated fragments at a specific wavelength, and then identifying, with a processor of the sample processing apparatus, a signal of the output that includes the ILS signal and determining the acquisition times between peaks of the ILS signal. The rest of claim 1 is directed to: (2) comparing the acquisition times between peaks in reference ILS information for the ILS signal with those of the acquired signal.

Appellant does not argue that the acquisition of the test signal *via* the optical reader/processor is a novel step or one otherwise unknown to the art at the time of Appellant’s invention. *See* Spec. 1–2. Rather, the invention centers upon the method of comparing the acquisition times of the sample with those of selected reference values i.e.,

[O]btaining, with the processor, acquisition times between peaks in reference ILS information for the ILS signal, wherein the reference ILS information has a second number of peaks and the second number of peaks are unequally spaced with respect to each other, the second number of peaks is the same as the first number of peaks, and a spacing of the peaks in the ILS signal is different than a spacing in the reference ILS information;

*determining, with the processor, ratios of the ILS signal acquisition times to the reference ILS information acquisition times; and*

verifying, with the processor, that the ILS signal includes only true peaks based on the ratios.

(Emphasis added). Although the claim thus generally falls into what would be a patent-eligible category, i.e., a method (a “process”), we agree with the Examiner that the claim is directed, at least in part, to one of the judicially-created exceptions to Section 101, *viz.*, an abstract intellectual concept or mental process. *See Gottschalk v. Benson*, 409 U.S. 63, 67 (1972) holding that: “[p]henomena of nature, ... *mental processes, and abstract intellectual concepts* are not patentable, as they are the basic tools of scientific and technological work”) (emphasis added). Following the Supreme Court’s holding in *Benson*, our reviewing court has consistently: “refused to find processes patentable when they merely claimed a mental process standing alone and untied to another category of statutory subject matter[,] even when a practical application was claimed.” *In re Comiskey*, 554 F.3d 967, 980 (Fed. Cir. 2009).

Appellant adduces no evidence that these steps recited in claim 1 could not be performed by an individual mentally, or with the aid of only a paper and pencil and are consequently “mental processes” and an exception to Section 101. *See CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1372 (Fed. Cir. 2011). We agree with the Examiner’s conclusion that the “determining” and “verifying” steps therefore recite abstract mental processes that fall within the proscribed exceptions to Section 101.

Having determined that the claims are directed to a judicially-created exception, the Supreme Court’s analytical model set forth in *Mayo* next requires us to determine whether the remaining limitations of the claim amount to “significantly more than a patent upon the [ineligible concept] itself.” *Ariosa*, 788 F.3d at 1375 (quoting *Mayo*, 566 U.S. at 73); *see also Digitech Image Techs., LLC v. Elecs. For Imaging, Inc.*, 758 F.3d 1344, 1351 (Fed. Cir. 2014) (“Without additional limitations, a process that employs mathematical algorithms to manipulate existing information to generate additional information is not patent eligible”).

We conclude that they do not. The remaining limitations are directed to gathering and identifying electrophoretic data *via* means well known in the contemporary art and selecting various reference data for purposes of comparison. Appellant does not argue, or adduce any supporting evidence to suggest that, the “optical reader” and the “processor” were not well known in the art. Indeed, Appellant’s Specification discloses that: “[T]he methods herein can be implemented via one or more processor of one or more computing systems executing one or more computer readable and/or executable instructions stored on computer storage medium such as memory local to or remote from the one or more computing systems,” suggesting that the claimed processor could be a generic computer running software that would have been known to a person of ordinary skill. *See* Spec. 17. As such the remaining limitations of claim 1 are directed to no more than the routine collection of data by well-known methods, and the selection of appropriate reference data for comparison, the latter step being another abstract idea capable of being performed mentally. *See CyberSource*, 654 F.3d at 1370

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(Fed. Cir. 2011) (“The mere collection and organization of data ... is insufficient to meet the transformation prong of the test”).

We consequently agree with the Examiner that the additional limitations of claim 1 do not add “significantly more” than claiming the judicially-created exception itself. Accordingly, we affirm the Examiner’s rejection of claim 1.

#### DECISION

The Examiner’s rejection of claims 1, 3–13, 15, 16, and 23–28 as unpatentable under 35 U.S.C. § 101 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED