IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

IMPOSSIBLE FOODS INC., Plaintiff, v. MOTIF FOODWORKS, INC., and GINKGO BIOWORKS, INC. Defendant.	)	C.A. No. 22-311 (WCB)

DECLARATION OF DR. JERRAD LEGAKO

IN SUPPORT OF MOTIF'S SUR-REPLY CLAIM CONSTRUCTION BRIEF

IMPOSSIBLE EXHIBIT - 2028
Motif FoodWorks, Inc. v. Impossible Foods Inc. - IPR2023-00206

I, Jerrad Legako, Ph.D., declare as follows:

1. I submitted a declaration on June 28, 2023 in support of Motif's Answering Claim Construction Brief in the above-captioned matter ("Declaration"). I incorporate that Declaration, including my opinions therein and the associated exhibits thereto, herein by reference. My opinions and analysis in my Declaration are unchanged.

2. For ease of reference, in this supplemental declaration ("Supplemental Declaration") I have used the same labels for defined terms that I used in Declaration, which I restate in relevant part below:

- "Declaration" means the declaration I submitted on June 28, 2023 in support of Motif's Answering Claim Construction Brief
- "Motif" means Defendant Motif FoodWorks, Inc.
- "Impossible" means Plaintiff Impossible Foods Inc.
- "'096 patent" means U.S. Patent No. 9,943,096
- "'306 patent" means U.S. Patent No. 10,039,306
- "'761 patent" means U.S. Patent No. 10,863,761
- "'250 patent" means U.S. Patent No. 11,013,250
- "'241 patent" means U.S. Patent No. 11,224,241
- "Foodstuff Patents" means the '096 patent, the '306 patent, the '761 patent, the '250 patent, and the '241 patent, collectively.

I. SCOPE OF SUPPLEMENTAL ASSIGNMENT

3. I have been asked to supplement my opinions and analysis detailed in my original Declaration in order to response to positions taken by Impossible and its expert, Dr. Paul Sarnoski, in connection with its Reply claim construction briefing and submitted opinions, including as it pertains to the terms I opined upon in my Declaration with respect to the Foodstuff Patents.

4. I have reviewed Impossible's Reply Claim Construction Brief regarding the Replica Terms, the Physical Organization of Meat Term, and the Aroma Terms. I have also reviewed the declaration of Dr. Paul Sarnoski ("Sarnoski Declaration"), dated July 7, 2023, which I am informed was provided to Motif's counsel on the same day. I see that Impossible's briefing and Dr. Sarnoski's declaration responded to some of the statements and opinions in my Declaration as to the Replica Terms, the Physical Organization of Meat Term, and the Aroma Terms. I disagree with Dr. Sarnoski's opinions and conclusions on these terms as detailed below.

5. I reserve the right to further respond to opinions or positions taken by Plaintiff Impossible, Dr. Sarnoski, or other experts of Impossible in due course as this Litigation proceeds, and to amend or further supplement my opinions as new information comes to my attention.

I. REBUTTAL OPINIONS

A. Replica Terms

6. Dr. Sarnoski opines that he agrees with Impossible's proposed construction, and states that his understanding of Impossible's construction is that "a replica is not the thing that it replicates." He notes that "[a]nimal muscle tissue is not a 'muscle replica'" and "[a]nimal fat tissue is not a 'fat tissue replica.'"

7. To the extent Dr. Sarnoski is opining that animal muscle tissue itself (*i.e.*, not in combination with other materials) is not a "muscle replica" and that animal fat tissue itself (*i.e.*, not in combination with other materials) is not a "fat tissue replica," I agree. But that is not my understanding of what Impossible and Motif are in dispute over with regard to the composition of a "replica" as claimed. Instead, I understand Motif's position to be that a "replica" composition can contain some of the actual material it replicates, so long as it does not make up the entire product; and I understand Impossible's position to be that a "replica" must contain absolutely no

amount of the actual material it replicates. I agree with Motif. To be sure, there is nothing in the '761 patent specification that prevents a "muscle replica" from including some actual "muscle," or a "fat tissue replica" from including some actual "fat tissue." Accordingly, in my opinion, a POSITA would not read additional limits into the "replica" claim terms the way that Impossible and Dr. Sarnoski are suggesting.

8. I see that Dr. Sarnoski cites to the '761 patent at 25:35-42[1] to conclude that "the specification informs [him] that the patent does not define a "muscle replica" as including the animal-derived skeletal muscle or animal derived tissues," and cites to the '761 patent at 27:10-17[2] to draw a similar conclusion, that "the patent claims do not intend 'fat tissue replica' to include animal fat or animal derived tissues." I disagree with Dr. Sarnoski's analysis and opinion for two fundamental reasons.

9. First, I disagree that the language he cites drives the conclusion he draws. The fact that the specification discloses an example embodiment where the recited "replicas" do not contain any of the correspondent animal tissues does not mean that there are no other parts of the specification disclosing examples where they do. And indeed, the '761 patent specification does just that. Just as the specification teaches that some of the claimed "replicas" include no animal

[1] "[T]he present invention provides a composition derived from non-animal sources which replicates or approximates key features of animal skeletal muscle. In another aspect, the present invention provides a meat substitute product that comprises a composition derived from non-animal sources which replicate or approximates animal skeletal muscle. Such a composition will be labeled herein as 'muscle replica.'" '761 patent, 25:35-42

[2] "Animal fat is important for the experience of eating cooked meat. Accordingly, the present invention provides a composition derived from non-animal sources which recapitulates key features of animal fat. In another aspect, the present invention provides a meat substitute product that comprises a composition derived from non-animal sources which recapitulates animal fat. Such a composition will be labeled herein as a "fat replica". In some embodiments, the fat replica and/or meat substitute product comprising the fat replica are partially derived from animal sources." '761 patent at 27:10-17

products, the specification also teaches that some of the claimed "replicas" do include animal products including various animal tissues:

> In other aspects, the present invention provides compositions for a muscle tissue replica (herein referred to as "muscle replica"), an adipose tissue replica (herein referred to as "fat replica"), and a connective tissue replica (herein referred to as "connective tissue replica"). In some embodiments, the compositions and meat substitute products are principally or entirely composed of ingredients derived from non-animal sources. **In alternative embodiments, the muscle, fat, and/or connective tissue replica, or the meat substitute products comprising one or more of said replicas, are partially derived from animal sources but supplemented with ingredients derived from non-animal sources**. In yet other alternative embodiments, the invention provides meat products substantially derived from animal sources but which are supplemented with one or more of a muscle tissue replica, a fat replica, and/or a connective tissue replica, wherein said replicas are derived substantially or entirely from non-animal sources.

'761 patent, 22:63-23:8; *see also* Declaration, ¶¶ 102-104.

> Alternatively, a meat **replica** may include inedible portions to mimic the experience of meat consumption. **Such portions can include bone, cartilage, connective tissue**, or other materials commonly referred to as gristle, or materials included simulating these components.

'761 patent, 33:66-34:4.

10. Second, in my opinion Dr. Sarnoski's conclusion does not answer the right question. For a negative limitation like the one Impossible wants to apply to the claims (i.e., that the claimed replicas cannot include any amount of the material they replicate), the question is not whether the specification affirmatively defines a "replica" to include some of what it replicates as Dr. Sarnoski suggests; rather, the question is whether the specification explains, from the perspective of a POSITA, that in ***all*** embodiments a "replica" ***cannot*** include some of what it replicates. And the answer to that latter question is clearly no – the specification simply does not do that. Instead, as provided in the quotation above, the '761 specification makes it perfectly clear

to a POSITA that, in some embodiments, the claimed "muscle replica" and "fat tissue replica" may include components derived from animal sources and that a "replica," more generally, can include animal tissues (*e.g.*, bone, cartilage, connective tissue, etc.). As long as these animal-borne components and tissues are combined with other non-animal ingredients, a "replica" can include the tissue it seeks to replicate. Declaration, ¶¶ 102-104 (citing Exhibit L9, 22:63-23:8.); '761 patent, 33:66-34:4.

11. Dr. Sarnoski also cites to the '761 patent at 37:46-47 and 37:58-67 where it is taught that "in some embodiments the consumable is a plant based meat that has animal myoglobin added." Dr. Sarnoski contends that Motif's proposed construction would render "animal myoglobin" redundant. In my opinion, Dr. Sarnoski's argument makes no sense. Motif's proposal is that the "muscle replica" composition "***may***" (not ***must***) be "***partially***" (not ***wholly***) derived from animal sources. Thus, the specificity that the '761 patent uses in describing embodiments that include "animal myoglobin" are certainly not rendered redundant by Motif's proposed construction. Nor does claim 12 make that any less true as Dr. Sarnoski suggests.

12. Dr. Sarnoski also opines that because the '761 patent gives an example where hemoglobin is isolated from animal blood (labeling the animal blood as the "animal source") and that muscle tissue itself is not incorporated into the muscle replica. I agree that in that example there is no indication that muscle tissue is part of the muscle replica, but a POSITA would not read this single example to require that there must not be any amount of actual "muscle" tissue in the "muscle replica" or any "fat tissue" in the "fat tissue replica" in ***any*** embodiment of the invention. A POSITA would not interpret the '761 patent specification to be so limited.

13. Dr. Sarnoski discounts my reference to "imitation crab" as an example of what a POSITA would recognize as a replica food product that includes some of the actual crab meat that it is intended to replicate. It appears Dr. Sarnoski's issue with my example is two-fold.

14. His **first** issue appears to be one of branding. Specifically, he opines that the branding on the "imitation crab" packaging does not use the word "replica," and thus cannot "extend[] to the claim language here." Sarnoski Decl. ¶99. I disagree with that view entirely, and I find Impossible's adoption of Dr. Sarnoski's opinion to be peculiar given that Impossible has accused many of Motif's food products as being a type of "replica" despite the fact that Motif's packaging does not use the word "replica." As set out in my Declaration, "a POSITA would understand [imitation crab] to be a replica of real crab" even though it included some amount of real crab meat (*see* ¶111), and I stand by all of the evidence I provided and the opinions I offered in my Declaration at ¶¶ 109-113. The evidence has relevance to a POSITA's understanding of this term, and confirms what a POSITA would already understand from the specification: replica products can include at least some of the material it replicates.

15. His **second** issue is one of degree, which actually supports Motif's construction. In short, Dr. Sarnoski appears to believe that because the amount of crab meat in "imitation crab" is so small that it was only "intended to flavor the product," and that it could not have "a functional role in creating a crab meat-like texture or the approximate physical organization of crab meat to support a 'replica' of that meat." Dr. Sarnoski's conclusion appears to assume that if an ingredient in a "replica" is (1) "primarily intended to flavor the product" only, or if it (2) "simply does not meet a high enough proportion to have a functional role in creating…the approximate physical organization of … meat," then it is somehow irrelevant for purposes of the "replica" terms. But neither of these qualifiers are part of Impossible's proposed construction. Nowhere in Impossible's briefing does it say that, for purposes of the composition of the claimed replicas, it only considers

ingredients that are not "primarily intended to flavor the product," and/or that "meet a high enough proportion to have a functional role in creating…the approximate physical organization of …meat." Dr. Sarnoski's opinion does not appear to support even Impossible's proposed construction. If anything, his attempt to discredit my reference to imitation crab only supports my opinion that a replica product itself can indeed include small amounts of the material it replicates.

16. In sum, none of Dr. Sarnoski's opinions concerning the Replica Terms change my own as set forth in my original Declaration at ¶¶ 94-113.

B. **"Approximates the Physical Organization of Meat"**

17. Dr. Sarnoski opines that he agrees with Impossible's proposed construction, and that he "disagree[s] with Motif in its opinion that term 17 does not have meaning within the scope of this claim" and that he "also disagree[s] with Motif's [alternative] proposed definition [that] 'the muscle replica and fat tissue replica are combined to mimic the appearance of meat, and are visually distinguishable from each other after being combined.'" Sarnoski Decl. ¶ 102.

18. Citing to the same portions of the '761 specification that Impossible did in its opening brief, Dr. Sarnoski opines that "[a] POSA would understand that example to mean that the different tissue replicas would be incorporated together in such a way as to look, feel, and behave in the same way as meat products as is specified in the claims of the '761 patent." Sarnoski Decl. ¶ 103. I disagree with Dr. Sarnoski's conclusions, and maintain that the claim phrase is indefinite for all of the reasons I already set out in my original Declaration (*see* ¶¶ 114-123). Nothing about Dr. Sarnoski's declaration changes my opinion. However, I do note Dr. Sarnoski's opinion introduces a brand new definition of "wherein said muscle replica and fat tissue replica are assembled in a manner that approximates the physical organization of meat" to mean that "the different tissue replicas would be incorporated together in such a way as to look,

feel, and behave in the same way as meat products." In my opinion, the specification does not provide or otherwise support this new definition. I additionally believe this new proposed construction is unhelpful as a POSITA would not even be able to discern with reasonable certainty the full scope of the new definition itself.

19. Specifically, while Dr. Sarnoski's proposed definition specifies that "approximates" means "same" (adding some degree of clarity), his proposal still does not resolves the issue I highlighted in my Declaration (*see* ¶122) concerning the full scope of what "meat" could mean in the context of the claims. Thus, in my opinion, a POSITA would not understand with reasonable certainty the full scope of what "meat" could mean for at least the same reasons I specified in my Declaration (*see* ¶122).

20. Dr. Sarnoski also opines that Motif's alternative proposal for this term (in the event the claim term is construed) has a "hyperfocus on the visual aspect of the 'physical organization,' and that he disagrees with that focus and contends that "visual" aspects are one aspect of the physical characteristics of meat, but not the only characteristic described in the '761 specification. I don't disagree that the '761 patent includes a description of other characteristics, but my understanding is that a patent owner's clear and unmistakable statements about what their claims do not cover (made during prosecution and/or an IPR proceeding as is the case here), extends even to features disclosed in embodiments of their specification. For instance, if a patent described embodiments that included A, B, and C, but then during prosecution and/or IPR made it unmistakably clear that their claims did not cover C, the patent owner could not then later argue that its claims actually did cover C because it was described in the specification. That is exactly what I see Dr. Sarnoski doing here, and, in my opinion, a POSITA would read the entire record differently, and see that Impossible views its own claims as not covering food products

where the replicas are "no longer visually distinguishable from each other after being combined." Indeed, based on my review of the IPR proceedings, it is my opinion that Impossible's distinction over McMindes at least makes it clear that this claim term, whatever its full scope, does not include mixtures of replicas where, in the resulting food product, the replicas are no longer visually distinguishable from each other after being combined. Thus, I disagree with Dr. Sarnoski's opinion.

A. **"Aroma Terms"**

21. Nothing in Dr. Sarnoski's declaration changes my opinions as to the Aroma Terms, and I maintain my opinions that a POSITA would be unable to discern, with reasonable certainty, the degree to which an aroma is "associated" with meat or "like" beef.

22. I understand Impossible believes, and Dr. Sarnoski asserts, that a POSITA would readily understand the terms "meat-associated aroma" and "beef-like aroma" with reasonable certainty in "the context of the claims, the entirety of the specifications of the patents, and the prosecution history." I disagree. None of these sources provide enough context for a POSITA to understand with reasonable certainty the degree to which an aroma is "associated" with meat or "like" beef.

23. Dr. Sarnoski appears to assert that the qualifiers in the terms "meat-***associated*** aroma" and "beef-***like*** aroma" indicate that the invention is directed to "a plant-based consumable," and that the terms should otherwise be understood to mean "meat aroma" and "beef aroma." Sarnoski, ¶ 135. I disagree.

24. First, the terms "meaty flavor" and "meaty aroma" appear in the claims as descriptors of plant-based food products. '096 Patent, cl. 10 ("where the heme flavor reaction mixture has a meaty flavor and/or meaty aroma"). The specifications also commonly use the

terms "meaty aroma" or "beefy aroma" in the context of plant-based food products. '241 Patent, 2:48-55; '250 Patent, 83:66-84:1. Thus, when reviewing the language in the context of the claims and specification, a POSITA would understand that plant-based food products can be described as having "meaty" or "beefy" aromas, and therefore, "meat-associated aroma" is meant to capture a different concept.

25. Nor would it have been commonplace in the industry to use the terms "meat-associated" or "beef-like" exclusively in the context of plant-based food products. For example, Song describes that hydrolyzed beef is largely responsible for imparting "beeflike flavor." Legako, Ex. L22, 10. Additionally, he discusses in detail that "beeflike process flavors" can be imparted from different beef base. *Id.*, 12. Thus, Song specifically discusses "beeflike" flavors that are extracted directly from beef, not a plant-based food product. *Id.* Thus, a POSITA would not readily determine that "beeflike" is meant to refer to a product that is plant-based.

26. Dr. Sarnoski also appears to suggest that I believe a POSITA would not be able to determine what aromas and flavors are considered "meaty" or "beefy" in any context. Sarnoski, ¶¶ 136, 138, 141. This mistates my opinion. As I state multiple times, I believe the Foodstuff Patents fail to provide the requisite context to understand which aromas are sufficiently "associated" with meat or "like" beef, and therefore a POSITA would not understand the scope of the invention with reasonable certainty.

27. I do not dispute that the Foodstuff Patents provide disclosures of techniques to identify aromatic compounds in meat (Sarnoski, ¶¶ 138-139), that a POSITA has means of characterizing and classifying aromas as "meaty" (Sarnoski, ¶¶ 140-142), nor that there may be volatile compounds in the art that are known, within given contexts, to possess "meaty" flavors (Sarnoski, ¶¶ 143-144). Dr. Sarnoski's discussion of these points misses the issue – the patents

do not claim "meaty" or "beefy" aromas, but "meat-associated" and "beef-like" ones. As Dr. Sarnoski admits, food scientists have been discovering various volatile compounds for years – there are dozens listed in the specifications of the Foodstuff patents, and there are thousands that have been discovered to this day. Sarnoski, ¶¶ 139, 140, 142-145; Legako, L4, 601. But these volatile compounds cover a vast range of aromas and flavors, some of which can be considered meaty, and some of which can be described as "roasted, nutty, green, or earthy qualities," "fresh onions," or "bread crusts," in addition to other flavors. Sarnoski, ¶ 143. Again, context is key. The degree to which any of these other aromas and flavors can be considered "meat-associated" or "beef-like" is not well-defined in the industry, and a POSITA's understanding of whether or not an aroma qualifies would be heavily dependent on the established context.

28. Dr. Sarnoski's citations to extrinsic evidence further support this point. As Dr. Sarnoski describes, the term "meatiness" can be "cleanly dissected sensorially into about ten different odour qualities (Galt and MacLeod, 1983), in which case, many of the identified volatiles are acting as 'aroma modifiers' contributing buttery, caramel, roast, burnt, sulphurous, green, fragrant, oily/fatty and nutty qualities." Sarnoski, ¶ 145. However, just because a POSITA could identify that "meatiness" has these odor qualities does not imply that every single one of these volatiles, in isolation, should be considered "meat-associated." It would be illogical for a POSITA to conclude that the claimed invention encompasses a food product that purely consists of a volatile compound smelling like "grass," for example. Yet the Foodstuff patents do not provide enough clarity on what is meant by a "meat-associated aroma" that would satisfy the claims.

29. Dr. Sarnoski's arguments regarding beef aromas and beef flavor compounds are similarly unavailing; it does not matter that a POSITA could identify beef flavors in certain

contexts (Sarnoski, ¶ 146), or that a POSITA could identify different types of beef smells and tastes in certain contexts (Sarnoski, ¶ 147). The problem is that the patents do not provide clarity on what aromas are considered sufficiently "beef-like" to satisfy the claimed invention in the context of the Foodstuff Patents themselves.

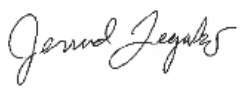
30. Thus, I agree with Motif that the terms "meat-associated aroma" and "beef-like aroma" are indefinite because a POSITA would not be able understand the scope of these terms, nor the broader invention as a whole, with reasonable certainty.

II. CONCLUSION

31. In conclusion, nothing in Dr. Sarnoski's declaration changes any of my opinions as set forth in my Declaration. Instead, his opinion reaffirms my views concerning each of my opinions, including those in my Declaration and as set forth above in this Supplemental Declaration.

I hereby declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Dated: July 14, 2023



/s/ Dr. Jerrad Legako, Ph.D.

CERTIFICATE OF SERVICE

I hereby certify that on July 14, 2023, I caused the foregoing to be electronically filed with the Clerk of the Court using CM/ECF, which will send notification of such filing to all registered participants.

I further certify that I caused copies of the foregoing document to be served on July 14, 2023, upon the following in the manner indicated:

Ian R. Liston, Esquire — *VIA ELECTRONIC MAIL*
WILSON SONSINI GOODRICH & ROSATI, P.C.
222 Delaware Avenue, Suite 800
Wilmington, DE 19801
Attorneys for Plaintiff Impossible Foods Inc.

Matthew R. Reed, Esquire — *VIA ELECTRONIC MAIL*
WILSON SONSINI GOODRICH & ROSATI, P.C.
650 Page Mill Road
Palo Alto, CA 94304
Attorneys for Plaintiff Impossible Foods Inc.

Wendy L. Devine, Esquire — *VIA ELECTRONIC MAIL*
Susannah M. L. Gagnon, Esquire
Kristina Hanson, Esquire
Jessica Ramsey, Esquire
WILSON SONSINI GOODRICH & ROSATI, P.C.
One Market Plaza
Spear Tower, Suite 3300
San Francisco, CA 94105
Attorneys for Plaintiff Impossible Foods Inc.

Lorelei P. Westin, Esquire — *VIA ELECTRONIC MAIL*
WILSON SONSINI GOODRICH & ROSATI, P.C.
12235 El Camino Real
San Diego, CA 92130
Attorneys for Plaintiff Impossible Foods Inc.

Daniel M. Silver, Esquire *VIA ELECTRONIC MAIL*
Alexandra M. Joyce, Esquire
McCARTER & ENGLISH, LLP
Renaissance Centre
405 N. King Street, 8th Floor
Wilmington, DE 19801
Attorneys for Defendant Ginkgo Bioworks, Inc.

Daralyn J. Durie, Esquire *VIA ELECTRONIC MAIL*
Adam R. Brausa, Esquire
Vera Ranieri, Esquire
MORRISON & FOERSTER LLP
425 Market Street
San Francisco, CA 94105-2482
Attorneys for Defendant Ginkgo Bioworks, Inc.

Aaron D. Bray, Esquire *VIA ELECTRONIC MAIL*
MORRISON & FOERSTER LLP
755 Page Mill Road
Palo Alto, CA 94304-1018
Attorneys for Defendant Ginkgo Bioworks, Inc.

Caleb D. Woods, Esquire *VIA ELECTRONIC MAIL*
MORRISON & FOERSTER LLP
2100 L Street, NW
Suite 900 Washington, D.C. 20037
Attorneys for Defendant Ginkgo Bioworks, Inc.

/s/ Jeremy A. Tigan

Jeremy A. Tigan (#5239)