

IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF WISCONSIN

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NOVOZYMES A/S and  
NOVOZYMES NORTH AMERICA, INC.,

Plaintiffs,

v.

DANISCO A/S,  
GENECOR INTERNATIONAL WISCONSIN, INC.,  
DANISCO US INC. and DANISCO USA INC.,

Defendants.  
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ORDER

10-cv-251-bbc

The parties have responded to the court's October 7, 2011 order requesting supplemental briefing on the proper construction of the term "isolated variant" in U.S. Patent No. 7,713,723. The parties' proposed constructions address two issues: (1) the degree to which the variant must be separated from other materials; and (2) whether the variant must be separated from *cellular* material. Plaintiffs say that a variant is isolated if it "has undergone a detectable amount of separation from cellular and/or non-cellular material." Dkt. #681, at 5. Defendants say that the variant must be "separated from cellular materials such that it is substantially free from cells and cell debris." Dkt. #682, at 1.

With respect to the cellular/non-cellular issue, plaintiffs point to a passage in the specification that discusses “recovering the variant from the cells and/or culture medium.” ‘723 pat., col. 20, lns. 45-46. Because “the culture medium includes non-cellular material,” plaintiffs suggest that it is sufficient to separate the variant from cellular or non-cellular material. Plts.’ Br., dkt. #681, at 3. Second, plaintiffs note that the specification lists several ways of recovering the variant, including centrifugation and filtration. ‘723 pat., col. 20, lns. 54-61. According to plaintiffs, these methods “are capable of separating out cellular or non-cellular material or both.” Plts.’ Br., dkt. #681, at 3.

Defendants cite several passages of the specification that use the modifier “isolated” in different contexts:

In the present context, “derived from” is intended not only to indicate an alpha-amylase produced or producible by a strain of the organism in question, but also an alpha-amylase encoded by a DNA sequence *isolated* from such strain and produced in a host organism transformed with said DNA sequence.

‘723 pat., col. 5, lns. 4-9.

The DNA sequence encoding a parent alpha-amylase may be *isolated* from any cell or microorganism producing the alpha-amylase in question, using various methods well known in the art.

Id. at col. 17, lns. 39-42.

Once an alpha-amylase-encoding DNA sequence has been *isolated*, and desirable sites for mutation identified, mutations may be introduced using synthetic oligonucleotides.

Id. at col. 18, lns. 15-17.

Another method for introducing mutations into alpha-amylase-encoding DNA sequences is described in Nelson and Long (1989). It involves the 3-step generation of a PCR fragment containing the desired mutation introduced by using a chemically synthesized DNA strand as one of the primers in the PCR reactions. From the PCR-generated fragment, a DNA fragment carrying the mutation may be *isolated* by cleavage with restriction endonucleases and reinserted into an expression plasmid.

Id. at lns. 35-43. Defendants say that “[i]n each of these instance the term ‘isolated’ refers to DNA that has been separated from the cells in which it was made.” Dfts.’ Br., dkt. #682, at 4.

Also, defendants cite a passage discussing how a variant is “recovered”

The alpha-amylase variant secreted from the host cells may conveniently be recovered from the culture medium by well-known procedures, including separating the cells from the medium by centrifugation or filtration, and precipitating proteinaceous components of the medium by means of a salt such as ammonium sulphate, followed by the use of chromatographic procedures such as ion exchange chromatography, affinity chromatography, or the like.

‘723 pat., col. 20, lns. 54-61.

I am not persuaded that isolation under the ‘723 patent requires separation from cellular material. Although the examples defendants cite may involve separation from a cell, these are simply examples of ways that DNA can be separated. Defendants cite no evidence that “isolation” inherently means separation from cellular material or that the specification defines the term that way. Further, the passage defendants cite on “recovery” refers to

“separating the cells *from the medium*,” not separating the cells from the variant. Because it is undisputed that the medium includes non-cellular material, this passage seems to support plaintiffs’ position more than defendants.

With respect to the degree of separation required, plaintiffs note that the invention is intended to be used in “industrial” settings, such as starch conversion and the production of ethanol and detergent. ‘723 pat., col. 20, ln. 65 - col. 21, ln. 20. Because these processes “do not require the alpha-amylase to be highly processed or purified . . . one of ordinary skill in the art would understand that alpha-amylase variants described in the ‘723 patent only need to be separated . . . to the extent necessary to perform [their] intended function in industrial applications.” Plts.’ Br., dkt. #681, at 4-5. In addition, plaintiffs cite a passage in which the inventor “contemplated that a variant of the invention may be incorporated in an amount corresponding to 0.00001-10 mg (calculated as pure, active enzyme protein) of alpha-amylase per liter of wash/dishwash liquor using conventional dosing levels of detergent.” ‘723 pat., col. 21, lns. 40-44. Plaintiffs say this low concentration shows that “very minimal separation . . . is all that is required by the ‘723 patent.” Plts.’ Br., dkt. #681, at 6. For their part, defendants cite no evidence for a “substantially free” limitation.

I do not find either side’s proposed construction persuasive on this issue. Defendants seem to pull their “substantially free” limitation out of thin air and they simply substitute one ambiguity for another. They say that “[t]he jury will be able to determine whether the

accused whole broth products are substantially free of cells and cell debris using the plain and ordinary meaning of the term substantially,” Dfts.’ Br., dkt. #682, at 6, but that assumes that “substantially” *has* an “ordinary meaning” in this context. What guideposts would the jury have to determine whether the variant had been “substantially” separated from cellular material? Defendants do not say. This is not an issue the jury can decide from its own experience and common sense.

Defendants cite Cohesive Technologies, Inc. v. Waters Corp., 543 F.3d 1351, 1362 (Fed. Cir. 2008), for the proposition that the term “substantially” does not need construction, but that case is not instructive because neither side was challenging the meaning of the term. Generally, the court of appeals has stated that “substantially” must be construed. E.g., Anchor Wall Systems, Inc. v. Rockwood Retaining Walls, Inc., 340 F.3d 1298, 1310-11 (Fed. Cir. 2003) (remanding because court failed to construe “substantially”); Medrad, Inc. v. MRI Devices Corp., 401 F.3d 1313, 1318-19 (Fed. Cir. 2005) (construing “substantially”).

Plaintiffs’ proposed construction is not much better. Although it might be true that the industrial setting of the invention does not require a high degree of separation, it does not follow that “isolated” means a “detectable” amount of separation. Further, this construction suffers from the same problem as defendants’ because “detectable” would likely require further construction. Detectable by what? And why does it matter whether the

separation is “detectable”? What function would that serve? Plaintiffs’ proposal runs the risk of reading the limitation out of the claim.

In the absence of a requirement in the patent for a particular degree of separation, I adhere to my view in the summary judgment opinion that an “isolated” variant must be sufficiently separated so that it is easier to recover. It was undisputed in the parties’ summary judgment submissions that the general purpose of isolating a variant is to assist in identifying and recovering that variant. A construction reflecting that purpose is thus consistent with the way a person of ordinary skill in the art would interpret the meaning of “isolated” and insures that the term has independent meaning in the claim.

#### ORDER

IT IS ORDERED that the term “isolated variant” in United States Patent No. 7,717,723 means “a variant that is sufficiently separated from other material to make the

variant easier to recover.”

Entered this 17th day of October, 2011.

BY THE COURT:  
/s/  
BARBARA B. CRABB  
District Judge