IN THE UNITED STATES DISTRICT COURT

FOR THE WESTERN DISTRICT OF WISCONSIN

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

OPINION and ORDER

Plaintiffs,

10-cv-251-bbc

v.

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

Defendants.

- -

This case for patent infringement is before the court on a second round of summary judgment motions. The claimed invention at issue is a variant of an enzyme called an alpha-amylase that is used in a variety of commercial settings, such as ethanol production and laundry detergent. The variant "has increased thermostability relative to the parent alpha-amylase, wherein thermostability is determined at pH 4.5, 90° C. and 5 ppm calcium and has alpha-amylase activity." U.S. Patent No. 7,713,723, claim 1. Although the parties dispute the scope of the invention, the gist is that the variant works better under harsh conditions than the parent. Plaintiffs Novozymes A/S and Novozymes North America, Inc.,

who are competitors in the alpha-amylase market with defendants Danisco A/S, Genecor International Wisconsin, Inc., Danisco US Inc. and Danisco USA Inc., contend that several of defendants' alpha-amylases infringe the '723 patent.

In their first motion for summary judgment, defendants argued that the patent was invalid because it did not have an adequate written description as required by 35 U.S.C. § 112. Although I agreed with defendants that the specification of the '723 patent potentially covers a large number of inventions, I could not conclude as a matter of law that the written description was inadequate. Dkt. #185. In their second motion for summary judgment, defendants argue that the '723 patent is invalid because the term "increased thermostability" is not susceptible to construction. In the alternative, defendants argue that the accused products do not meet the claim limitations for "increased thermostability," "isolated variant" or "*Bacillus stearothermophilus* alpha-amylase."

Plaintiffs have filed their own motion for summary judgment in which they ask the court to find as a matter of law that defendants are infringing the '723 patent. In addition, they seek dismissal of defendants' counterclaims for inequitable conduct and prosecution laches.

With respect to the issue of indefiniteness, I conclude that the term "increased thermostability" is amenable to construction. Further, I conclude that plaintiffs have shown as a matter of law that most of the accused products infringe the asserted claims. The

exceptions are the "whole broth" products. Plaintiffs have failed to adduce evidence that these products meet the "isolated variant" limitation that is present in each of the asserted claims; in other words, they have not shown that the whole broth products infringe the asserted claims of the '723 patent, either literally or under the doctrine of equivalents. Finally, I conclude that plaintiffs are entitled to summary judgment on defendants' counterclaims for inequitable conduct and prosecution laches.

For the sake of brevity, I will discuss most of the facts as they become relevant to the opinion. However, for context I will begin with a brief discussion of the undisputed facts related to the technology of the invention.

BACKGROUND

U.S. Patent No. 7,713,723 relates to variants of an enzyme called an alpha-amylase. Alpha-amylases are used in many industries for liquefaction of starches for the production of sweeteners and ethanol, for textile desizing and as components in detergents because they have the ability to break down alpha-1,4-glucosidic bonds in starch and other oligosaccharides and polysaccharides. Like all proteins, alpha-amylases are made of linear chains of smaller molecules called amino acids that are joined together by peptide bonds. There are twenty amino acids that occur in nature.

When a protein produced by a living organism, the organism's genes specify that

particular protein's amino acid sequence. The coding DNA for a protein can be modified so that it encodes a version of the protein with one or more changes in its amino acid sequence. Typically, the protein encoded by a DNA sequence that is modified in this way is referred to as a "variant" protein, whereas the protein encoded by the original coding DNA is called the "parent" protein.

OPINION

I. INFRINGEMENT

Both sides have moved for summary judgment on plaintiffs' claims for infringement. Unfortunately, it is not as clear as it should be which products and which claims in the patent are at issue. Plaintiffs did not identify in their complaint which claims they were asserting, but their motion and expert report on infringement are limited to claims 1-5, 8-13 and 15-16, so I will assume that those are the only claims at issue in this case. With respect to the accused products, defendants propose the following fact:

> Novozymes asserts that the following Danisco products infringe at least claims 1-5, 9-13 and 16 of the '723 patent: GC358, GC980, GC133, GC608, Spezyme Alpha, and Clearflow (collectively, "the Accused Products"). Novozymes asserts that GC980, GC133, GC608 and Clearflow also infringe claims 8 and 15 of the '723 patent.

Dfts.' PFOF ¶ 48, dkt. #280. Plaintiffs do not dispute this fact, but they say that defendants sell "products including the GC358 alpha-amylase under the following commercial names:

GC358, GC358 Technical Grade, Spezyme Alpha, Spezyme Alpha Technical Grade, Spezyme Alpha NK, Spezyme Alpha WB, BBCA Liq 001, Experimental Amylase F-Type (JO5023), GC133, GC980, GC608, ClearFlow AA, ClearFlow AA NK, and ClearFlow AA WB." Plts.' PFOF ¶ 16, dkt. #257. Because both sides discuss some of these "commercial names" in their proposed findings of fact and briefs, I will assume that each of them is a separate accused product.

The parties raise three issues related to infringement, all of which require resolution of a claim construction dispute. I will address each of these in turn.

A. "Increased Thermostability"

This term is an element of each of the asserted claims. Claim 1 is representative:

> 1. An isolated variant of a parent alpha-amylase, wherein:
>
> (a) the variant has at least 90% sequence identity to SEQ ID NO: 6,
>
> (b) the variant comprises a substitution of serine at position 239 relative to the parent alpha-amylase, using the amino acid sequence of SEQ ID NO: 8 for determining position numbering, and
>
> (c) the variant has **increased thermostability** relative to the parent alpha-amylase, wherein thermostability is determined at pH 4.5, 90° C. and 5 ppm calcium and has alpha-amylase activity.

The first question is whether the term can be construed at all. Under 35 U.S.C. § 112, ¶ 2, "[t]he specification shall conclude with one or more claims particularly pointing out

and distinctly claiming the subject matter which the applicant regards as his invention." If the inventor fails to comply with this provision, the claim may be declared invalid because it is indefinite.

"The standard of indefiniteness is somewhat high; a claim is not indefinite merely because its scope is not ascertainable from the face of the claims. Rather, a claim is indefinite under § 112 ¶ 2 if it is insolubly ambiguous, and no narrowing construction can properly be adopted." Amgen Inc. v. Hoechst Marion Roussel, Inc., 314 F.3d 1313, 1342 (Fed. Cir. 2003) (citations and internal quotations omitted). The court has gone so far as to say that a claim is not indefinite "even though the task [of construction] may be formidable and the conclusion may be one over which reasonable persons will disagree." Exxon Research & Engineering Co. v. United States, 265 F.3d 1371, 1375 (Fed. Cir. 2001).

The question defendants raise regarding the term "increased thermostability" is whether a person of ordinary skill in the art would know how to measure it in context of the '723 patent. The parties agree on the *method* that a person of ordinary skill in the art would use to make this determination. In particular, the residual activity of the enzymes would be measured and compared after they have been incubated at a heightened temperature. Dfts.' Resp. to Plts.' PFOF ¶¶ 176-78, dkt. #387. The more residual activity the enzyme has, the greater its thermostability. Plts.' Reply to Dfts. Resp. to Plts.' PFOF ¶ 65, dkt. #343-1.

However, defendants argue that the claims are indefinite because they do not specify

when the parent and the variant should be compared to determine whether the variant's thermostability is greater. That is, the claims are indefinite without a particular measurement point because, otherwise, there is no way to tell whether the invention is being practiced. Defendants discuss the possibility that someone might measure the parent and variant after one minute and find that both exhibit have the same thermostability, whereas after five minutes, the two might show different results. Alternatively, the variant could have greater thermostability than the parent at one point but less at another point. Thus, a product could be infringing or not, depending on when the measurement is made.

In the event that the court rejects their argument that the claims are indefinite, defendants propose the following construction for "increased thermostability": "higher residual activity than the parent alpha-amylase after incubation for a period of time between 5 and 30 minutes." They say that if the court adopts any construction for the term, it must include this limitation because these are the only time periods discussed in the specification of the '723 patent.

In response, plaintiffs do not argue that defendants are wrong in believing that increased thermostability is determined by comparing residual activity of the parent and variant at a particular time. For example, plaintiffs do not argue that increased thermostability is measured simply by determining whether the variant retains its ability to function as an alpha-amylase longer than the parent does. Nor do they argue that the

comparison may be made at *any* time. However, plaintiffs say that it was not necessary to include in the claim a particular time at which to make the comparison because "a person of ordinary skill in the art would recognize [that] the time points chosen to assess residual activity will vary depending on, for example, the particular alpha-amylase." Plts.' Br., dkt. #320, at 21. Thus, plaintiffs say, in practicing the '723 patent, "one should assess residual activity at the time points at which a meaningful comparison between the variant and the parent can be made." Id. at 22.

Unfortunately, this proposed construction resolves nothing because it leaves open the question of which time points allow a "meaningful comparison." In their brief and proposed findings of fact, plaintiffs give only one example of what they mean. They say that if one "wanted to compare the thermal stabilities of two variants under the conditions recited in the '723 patent, she would do so using time points at which at least one of the alpha-amylase enzymes has some activity." Id. at 29. In other words, one cannot determine whether the variant exhibits increased thermostability as compared to the parent when neither of them remains active. This example echoes the proposed construction in plaintiffs' motion for a preliminary injunction. Plts.' Br., dkt. #89, at 6 ("[O]ne of skill in the art would understand that thermostability should be assessed at a time point at which at least one of the parent alpha-amylase or the variant alpha-amylase has measurable residual alpha-amylase activity.") Plaintiffs do not explain why they changed their proposed construction or identify any

benefit of the new one. Accordingly, I am disregarding plaintiffs' "meaningful comparison" proposal and will use as a starting point the construction plaintiffs proposed in their motion for a preliminary injunction.

I agree with plaintiffs that nothing in the patent requires that the increased thermostability be demonstrated after five minutes, as argued in the alternative by defendants. Although all of the examples discussed in the specification involving testing done at five minutes or longer, it is well established that the scope of a claim is not limited to its embodiments. Verizon Services Corp. v. Vonage Holdings Corp., 503 F.3d 1295, 1302-03 (Fed. Cir. 2007); Constant v. Advanced Micro-Devices, Inc., 848 F.2d 1560, 1571 (Fed. Cir.1988). Defendants argue that a time interval of less than five minutes is not "industrially relevant" in the context of the '723 patent, but defendants neither explain what that means nor cite any evidence for the proposition, other than a conclusory assertion from their expert, Dfts.' PFOF ¶ 40, dkt. #314, which is not sufficient. Tokai Corp. v. Easton Enterprises, Inc., 632 F.3d 1358, 1366 (Fed. Cir. 2011).

Further, I agree with plaintiffs that it would make no sense to compare the parent's thermostability with the variant's when neither had any residual activity. Thus, a person of ordinary skill in the art would know that, if a test showed no residual activity for either the parent or the variant, she should conduct the test at an earlier time point. Source Search Technologies, LLC v. LendingTree, LLC, 588 F.3d 1063, 1076-77 (Fed. Cir. 2009) ("[T]his

court measures indefiniteness according to an objective measure that recognizes artisans of ordinary skill are not mindless automatons.") (internal quotations omitted).

This does not solve plaintiffs' problem, however. Their proposed construction still leaves an important question unanswered, even if I assume that the phrase "meaningful comparison" means "any point at which at least one of the alpha-amylase enzymes has some activity." In particular, does plaintiffs' proposed construction mean that an accused product infringes if there is even one moment during which the variant has more residual activity than the parent alpha-amylase, even if the parent has more residual activity at other times? Or does an accused product infringe only if the variant has more residual activity at *every* moment after zero and until one of the alpha-amylases has no residual activity left? Or is it something in between, such as an average over time? In more practical terms, the question is how many measurements must a person of ordinary skill in the art take before she can make a determination regarding infringement?

Defendants interpret plaintiffs' proposed construction as adopting the first position: "In Novozymes' view, one of skill in the art could test a variant at a hundred different time points and the variant would infringe so long as it showed increased residual activity at a single time point, even if the first ninety-nine time points tested showed that the variant had decreased or the same thermostability as the parent." Dfts.' Br., dkt. #271, at 16. However, defendants do not make an argument for a different construction, other than the one I have

rejected requiring a measurement between 5 and 30 minutes. (In any event, that construction would not solve this problem because it does not identify the point or points between 5 and 30 minutes at which the artisan should measure the residual activity.) For their part, plaintiffs do not address this issue explicitly in any of their briefs.

The specification states that "[s]amples are taken at various time points," '723 pat., col. 23, ln. 62, suggesting that the inventors believed that more than one data point would be necessary in each case. However, the specification does not discuss the possibility that different points in time will generate conflicting results. Nothing in the specification suggests that the variant may have greater residual activity than the parent at one point, but lesser residual activity than the parent at another point. This suggests that "increased thermostability" under the '723 patent is demonstrated only when the variant consistently shows greater residual activity than the parent at any point that either shows any residual activity. This interpretation is consistent with both the patent and the canon that "where a claim is ambiguous as to its scope, [the court may] adop[t] a narrowing construction when doing so would still serve the notice function of the claims." Halliburton Energy Services, Inc. v. M-I LLC, 514 F.3d 1244, 1253-54 (Fed. Cir. 2008).

The parties devote a significant portion of their briefs to debating the validity of tests that defendants conducted for the purpose of showing that a parent alpha-amylase may have more residual activity at one moment and the variant may have more residual activity at

another moment. Defendants use the term "cross over" as short hand for this phenomenon. However, neither side explains how the accuracy of these tests sheds any light on the only relevant question, which is how a person of ordinary skill in the art would understand the phrase "increased thermostability" in the context of the '723 patent. Because the specification does not discuss a "cross over" effect and neither side cites any evidence that a person of ordinary skill in the art would interpret the patent as taking such an effect into account, I must assume that the patent simply does not cover variants that would exhibit this effect, to the extent any such variants exist. (In fact, plaintiffs deny vigorously the existence of a "cross over" effect with respect to the variants disclosed in the '723 patent, which would be consistent with a view that the patent was not meant to cover that situation.) Thus, even if I assume that defendants' tests show what defendants say they do, this is not evidence that the patent is indefinite; it simply means that plaintiffs may be unable to prove infringement with respect to variants that "cross over."

Unfortunately for defendants, a narrow reading of the term "increased theromstability" does not help them because the facts show that the accused products do not have the "cross over" effect that defendants cite. Rather, plaintiffs' tests show that the variant in the accused products have greater residual activity at each measuring point before the parent alpha-amylase became inactive. Dfts.' Resp. to Plts.' PFOF ¶¶ 58-64, dkt. #387. In the absence of any evidence from defendant showing different results, this is sufficient to

show as a matter of law that the accused products meet this limitation.

B. "Isolated Variant"

The preamble of each of the asserted claims includes the term "isolated variant." Again, the parties agree that claim 1 is representative.

The threshold question for this term is whether it is a limitation at all. (For reasons they do not explain, plaintiffs assume in their own motion for summary judgment that it is a limitation, Plts.' Br. dkt. #256, at 45-46, 49-50, but oppose that view in response to defendants' motion for summary judgment. Plts.' Br., dkt. #320, at 25-28 .) Plaintiffs note that the Court of Appeals for the Federal Circuit has stated that, "[g]enerally, the preamble does not limit the claims." Allen Engineering Corp. v. Bartell Industries, Inc., 299 F.3d 1336, 1346 (Fed. Cir. 2002). However, exceptions to this general rule abound, as is the case with so many of the rules that govern claim construction. The preamble may limit the meaning of claim when: (1) the preamble "recites essential structure or steps," Catalina Marketing International, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002); the preamble is "necessary to give life, meaning, and vitality" to the claim, Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305 (Fed. Cir.1999); (3) "the claim drafter chooses to use both the preamble and the body to define the subject matter of the claimed invention," Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d

615, 620 (Fed. Cir. 1995); or (4) "limitations in the body of the claim rely upon and derive antecedent basis from the preamble." Eaton Corp. v. Rockwell Intern. Corp., 323 F.3d 1332, 1339 (Fed. Cir. 2003). The items in this list are more conclusions than descriptions, so it is necessary to dig deeper.

As defendants point out, in some cases the court of appeals has relied on clues from the specification or the prosecution to aid its determination whether the preamble should have a limiting effect. American Medical Systems, Inc. v. Biolitec, Inc., 618 F.3d 1354, 1359 (Fed. Cir. 2010); Symantec Corp. v. Computer Associates International, Inc., 522 F.3d 1279, 1288-89 (Fed. Cir. 2008); Catalina Marketing International, 289 F.3d at 810. However, in this case, neither side cites any language from the specification or events from the prosecution history to support its position. In fact, neither side cites any intrinsic evidence to explain why the word "isolated" was added to the claim. Thus, the determination must rest solely on the language and structure of the claim.

In some cases the court of appeals has considered whether the claim language suggests that the preamble is meant "only to state a purpose or intended use for the invention," Rowe v. Dror, 112 F.3d 473, 478 (Fed. Cir. 1997), or to serve as a "convenient label for the invention as a whole." Storage Technology Corp. v. Cisco Systems, Inc., 329 F.3d 823, 831 (Fed. Cir. 2003). In this case, there is no plausible argument that the term "isolated" simply duplicates or summarizes elements in the body of the claim; plaintiffs do not point to any

language in the claims that would cover that term. Thus, if I adopted plaintiffs' position in their opposition brief that the term is not a limitation, it would mean that the word "isolated" serves *no* purpose. Plaintiffs cite no cases in which the court of appeals treated the preamble as pure surplusage.

Defendants argue that it may be inferred that the word "isolated" provides the antecedent basis for the body of the claim because the preamble uses the phrase "*[a]n* isolated variable" and the remainder of the claim uses the phrase "*the* variable," which suggests that the claim is referring back to the preamble. This makes grammatical sense and has some support in the case law. NTP, Inc. v. Research In Motion, Ltd., 418 F.3d 1282, 1306 (Fed. Cir. 2005) (relying on use of definite article "the" in body of claim to support conclusion that preamble is limiting). See also Seachange International, Inc. v. C-COR, Inc., 413 F.3d 1361, 1376 (Fed. Cir. 2005) (concluding that use of phrase "*said* processor system" in the body claims must refer back to "processor system" in preamble and that preamble limited claim). In addition, defendants argue that the preamble must be limiting because it is the only portion of the claim that establishes the relationship between the variant and the parent alpha-amylase (by disclosing "[a]n isolated variant *of* a parent alpha-amylase").

These arguments may not be the most compelling, but in the absence of *any* evidence pointing in the opposite direction, I am inclined to agreed with defendants that the preamble is an independent limitation, particularly because plaintiffs' view requires a conclusion that

the inventors added a term to the preamble for no reason. Further, it seems that the court of appeals has been more likely to characterize a term in the preamble as limiting when the term modifies another term found in the body of the claim, as in this case. E.g., Computer Docking Station Corp. v. Dell, Inc., 519 F.3d 1366, 1375 (Fed. Cir. 2008) (modifier "portable" in preamble limited type of computer in claims); MBO Laboratories, Inc. v. Becton, Dickinson & Co., 474 F.3d 1323, 1330 (Fed. Cir. 2007) ("immediately"); On Demand Machine Corp. v. Ingram Industries, Inc., 442 F.3d 1331, 1343 (Fed. Cir. 2006) ("high speed" and "single copy"). See also Phillip M. Adams & Associates, L.L.C. v. Dell Inc., 2008 WL 7959085, *15 (D. Utah 2008) (modifier "floppy diskette" limits "storage medium"). This makes sense because a modifier is inherently limiting.

I turn next to the parties' proposed constructions. Defendants define "isolated variant" to mean "a variant that has been separated from the other proteins and other components of the host cell." Plaintiffs define "isolate" to mean "increasing the abundance of the desired protein relative to other components in its native environment." Plaintiffs describe two ways in which this can occur: (1) making more of the variant, or "overexpressing" it; or (2) "separating the cells or cell debris from the secreted enzyme in the culture broth." Plts.' PFOF ¶¶ 282-87, dkt. #257. In other words, plaintiffs' position is that the variant can be "isolated" by increasing the number of that particular variant or decreasing the amount of other materials in the cell.

The parties agree that the specification does not provide a definition for the term, so they turn to extrinsic sources. Defendants extract their proposed construction from the Oxford Dictionary of Biochemistry and Molecular Biology 346 (1997) and Webster's Third International Dictionary 1199 (1971). See also McGraw Hill Dictionary of Scientific and Technical Terms 1124 (2003) (defining "isolation" in microbiology to mean "[s]eparation of an individual or strain from a natural, mixed population"). Plaintiffs do not deny that in the relevant art the ordinary meaning of the term "isolated" is "separated." In fact, in their explanation of their own proposed construction, they acknowledge that one way to isolate the variant is to separate it from other materials in the cell. Plts.' Br., dkt. #320, at 34. However, they argue that the specification as well as some extrinsic evidence requires adoption of a broader construction that includes "overexpression" as well.

In attempting to support their proposed construction, plaintiffs begin with the general purpose of the invention, which is to create a variant that is "suitable for starch conversion, ethanol production, laundry wash, dish wash, hard surface cleaning, textile desizing, and/or sweetener production." '723 pat., col. 1, lns. 34-36. They say that industrial processes such as these "do not require the variant to be highly purified such as would be required if the enzyme were to be used as, for example, a pharmaceutical." Plts.' Br., dkt. #320, at 30. Plaintiffs then cite a passage from the specification:

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. Plaintiffs say that the recovery methods disclosed in this passage "do not result in the alpha-amylase protein being obtained in pure form, or in a form in which it is separated from all other protein or cell components." Plts.' Br., dkt. #320, at 30.

Next, plaintiffs cite two texts. In one the author writes that "[t]he golden rule to which every purification must adhere to is: 'never purify more than is required by the end use.'" Simon D. Roe, Protein Purification Techniques 2 (2001); in the other, the author writes that "[t]he degree of purity of the product has to be related to its intended use." Robert L Heinrikson and Alfredo G. Tomasselli, "Purification and Characterization of Recombinant Proteins," in Purification and Analysis of Recombinant Proteins (1991).

Plaintiffs also cite a patent application of *defendants* that includes a definition of the term "isolated" as "partially pure." (Throughout this litigation, both sides have gone to great lengths to dig up old patents and expert materials of the other side in an attempt to demonstrate their opponent's allegedly inconsistent positions in different cases. However, neither side has cited any authority regarding the legal relevance of these materials.) In this

instance, plaintiffs fail to explain why a definition used in the context of one of defendants' patents sheds any light on the appropriate construction of a term in an unrelated patent owned by plaintiffs. Medrad, Inc. v. MRI Devices Corp., 401 F.3d 1313, 1318 (Fed. Cir. 2005) ("[T]he manner in which the term is used in the patent may dictate a definition that differs from the definition that would be given to the same term in a different patent with a different specification or prosecution history.").

In any event, the obvious problem with all of plaintiffs' evidence is that it does not address the question whether "isolation" can mean "overexpression" or "increasing the abundance" of the variant, as plaintiffs assert it can. Rather, the evidence seems to be directed to a different question, which is the extent to which the invention requires the variant to be "purified." This leads to two more questions that the parties do not answer head on: what is "purification" and what does it have to do with "isolation" in the context of the '723 patent?

Plaintiffs seem to assume that defendants are equating "separate" with "purify." Defendants deny this, but neither side provides a clear explanation of its own understanding of the concept of "purification." The closest defendants come is a paragraph in their expert's declaration, in which he says that "the concepts of isolated and purified are related" and that "purification is a method that can be used to obtain an isolated protein," but that "the terms are distinct." Raines Decl. ¶ 71, dkt. #276.

However, even if I assume for the moment that "purify," "separate" and "isolate" are synonyms for the purpose of the '723 patent, it is not clear how this supports plaintiffs' proposed construction. On its face, the evidence plaintiffs cite does not suggest that *any* of these terms means "make more abundant." In fact, none of the evidence even contradicts defendants' view that "isolated" means "separated." Rather, it simply suggests that "separation" is a matter of degree and that complete separation is not required to meet the "isolated variant" limitation in the asserted claims. Defendants seem to acquiesce in this view when they state in their brief that they are not arguing that "100% purity" is required. Dfts.' Br., dkt. #308, at 12.

Plaintiffs emphasize that the purpose of "isolating" the variant is to make the variant easier to identify and recover and that making the variant more abundant accomplishes the same purpose. One of plaintiffs' cited references makes a similar point that the "advantage" of isolating a protein "follows from the relative abundance of the recombinant product with respect to contaminating proteins." Plts.' Resp. to Dfts.' PFOF ¶ 16, dkt. #340. This reference actually hurts plaintiffs' position because the author acknowledges that "isolating" a protein and making it more abundant are not the same thing. Rather, the "relative abundance" of the protein is simply one *result* of isolation.

Plaintiffs seem to leap to the conclusion that making the variant more abundant satisfies the "isolated" limitation because increasing the prevalence of the variant makes that

variant easier to identify and recover. This argument has a fundamental logical flaw: it conflates what something *is* with what it *does*. A bicycle and an airplane both have the purpose of transporting people from one place to another, but this does not mean that a bicycle would infringe a patent related to airplanes. Along the same lines, "isolating" and "making more abundant" cannot be treated as the same simply because both have the same result. Not surprisingly, plaintiffs cite no authority for the proposition that a term should be construed to encompass anything that would serve a particular purpose. If the inventors wanted to define the claims to include any variant that performed a particular function, they could have done so.

Although neither side points to a definition of the term "isolated" in the specification, the word is used several times. Each use seems to be consistent with a view that "isolated" means "separated," not "made more abundant." '723 pat., col. 5, lns. 4-9 ("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."); id. at col. 17, lns. 39-42 ("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. 18. lns. 15-17 ("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. 41-44 ("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."). Inserting plaintiffs' proposed construction in some of these passages would produce nonsensical results. Plaintiffs point out that none of these references include an "isolated *variant*," but they identify no reason why the same term in the same patent would have a different meaning. Cf. Paragon Solutions, LLC v. Timex Corp., 566 F.3d 1075, 1087 (Fed. Cir. 2009) ("We apply a presumption that the same terms appearing in different portions of the claims should be given the same meaning unless it is clear from the specification and prosecution history that the terms have different meanings at different portions of the claims.") (internal quotations and citations omitted).

Plaintiffs propose an alternative construction of "isolated" to mean "not a product of nature." However, plaintiffs fail to explain how these two concepts are related or otherwise develop any argument in favor of this proposed construction.

Adopting a view that "isolated" means "separated" does not mean that defendants prevail in all respects. It is undisputed that most of the accused products go through a process called "recovery," in which some cell fragments are separated from the alpha-amylase variant. Plts.' Resp. to Dfts.' PFOF ¶¶ 60-61, dkt. #340. Although defendants point out repeatedly that the alpha-amylase is *not* separated from all components of the original

mixture, defendants never cite any evidence requiring "complete" separation of the alpha-amylase. Rather, it is undisputed that complete separation is impossible. Defendants seem to assume in their briefs and proposed findings of fact that, even if complete separation is not required, the variant must constitute at least a majority of the materials in the accused product. E.g., Dfts.' PFOF ¶ 86, dkt. #280 ("large majority of the proteins in the [accused] product[s] . . . are nonalpha-amylase proteins"); Dfts.' Br., dkt. #271, at 31 (alpha-amylases "represent only [a small percentage] of the total protein mass" of accused products). However, defendants do not cite any evidence or develop any argument for the proposition that the variant must make up a particular percentage of the accused product.

Defendants do not challenge plaintiffs' assertion that the purpose of isolating the variant is to make it easier to identify and recover. Thus, in the absence of evidence that would require a specific "percentage" of separation, it is reasonable to construe the claims as requiring no more separation than is necessary to perform that function. Because there is no dispute that most of the accused products are sufficiently separated to permit recovery, plaintiffs are entitled to summary judgment in their favor with respect to those products.

The exceptions are defendants' "whole broth" products: Spezyme Alpha WB, GC 133, and Clearflow WB. Dfts.' PFOF ¶ 50, dkt. #314. It is undisputed that these products do not go through *any* separation process. Plts.' Resp.to Dfts.' PFOF ¶ 56, dkt. #340. Rather, plaintiffs' only argument related to these products relies on an interpretation of

"isolated" that includes "overexpression." Plts.' Br., dkt. #320, at 50 n.25. Because I have rejected that proposed construction, I must grant summary judgment to defendants with respect to Spezyme Alpha WB, GC 133, and Clearflow WB on plaintiffs' claim for literal infringement.

With respect to the doctrine of equivalents, the first and last question is whether plaintiffs are estopped from relying on the doctrine. The general rule is that a patent owner cannot assert a claim under the doctrine of equivalents if it included the term in the claim in order to obtain the patent. Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd., 535 U.S. 722, 736 (2002) ("Estoppel arises when an amendment is made to secure the patent and the amendment narrows the patent's scope."). The parties seem to agree that the prosecution history is completely silent regarding the reason the word "isolated" was added, but defendants cite Festo for the proposition that the court must presume that the applicant amended the patent for a reason related to patentability under those circumstances. Id. at 740 ("Just as Warner-Jenkinson held that the patentee bears the burden of proving that an amendment was not made for a reason that would give rise to estoppel, we hold here that the patentee should bear the burden of showing that the amendment does not surrender the particular equivalent in question.").

Plaintiffs do not challenge this reading of Festo, but they say that prosecution history estoppel cannot apply because the term "isolated" "was included in the original claims filed

as part of the '116 patent application that ultimately issued as the '723 patent." Plts.' Br., dkt. #320, at 60. Plaintiffs acknowledge that the *parent* application did not include the term "isolated," but they argue that "[i]t is improper to construe differences between the claims of a parent application and those of a continuing application as 'narrowing amendments." Id. at 60 (citing Invitrogen Corp. v. Clontech Laboratories, Inc., 429 F.3d 1052, 1078 (Fed. Cir. 2005), and ResQNet.com, Inc. v. Lansa, Inc., 346 F.3d 1374, 1383 (Fed. Cir. 2003)). In their reply brief, defendants say that the cases plaintiffs cite have nothing to do with prosecution history estoppel under the doctrine of equivalents and that estoppel applies even when the amendment is made for the first time in a continuing application. Dfts.' Br., dkt. #329, at 24 (citing Mark I Marketing Corp. v. R.R. Donnelley & Sons Co., 66 F.3d 285, 292 (Fed. Cir. 1995)).

Defendants are correct that Invitrogen and ResQNet.com address a different question, which is whether the prosecution history of a parent application can inform the meaning of a continuing application when the language of the claims in the parent and continuing application is different. For example, in Invitrogen, the court concluded that it could not use the prosecution history for an application that used the term "substantially no" to construe the term "substantially reduced" in the continuing application. This principle has little relevance in the context of this case. Defendants are not trying to *define* the term "isolated" through other language in the parent application, but are asking the court to apply a

presumption regarding the reason the applicants added the limitation. Plaintiffs' lack of candor regarding the scope of the cases they cite is disappointing.

Further, defendants are correct that, in Mark I, the court held that prosecution history estoppel may bar application of the doctrine of equivalents when the continuing application included a limitation but the parent application did not. In particular, the court stated that "the prosecution history must be viewed as a whole to determine whether and what subject matter was surrendered to procure issuance of the patent" and it rejected the plaintiff's argument that the parent application should be ignored.

Mark I is not directly on point because the applicant in that case filed a new application in response to the examiner's rejection of the first one and in this case it is not clear why the inventors added the limitation. The court stated that "an estoppel is not avoided by failing to respond to a rejection and instead meeting the substance of the rejection by filing a narrower continuing application." Id.; see also Desper Products, Inc. v. QSound Labs, Inc., 157 F.3d 1325, 1338 (Fed. Cir. 1998) ("prosecution history estoppel cannot be avoided by filing a continuing application with narrowed claims rather than responding directly to an outstanding rejection").

However, I see no reason why the presumption discussed in Festo would not apply in this case. In Mark I, the court treated amendments made between applications as being the same as amendments made within the same application. If prosecution history estoppel

extends as a general matter to changes made between the parent and continuing applications, then it follows that the other rules regarding the scope of prosecution history estoppel should apply as well. Because plaintiffs do not even attempt to overcome the presumption that the inventors added the term "isolated" for reasons related to patentability, I must conclude that they are not entitled to assert a claim for infringement under the doctrine of equivalents. Accordingly, defendants are entitled to summary judgment with respect to that claim.

C. *Bacillus Stearothermophilus* Alpha-amylase

Claims 5 and 16 require the parent to be a "*Bacillus stearothermophilus* alpha-amylase." Plaintiffs' proposed construction is "the functional enzyme product that is produced from an alpha-amylase gene of a *Bacillus stearothermophilus* organism." Defendants' proposed construction is "the protein encoded by a wild-type *Bacillus stearothermophilus* gene minus the signal sequence (e.g. SEQ ID NO: 6)." I can set these proposed constructions aside because the dispute between the parties can be restated more directly as whether the alpha-amylase can be shortened at the "C-terminus" so that it includes fewer than 515 amino acids. (The two ends of the amino acid chain are called the "N-terminus" and "C-terminus." Plts.' Resp. to Dfts.' PFOF ¶ 22, dkt. #340.) Plaintiffs say that the alpha-amylase may be shortened at the C-terminus; defendants say it must consist of 515 amino acids, that is, the encoded protein minus only the N-terminus and not the C-terminus. (Both sides agree that the N-

terminus is shortened.)

In support of their view, defendants cite two references for the proposition that, "[i]n 2000 and 2001, the time of the alleged invention of the '723 patent, those skilled in the art continued to understand that a BSG alpha-amylase was a 515 amino acid protein." Raines Dec. ¶ 140, dkt. #274. In addition, defendants note that the only example of a "*Bacillus stearothermophilus* alpha-amylase" identified in the specification for the '723 patent is a protein with 515 amino acids. '723 pat., col 2, ln. 60; col. 3, lns. 26-28.

In itself, defendants' citation to the example in the specification is not very helpful because of the general rule that claims should not be limited to particular embodiments. However, it seems to be undisputed that in 2000 and 2001 a person of ordinary skill in the art believed that a *Bacillus stearothermophilus* alpha-amylase was a 515-amino acid protein, with its C-terminus fully intact. Plts.' Resp. to Dfts.' PFOF ¶ 20, dkt. #340. (Plaintiffs try to hedge this point in their responses to defendants' proposed findings of fact, but they do not cite any contrary evidence showing that anyone believed differently.) At the same time, it is undisputed that a person of ordinary skill in the art *today* knows that the C-terminus of *Bacillus stearothermophilus* alpha-amylase is removed, leaving a protein with less than 515 amino acids. Thus, stated simply, the question is this: if a claim calls for a particular substance, should that substance be limited to what a person of ordinary skill in the art believed it to be as of the priority date on the patent? Or should the limitation reflect what

the substance really is, as understood today?

Defendants argue that the claim should be limited to the understanding at the time of the priority date, relying primarily on Schering Corp. v. Amgen, Inc., 222 F.3d 1347 (Fed. Cir. 2000). However, I agree with plaintiffs that Schering is not on point. In that case, the court held that a patent owner may not "enlarge the scope of the patent to embrace *technology* arising after its filing." Id. at 1353 (emphasis added). Further, the court relied on the specification to conclude that the invention was limited expressly to a particular polypeptide, even though the current understanding of "polypeptide of the IFN-a type" (the term in dispute) included different types of polypeptides that had been discovered later.

In this case, plaintiffs are not attempting to take advantage of new technology to expand the scope of the patent, but are simply using developments in the art to show what a *Bacillus stearothermophilus alpha-amylase* is and *what it always has been*. If there were any evidence that the specific length of the protein were important in the context of the '723 patent, then perhaps it would be appropriate to limit claims 5 and 16 to the length that a person of ordinary skill understood it to be at the time. However, the claims do not disclose a "515-amino acid protein," but a "*Bacillus stearothermophilus* alpha-amylase," whatever its length happens to be. Accepting defendants' argument would have the effect of eviscerating any claim that includes a natural substance as a limitation any time a new discovery was made about the properties of that substance.

As plaintiffs point out, in Novozymes A/S v. Genencor Intern., Inc., 446 F. Supp. 2d 297, 317 (D. Del. 2006), the defendants attempted to construe "*Bacillus stearothermophilus* alpha-amylase" as a protein of 515 amino acids, but the court rejected the view that "length is a defining feature of *Bacillus stearothermophilus* alpha-amylases." Defendants do not address the reasoning in that case, but say only that this court should not follow it in light of Schering. Because I disagree with defendants' interpretation of Schering, I join the Delaware district court in concluding that a "*Bacillus stearothermophilus* alpha-amylase" does not need to have 515 amino acids. Because that is the only issue defendants raise with respect to this term, I conclude that the accused products meet this limitation.

There is no dispute that the accused products meet the remaining limitations of the asserted claims. Accordingly, I conclude that plaintiffs are entitled to summary judgment on the issue of infringement with respect to all of the accused products with the exception of the "whole broth" products, which do not meet the "isolated variant" limitation.

Both sides ask for a construction of the term "parent alpha-amylase," but neither side suggests that a construction is necessary to resolve any issues in dispute in the summary judgment motions, so I decline to construe the term at this time. If the parties believe that the term must be construed to resolve an issue for trial, they may seek construction in a motion in limine, being careful to explain how construction will aid the resolution of one of the remaining invalidity issues.

II. INEQUITABLE CONDUCT

A patent is not enforceable if the applicant made a material misrepresentation to the patent examiner and did so with an intent to deceive. Pharmacia Corp. v. Par Pharm., Inc., 417 F.3d 1369, 1373 (Fed. Cir. 2005) (quoting Molins PLC v. Textron, Inc., 48 F.3d 1172, 1178 (Fed. Cir. 1995)) ("[I]nequitable conduct includes affirmative misrepresentation of a material fact, failure to disclose material information, or submission of false material information, coupled with an intent to deceive."). Both intent and materiality are questions of fact, and must be proven by clear and convincing evidence. Young v. Lumenis, Inc., 492 F.3d 1336, 1344 (Fed. Cir. 2007).

Defendants argue that plaintiffs engaged in equitable conduct because they "misrepresented that [the] inventors had invented a variant with a substitution at position 239 and increased thermostability, when, in fact, [they] derived that idea from Danisco's patent filings" and that plaintiffs "misrepresented the experimental examples to convince the patent examiner that [they] had support for [their] claim that such variants exhibit increased thermostability at pH 4.5, 90° C and 5 ppm calcium." Dfts.' Br., dkt. #308, at 27. Neither argument stands up to close examination.

A. Inventorship

I agree with plaintiffs that defendants' argument regarding inventorship is a

repackaging of their argument regarding the adequacy of the written description, which was the subject of the earlier motion for summary judgment. As plaintiffs point out, defendants have failed to identify any specific misrepresentation plaintiffs made to the examiner or material fact they failed to disclose. Defendants' primary piece of evidence is their own patent application related to position 239, but it is undisputed that plaintiffs disclosed that patent to the examiner. Dfts.' Resp. to Plts.' PFOF ¶ 360, dkt. #317. Distilled, defendants' argument is not that plaintiffs made factual misrepresentations to the examiner, but that the evidence plaintiffs presented to the examiner did not demonstrate that they possessed the invention they were claiming. That is a legal conclusion and not a proper claim for inequitable conduct. In fact, all of the cases defendants cite involved deliberate concealment of another inventor's involvement. Advanced Magnetic Closures, Inc. v. Rome Fastener Corp., 607 F.3d 817, 828 (Fed. Cir. 2010); Frank's Casing Crew & Rental Tools, Inc. v. PMR Technologies, Ltd., 292 F.3d 1363, 1376 (Fed. Cir. 2002); PerSeptive Biosystems, Inc. v. Pharmacia Biotech, Inc., 225 F.3d 1315, 1319 (Fed. Cir. 2000). Because that did not occur in this case and defendants suggest no other reason for finding a misrepresentation of inventorship, plaintiffs' motion for summary judgment must be granted with respect to this aspect of the claim.

B. Examples

The specification of the '723 patent includes descriptions of two experiments, Example 1 and Example 2. Defendants argue that the examples include two misrepresentations, one that applies to both examples and one that applies to Example 1 only. With respect to both examples, defendants' argument is that the "specification of the '723 patent says that the thermostability results reported for both patent examples come from 'secondary screening for stability' using a *liquid* assay," but "the experiments referred to in the declarations submitted in support of Novozymes's Inequitable Conduct Motion refer only to the results of *plate* assays." Dfts.' Br., dkt. #308, at 34 (emphasis added). Thus, the question seems to be whether plaintiffs misrepresented the type of assay they performed. (Plaintiffs seem to assume that defendants' argument on this point is limited to Example 2, but the quoted language suggests that it is related to both examples.)

It is undisputed that the examples in the specification require "a secondary screening for stability in the liquid assay described in the Materials and Methods." '723 pat., col. 25, lns. 37-38. However, the parties dispute whether the assays plaintiffs performed met the requirements of the assays described in the specification. Because it makes no difference to the outcome of this opinion, I will assume for the purpose of summary judgment that they did not.

The next question is whether there is a material difference between the assays

plaintiffs performed and those in the specification. Defendants say that the difference between a "liquid assay" and a "plate assay" is "significant because the results of a plate assay do not necessarily demonstrate increased thermostability." Dfts.' Br., dkt. #308, at 34. In particular, defendants cite evidence in their proposed findings of fact that plaintiffs' tests "are unable to distinguish between increases in thermostability and other alterations in properties, such as increased activity or increased expression or secretion." Dfts.' PFOF ¶ 92, dkt. #314. In other words, defendants argue that the difference between the tests is material because a "plate assay" could lead one to believe that the experiments demonstrated success when it fact they did not. Although plaintiffs dispute this fact, they do not cite any evidence to support a different finding. Plts.' Resp. to Dfts.' PFOF ¶ 92, dkt. #340. Further, defendants cite an experiment plaintiffs conducted using a liquid assay that showed *decreased* stability under the circumstances described in Example 2. Dfts.' PFOF ¶ 94, #dkt. 314. Although plaintiffs say these tests are inconclusive, they do not point to any contradictory data. Plts.' Resp. to Dfts.' PFOF ¶ 94, dkt. #340.

Plaintiffs point out that neither example relates to a substitution at position at 239, which is the only substitution at issue in the claims of the '723 patent. They argue that "[a]lleged misrepresentations and omissions regarding unclaimed subject matter cannot, as a matter of law, be material to the patentability of the *claimed* subject matter." Plts.' Br., dkt. #336, at 50 (emphasis in original). This is not necessarily true. Defendants cite

Hoffmann-La Roche, Inc. v. Promega Corp., 323 F.3d 1354, 1367 (Fed. Cir. 2003), in which the court stated that "[m]ateriality . . . is not limited to matters reflected in the claims of a patent. Rather, information is material when there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue." The problem for defendants is that there is little evidence to suggest that the examiner considered the examples to be important. During prosecution of the patent, plaintiffs cited the results of Example 1 as support for the "increased thermostability" limitation, dkt. #313-10 at 85, but they cited other support as well and defendants do not point to anything in the prosecution history suggesting that the examiner relied on the examples in deciding to issue the patent.

Even if I assume that the misrepresentations were material, defendants do not cite any evidence of deceptive intent. Rather, the evidence defendants cite in their brief is focused on the question whether plaintiffs lied about inventorship, which I have concluded is not a proper claim for inequitable conduct in the context of this case.

Several weeks after the parties finished briefing their summary judgment motions, defendants filed a motion to "supplement" their evidence on inequitable conduct. I am denying the motion because defendants have not provided a convincing explanation for their failure to come forward with this evidence in a timely manner. In any event, the "supplemental" evidence does not help defendants because it either relates to inventorship

or is redundant of facts already in the record. Accordingly, I am granting plaintiffs' motion for summary judgment on defendants' counterclaim for inequitable conduct.

III. PROSECUTION LACHES

The doctrine of prosecution laches "may render a patent unenforceable when it has issued only after an unreasonable and unexplained delay in prosecution that constitutes an egregious misuse of the statutory patent system under the totality of the circumstances." Symbol Technologies, Inc. v. Lemelson Medical, Education & Research Foundation, 277 F.3d 1361, 1385-86 (Fed. Cir. 2002) (internal quotations omitted). Eight years and ten months lapsed between the time plaintiffs filed the first non-provisional application (July 2001) and the date the '723 patent issued (May 2010). Dfts.' Resp. to Plts.' PFOF ¶¶ 91 Defendants say this constitutes an unreasonable delay because plaintiffs did not seek a patent for position 239 in particular until they realized that defendants were prosecuting a patent related to the same position.

Although defendants litter their brief with hyperbole about plaintiffs' "stifling innovation," they do not cite a single case in which a court found that it was appropriate to apply the doctrine of prosecution laches under remotely similar circumstances. In fact, defendants do not contradict plaintiffs' assertion that (1) courts have routinely rejected laches arguments for patents with prosecution histories of a similar length and circumstances,

Plts.' Br., dkt. #256, at 84-88 (citing Ormco Corp. v. Align Tech., 647 F. Supp. 2d 1200 (C.D. Cal. 2009); Cordance Corp. v. Amazon.com, Inc., 631 F. Supp. 2d 484 (D. Del. 2009); Novozymes A/S, 446 F. Supp. 2d at 333; Stambler v. RSA Sec., Inc., 243 F. Supp. 2d 74 (D. Del. 2003); Reiffin v. Microsoft Corp., 281 F. Supp. 2d 1149 (N.D. Cal. 2003); and Digital Control, Inc. v. McLaughlin Manufacturing Co., 248 F. Supp. 2d 1015 (W.D. Wash. 2003)); and (2) the court of appeals has applied the doctrine only twice. In Symbol Technologies, Inc. v. Lemelson Medical, Education & Research Foundation, 422 F.3d 1378, 1385 (Fed. Cir. 2005), the owners had waited between 18 and 39 years to obtain the patents at issue. In In re Bogese, 303 F.3d 1362, 1369 (Fed. Cir. 2002), the owner had filed twelve continuing applications without making any substantive changes to them. In other words, in both cases it was reasonable to conclude that the owners delayed their applications simply "for the business purpose of delaying their issuance." Symbol Technologies, 422 F.3d at 1385 (quoting Bogese, 303 F.3d at 1368-69).

In this case, it is undisputed that plaintiffs were pursuing one of their applications that arose out of the initial '543 application during the entire nine years and were making substantive amendments to the applications during this time. Defendants point to several extensions of time that plaintiffs requested, Dfts.' Resp. to Plts.' PFOF ¶ 333, dkt. #317, but defendants cite no evidence suggesting that the requests were unusual, unreasonable or for the sole purpose of causing delay. Accordingly, in the absence of authority holding that is

impermissible to focus on a particular aspect of an invention after learning that a competitor is seeking to obtain a patent on a related matter, I decline to hold that plaintiffs are barred by the doctrine of prosecution laches from asserting claims under the '723 patent.

ORDER

IT IS ORDERED that

1. The motion requesting claim construction filed by defendants Danisco A/S, Genecor International Wisconsin, Inc., Danisco US Inc. and Danisco USA Inc., dkt. #269, is GRANTED.

2. Defendants' motion to supplement the record, dkt. #363, is DENIED.

3. Defendants' motion for summary judgment, dkt. #270, is GRANTED with respect to the claims by plaintiffs Novozymes A/S and Novozymes North America, Inc. that Spezyme Alpha WB, GC 133, and Clearflow WB infringe claims 1-5, 8-13 and 15-16 of U.S. Patent No. 7,713,723, either literally or under the doctrine of equivalents. Plaintiffs' complaint is DISMISSED as to these claims. Defendants' motion is DENIED in all other respects.

4. The motion for summary judgment filed by plaintiffs Novozymes A/S and Novozymes North America, Inc., dkt. #255, is GRANTED on (a) plaintiffs' claims for infringement with respect to all of the accused products except for Spezyme Alpha WB, GC

133, and Clearflow WB; (b) defendants' counterclaim for inequitable conduct; and (c) defendants' counterclaim for prosecution laches. These two counterclaims are DISMISSED.

Entered this 7th day of July, 2011.

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