

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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BIOGATEKEEPER, INC.,  
Petitioner,

v.

KYOTO UNIVERSITY,  
Patent Owner.

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Case IPR2014-01286  
Patent 8,058,065 B2

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Before JACQUELINE W. BONILLA, SHERIDAN K. SNEDDEN, and  
SUSAN L. C. MITCHELL, *Administrative Patent Judges*.

SNEDDEN, *Administrative Patent Judge*.

DECISION  
Denying Institution of *Inter Partes* Review  
37 C.F.R. § 42.108

## I. INTRODUCTION

BioGatekeeper, Inc. (“BioGatekeeper”) filed a corrected Petition to institute an *inter partes* review of claim 1 (Paper 6; “Pet.”) of U.S. Pat. No. 8,058,065 B2 (Ex. 1001; “the ’065 patent”). Kyoto University (“the University”) filed a Patent Owner Preliminary Response. Paper 10 (“Prelim. Resp.”).

We have jurisdiction under 35 U.S.C. § 314. The standard for instituting an *inter partes* review is set forth in 35 U.S.C. § 314(a), which states that an *inter partes* review may not be instituted unless “the information presented in the [Petition and Preliminary Response] shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” Upon consideration of the above-mentioned Petition and Preliminary Response, we conclude that BioGatekeeper has failed to establish that there is a reasonable likelihood that it would prevail with respect to its challenge of claim 1. We, therefore, decline to institute an *inter partes* review as to claim 1 of the ’065 patent.

### A. *The ’065 patent (Ex. 1001)*

The ’065 patent discloses a method for nuclear “reprogramming [of] a differentiated somatic cell to derive an induced pluripotent stem (iPS) cell.” Ex. 1001, Abstract. The nuclear reprogramming of a somatic cell, such as a fibroblast cell, is accomplished by introducing to the somatic cell one or more gene products from the following gene families: an Oct family gene, a Klf family gene, a Myc family gene, or a Sox family gene. *Id.* at 3:11–24.

### B. *Claim 1 of the ’065 Patent*

Challenged claim 1 is the sole claim of the ’065 patent and provides as follows:

1. A method for preparing an induced pluripotent stem cell by nuclear reprogramming of a somatic cell from a mammalian species, comprising:

a) introducing into the somatic cell one or more retroviral vectors comprising a gene encoding Oct3/4, a gene encoding Klf4, a gene encoding c-Myc and a gene encoding Sox2 operably linked to a promoter; and

b) culturing the transduced somatic cell on a fibroblast feeder layer or extracellular matrix in a cell media that supports growth of ES<sup>1</sup> cells of the mammalian species, wherein one or more pluripotent cells are obtained.

*C. The Prior Art*

BioGatekeeper relies upon the following prior art references as its basis for challenging claim 1 of the '065 patent.

<b>Reference</b>	<b>Patents/Printed Publications</b>	<b>Exhibit</b>
Jaenisch <sup>2</sup>	U.S. Pat. No. 7,682,828 B2, issued Mar. 23, 2010, filed Nov. 24, 2004	Ex. 1002
Benvenisty	N. Benvenisty et al., <i>An embryonically expressed gene is a target for c-Myc regulation via the c-Myc-binding sequence</i> , 6 GENES DEV. 2513–2523 (1992).	Ex. 1003
Li	Yanjun Li et al., <i>Murine embryonic stem cell differentiation is promoted by SOCS-3 and inhibited by the zinc finger transcription factor Klf4</i> , 105(2) BLOOD 635–637 (2005).	Ex. 1004

*D. The Asserted Ground*

BioGatekeeper challenges claim 1 of the '065 patent as obvious under 35 U.S.C. § 103 over the combination of Jaenisch, Benvenisty, and Li.

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<sup>1</sup> ES stands for “embryonic stem.”

<sup>2</sup> Jaenisch is referred to as the “Whitehead Patent” in the Petition. Pet. 4.

## II. ANALYSIS

### A. *Claim Interpretation*

We interpret claims in an unexpired patent using the “broadest reasonable construction in light of the specification of the patent in which [they] appear[.]” 37 C.F.R. § 42.100(b); *see also* Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012). Under the broadest reasonable construction standard, claim terms are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art at the time of the invention. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). “Absent claim language carrying a narrow meaning, the PTO should only limit the claim based on the specification . . . when [it] expressly disclaim[s] the broader definition.” *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004). “Although an inventor is indeed free to define the specific terms used to describe his or her invention, this must be done with reasonable clarity, deliberateness, and precision.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

None of the claim terms requires explicit construction for purposes of this decision. *See* Pet. 9–10; Prelim. Resp. 30–32.

### B. *Principles of Law*

An invention is obvious if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious . . . to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103. The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter

and the prior art; (3) the level of skill in the art; and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *see also KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 399 (2007) (“While the sequence of these questions might be reordered in any particular case, the [Graham] factors continue to define the inquiry that controls.”). When determining whether a patent claiming a combination of known elements would have been obvious, we “must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.” *Id.* at 417. This inquiry is factual in nature. *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) (explaining that whether there is “a reasonable expectation of success in making the invention via” a combination of prior art elements is a question of fact). A reasonable expectation of success is assessed from the perspective of one of ordinary skill in the art at the time the invention was made. *Life Techs., Inc. v. Clontech Labs., Inc.*, 224 F.3d 1320, 1326 (Fed. Cir. 2000).

The “prior art fails to provide the requisite ‘reasonable expectation’ of success where it teaches merely pursuit of a ‘general approach that seemed to be a promising field of experimentation, where the prior art gave only general guidance as to the particular form of the claimed invention or how to achieve it.’” *Medichem*, 437 F.3d at 1165 (quoting *In re O’Farrell*, 853 F.2d 894, 903–04 (Fed. Cir. 1988)). In such cases, “courts should not succumb to hindsight claims of obviousness.” *In re Kubin*, 561 F.3d 1351 (Fed. Cir. 2009).

*C. Obviousness of Claim 1 Over the Combination of Jaenisch, Benvenisty, and Li*

BioGatekeeper contends that claim 1 of the ’065 patent is unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Jaenisch, Benvenisty, and Li. BioGatekeeper contends that Jaenisch describes a method for nuclear

reprogramming of an animal somatic cell into a pluripotent or multipotent cell. Pet. 17 (citing Ex. 1002, 17:8–23, 9:4–8). BioGatekeeper contends further that Jaenisch describes that reprogrammed pluripotent somatic cells may be achieved by introducing, into a somatic cell, at least two pluripotent genes and directs our attention to the following passage from Jaenisch:

A reprogramming agent may belong to any one of many different categories. For example, a reprogramming agent may be a chromatin remodeling agent . . . a pluripotency protein, including, for example, Nanog, Oct-4 and Stella. Such an agent may also be a gene essential for pluripotency, including, for example, Sox2, FoxD3, and LIF, and Stat3.

*Id.* at 17–18 (citing Ex. 1002, 12:26–39).

BioGatekeeper acknowledges that Jaenisch does not explicitly disclose using a *klf4* gene and a *c-myc* gene, as required by claim 1, but contends that Benvenisty and Li are within the same field and identify the *c-myc* and *klf4* genes, respectively, as pluripotent genes. *Id.* at 15–16 (claim chart), 18. BioGatekeeper reasons that it would have been obvious to one of ordinary skill to modify Jaenisch “by additionally or alternatively introducing the *c-myc* gene and the *Klf4* gene, because these two genes qualify and were known as pluripotency genes as defined by [Jaenisch], in order to reprogram a somatic cell to achieve either a complete set or a subset of pluripotent characteristics.” *Id.* at 19.

The University responds by arguing that BioGatekeeper has not demonstrated the obviousness of the claim 1 and has not sufficiently established Jaenisch as prior art. Prelim. Resp. 13–28. The University also presents objective evidence of nonobviousness. *Id.* at 30.

Upon consideration of the information presented in the Petition and Preliminary Response, we conclude that BioGatekeeper has failed to establish that

the subject matter recited in claim 1 would have been obvious to a person of ordinary skill in the art. The information presented by BioGatekeeper may be sufficient to establish that each of the genes recited in claim 1 were known; however, the Petition lacks sufficient information to support a determination that a person of ordinary skill in the art would have had a reasonable expectation of success in achieving pluripotency of a mammalian stem cell using the specific combination of genes recited in claim 1.

At best, the Petition directs us to general guidance in the prior art with regard to particular genes involved in cell differentiation and cell division, but fails to point us to specific guidance as to how, for example, the recited genes would function together at the appropriate developmental stage of the cells to achieve pluripotency. Pet. 15–18. Such general guidance as provided in the Petition does not establish a reasonable likelihood that Petitioner would show the requisite “reasonable expectation” of success for combining a particular set of genes in order to achieve nuclear reprogramming of a mammalian somatic cell to produce an induced pluripotent stem cell. *Medichem*, 437 F.3d at 1165.

Furthermore, BioGatekeeper’s stated rationale indicates, at best, that the prior art references are each analogous art to the invention of the ’065 patent, and perhaps, to each other. Notably absent from BioGatekeeper’s stated rationale, however, is a sufficient explanation of how or why teachings in the references would have been combined, from the perspective of one with ordinary skill in the art, to arrive at the claimed invention. For example, BioGatekeeper contends that Benvenisty discloses c-myc as a pluripotent gene, but fails to indicate where Benvenisty provides such a teaching. Pet. 15. BioGatekeeper does not identify where Benvenisty describes c-myc as a pluripotent gene, let alone a “gene essential for pluripotency” such as those referenced in Jaenisch. In fact, BioGatekeeper

admits that “the Benvenisty article and the Li article do not specifically call the c-myc gene and the klf4 gene pluripotency genes[.]” Pet. 19. Rather, Benvenisty describes c-myc as a proto-oncogene “thought to play a significant role in the physiology of cell division and differentiation” that is expressed in certain embryonic and adult tissues. Ex. 1003, Abstract, 2513 (internal citation omitted). The Petition lacks a sufficiently articulated reason as to why a person of ordinary skill in the art would have selected the proto-oncogene c-myc in order to achieve the claimed subject matter.

Jaenisch is relied upon by Petitioner for the disclosure of the oct4 and sox2 genes. Pet. 15. Li is relied upon by Petitioner for the disclosure of the klf4 gene. *Id.* Accordingly, neither Jaenisch nor Li cure the deficiency of Benvenisty exemplified above.

In view of the above, we conclude that BioGatekeeper has not established a reasonable likelihood that it would prevail in showing that independent claim of the '065 patent would have been obvious under 35 U.S.C. § 103(a) over the combination of Jaenisch, Benvenisty, and Li.

#### *D. Real Party-in-Interest*

Patent Owner argues that the Petition fails to adequately identify the real party-in-interest. Prelim. Resp. 7–12. We conclude that the information presented in the Petition fails to show that there is a reasonable likelihood that the Petitioner would prevail with respect to its challenge of claim 1 of the '065 patent. Therefore, we do not reach the issues raised by Patent Owner's argument with respect to real party-in-interest.



### III. CONCLUSION

The Petition does not persuade us that there is a reasonable likelihood that the challenged claim 1 is unpatentable based on the asserted ground. We decline to institute an *inter partes* review of claim 1 under 35 U.S.C. § 103(a) as obvious over the combination of Jaenisch, Benvenisty, and Li. 37 C.F.R. § 42.108(c).

### IV. ORDER

For the reasons given, it is

ORDERED that the petition is *denied* as to the challenged claim, and no trial is instituted.

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