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Paper 8
Entered: October 14, 2014

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BUTAMAX ADVANCED BIOFUELS LLC,
Petitioner,

v.

GEVO, INC.,
Patent Owner.

Case IPR2014-00581
Patent 8,273,565 B2

Before RAMA G. ELLURU, CHRISTOPHER L. CRUMBLEY, and KERRY BEGLEY, *Administrative Patent Judges.*

CRUMBLEY, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
and Dismissing Motion for Joinder
35 U.S.C. §§ 315(c), 325(d); 37 C.F.R. §§ 42.122, 42.108

I. INTRODUCTION

Butamax Advanced Biofuels LLC filed a Petition seeking *inter partes* review of claims 5 and 10 of U.S. Patent No. 8,273,565 B2 (Ex. 1001, "the '565 patent"). Paper 1, "Pet." Along with its Petition, Butamax filed a Motion for Joinder, requesting joinder with Case IPR2013-00539, an *inter partes* review trial currently pending before the Board. Paper 4, "Joinder Mot." Gevo, Inc., the owner of the '565 patent, did not file a preliminary response or an opposition to the Motion for Joinder.

Upon consideration of the Petition, Motion for Joinder, and the specific facts of this case, we exercise our discretion to deny review under 35 U.S.C. § 325(d). Because we determine that the Petition does not warrant institution, we may not grant, and thus dismiss as moot, the Motion for Joinder under 35 U.S.C. § 315(c).

A. The '565 Patent

1. *Background*

The '565 patent, titled "Methods of Increasing Dihydroxy Acid Dehydratase Activity to Improve Production of Fuels, Chemicals, and Amino Acids," is directed to recombinant yeast microorganisms with increased activity of dihydroxy acid dehydratase ("DHAD"). Ex. 1001, Abstract, 1:29–2:25. DHAD is an enzyme that catalyzes steps in various biosynthetic pathways that produce metabolites, such as isobutanol, a common fuel additive. *Id*. at Abstract, 1:46–66, Fig. 1. Increased DHAD activity is favorable for production of these metabolites. *Id*. at 1:65–2:20, 24:31–33. In addition, the '565 patent is directed to methods of producing

such metabolites by cultivating the recombinant microorganisms in a culture medium containing a feedstock providing a carbon source. *Id*. at Abstract, 8:55–63.

The specification of the '565 patent discloses various embodiments, including recombinant microorganisms with increased DHAD activity resulting from alterations in the regulation, expression, and activity of proteins monothiol glutaredoxin-3 ("GRX3"), monothiol glutaredoxin-4 ("GRX4"), or both GRX3 and GRX4. *Id*. at 24:36–45; *see id*. at 24:1–30. The specification also discloses recombinant microorganisms with improved DHAD activity resulting from overexpression of one or more nucleotides encoding activator of ferrous transport ("Aft") proteins, Aft1 and Aft2, or constitutively active Aft proteins. *Id*. at 2:9–25, 4:14–26, 15:49–54. The DHAD in these embodiments may be localized in either the cytosol or the mitochondria of the microorganisms. *Id*. at 3:30–46, 16:33–34, 24:36–45. Further, the recombinant microorganisms may be one of various disclosed yeast genera and species, including *Saccharomyces cerevisiae*. *See id*. at 7:49–8:54.

2. *Challenged Claims*

Both challenged claims depend indirectly from independent claim 1 and read as follows:

> 5. The recombinant yeast microorganism of claim 4, wherein said ketol-acid reductoisomerase is an NADH-dependent ketol-acid reductoisomerase.
>
> 10. The recombinant yeast microorganism of claim 2, wherein said recombinant yeast microorganism is further

engineered to inactivate one or more endogenous glycerol-3-phosphate dehydrogenase (GPD).

Ex. 1001, 91:46–48, 62–65.

3. *Related Proceedings*

Butamax informs us that Gevo asserted the '565 patent in *Gevo, Inc. v. Butamax™ Advanced Biofuels LLC*, No. 12-1202(SLR) (D. Del.), filed September 25, 2012. The same day, Butamax filed for declaratory judgment of invalidity of the '565 patent in *Butamax™ Advanced Biofuels LLC v. Gevo, Inc.*, No. 12-1201(SLR) (D. Del.). According to the Petition, on August 9, 2013, the claims by Gevo against Butamax in both actions were voluntarily dismissed without prejudice, and the claims by Butamax against Gevo in both actions were dismissed with prejudice.

The '565 patent is also the subject of an *inter partes* review trial currently pending before the Board, *Butamax Advanced Biofuels LLC v. Gevo, Inc.*, Case IPR2013-00539 (the "539 IPR"). In that proceeding, we instituted review of claims 1–9 and 11–19 on March 4, 2014, and denied review of claim 10. 539 IPR, Paper 9, "539 Dec. on Inst." Trial is currently ongoing in the 539 IPR, with oral argument scheduled for October 28, 2014. 539 IPR, Paper 24.

B. Prior Art Relied Upon

Butamax relies on the following references:

Anthony	US 2010/0081179 A1	Apr. 1, 2010	Ex. 1005
Dundon	WO 2007/106524 A2	Sept. 20, 2007	Ex. 1028
Flint	WO 2011/103300 A2	Aug. 25, 2011	Ex. 1003

H. Valadi et al., *Improved Ethanol Production by Glycerol-3-phosphate dehydrogenase Mutants of* Saccharomyces cerevisiae, 50 AMB 434–439 (1998) (Ex. 1027)

Sergi Puig et al., *Coordinated Remodeling of Cellular Metabolism During Iron Deficiency Through Targeted mRNA Degradation*, 120 CELL 99–110 (2005) (Ex. 1006)

Luis Ojeda et al., *Role of Glutaredoxin-3 and Glutaredoxin-4 in the Iron Regulation of the Aft1 Transcriptional Activator in* Saccharomyces cerevisiae, 281 J. BIOLOGICAL CHEMISTRY 17661–17669 (2006) (Ex. 1007)

Of these references, Anthony, Flint, Puig, and Ojeda were previously made of record in the 539 IPR.

C. The Asserted Grounds

Butamax presents the following grounds of unpatentability:

Claim Challenged	**Basis**	**References**
5	§ 102	Flint
10	§ 103	Flint and Valadi
10	§ 103	Anthony in view of Puig, Ojeda, and Valadi
10	§ 103	Flint and Dundon
10	§ 103	Anthony in view of Puig, Ojeda, and Dundon

II. ANALYSIS

A. Statutory Discretion to Institute and Join

Our statutory authority to institute *inter partes* review derives from 35 U.S.C. § 314(a), which provides that a review may not "be instituted

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