

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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BONERGE LIFESCIENCE (HUNAN) CO., LTD.,  
Petitioner,

v.

NANJING NUTRABUILDING BIO-TECH CO., LTD.,  
Patent Owner.

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Case IPR2025-01593  
U.S. Patent No. 10,278,961

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**DECLARATION OF STEPHEN A. HOLZEN**

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I, Stephen A. Holzen, do hereby declare as follows:

**I. INTRODUCTION**

1. I am over the age of eighteen (18) and I am otherwise competent to make this declaration.

**A. Assignment**

2. Scheef & Stone (“Counsel”), on behalf of Nanjing Nutrabuilding Bio-Tech Co., Ltd. (“NNB” or “Patent Owner”), retained Stout Risius Ross, LLC (“Stout”) to evaluate whether sales of NNB’s dihydroberberine product known as “GlucoVantage” demonstrate commercial success and, if so, whether that success is attributable to the inventions claimed in (“the ‘961 Patent”) in connection with IPR2025-01593 (the “Matter”).

3. I understand that, on September 26, 2025, Bonerge Lifescience (Hunan) Co., LTD. (“Bonerge” or “Petitioner”) petitioned the Patent Trial and Appeal Board (“Board”) to institute an inter partes review (“IPR”) of claims 1, 2, 5, 6, and 7 (the “Challenged Claims”) of the ‘961 Patent.<sup>1</sup> I understand that Bonerge asserts that the Challenged Claims would have been obvious to a person of ordinary skill in the art

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<sup>1</sup> Exhibit 2111 (Petition for Inter Partes Review of U.S. Patent No. 10,278,961, September 26, 2025).

at the time of invention.<sup>2</sup> I further understand that the Board instituted the IPR on March 17, 2026.<sup>3</sup>

**B. Qualifications**

4. I am a Managing Director at Stout, a global financial advisory firm specializing in investment banking, valuation and financial opinions, and dispute advisory and forensic services. My business address is 801 18<sup>th</sup> Street, Floor 7, Washington, DC 20006. I am a member of Stout's Disputes, Claims, & Investigations group and its Intellectual Property group.

5. Before entering the field of economic consulting, I served as a Patent Examiner at the United States Patent and Trademark Office from 2001 to 2007. I worked in Technology Center 3600, Art Unit 3644, and examined patent applications classified under several United States Patent Classifications ("USPC") codes, including Class 102 – Ammunition and Explosives, Class 119 – Animal Husbandry, Class 124 – Mechanical Guns and Projectors, and Class 244 – Aeronautics and Astronautics. In time, my work primarily focused on patent applications in Class

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<sup>2</sup> Exhibit 2111 (Petition for Inter Partes Review of U.S. Patent No. 10,278,961, September 26, 2025, p. 2).

<sup>3</sup> Paper 12 (Notice of Decisions on Institutions, March 17, 2026, p. 2).

244 – Aeronautics and Astronautics, including aircraft systems and components, aviation mechanical technologies, and vehicle and navigation technologies.

6. Presently, I serve as an expert witness and consultant in litigation before federal and state courts, the U.S. International Trade Commission (“ITC”), and the U.S. Patent Trial and Appeal Board. My work includes analyses relating to secondary considerations of non-obviousness, lost profits, reasonable royalties, unjust enrichment, diminution in value, corrective advertising, domestic industry, public interest factors, and exclusion remedies.

7. Over the past eighteen years, I have served as either an expert witness or consultant in a wide range of litigation matters involving the analysis of economic and financial issues. Much of my work has focused on intellectual property disputes. In my non-litigation practice, I specialize in the valuation of intellectual property assets for transaction advisory, strategic planning, and compliance purposes.

8. I hold a Bachelor of Science in Mechanical Engineering from The Pennsylvania State University and a Master of Business Administration with a concentration in finance from American University. I am a Certified Licensing Professional (“CLP”), a Certified Valuation Analyst (“CVA”), and a registered Patent Agent (Registration No. 56,008). I am a member of the Licensing Executives Society (U.S.A. & Canada), Inc. (“LES”), the National Association of Certified

Valuators and Analysts (“NACVA”), and the American Intellectual Property Law Association (“AIPLA”). I previously chaired AIPLA’s Patent Damages Subcommittee and Patent Agent Committee. I currently serve as Treasurer of LES. IAM Patent 1000 has recognized my expertise in economic analysis and ranked me among the leading economic expert witnesses each year from 2019 through 2026.

9. My curriculum vitae (Exhibit 2153) describes my education, testimony experience, and professional experience in greater detail.

**C. Compensation**

10. Stout bills NNB on a time-and-materials basis for my work and the work of my colleagues. My hourly rate is \$660 and covers my review and analysis of relevant issues and materials, as well as any testimony I may provide. I have also supervised other Stout personnel whose hourly rates range from \$185 to \$600. NNB will also reimburse Stout for all reasonable out-of-pocket expenses incurred in connection with my analyses and testimony in this Matter. My compensation does not depend on the outcome of this proceeding or the substance of my opinions.

**D. Evidence Considered**

11. In forming my opinions, I considered information from a variety of sources, including documents and information of a type reasonably relied on by experts in my field. The documents I relied on are referenced in this declaration and

listed in **Appendix A**. If any document or other information referenced in this declaration is not included in **Appendix A**, that omission was inadvertent. I also reviewed the Petition for *Inter Partes* Review of U.S. Patent No. 10,278,961 dated September 26, 2025 (“Petition for *Inter Partes* Review”). I have signed the Protective Order attachment for the parallel district court litigation between NNB and Bonerge, as well as the attachment for the protective order submitted by the parties in this proceeding.

12. I also held a discussion with NNB employees, including Jake Mulder, Chief Executive Officer at NNB Nutrition North America and Shawn Wells, Chief Scientific Officer at NNB (“NNB Personnel”).

## **II. BACKGROUND**

### **A. Overview of the Relevant Industry**

13. I understand that the ‘961 Patent relates to dihydroberberine (“DHB”), an ingredient used in the dietary supplement and nutraceutical industry, including products associated with metabolic health applications.<sup>4</sup> Within that market, I understand that products that contain DHB represent a subsegment associated with

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<sup>4</sup> Discussion with NNB Personnel.

glucose management, insulin sensitivity, metabolic health, and weight management products.<sup>5</sup>

## 1. Overview of Berberine

14. Berberine is an isoquinoline alkaloid present in several plant sources, including barberry, goldenseal, Oregon grape, tree turmeric, and *Coptis chinensis*.<sup>6</sup> Historical sources describe the use of berberine-containing plants in traditional Chinese medicine and Ayurvedic medicine.<sup>7</sup> I understand that companies who produce berberine-related products offer them to customers and to consumers as a dietary supplement ingredient associated with metabolic health, blood sugar support, insulin sensitivity, and gastrointestinal or microbiome-related uses.<sup>8</sup> In the United States, companies sell berberine products primarily as dietary supplements rather than prescription drugs.<sup>9</sup> In some foreign markets, including China, berberine also

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<sup>5</sup> Discussion with NNB Personnel.

<sup>6</sup> Exhibit 2112 (<https://pubmed.ncbi.nlm.nih.gov/27671811/> and <https://pmc.ncbi.nlm.nih.gov/articles/PMC3504405>).

<sup>7</sup> Exhibit 2113 (<https://www.nccih.nih.gov/health/in-the-news-berberine>).

<sup>8</sup> Discussion with NNB Personnel.

<sup>9</sup> Exhibit 2112 (<https://www.ncbi.nlm.nih.gov/books/NBK564659/>); Exhibit 2113 (<https://www.fda.gov/consumers/consumer-updates/fda-101-dietary-supplements>).

has been sold as an over-the-counter pharmaceutical ingredient for gastrointestinal use.<sup>10</sup>

15. Conventional berberine products appear as berberine hydrochloride (“berberine HCL”) or botanical extracts standardized to specific berberine concentrations.<sup>11</sup> I understand that berberine has increased in popularity over the past several years due to increased consumer interest in metabolic health and nonprescription wellness products.<sup>12</sup> Social-media discussion, influencer marketing, and consumer interest in alternatives to prescription weight-loss medications also contributed to increased visibility for berberine products.<sup>13</sup> I understand that online forums have compared berberine products to GLP-1 drugs and have described berberine as a “natural Ozempic.”<sup>14</sup>

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<sup>10</sup> Exhibit 2112 (<https://pmc.ncbi.nlm.nih.gov/articles/PMC3504405> and <https://pmc.ncbi.nlm.nih.gov/articles/PMC4502414>).

<sup>11</sup> Exhibit 2114 (<https://dsld.od.nih.gov/label/310819>; <https://dsld.od.nih.gov/label/293642>; and <https://dsld.od.nih.gov/label/282103>).

<sup>12</sup> Exhibit 2113 (<https://www.nccih.nih.gov/health/in-the-news-berberine> and <https://www.wired.com/story/berberine-social-media-trend>).

<sup>13</sup> Exhibit 2113 (<https://www.nccih.nih.gov/health/in-the-news-berberine>; <https://www.wired.com/story/berberine-social-media-trend>; and <https://www.washingtonpost.com/wellness/2023/06/20/berberine-weight-loss-natures-ozempic/>).

<sup>14</sup> Exhibit 2113 (<https://www.wired.com/story/berberine-social-media-trend> and <https://www.washingtonpost.com/wellness/2023/06/20/berberine-weight-loss-natures-ozempic/>).

## 2. Overview of Dihydroberberine

16. DHB products have been developed and marketed in response to limitations associated with conventional berberine products, namely that the human body may poorly absorb berberine.<sup>15</sup> During digestion, gut bacteria convert berberine into DHB as part of the body's absorption process, after which intestinal cells convert it back into berberine.<sup>16</sup> It appears that DHB manufacturers and supplement formulators rely on that process to support their marketing claims that DHB absorbs more efficiently than conventional berberine products.<sup>17</sup>

17. I understand that manufacturers and supplement companies market DHB products as an alternative to conventional berberine products.<sup>18</sup> Supplement brands and ingredient suppliers promote DHB as a form of berberine that permits lower dosage levels and reduced gastrointestinal effects relative to conventional berberine.<sup>19</sup>

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<sup>15</sup> Exhibit 2112 (<https://pmc.ncbi.nlm.nih.gov/articles/PMC8746601/>); Exhibit 2115 (<https://www.nnbnutrition.com/ingredients/gluco-vantage/>).

<sup>16</sup> Exhibit 2116 (<https://www.nature.com/articles/srep12155>).

<sup>17</sup> Exhibit 2115 (<https://www.nnbnutrition.com/ingredients/gluco-vantage/>); Exhibit 2117 (<https://www.mdpi.com/2072-6643/14/1/124>).

<sup>18</sup> Discussion with NNB Personnel; Exhibit 2115 (<https://www.nnbnutrition.com/ingredients/gluco-vantage/>).

<sup>19</sup> Exhibit 2115 (<https://www.nnbnutrition.com/ingredients/gluco-vantage/>); Exhibit 2117 (<https://www.mdpi.com/2072-6643/14/1/124>).

18. Companies describe DHB as having greater bioavailability (i.e., how effectively an ingredient is absorbed and used by the body) than conventional berberine.<sup>20</sup> DHB products also are promoted to use lower-dose formulations relative to conventional berberine products.<sup>21</sup> I understand that conventional berberine supplements often contain at least several hundred milligrams per serving, and companies recommend that consumers take multiple servings/doses per day, whereas DHB manufacturers and supplement formulators state that consumers can take fewer servings at a lower dosage.<sup>22</sup> Consumers appear to be willing to pay a higher price for DHB products relative to conventional berberine products, as described in more detail below.

19. I also note that Petitioner Bonerge identifies the following benefits associated with DHB relative to berberine:<sup>23</sup>

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<sup>20</sup> Exhibit 2115 (<https://www.nbnutrition.com/ingredients/gluco-vantage/>).

<sup>21</sup> Exhibit 2118 (<https://www.mareksupplements.com/products/berberine>).

<sup>22</sup> Exhibit 2112 (<https://www.ncbi.nlm.nih.gov/books/NBK564659/>); Exhibit 2114 (<https://dslid.od.nih.gov/label/310819>); Exhibit 2118 (<https://www.mareksupplements.com/products/berberine>); Discussion with NNB Personnel.

<sup>23</sup> Exhibit 2119 (<https://www.bonerge.com/news/natural-products-west-anaheim-longevity-fisetin>).

Dihydroberberine (DHB): Offering more direct absorption compared to Berberine. Berberine is popular for its weight loss benefits, but its absorption has been suboptimal. Studies indicate that after the oral administration of DHB and berberine, DHB achieves higher blood concentrations, demonstrating greater bioavailability.

20. I understand that the DHB product market appears to be smaller than the overall berberine category. Namely, DHB products are being marketed by some supplement brands as differentiated or premium berberine products in a crowded metabolic-health market.<sup>24</sup>

### **3. Supply-Side Considerations**

21. The DHB supply chain includes raw-material suppliers, ingredient manufacturers, contract manufacturers, dietary supplement brands, distributors, retailers, and direct-to-consumer sellers.<sup>25</sup> Raw-material suppliers source botanical material and supply inputs for extraction or synthesis.<sup>26</sup> Ingredient manufacturers

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<sup>24</sup> Exhibit 2115 (<https://www.nnbnutrition.com/ingredients/gluco-vantage/>); Exhibit 2120 (<https://prlabs.com/premier-glucose-manager.html> and <https://www.nutraingredients.com/Article/2026/02/16/glp-1-boom-spurs-supplement-innovation-as-bragg-expands-into-metabolic-health/>).

<sup>25</sup> Discussion with NNB Personnel.

<sup>26</sup> Exhibit 2112 (<https://pmc.ncbi.nlm.nih.gov/articles/PMC8378955/>); Exhibit 2121 (<https://www.organicpowdersupply.com/dihydroberberine-dhb-bulk-powder/>).

produce bulk ingredients, including berberine and DHB ingredients.<sup>27</sup> Ingredient suppliers then sell those materials to dietary supplement brands, contract manufacturers, and private-label companies that manufacture finished consumer products.<sup>28</sup> Retailers and distributors finally sell finished products to consumers through e-commerce websites, specialty nutrition stores, and mass-market retailers.<sup>29</sup>

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<sup>27</sup> Exhibit 2121 (<https://www.organicpowdersupply.com/dihydroberberine-dhb-bulk-powder/> and <https://www.conscientia-industrial.com/plant-extracts/berberine-hydrochloride-cas-633-65-8>).

<sup>28</sup> Exhibit 2122 (<https://uspto.report/TM/88477171>).

<sup>29</sup> Exhibit 2123 (<https://www.walmart.com/ip/Dihydroberberine-Super-Berberine-Supplement-GlucoVantage-200mg-Now-5X-More-Effective-Than-Regular-HCL-Powder-Capsules-Metabolism-Support-Keto-Friendl/2212733860>); Exhibit 2124 ([https://www.amazon.com/Super-Berberine-GlucoVantage%C2%AE-Berberine-Metabolism/dp/B095JCB9B9/ref=sr\\_1\\_7?dib=eyJ2IjoiMSJ9.U1S-iDsa\\_TH6V8xwfiXrshIUFkTC9vmOXyaCZXk-nUnlTrh8q0zrzufpTf68sFO4r9TkGDax-jitZSwXKMnA3-b0j1\\_T91Y82s5zqpIdOB0zG4jDRMa\\_5fVsf8i1dpAYWNOGRoSlyksJ\\_cK1nz9-t0vW6u-eyMfgmzWJActKr8XaFXOwYbYN07jWYaj2Y8GjWTPC4zjRYmp0qt8ZSQVrM6-De7-La4KWomwC85hJkZ6quozg2EYraIUyQOIrYiEDDUb8gq1zdHIej96ue0g6Pgm93cQHUFukpy4Agd\\_IEQ.kWMsjwjfbypqHqAcUehEH-Adh4V5siBKFYreWiE3m\\_pU&dib\\_tag=se&keywords=glucovantage&qid=1782988940&rdc=1&sr=8-7](https://www.amazon.com/Super-Berberine-GlucoVantage%C2%AE-Berberine-Metabolism/dp/B095JCB9B9/ref=sr_1_7?dib=eyJ2IjoiMSJ9.U1S-iDsa_TH6V8xwfiXrshIUFkTC9vmOXyaCZXk-nUnlTrh8q0zrzufpTf68sFO4r9TkGDax-jitZSwXKMnA3-b0j1_T91Y82s5zqpIdOB0zG4jDRMa_5fVsf8i1dpAYWNOGRoSlyksJ_cK1nz9-t0vW6u-eyMfgmzWJActKr8XaFXOwYbYN07jWYaj2Y8GjWTPC4zjRYmp0qt8ZSQVrM6-De7-La4KWomwC85hJkZ6quozg2EYraIUyQOIrYiEDDUb8gq1zdHIej96ue0g6Pgm93cQHUFukpy4Agd_IEQ.kWMsjwjfbypqHqAcUehEH-Adh4V5siBKFYreWiE3m_pU&dib_tag=se&keywords=glucovantage&qid=1782988940&rdc=1&sr=8-7)).

22. I understand that production of DHB occurs primarily in China, with additional production in India and other parts of Asia.<sup>30</sup> China supplies berberine-containing plants and contains extraction and manufacturing facilities that support berberine and DHB production.<sup>31</sup>

23. As noted throughout this report, NNB and Bonerge compete in the DHB segment and supply DHB ingredients to third parties.<sup>32</sup> NNB sells a DHB product called “GlucoVantage” while Bonerge sells its own DHB product called “GlucoSober.”<sup>33</sup> **Redacted**

**Redacted**

**Redacted**.<sup>34</sup>

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<sup>30</sup> Exhibit 2115 (<https://www.nnbnutrition.com/ingredients/gluco-vantage/gluco-vantage/>); Exhibit 2119 (<https://www.bonerge.com/about-bonerge/>); Discussion with NNB Personnel.

<sup>31</sup> Exhibit 2115 (<https://www.nnbnutrition.com/ingredients/gluco-vantage/gluco-vantage/>); Exhibit 2119 (<https://www.bonerge.com/about-bonerge/>); Discussion with NNB Personnel.

<sup>32</sup> Exhibit 2115 (<https://www.nnbnutrition.com/ingredients/gluco-vantage/gluco-vantage/>); Exhibit 2119 (<https://www.bonerge.com/branded-ingredients/dihydroberberine>).

<sup>33</sup> Exhibit 2115 (<https://www.nnbnutrition.com/ingredients/gluco-vantage/gluco-vantage/>); Exhibit 2125 (<https://synapse.patsnap.com/article/bonerge-begins-human-trials-for-glucosoberC2AE-dihydroberberine-and-befisetinC2AE-fisetin>).

<sup>34</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, pp. 24-27 HC-AEO); Exhibit 2127 (<https://www.naturesfusions.com/product/nutri-dihydroberberine-supplement-with-ceylon-cinnamon-100mg-60-capsules>).

24. DHB products are sold to consumers in capsule or tablet form and are packaged in bottles containing 30 to 120 capsules.<sup>35</sup> I reviewed labels for commercially available DHB products and observed that some formulations include cinnamon, chromium, alpha-lipoic acid, and other ingredients.<sup>36</sup> I understand that manufacturers include these ingredients to support certain marketing claims related to glucose metabolism, insulin function, and metabolic health.<sup>37</sup>

25. However, my research indicates that consumers purchase products containing DHB because DHB forms the basis of the product's identity and the claimed characteristics relating to glucose regulation, bioavailability, and gastrointestinal tolerance.<sup>38</sup> I understand that consumers can obtain the non-DHB ingredients separately without purchasing DHB.<sup>39</sup> I am also not aware of evidence that customers demand other ingredients within a product sold as DHB.<sup>40</sup>

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<sup>35</sup> Exhibit 2128 (“1.19 Pure Nootropics” and “1.14 VINATURA”).

<sup>36</sup> Exhibit 2128 (“3.20 NutraBio GDA”; “2.7 Stacked Hydroxycut Pro”; and “1.34 Irwin Naturals”).

<sup>37</sup> Exhibit 2128 (“3.20 NutraBio GDA”; “2.7 Stacked Hydroxycut Pro”; and “1.34 Irwin Naturals”).

<sup>38</sup> Exhibit 2115 (<https://www.nnbnutrition.com/ingredients/gluco-vantage/>); Exhibit 2129 (<https://www.intimaterose.com/products/dihydroberberine-supplement>); Discussion with NNB Personnel.

<sup>39</sup> Exhibit 2114 (<https://ods.od.nih.gov/factsheets/Chromium-Consumer/> and <https://dslid.od.nih.gov/label/60586>).

<sup>40</sup> Discussion with NNB Personnel.

26. I understand that the retail market for DHB relies primarily on e-commerce retail and distribution.<sup>41</sup> Amazon, direct-to-consumer websites, Shopify storefronts, Walmart.com, and specialty online supplement retailers (e.g., GNC and Vitamin Shoppe) represent the main consumer sales channel within the United States.<sup>42</sup>

#### 4. Demand-Side Considerations

27. Beginning in approximately 2023, after the '961 Patent was applied for and issued, I understand that berberine received increased consumer and media attention in connection with public interest in GLP-1 drugs such as Ozempic and

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<sup>41</sup> Discussion with NNB Personnel.

<sup>42</sup> Discussion with NNB Personnel; Exhibit 2123

(<https://www.walmart.com/ip/Dihydroberberine-Super-Berberine-Supplement-GlucoVantage-200mg-Now-5X-More-Effective-Than-Regular-HCL-Powder-Capsules-Metabolism-Support-Keto-Friendl/2212733860>); Exhibit 2124

([https://www.amazon.com/Super-Berberine-GlucoVantage%C2%AE-Berberine-Metabolism/dp/B095JCB9B9/ref=sr\\_1\\_7?dib=eyJ2IjoiMSJ9.U1S-iDsa\\_TH6V8xwfiXrshIUFkTC9vmOXyaCZXk-nUnlTrh8q0zrzufpTf68sFO4r9TkGDax-jitZSwXKMnA3-b0j1\\_T91Y82s5zqpIdOB0zG4jDRMa\\_5fVsf8i1dpAYWNOGRoSlyksJ\\_cK1nz9-t0vW6u-eyMfgmzWJActKr8XaFXOwYbYN07jWYaj2Y8GjWTPC4zjRYmp0qt8ZSQVrM6-De7-La4KWomwC85hJkZ6quozg2EYraIUyQOIrYiEDDUb8gq1zdHIej96ue0g6Pgm93cQHUZfukpy4Agd\\_IEQ.kWMsjwjfbypqHqAcUHEH-Adh4V5siBKFYreWiE3m\\_pU&dib\\_tag=se&keywords=glucovantage&qid=1782988940&rdc=1&sr=8-7](https://www.amazon.com/Super-Berberine-GlucoVantage%C2%AE-Berberine-Metabolism/dp/B095JCB9B9/ref=sr_1_7?dib=eyJ2IjoiMSJ9.U1S-iDsa_TH6V8xwfiXrshIUFkTC9vmOXyaCZXk-nUnlTrh8q0zrzufpTf68sFO4r9TkGDax-jitZSwXKMnA3-b0j1_T91Y82s5zqpIdOB0zG4jDRMa_5fVsf8i1dpAYWNOGRoSlyksJ_cK1nz9-t0vW6u-eyMfgmzWJActKr8XaFXOwYbYN07jWYaj2Y8GjWTPC4zjRYmp0qt8ZSQVrM6-De7-La4KWomwC85hJkZ6quozg2EYraIUyQOIrYiEDDUb8gq1zdHIej96ue0g6Pgm93cQHUZfukpy4Agd_IEQ.kWMsjwjfbypqHqAcUHEH-Adh4V5siBKFYreWiE3m_pU&dib_tag=se&keywords=glucovantage&qid=1782988940&rdc=1&sr=8-7)).

Wegovy. For example, articles in *GQ*, *WIRED*, *Teen Vogue*, and *The New York Post* described berberine as a supplement promoted on social media as “nature’s Ozempic” and as a lower-cost, prescription-free product intended to help control blood glucose and insulin levels.<sup>43</sup> I understand that these public discussions and social media posts relate to berberine generally, rather than to DHB specifically.

28. As part of my research, I also observed that there are/have been ongoing human clinical researchers studying the effects and benefits of DHB, as noted below:

- In a December 2021 study that was described as a “proof of concept” and a “pilot investigation,” the researchers tested berberine and DHB in five healthy male subjects. The authors stated that “[t]he results provide preliminary evidence that four doses of a 100 mg dose of dihydroberberine and 200 mg dose of dihydroberberine produce significantly greater concentrations of plasma berberine across of two-hour measurement window when compared to a 500 mg dose of berberine or a placebo.” I understand that an author of this article, Dr. Chad M. Kerksick, is a scientific advisor to NNB.<sup>44</sup>

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<sup>43</sup> Exhibit 2130 (<https://www.gq.com/story/berberine-tiktok>); Exhibit 2113 (<https://www.wired.com/story/berberine-social-media-trend>; <https://www.teenvogue.com/story/berberine-isnt-natures-ozempic>; and <https://nypost.com/2023/05/31/experts-warn-of-dangers-of-natures-ozempic-on-tiktok/>.)

<sup>44</sup> Exhibit 2112 (<https://pmc.ncbi.nlm.nih.gov/articles/PMC8746601/>).

- In August 2025, NNB entered into a Phase II clinical trial agreement concerning GlucoVantage. The trial bore the title “Effects of Dihydroberberine (DHB) on GLP-1, Glycemic Control, Appetite, and Mood in Adults with Pre-diabetes (DHB).”<sup>45</sup>
- In July/August 2024, Bonerge claimed to have conducted human clinical trials relating to DHB.<sup>46</sup>

29. From an economic perspective, the continued investment in human clinical studies of DHB through present indicates that market participants did not view the absorption, safety, efficacy, and metabolic effects of DHB in humans as well established. Rather, the allocation of financial and operational resources to pilot studies and later-stage clinical investigations reflects ongoing efforts to evaluate and validate DHB’s effects in human subjects. In my opinion, these investments are economically consistent with a developing market in which the commercial potential and human applications of DHB were still being explored and substantiated. They

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<sup>45</sup> Exhibit 2131 (<https://clinicaltrials.gov/study/NCT07210684>).

<sup>46</sup> Exhibit 2125 (<https://synapse.patsnap.com/article/bonerge-begins-human-trials-for-glucosoberC2AE-dihydroberberine-and-befisetinC2AE-fisetin>); Exhibit 2147 (Complaint for Patent Infringement, Case No. 5:25-cv-00271, January 31, 2025 (“Complaint”), Exhibit 8).

also reflect expectations of continued growth in demand for DHB products and anticipated investment to support expansion of the DHB market.

30. As part of my analysis of demand-side factors, I reviewed customer reviews and feedback relating to DHB supplements sold through Amazon, which I understand to be one of the primary retail channels for DHB-containing products.<sup>47</sup> These reviews tend to show that consumers purchase DHB for the benefits noted on the label (e.g., managing glucose, greater bioavailability, metabolic benefits, with no/fewer side effects as compared to conventional berberine), as noted below.<sup>48</sup>

- “I recently purchased the Nature’s Fusions (Nutri) Dihydro Berberine ... here on Amazon, and I’m so glad I did. I absolutely love the Dihydro Berberine; in the short time I’ve been taking it (almost 3 weeks), the results regarding my blood sugar have been amazing.”
- “I have found this product helps control blood sugar levels. I have tested it with a blood glucose meter.”

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<sup>47</sup> Discussion with NNB Personnel.

<sup>48</sup> Exhibit 2124 ([https://www.amazon.com/Dihydroberberine-Supplement-200mg-Capsules-Effective/dp/B0CWC6F56X/ref=sr\\_1\\_2\\_sspa?th=1](https://www.amazon.com/Dihydroberberine-Supplement-200mg-Capsules-Effective/dp/B0CWC6F56X/ref=sr_1_2_sspa?th=1) and [https://www.amazon.com/product-reviews/B095JCB9B9/ref=cm\\_cr\\_arp\\_d\\_paging\\_btm\\_2?ie=UTF8](https://www.amazon.com/product-reviews/B095JCB9B9/ref=cm_cr_arp_d_paging_btm_2?ie=UTF8)).

- “I like this product! It was recommended by my physician. It was easy to add into my everyday routine. The product is easy on my stomach which is a plus. I would recommend.”
- “Love this product, and there is no side effects.”
- “I buy it for the benefits of berberine but with out having to drink many capsules for it to work!”
- “I used my glucose monitor to verify that these things actually do work, and without the side effects of regular Berberine!”
- “I have been using Peak Performance Dihydroberberine GlucoVantage® for a few years now. It’s a wonderful product. It does not cause my stomach to be upset like most other brands of berberine have in the past. Berberine has a lot of great benefits. Peak Performance Dihydroberberine GlucoVantage® is more bioavailable and last hours longer in your body...”

## **B. Economic Details of the Berberine Supplement Market**

31. Third-party industry reports estimated the global berberine supplement market to generate between approximately \$885.9 million and \$1.0 billion in annual revenue during 2022 and 2023.<sup>49</sup> These estimates reflect consumer demand for

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<sup>49</sup> Exhibit 2132 (<https://www.globenewswire.com/news-release/2023/02/20/2611285/0/en/Berberine-Supplements-Market-is-estimated-to->

supplements marketed for blood sugar regulation, metabolic health, cholesterol support, and weight management.<sup>50</sup> My research also indicates that third-party research analysts project annual global berberine supplement revenues to increase to between approximately \$2.05 billion and \$2.5 billion by 2033 or 2034.<sup>51</sup>

32. According to SPINS, LLC (“SPINS”), a firm that “connects shopper values to product innovation by combining POS data across the conventional, eCommerce, and natural channels with deep product knowledge[,]”<sup>52</sup> retail sales of berberine supplements noticeability increased in the 2022 to 2023 period.<sup>53</sup> More

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be-worth-US-2-1-Billion-by-2033-end-Exclusive-Report-by-Persistence-Market-Research.html; <https://www.persistencemarketresearch.com/market-research/berberine-supplements-market.asp>; and <https://www.verifiedmarketresearch.com/product/berberine-supplement-market/>).

<sup>50</sup> Exhibit 2132 (<https://www.persistencemarketresearch.com/market-research/berberine-supplements-market.asp> and

<https://www.verifiedmarketresearch.com/product/berberine-supplement-market/>).

<sup>51</sup> Exhibit 2132 (<https://www.globenewswire.com/news-release/2023/02/20/2611285/0/en/Berberine-Supplements-Market-is-estimated-to-be-worth-US-2-1-Billion-by-2033-end-Exclusive-Report-by-Persistence-Market-Research.html>; <https://www.persistencemarketresearch.com/market-research/berberine-supplements-market.asp>; <https://www.verifiedmarketresearch.com/product/berberine-supplement-market/>; and <https://advancedlabsinc.com/berberine-market-to-grow-128-but-we-tested-brands-with-0-potency/>).

<sup>52</sup> Exhibit 2133 (<https://www.spins.com/about>).

<sup>53</sup> Exhibit 2133 ([https://www.spins.com/wp-content/uploads/2023/08/2023-Mid-Year-Trends-VMS\\_Powering-Up-Mid-Year-VMS-Trends-Report.pdf](https://www.spins.com/wp-content/uploads/2023/08/2023-Mid-Year-Trends-VMS_Powering-Up-Mid-Year-VMS-Trends-Report.pdf) and <https://www.supplysidesj.com/supplements/new-data-confirms-how-tiktok-sprayed-gasoline-on-the-flame-of-berberine-sales>).

specifically, SPINS reports that four-week period retail sales of berberine-related products increased from approximately \$300,000–\$400,000 during the second half of 2022 to approximately \$800,000 by June 2023.<sup>54</sup>

33. Third-party research indicates that social media exposure and online discussions describing berberine as a “natural Ozempic” alternative contributed to increased consumer awareness and sales activity during this period.<sup>55</sup> For example, according to SPINS, retail sales declined modestly during the latter portion of 2023 after the sharp increase earlier that year.<sup>56</sup> My research indicates that retail sales levels nevertheless remained higher than sales levels reported prior to the increase in consumer demand.<sup>57</sup>

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<sup>54</sup> Exhibit 2133 ([https://www.spins.com/wp-content/uploads/2023/08/2023-Mid-Year-Trends-VMS\\_Powering-Up-Mid-Year-VMS-Trends-Report.pdf](https://www.spins.com/wp-content/uploads/2023/08/2023-Mid-Year-Trends-VMS_Powering-Up-Mid-Year-VMS-Trends-Report.pdf); <https://www.supplysidesj.com/supplements/new-data-confirms-how-tiktok-sprayed-gasoline-on-the-flame-of-berberine-sales>; and <https://agfundernews.com/from-glp-1-companion-foods-to-natures-ozempic-what-the-new-breed-of-weight-loss-drugs-means-for-the-food-industry>.)

<sup>55</sup> Exhibit 2133 (<https://www.supplysidesj.com/supplements/new-data-confirms-how-tiktok-sprayed-gasoline-on-the-flame-of-berberine-sales>; <https://www.spins.com/wp-content/uploads/2024/01/SPINS-2024-Trends-Predictions.pdf>).

<sup>56</sup> Exhibit 2133 (<https://www.spins.com/wp-content/uploads/2024/01/SPINS-2024-Trends-Predictions.pdf>).

<sup>57</sup> Exhibit 2133 (<https://www.spins.com/wp-content/uploads/2024/01/SPINS-2024-Trends-Predictions.pdf>).

34. Further, third-party research indicates that North America accounts for between approximately 41% to 44.5% of the global berberine supplement market.<sup>58</sup>

### **C. Overview of the Relevant Parties**

35. My understanding is that the present Matter involves NNB and Bonerge. **Redacted**

**Redacted**.<sup>59</sup> The following sections summarize each of these companies.

#### **1. Nanjing Nutrabuilding Bio-Tech Co., Ltd.**

36. I understand that NNB is a privately held biotechnology and nutraceutical company headquartered in China and formed in 2015.<sup>60</sup> In 2016, the company established a United States subsidiary.<sup>61</sup> In 2018, NNB formed Nanjing ICD Biotechnology Co., Ltd., a wholly owned subsidiary supporting research-and-development activities.<sup>62</sup> In 2019, the company established Ingredientology (HK) in

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<sup>58</sup> Exhibit 2132 (<https://www.persistencemarketresearch.com/market-research/berberine-supplements-market.asp>; <https://market.us/report/berberine-supplements-market/>; and <https://www.factmr.com/report/berberine-supplement-market>).

<sup>59</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, pp. 24-27 HC-AEO); Exhibit 2127 (<https://www.naturesfusions.com/product/nutri-dihydroberberine-supplement-with-ceylon-cinnamon-100mg-60-capsules>).

<sup>60</sup> Exhibit 2134 (<https://www.cbinsights.com/company/nnb-nutrition>).

<sup>61</sup> Exhibit 2115 (<https://www.nnbnutrition.com/about>).

<sup>62</sup> Exhibit 2115 (<https://www.nnbnutrition.com/about>).

Hong Kong.<sup>63</sup> NNB also developed operational and commercial activities in the United States, including in Texas and California.<sup>64</sup> I understand that U.S. operations run through NNB Nutrition USA, LLC, with addresses in Texas.<sup>65</sup>

37. NNB develops and supplies raw materials and finished products in the dietary supplement and nutraceutical ingredient market.<sup>66</sup> Its product portfolio includes plant extracts, antioxidants, amino-acid related compounds, proteins, and specialty nutraceutical formulations.<sup>67</sup> The company maintains research-and-development capabilities, including laboratory operations, ingredient formulation, clinical support, and product commercialization.<sup>68</sup>

38. NNB develops, manufactures, and sells dietary ingredients and finished formulations related to metabolic health and glucose support, including DHB marketed under the brand GlucoVantage.<sup>69</sup> I understand that NNB products are sold in the United States, Canada, and Europe to nutraceutical brands, supplement

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<sup>63</sup> Exhibit 2115 (<https://www.nnbnutrition.com/about>).

<sup>64</sup> Exhibit 2115 (<https://www.nnbnutrition.com/about>).

<sup>65</sup> Discussion with NNB Personnel.

<sup>66</sup> Exhibit 2134 (<https://www.cbinsights.com/company/nnb-nutrition>).

<sup>67</sup> Exhibit 2115 (<https://www.nnbnutrition.com/ingredientology/> and <https://www.nnbnutrition.com/>).

<sup>68</sup> Exhibit 2115 (<https://www.nnbnutrition.com/> and <https://www.nnbnutrition.com/true-innovation-for-brands/>).

<sup>69</sup> Exhibit 2115 (<https://www.nnbnutrition.com/ingredients/gluco-vantage/>).

manufacturers, and contract formulators through direct sales and authorized distributors.<sup>70</sup>

## **2. Bonerge Lifescience (Hunan) Co., Ltd.**

39. Bonerge is a life sciences and nutraceutical ingredient company headquartered in China.<sup>71</sup> The company manufactures and sells dietary supplement ingredients, including dihydroberberine.<sup>72</sup> Bonerge supplies ingredients and related products to manufacturers and product formulators participating in the global dietary supplement and nutraceutical ingredient market.<sup>73</sup> Bonerge's website identifies GlucoSober as one of its product and ingredient offerings.<sup>74</sup> The company describes GlucoSober as a proprietary ingredient intended to support healthy blood sugar function in humans.<sup>75</sup>

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<sup>70</sup> Discussion with NNB Personnel; Exhibit 2135 (<https://www.vcbeathealth.com/entity/218476>).

<sup>71</sup> Exhibit 2119 (<https://www.bonerger.com/about-bonerger>).

<sup>72</sup> Exhibit 2119 (<https://www.bonerger.com/branded-ingredients>).

<sup>73</sup> Exhibit 2119 (<https://www.bonerger.com/about-bonerger> and <https://www.bonerger.com/odm-cdm>).

<sup>74</sup> Exhibit 2136 (NNB000119 – 126).

<sup>75</sup> Exhibit 2119 (<https://www.bonerger.com/research-articles/dihydroberberine-vs-berberine-benefits-bioavailability>); and Exhibit 2136 (NNB000119 – 126).

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<sup>76</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, p. 39 HC-AEO); Exhibit 2137 (<https://www.ccof.org/directory-member/natures-fusions-llc>.)

<sup>77</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, p. 23 HC-AEO); Exhibit 2127 (<https://www.naturesfusions.com/product-category/supplements/> and <https://www.naturesfusions.com/product/nutri-dihydroberberine-supplement-with-ceylon-cinnamon-200mg-60-capsules/>).

<sup>78</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, pp. 115-118 and Exhibit 18 HC-AEO).

<sup>79</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, pp. 19-20, 63, 68-69 HC-AEO); Exhibit 2127 (<https://www.naturesfusions.com/product/nutri-dihydroberberine-supplement-with-ceylon-cinnamon-200mg-60-capsules/>).

#### **D. Overview of the Relevant Products**

41. I understand that the '961 Patent generally relates to DHB products, including NNB's GlucoVantage and Bonerge's GlucoSober.<sup>80</sup> The following sections provide an overview of those products.

##### **1. NNB's GlucoVantage**

42. NNB sells dihydroberberine ingredient products in the nutraceutical and dietary supplement market under the GlucoVantage trademarks.<sup>81</sup> The trademarks are registered for dietary supplements and food supplements and DHB raw materials.<sup>82</sup> NNB supplies DHB ingredients to resellers that produce finished consumer products related to blood glucose management, glucose tolerance, and metabolic health.<sup>83</sup>

43. **Redacted**

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<sup>80</sup> Exhibit 2147 (Complaint); Discussion with NNB Personnel.

<sup>81</sup> Exhibit 2115 (<https://www.nbnutrition.com/ingredients/gluco-vantage/>) and Exhibit 2122 (<https://uspto.report/TM/88477171>).

<sup>82</sup> Exhibit 2122 (<https://uspto.report/TM/87004949>; <https://uspto.report/TM/88477171>).

<sup>83</sup> Exhibit 2122 (<https://uspto.report/TM/88477171>); Exhibit 2115 (<https://www.nbnutrition.com/gluco-vantage-a-gentle-solution-for-metabolic-health>).

<sup>84</sup> Exhibit 2138 HC-AEO (Gross Profit for GlucoVantage HC-AEO).

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<sup>85</sup> Exhibit 2138 HC-AEO (Gross Profit for GlucoVantage HC-AEO).

<sup>86</sup> Exhibit 2138 HC-AEO (Gross Profit for GlucoVantage HC-AEO).

<sup>87</sup> Exhibit 2138 HC-AEO (Gross Profit for GlucoVantage HC-AEO).

<sup>88</sup> Exhibit 2138 HC-AEO (Gross Profit for GlucoVantage HC-AEO).

<sup>89</sup> Exhibit 2138 HC-AEO (Gross Profit for GlucoVantage HC-AEO).

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## 2. Bonerge's GlucoSober

46. Bonerge offers GlucoSober as a branded dihydroberberine ingredient for use in dietary supplements and consumer health products.<sup>91</sup> Bonerge promotes GlucoSober for applications relating to glucose control, glucose tolerance, and

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<sup>90</sup> Exhibit 2138 HC-AEO (Gross Profit for GlucoVantage HC-AEO); Exhibit 2139 (<https://www.exchange-rates.org/exchange-rate-history/cny-usd-2019>; <https://www.exchange-rates.org/exchange-rate-history/cny-usd-2020>; <https://www.exchange-rates.org/exchange-rate-history/cny-usd-2021>; <https://www.exchange-rates.org/exchange-rate-history/cny-usd-2022>; <https://www.exchange-rates.org/exchange-rate-history/cny-usd-2023>; <https://www.exchange-rates.org/exchange-rate-history/cny-usd-2024>; and <https://www.exchange-rates.org/exchange-rate-history/cny-usd-2025>).

<sup>91</sup> Exhibit 2136 (NNB000119 – 126).

metabolic health support.<sup>92</sup> In addition, Bonerge's U.S. trademark registration (Reg. No. 7,932,736) for GlucoSober identifies a range of intended product categories, including dietary supplements for lowering glucose levels, among other categories.<sup>93</sup>

47. My research indicates that Bonerge offers GlucoSober as a dihydroberberine ingredient with increased bioavailability relative to berberine.<sup>94</sup> Bonerge's marketing materials describe dihydroberberine as "5 times better than standard berberine" and associate the product with insulin sensitivity, fasting glucose levels, lipid metabolism, pancreatic lipase inhibition, glucose regulation, and weight management.<sup>95</sup> Bonerge's marketing materials also associate the product with metabolic health, cardiovascular health, blood sugar regulation, glycation defense, antioxidant support, digestion, nutrient balance, reduced sugar absorption, and healthy aging.<sup>96</sup>

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<sup>92</sup> Exhibit 2136 (NNB000119 – 126; NNB000008 – 14; NNB000127 – 130; NNB000131 – 142).

<sup>93</sup> Exhibit 2122 (<https://tmsearch.uspto.gov/search/search-results/98638859>).

<sup>94</sup> Exhibit 2136 (NNB000119 – 126).

<sup>95</sup> Exhibit 2136 (NNB000127 – 130).

<sup>96</sup> Exhibit 2136 (NNB000119 – 126; NNB000008 – 14; NNB000127 – 130; NNB000131 – 142).

### 3. Nature's Fusion's Dihydro Berberine+

48. Nature's Fusions offers a dietary supplement product identified as "Dihydro Berberine+" as illustrated below:<sup>97</sup>



49. Nature's Fusions notes that this product is a dietary supplement containing 200 mg of dihydroberberine per serving together with Ceylon cinnamon extract.<sup>98</sup> **Redacted**

**Redacted**.<sup>99</sup> **Redacted**

<sup>97</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, Exhibit 7 HC-AEO).

<sup>98</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, Exhibit 7 HC-AEO).

<sup>99</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, p. 63 HC-AEO)

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50. The product packaging states that the dihydroberberine formulation is “5x More Bioavailable” than standard berberine.<sup>101</sup> I understand this statement to refer to relative absorption as compared to conventional berberine formulations.<sup>102</sup> I further understand that conventional berberine has limited oral bioavailability because only a portion of the ingredient absorbs through the gastrointestinal tract into the bloodstream.<sup>103</sup> I understand the “5x More Bioavailable” statement to mean that a smaller dose of dihydroberberine produces blood-concentration levels comparable to a larger dose of standard berberine.<sup>104</sup> I also understand that the statement refers to pharmacokinetic measurements relating to absorption and blood concentration rather than a representation that the product produces effects that are five times stronger.<sup>105</sup>

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<sup>100</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, Exhibit 19 HC-AEO).

<sup>101</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, Exhibit 19 HC-AEO).

<sup>102</sup> Discussion with NNB Personnel.

<sup>103</sup> Discussion with NNB Personnel.

<sup>104</sup> Discussion with NNB Personnel.

<sup>105</sup> Discussion with NNB Personnel.

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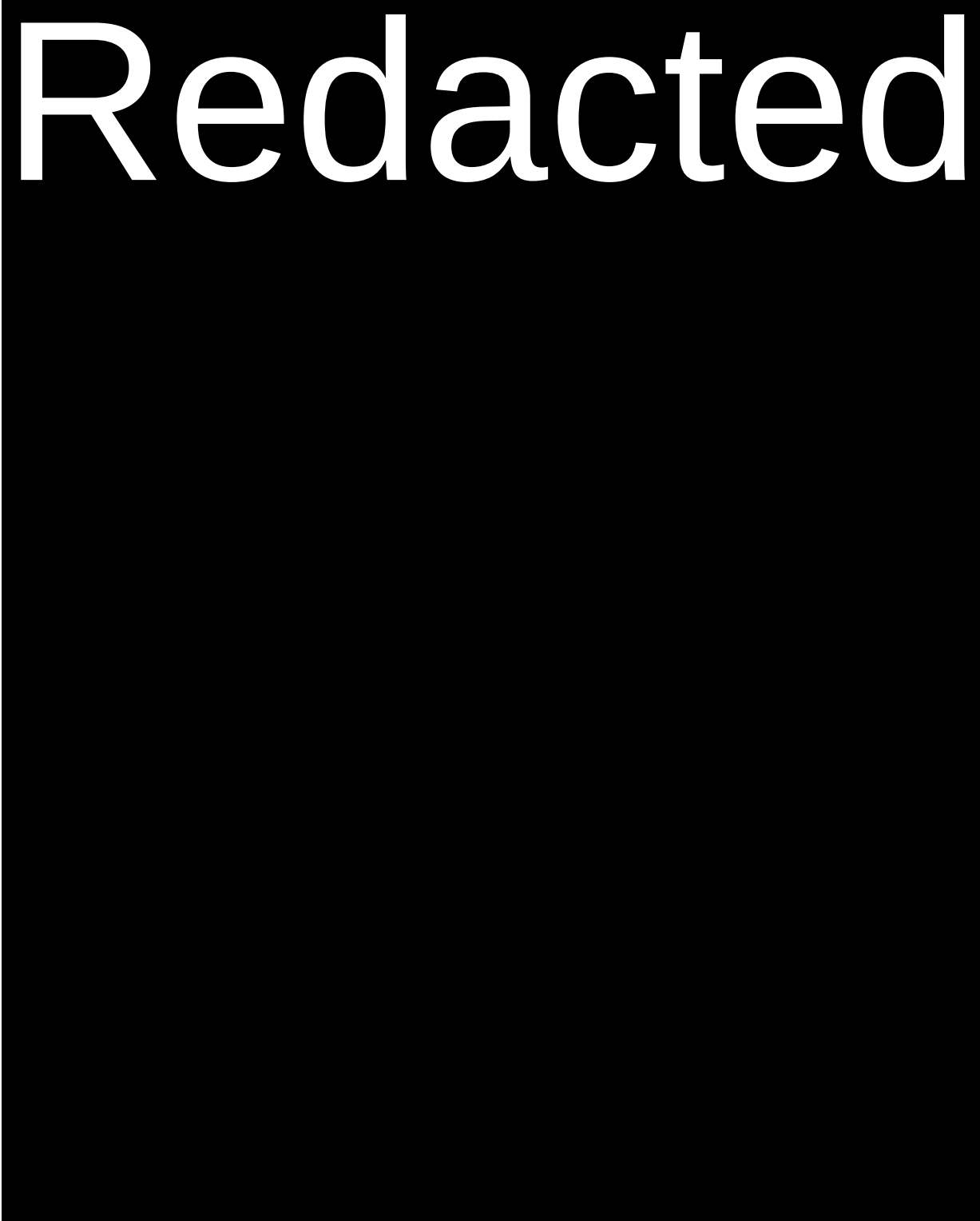
<sup>106</sup> Exhibit 2140 HC-AEO (BON01141-BON01143; BON01147; BON01151-BON01152; BON01159; BON01163; BON01167-BON01169; BON01171-BON01182; BON01191; BON01193; BON01195; BON01197-BON01199); Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, p. 20 HC-AEO.)

<sup>107</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, pp. 100-108, Exhibit 15 and Exhibit 16 HC-AEO).

<sup>108</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, p. 20 HC-AEO).

<sup>109</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, pp. 100-108, Exhibit 15 and Exhibit 16 HC-AEO.)

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**E. Overview of the Relevant Patent**

53. The following section provides an overview of the ‘961 Patent. This section sets forth my understanding of the disclosed inventions and the Challenged Claims. This section also summarizes the technical and economic characteristics associated with the patented technologies, describes the technical and economic footprint of the claimed inventions, and identifies the elements of relevant DHB products that correspond to the Challenged Claims of the ‘961 Patent.

### **1. Relevant Dates**

54. I understand that the application process for the ‘961 Patent commenced with the filing of provisional patent application No. 62/324,794 on April 19, 2016.<sup>110</sup> The ‘961 Patent is titled “Administration of Berberine Metabolites” and was filed April 19, 2017 and issued May 7, 2019.<sup>111</sup> I understand that the ‘961 Patent is anticipated to expire on or about April 19, 2037.

### **2. Assignment and Ownership**

55. I understand that Ryan Lowery, Jacob Wilson, Shawn Wells, and Terry LaCore are the inventors for the ‘961 Patent.<sup>112</sup> I understand that in March 2019, all the inventors assigned their entire right, title and interest to the ‘961 Patent to Keto

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<sup>110</sup> Exhibit 1001 (The ‘961 Patent).

<sup>111</sup> Exhibit 1001 (The ‘961 Patent).

<sup>112</sup> Exhibit 1001 (The ‘961 Patent).

Patent Group, Inc.<sup>113</sup> I understand that the USPTO granted the ‘961 Patent to Keto Patent Group, Inc. on May 7, 2019.<sup>114</sup> I also understand that on November 5, 2021, Keto Patent Group, Inc. assigned its entire right, title and interest to the ‘961 Patent to NNB.<sup>115</sup>

### **3. Patent Marking**

56. My research indicates that NNB has been marking the ‘961 Patent on GlucoVantage since at least as early as August 8, 2025.<sup>116</sup> However, it is my understanding from my review of the complaint in the district court litigation that a demand letter was sent to Bonerge notifying it of the ‘961 Patent in late September 2024.<sup>117</sup>

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<sup>113</sup> Exhibit 2111 (last three pages of exhibit)  
(<https://assignmentcenter.uspto.gov/search/patent/abstract%3FpatentNumber%3D10278961>).

<sup>114</sup> Exhibit 2111 (last three pages of exhibit)  
(<https://assignmentcenter.uspto.gov/search/patent/abstract%3FpatentNumber%3D10278961>).

<sup>115</sup> Exhibit 2111 (last three pages of exhibit)  
(<https://assignmentcenter.uspto.gov/search/patent/abstract%3FpatentNumber%3D10278961>).

<sup>116</sup> Exhibit 2115  
(<https://web.archive.org/web/20250808201651/https://www.nnbnutrition.com/patents/>).

<sup>117</sup> Exhibit 2147 (Complaint, ¶ 16).

#### 4. Field of Invention

57. The ‘961 patent, entitled “Administration of berberine metabolites,” is generally directed to methods of administering dihydroberberine to manage blood glucose levels and/or increase blood ketone levels.<sup>118</sup>

#### 5. The Challenged Claims

58. I understand that Petitioner challenges certain independent and dependent claims including claims 1, 2, 5, 6, and 7 of the ‘961 Patent, all of which are method claims.<sup>119</sup> I understand that Claim 1 is directed to a method of “managing glucose tolerance” in an individual by administration dihydroberberine at “approximately 25 mg to approximately 800 mg.”<sup>120</sup> I also understand that dependent claims 2, 5, 6, and 7 additionally limit the method to “reduc[ing] fasting glucose levels,” “orally administered as a capsule or tablet,” “orally administered as at least one of a food product or beverage product,” and “administered at least once daily,” respectively.<sup>121</sup>

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<sup>118</sup> Exhibit 2111 (Petition for *Inter Parties* Review, p. 4) and Exhibit 1001 (the ‘961 Patent, 1:14-16).

<sup>119</sup> Exhibit 2111 (Petition for *Inter Parties* Review, p. 1) and Exhibit 1001 (the ‘961 Patent).

<sup>120</sup> Exhibit 1001 (The ‘961 Patent).

<sup>121</sup> Exhibit 1001 (The ‘961 Patent).

## 6. Abstract of the Invention

59. I understand the abstract of the '961 Patent offers a brief summary of the inventions patented:<sup>122</sup>

60. *In various implementations, berberine metabolites, such as dihydroberberine and/or tetrahydroberberine, may be administered to manage blood glucose levels, increase ketone levels (e.g., blood concentration of ketones), and/or for therapeutic purposes in humans. The administration of a pharmaceutically effective amount of berberine metabolites, such as dihydroberberine, may reduce fasting blood glucose levels, improve glucose tolerance, and/or improve blood ketone response. In some implementations, berberine metabolites may be administered with one or more other compounds.*

## 7. Summary of the Claimed Invention<sup>123</sup>

61. As in all cases, I use a framework to summarize my understanding of the technology disclosed and claimed by a patent. This framework includes my understanding of the overview of conventional technology, an outline of the problems associated with that technology, a brief summary as to how the patented

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<sup>122</sup> Exhibit 1001 (The '961 Patent, Abstract).

<sup>123</sup> Unless otherwise cited, this section refers to the '961 Patent and Discussion with NNB Personnel.

invention(s) address and overcome those problems, and a summary of the technical and economic benefits derived from the patented invention(s).

**a) Overview of Conventional Berberine**

62. Berberine is an isoquinoline alkaloid found in multiple plant species, including Coptis, Hydrastis, Berberis, goldenseal, Oregon grape, barberry, Chinese goldthread, and Phellodendron species. Berberine has been associated with glucose lowering, lipid metabolism, weight management, glucose tolerance, anti-inflammatory effects, antimicrobial applications, and potential therapeutic applications relating to diabetes and obesity.

**b) Problems with Conventional Berberine**

63. Conventional use of berberine was associated with limited oral bioavailability. I understand the bioavailability levels of berberine are below one percent due to limited intestinal absorption and first-pass metabolism in the intestines and liver. As a result, individuals commonly consumed, or needed to consume, relatively high doses of berberine to achieve the desired blood-glucose effects. I also understand that the side effects of high berberine doses include certain gastrointestinal issues.

**c) Overview of the Patented Solution**

64. I understand that the '961 Patent addresses the limitations associated with conventional berberine by using berberine metabolites, including dihydroberberine. More specifically, I understand that the '961 Patent relates to methods of managing glucose tolerance and increasing blood ketone levels in humans through administration of approximately 25 mg to approximately 800 mg of dihydroberberine. I understand that none of the Challenged Claims pertain to the blood ketone aspect of the '961 Patent.

**d) Overview of the Benefits Patented**

65. I understand that the patented invention addresses the absorption and tolerability issues associated with conventional berberine by using dihydroberberine, which has greater bioavailability than conventional berberine at lower administered amounts. I understand that the use of lower amounts of dihydroberberine reduces the gastrointestinal side effects associated with conventional berberine. In other words, I understand that the '961 Patent claims a method of using dihydroberberine, within a defined dose range, to support glucose tolerance while addressing the absorption and tolerability limits associated with conventional berberine. I further understand the invention to be directed to the use of dihydroberberine in humans.

**e) Footprint of the Invention**

66. I understand that the ‘961 Patent describes methods of administering DHB to manage blood glucose levels and increase blood ketone levels in humans. The specification states that orally administered DHB may lower blood glucose levels at lower dosages than berberine and further states that the observed efficacy of DHB relative to berberine was unexpected. The specification states that “the amount of dihydroberberine may be less than the amount of berberine required to achieve the same amount of glucose tolerance.”<sup>124</sup>

67. I understand the specification to state that administration of lower quantities of DHB to achieve glucose-tolerance results comparable to berberine was unexpected. I further understand the specification to associate lower dosage levels with reduced side effects, improved palatability, and simplified administration.<sup>125</sup>

68. I understand that improved bioavailability is not expressly recited in the Challenged Claims. Instead, I understand that bioavailability relates to a human body’s innate absorption and utilization of dihydroberberine. Nevertheless, I understand that the expressly claimed dosage range of 25 mg to 800 mg reflects amounts that are pharmaceutically effective while also avoiding the gastrointestinal

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<sup>124</sup> Exhibit 1001 (The ‘961 Patent at 4:66–5:18).

<sup>125</sup> Exhibit 1001 (The ‘961 Patent at 5:18–27).

side effects associated with higher dosages. In other words, I understand that less than 25 mg of DHB may not be sufficient for an individual to manage their glucose (e.g. pharmaceutically effective) while dosages greater than 800 mg may cause gastrointestinal side effects (tolerance issues).

### III. LEGAL FRAMEWORK OF ANALYSIS

69. I understand that a patent claim may be invalid as obvious under 35 U.S.C. § 103 even if the claimed invention is not identically disclosed in a single prior-art reference under 35 U.S.C. § 102.<sup>126</sup> I further understand that a claim is obvious if, before the effective filing date of the claimed invention, the differences between the claimed invention and the prior art would have made the claimed invention as a whole obvious to a person of ordinary skill in the relevant art.<sup>127</sup>

70. I understand that obviousness is a question of law based on the following underlying factual findings: (1) the scope and content of the prior art; (2) the differences between the claims and the prior art; (3) the level of ordinary skill in the art; and (4) objective indicia of nonobviousness.<sup>128</sup> I understand that the obviousness inquiry requires examination of all four *Graham* factors.<sup>129</sup>

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<sup>126</sup> Exhibit 2141 (<https://www.uspto.gov/web/offices/pac/mpep/s2141.html>).

<sup>127</sup> Exhibit 2141 (<https://www.uspto.gov/web/offices/pac/mpep/s2141.html>).

<sup>128</sup> *Graham v. John Deere Co.*, 383 U.S. at 17-18.

<sup>129</sup> *Mintz v. Dietz & Watson, Inc.*, 679 F.3d 1372, 1375 (Fed. Cir. 2012).

71. I understand that it is not sufficient that a challenger simply show that all elements of the claimed invention are present in the prior art; rather, there are two additional elements required to be proven by a challenger: (1) motivation to combine or modify the prior art references and (2) a reasonable expectation of successfully achieving the claimed invention based on the combination or modification.<sup>130</sup>

72. I understand “objective indicia of nonobvious” is sometimes referred to as “secondary considerations” as the “primary considerations” focus on an invention’s technical merits compared to existing conventional technologies.<sup>131</sup> I understand that both the USPTO and the courts may also be asked to assess whether there is evidence to support any secondary considerations of nonobviousness that would indicate there was no motivation for one of ordinary skill in the art to combine otherwise conventional technologies to arrive at the claimed invention, or otherwise rebut a claim of obviousness.<sup>132</sup> These secondary considerations may include whether others have licensed the patented technology, the degree of commercial success associated with the patented invention, and whether there was a long-felt but unmet need in the industry for the patented invention.<sup>133</sup> I understand that these

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<sup>130</sup> Exhibit 2141 (<https://www.uspto.gov/web/offices/pac/mpep/s2143.html>).

<sup>131</sup> Exhibit 2141 (<https://www.uspto.gov/web/offices/pac/mpep/s2141.html>).

<sup>132</sup> Exhibit 2141 (<https://www.uspto.gov/web/offices/pac/mpep/s2141.html>).

<sup>133</sup> Exhibit 2141 (<https://www.uspto.gov/web/offices/pac/mpep/s716.html>).

secondary considerations offer real-world context that may demonstrate that the invention was not obvious.<sup>134</sup>

73. I also understand that, for evidence of secondary considerations to be relevant to an analysis of obviousness (or non-obviousness as the case may be), the patent owner must establish a nexus between the evidence and the claimed invention.<sup>135</sup> I further understand that such evidence must be reasonably commensurate in scope with the asserted claims.<sup>136</sup>

74. I understand that “commercial success” is a secondary consideration recognized in patent law.<sup>137</sup> I understand that commercial success generally refers to evidence that a product achieved significant sales or marketplace acceptance and that the success is tied to the claimed invention.<sup>138</sup> I also understand that the patented features do not need to be the sole reason for a product’s success.<sup>139</sup> Rather, there must be evidence that the claimed invention contributed in a meaningful way to the

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<sup>134</sup> Exhibit 2141 (<https://www.uspto.gov/web/offices/pac/mpep/s716.html>).

<sup>135</sup> *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019).

<sup>136</sup> *Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1332 (Fed. Cir. 2019).

<sup>137</sup> Exhibit 2141 (<https://www.uspto.gov/web/offices/pac/mpep/s716.html>).

<sup>138</sup> Exhibit 2141 (<https://www.uspto.gov/web/offices/pac/mpep/s716.html>).

<sup>139</sup> Exhibit 2141 (<https://www.uspto.gov/web/offices/pac/mpep/s716.html>).

product's commercial success.<sup>140</sup> In other words, there must be a causal relationship, or "nexus," between the claimed invention and the product's commercial success.<sup>141</sup>

75. With my understanding of these principles, I have assessed the commercial success of the invention described in the '961 Patent. My analysis considered the primary benefits and advantages associated with the claimed invention, including in comparison to other available products (as addressed throughout this report). I also and assessed the extent to which those benefits and advantages contributed to the commercial success of the products, as evidenced by GlucoVantage's absolute and relative market performance.

#### **A. Analysis of Nexus**

76. The record indicates a nexus between the claimed inventions of the '961 Patent and the commercial success of GlucoVantage. Namely, the commercial demand for DHB products, including GlucoVantage, derives from the same characteristics identified in the '961 Patent specification and the Challenged Claims, including: (1) glucose-management support, (2) improved bioavailability, (3) lower effective dosing, and (4) reduced gastrointestinal side effects relative to conventional berberine. Further, the technical characteristics described and claimed in the '961

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<sup>140</sup> Exhibit 2141 (<https://www.uspto.gov/web/offices/pac/mpep/s716.html>).

<sup>141</sup> Exhibit 2141 (<https://www.uspto.gov/web/offices/pac/mpep/s716.html>).

Patent are also the same characteristics emphasized in the marketplace by NNB (for GlucoVantage), Bonerge (for GlucoSober), and third-party resellers. In my opinion, where consumer demand and supplier marketing identify the same characteristics associated with a claimed invention, the evidence supports a nexus between the commercial success of the product and the claimed invention.

77. For instance, as summarized below but described above:

- **Market Positioning:** The DHB market occupies a premium segment within the broader berberine category because DHB products are associated with improved glucose management, improved absorption, lower dosage requirements, and reduced gastrointestinal side effects relative to conventional berberine products. Conventional berberine products historically exhibited low oral bioavailability and gastrointestinal side effects associated with higher dosing requirements. I understand that the '961 Patent identifies those same limitations and describes and claims methods of administering DHB to humans to address those limitations.
- **Supply Side Evidence:** The supply-side evidence reflects the same technical characteristics identified in the '961 Patent. DHB manufacturers and resellers market DHB products (including GlucoVantage) as capable of achieving comparable glucose-related effects at lower doses and as more bioavailable

than conventional berberine products. NNB markets GlucoVantage by reference to glucose tolerance, insulin sensitivity, bioavailability, metabolic support, and reduced side effects.

- **Demand Side Evidence:** The demand-side evidence also reflects the same technical characteristics identified in the '961 Patent. Customer reviews reviewed as part of my analysis repeatedly referenced glucose-management support, improved absorption, reduced gastrointestinal discomfort, and lower dosing requirements as reasons consumers purchased DHB products (including GlucoVantage). I understand that those stated reasons for purchase are consistent with the technical benefits identified in the '961 Patent.

78. My discussion with NNB Personnel confirmed the existence of a nexus. For example, NNB Personnel informed me that customers purchase GlucoVantage because DHB has an immediate impact on glucose adsorption, and customer reviews include images showing DHB's effect on the readings from glucometers or continual glucose monitors. NNB Personnel also advised me that FDA regulations governing supplements limit NNB's ability to advertise benefits related to improved insulin resistance or blood sugar control. Despite these limitations, I understand from NNB Personnel that customers use GlucoVantage for this benefit. I also note that NNB

has still promoted the success of DHB effect of regulating glucose levels.<sup>142</sup> Finally, according to NNB Personnel, the market for DHB did not exist before NNB introduced GlucoVantage.

**B. Assessment and Consideration of GlucoVantage's Other Patents**

79. Although I understand that while the GlucoVantage product may embody technology disclosed or claimed in other patents and patent applications owned by NNB, including patents within the same family as the '961 Patent as well as unrelated patented technologies identified on NNB's patent virtual marking webpage,<sup>143</sup> it is my understanding that invention described in the claims of the '961 Patent nevertheless is the driver of the product's commercial success for several reasons.

80. First, the '961 Patent is the parent patent to several later-issued patents and applications, including at least U.S. Patent Nos. 11,969,411, 12,533,346, 12,521,378, and 11,026,929. It is my understanding that these later patents generally claim narrower, more specific, or more refined embodiments, formulations, process limitations, or implementations that build upon the broader inventive concepts first

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<sup>142</sup> Exhibit 2142 (<https://blog.priceplow.com/supplement-research/dihydroberberine> and <https://blog.priceplow.com/supplement-research/dihydroberberine/glp1-weight-loss>).

<sup>143</sup> Exhibit 2115 (<https://www.nnbnutrition.com/patents/>).

claimed in the '961 Patent, such as adding compounds to DHB or apply to ketone levels, not glucose levels. As a result, the existence of later continuations or related patents does not diminish the significance of the earlier parent claims; rather, I understand that it is common patenting practice for broader foundational claims to be supplemented by later claims directed to specific embodiments.

81. Second, the comparatively broader scope of the '961 Patent claims is important in assessing nexus and commercial success because those claims capture the fundamental technology underlying the commercial product, rather than merely isolated improvements. In my experience, a product may simultaneously practice broad foundational claims and narrower follow-on claims, but the broader claims are often what permit the product to occupy the commercially valuable space in the market in the first instance. Here, I understand that the newer (more recent) patents particularize aspects of the technology already encompassed by the broader concepts claimed in the '961 Patent. Accordingly, even if GlucoVantage also embodies narrower claims from patents in the same or different families, that does not negate the conclusion that the inventions claimed in the '961 Patent are tied to the product's commercial success.

82. Third, I understand that the presence of additional patented technologies in a commercial product does not sever the nexus between the patented

invention and commercial success where the claimed invention remains a significant enabling or differentiating feature of the product. In fact, it is my understanding that the broader claims of the '961 Patent are directed to core aspects of the technology that consumers and the marketplace value, while many of the additional patents appear directed to more narrow improvements or features. As a result, the commercial success of GlucoVantage is consistent with, and attributable to, the broader and foundational technological coverage provided by the '961 Patent, even if other of NNB's patented technologies also are embodied in GlucoVantage.

### **C. Analysis of Commercial Success**

#### **1. NNB**

83. As part of my commercial success analysis, I considered 2019-2026 data that reflect the commercial success of GlucoVantage.<sup>144</sup> These data include NNB's customer counts, the average volume per customer per year, the total volume of GlucoVantage sold, the average selling price per customer, and the total revenue

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<sup>144</sup> Exhibit 2143 HC-AEO (GlucoVantage SALES DATES-Till 2026.3.31 HC-AEO).

NNB earned from the sale of GlucoVantage.<sup>145</sup> I also analyzed NNB's 2019-2025 data reflecting costs and gross profits associated with GlucoVantage.<sup>146</sup>

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<sup>145</sup> Exhibit 2143 HC-AEO (GlucoVantage SALES DATES-Till 2026.3.31 HC-AEO).

<sup>146</sup> Exhibit 2138 HC-AEO (Gross Profit for GlucoVantage HC-AEO).

<sup>147</sup> Exhibit 2143 HC-AEO (GlucoVantage SALES DATES-Till 2026.3.31 HC-AEO).

<sup>148</sup> Exhibit 2143 (GlucoVantage SALES DATES-Till 2026.3.31 HC-AEO).

<sup>149</sup> Exhibit 2143 (GlucoVantage SALES DATES-Till 2026.3.31 HC-AEO).

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86. Overall, these trends indicate that GlucoVantage has moved beyond its initial commercialization phase and has achieved meaningful marketplace acceptance.

87. In the following sections I summarize the annual trends from 2019-2025 as it relates to customer counts, kilograms per customer, total kilograms sold, the average selling price of GlucoVantage per kilogram, total revenue, total gross profit, and gross profit percentage trends.

**a) Customer Count<sup>151</sup>**

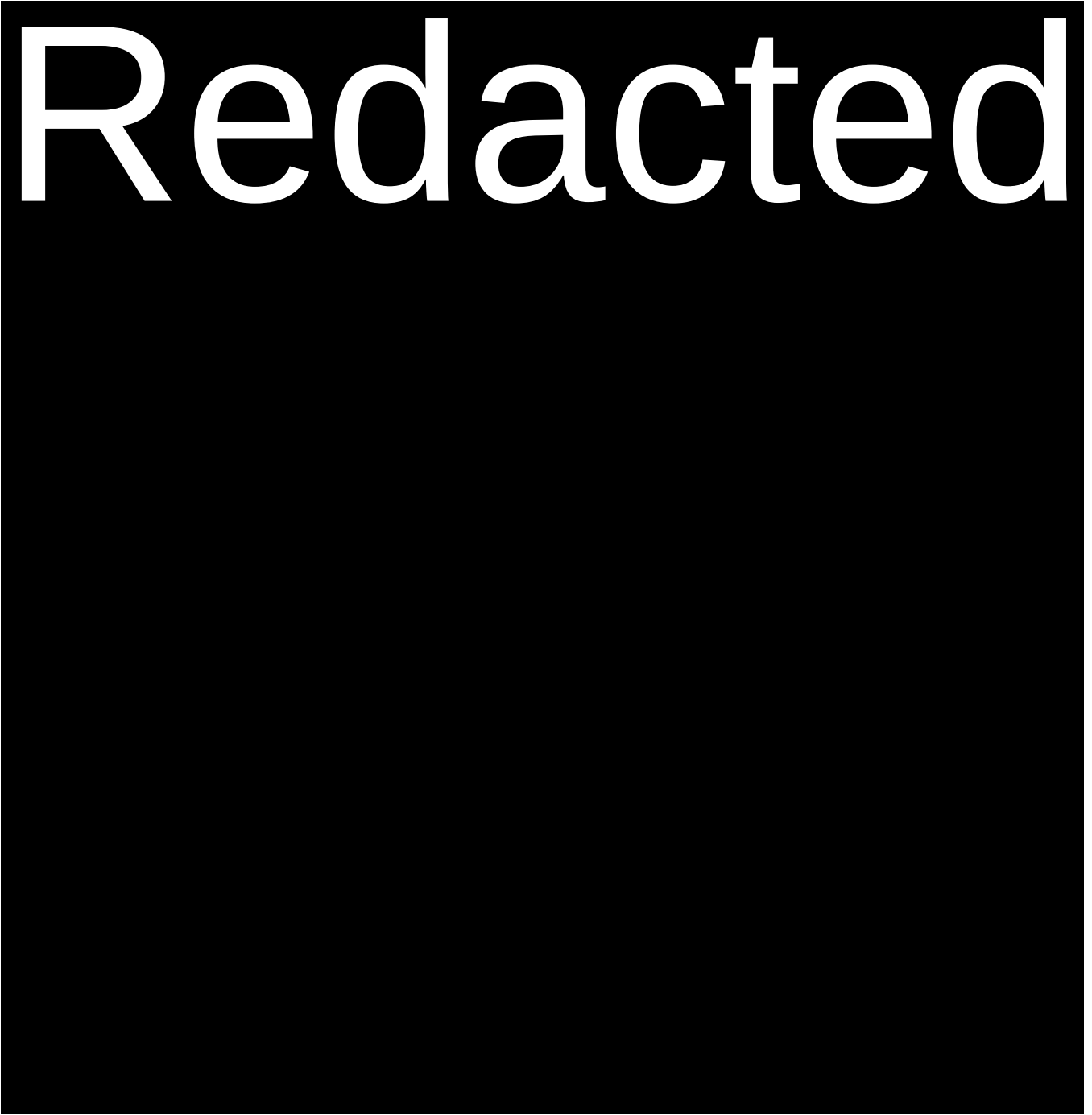
88. The data indicates that NNB increased its GlucoVantage customer base over time. **Redacted**

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<sup>150</sup> Exhibit 2138 HC-AEO (Gross Profit for GlucoVantage HC-AEO).

<sup>151</sup> Exhibit 2143 HC-AEO (GlucoVantage SALES DATES-Till 2026.3.31 HC-AEO).

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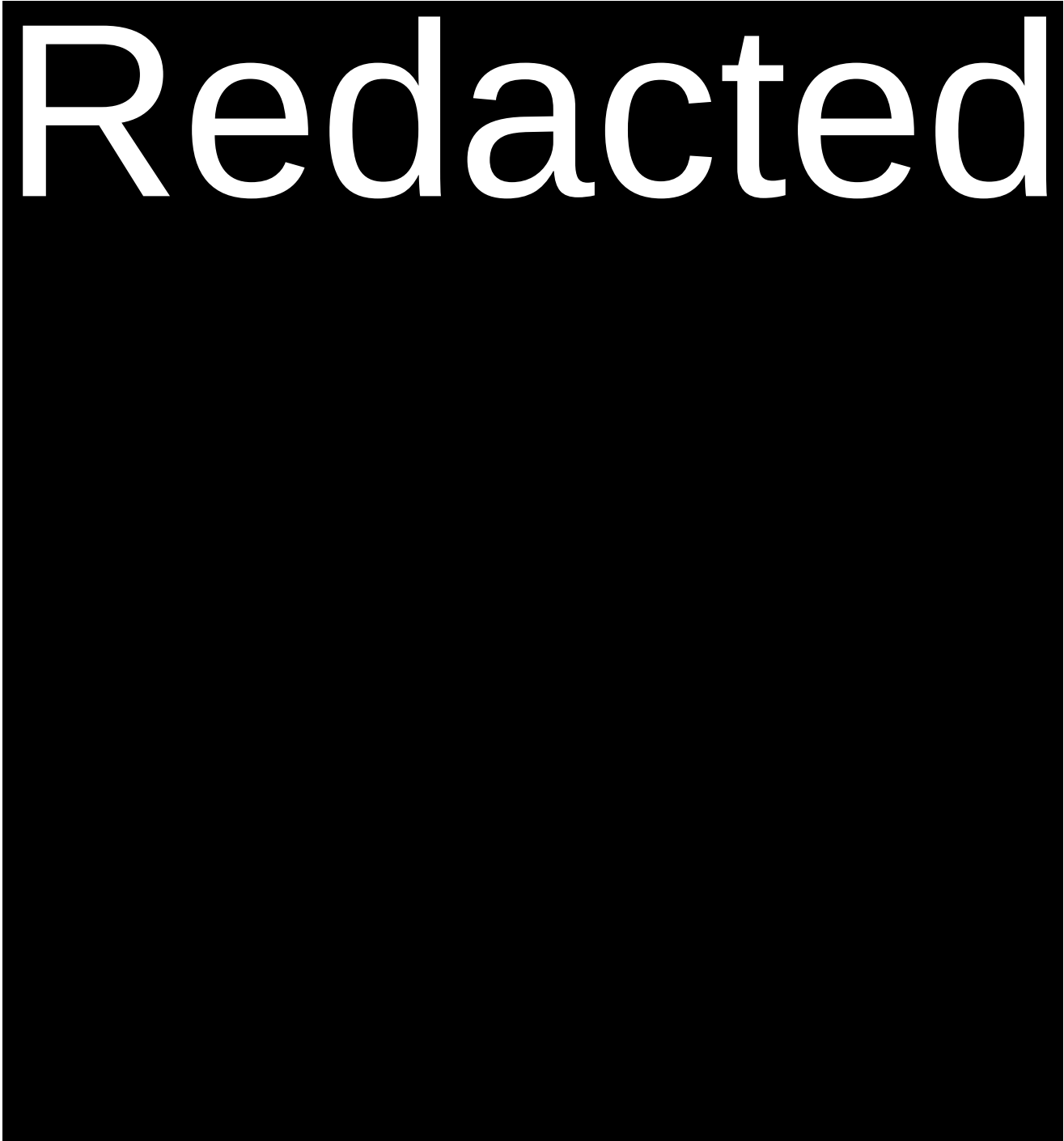


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<sup>152</sup> Exhibit 2143 HC-AEO (GlucoVantage SALES DATES-Till 2026.3.31 HC-AEO).

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<sup>153</sup> Exhibit 2143 HC-AEO (GlucoVantage SALES DATES-Till 2026.3.31 HC-AEO).

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<sup>154</sup> Exhibit 2143 HC-AEO (GlucoVantage SALES DATES-Till 2026.3.31 HC-AEO)

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<sup>155</sup> Exhibit 2143 HC-AEO (GlucoVantage SALES DATES-Till 2026.3.31 HC-AEO)

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<sup>156</sup> Exhibit 2138 HC-AEO (Gross Profit for GlucoVantage HC-AEO).

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**2. Bonerge / Nature's Fusions**

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<sup>157</sup> Exhibit 2140 HC-AEO (BON01141-BON01143; BON01147; BON01151-BON01152; BON01159; BON01163; BON01167-BON01169; BON01171-BON01182; BON01191; BON01193; BON01195; BON01197-BON01199); Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, p. 20 HC-AEO).

<sup>158</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, pp. 100-108, Exhibit 15 and Exhibit 16 HC-AEO).

<sup>159</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, p. 20 HC-AEO).

<sup>160</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, pp. 100-108, Exhibit 15 and Exhibit 16 HC-AEO).

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<sup>161</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, p. 14 HC-AEO).

<sup>162</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, p. 101 HC-AEO).

<sup>163</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, p. 105).

<sup>164</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, p. 102).

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<sup>165</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, p. 102 HC-AEO).

<sup>166</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, p. 107 HC-AEO).

<sup>167</sup> Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, pp. 100-108, Exhibit 15 and Exhibit 16 HC-AEO).

<sup>168</sup> Redacted



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### 3. Other External Demand Determinants

100. I also considered whether the commercial success of GlucoVantage was primarily caused by broader market trends associated with social-media attention surrounding GLP-1 medications and the so-called “natural Ozempic” products. In evaluating this issue, I analyzed and assessed the above noted market-growth data, pricing evidence, customer purchasing behavior, supply-side marketing materials, and customer reviews relating to both conventional berberine and DHB products. Based on this analysis, the evidence does not support the conclusion that generalized social-media attention explains the observed commercial success of GlucoVantage.

101. The available evidence indicates that social-media attention may have increased consumer awareness of berberine-related products generally beginning in approximately 2023. Industry publications and market reports noted increased consumer interest in berberine products during this period, including reports that

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**Redacted**. Exhibit 2144 HC-AEO (“NNB Consolidated Income Statement 2019-2025.07 HC-ATTYS EYES ONLY”).

sales of certain berberine products increased following social-media discussions relating to GLP-1 medications and weight-management trends.<sup>169</sup>

102. However, from an economic perspective, increased category awareness alone does not adequately explain the disproportionate commercial success achieved by GlucoVantage relative to the broader berberine supplements market. As discussed above, the broader berberine supplement market experienced average annual revenue growth of approximately 8.9% between 2018 and 2022 and projected annual growth of approximately 6.7% between 2020 and 2025.<sup>170</sup> **Redacted**

[REDACTED]

[REDACTED] [REDACTED]

[REDACTED]

[REDACTED]. Further, prior to the introduction and

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<sup>169</sup> Exhibit 2130 (<https://www.gq.com/story/berberine-tiktok>); Exhibit 2113 (<https://www.wired.com/story/berberine-social-media-trend>; <https://www.teenvogue.com/story/berberine-isnt-natures-ozempic>; <https://nypost.com/2023/05/31/experts-warn-of-dangers-of-natures-ozempic-on-tiktok/>).

<sup>170</sup> Exhibit 2132 (<https://www.persistencemarketresearch.com/market-research/berberine-supplements-market.asp>).

<sup>171</sup> Exhibit 2138 (Gross Profit for GlucoVantage HC-AEO); Exhibit 2143 (GlucoVantage SALES DATES-Till 2026.3.31 HC-AEO).

commercialization of GlucoVantage, there was effectively little-to-no established commercial market for DHB products.<sup>172</sup>

103. The disparity between overall market growth and GlucoVantage growth indicates that generalized market expansion alone does not explain the product's commercial performance given that GlucoVantage's growth is greater than the growth of the overall market for berberine. From an economic perspective, this degree of outperformance is inconsistent with mere participation in generalized market growth and instead indicates that GlucoVantage captured increasing market share through product-specific demand associated with the differentiated characteristics of DHB products. I confirmed this in my discussions with NNB Personnel.

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<sup>172</sup> Discussion with NNB Personnel.

104. The pricing evidence further supports my conclusion. I compared DHB pricing<sup>173</sup> to berberine pricing<sup>174</sup> to evaluate whether publicly available retail prices

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<sup>173</sup> Exhibit 2123 (<https://www.walmart.com/ip/Nutricost-Dihydroberberine-Capsules-100mg-60-Capsules-More-Bioavailable-Metabolite-of-Berberine/6524661681> and <https://www.walmart.com/ip/NTC-Dihydroberberine-200-MG-V1-60-CAP/6524505406>); Exhibit 2126 HC-AEO (Deposition of Matthew Peterson, February 26, 2026, Exhibit 7 and Exhibit 11 HC-AEO); Exhibit 2127 (<https://www.naturesfusions.com/product/nutri-dihydroberberine-supplement-with-ceylon-cinnamon-100mg-60-capsules>); Exhibit 2128 (“3.8 Nutricost” and “1.21 Dihydroberberine – Recalibrate Me”); Exhibit 2129 (<https://www.intimaterose.com/products/dihydroberberine-supplement> and <https://www.xymogen.com/product/berberine-es-5-60-capsules>); Exhibit 2145 (<https://www.iherb.com/pr/nutricost-dihydroberberine-100-mg-60-capsules/143018>; <https://www.iherb.com/pr/nutri-dihydro-berberine-60-vegan-capsules/144385>; <https://www.iherb.com/pr/toniiq-dihydro-berberine-1000-60-capsules/155891>; <https://nutriflair.com/products/dihydroberberine-250mg-60-capsules>; <https://www.vitaminshoppe.com/p/ultra-berberine-60-capsules/hfm-14610>; <https://www.walmart.com/ip/Ultra-Berberine-Enhanced-Absorption-60-Capsules/15950771287>; <https://www.naturesfusions.com/product/nutri-dihydroberberine-supplement-with-ceylon-cinnamon-200mg-60-capsules/?add-to-cart=27349>; <https://www.walmart.com/ip/Nutri-Dihydroberberine-Supplement-With-Ceylon-Cinnamon-200mg-60-Capsules/15321407408>; <https://www.naturecity.com/products/true-berberine>); Exhibit 2146 (<https://doublewoodsupplements.com/products/dihydroberberine>; <https://www.dpsnutrition.net/i/36407/double-wood-supplements-dihydroberberine-100-mg-6.htm>).

<sup>174</sup> Exhibit 2123 (<https://www.walmart.com/ip/Berberine-HCL-500mg-120-Capsules-Barberry-Extract-Supplement-Non-GMO-Gluten-Free-By-Piping-Rock/2113563145>; <https://www.walmart.com/ip/BESTVITE-Berberine-500mg-120-Vegetarian-Capsules-No-Fillers-No-Stearates-Vegan-Gluten-Free-Non-GMO/191146997>; and <https://www.walmart.com/ip/WellBetX-Berberine-500-mg-by-Natural-Factors-120-Capsules/694115274>); Exhibit 2145 (<https://www.iherb.com/pr/best-naturals-berberine-500-mg-120-capsules/125080>; <https://www.zotazo.com/us/reviews/natures-pure-berberine-hcl-capsules>;

reflect a consumer willingness to pay a premium for the claimed benefits associated with DHB. The data was based on supplement listings and normalized to compare substantially similar products, generally 120-capsule bottles within the 500 mg dosage range for berberine, and 60-capsule bottles within the 100-250 mg dosage range for DHB.<sup>175</sup> Redacted

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Redacted.<sup>176</sup> Moreover, when comparing berberine

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<https://www.iherb.com/pr/source-naturals-berberine-500-mg-120-vegetarian-capsules/144255> and <https://www.iherb.com/pr/natural-factors-wellbetx-berberine-120-vegetarian-capsules-500-mg-per-capsule/85657>); Exhibit 2146 (<https://www.vitacost.com/products/best-naturals-berberine-500-mg-120-capsules-125080> and <https://business.walmart.com/ip/Best-Naturals-Berberine-500mg-120-Capsules-Supports-Immune-Function-Cardiovascular-Gastrointestinal-Function/253667316>).

<sup>175</sup> Redacted

<sup>176</sup> Redacted

to DHB on a mg basis, [Redacted]

[Redacted]

[Redacted]

[Redacted].<sup>177</sup> Overall this analysis reflects the market's valuation of DHB's claimed improvements in bioavailability and gastrointestinal tolerability.

105. From an economic perspective, this pricing behavior is inconsistent with the proposition that consumers were merely seeking the lowest cost “natural Ozempic” substitute. If consumer purchasing behaviors were driven primarily by generalized social-media hype or demand for inexpensive GLP-1 alternatives, one would expect consumers to migrate toward lower-cost conventional berberine products rather than consistently purchasing higher-priced DHB products. Instead, the evidence indicates that consumers were willing to pay a price premium for DHB products due to the perceived product-specific benefits associated with DHB.

106. The customer reviews and testimonials I reviewed are also consistent with this conclusion. Consumers referenced characteristics specifically associated

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<sup>177</sup> [Redacted]

[Redacted]

with DHB products, including glucose-management support, improved bioavailability, reduced gastrointestinal side effects, fewer capsules required for effectiveness, and improved stomach tolerability. Several consumers expressly compared DHB favorably to conventional berberine products and stated that they selected DHB products because they avoided the gastrointestinal side effects associated with regular berberine. Other consumers referenced physician recommendations, glucose-monitor testing, and the longer-lasting effects of DHB products. These customer statements indicate that consumers perceived DHB products as differentiated from conventional berberine products and valued the specific characteristics associated with DHB products rather than merely purchasing products because of generalized social-media attention relating to weight-loss trends.

107. The supply-side evidence is further consistent with this conclusion. Marketing materials and product descriptions associated with DHB products repeatedly emphasized characteristics including glucose-management support, enhanced bioavailability, improved tolerability, and reduced gastrointestinal distress. I understand that these same characteristics are discussed and claimed in the '961 Patent and correspond to the product attributes referenced in customer reviews and testimonials. Thus, the economic evidence tends to show a nexus between: (i) the

claimed characteristics associated with the patented invention; (ii) the product attributes emphasized in supply-side marketing materials; and (iii) the product characteristics valued by consumers. From an economic perspective, this consistency supports my conclusion that the patented characteristics are tied to consumer demand and commercial success.

108. Finally, the commercial purchasing data also supports this conclusion.

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[REDACTED]. This pattern reflects expanding commercial adoption and repeat purchasing behavior rather than merely short-term consumer experimentation. From an economic perspective, temporary fad-driven demand frequently produces short-lived spikes in purchasing behavior without sustained customer expansion, increasing purchase volumes, and stable or increased pricing, over time. By contrast, the GlucoVantage data indicates increasing penetration within customer accounts, sustained repeat purchasing, and continuing demand growth despite higher pricing relative to conventional berberine products.

109. Accordingly, while the evidence suggests that social-media attention and GLP-1-related market trends may have contributed to increased awareness of berberine-related products for a short period, the evidence does not support the conclusion that these external market trends alone caused the commercial success of GlucoVantage or related DHB products. Rather, the evidence is more consistent with a conclusion that the patented characteristics associated with DHB products contributed to their commercial success, sustained premium pricing, repeat purchasing behavior, and expanding commercial adoption within the broader berberine market.

#### **IV. CONCLUSION**

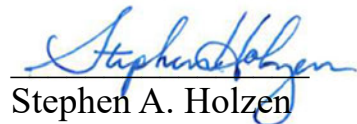
110. Based on my review and analysis of the evidence received to date, it is my opinion that the patented invention described in the '961 Patent is a commercial success. It is also my opinion that the commercial success of the patented invention derives from the benefits and advantages identified in the '961 Patent.

111. This declaration, together with the supporting exhibits, summarizes my opinions and the bases for those opinions as of the date of this declaration. If either party produces additional information, I reserve the right to amend or supplement my opinions as appropriate.

112. I prepared this declaration solely for use in this *inter partes* review proceeding. No person or entity may publish or use this declaration for any other purpose without Stout's prior written consent.

113. I declare that the statements made herein based on my personal knowledge are true and that the statements made based on information and belief are believed to be true. I further declare that I make these statements with the knowledge that willful false statements are punishable under 18 U.S.C. § 1001 by fine, imprisonment, or both.

Respectfully submitted,

  
Stephen A. Holzen  
July 5, 2026

## **Appendix A**

Exhibit List

Declaration of Stephen A. Holzen  
HIGHLY CONFIDENTIAL – ATTORNEYS’ EYES ONLY

| <b>Exhibit</b> | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2111           | Petition for Inter Partes Review of U.S. Patent No. 10,278,961, September 26, 2025;<br><a href="https://assignmentcenter.uspto.gov/search/patent/abstract%3FpatentNumber%3D10278961">https://assignmentcenter.uspto.gov/search/patent/abstract%3FpatentNumber% 3D10278961</a>                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 2112           | <a href="https://pubmed.ncbi.nlm.nih.gov/27671811/">https://pubmed.ncbi.nlm.nih.gov/27671811/</a> ;<br><a href="https://pmc.ncbi.nlm.nih.gov/articles/PMC3504405/">https://pmc.ncbi.nlm.nih.gov/articles/PMC3504405/</a> ;<br><a href="https://pmc.ncbi.nlm.nih.gov/articles/PMC4502414/">https://pmc.ncbi.nlm.nih.gov/articles/PMC4502414/</a> ;<br><a href="https://pmc.ncbi.nlm.nih.gov/articles/PMC8378955/">https://pmc.ncbi.nlm.nih.gov/articles/PMC8378955/</a> ;<br><a href="https://pmc.ncbi.nlm.nih.gov/articles/PMC8746601/">https://pmc.ncbi.nlm.nih.gov/articles/PMC8746601/</a> ;<br><a href="https://www.ncbi.nlm.nih.gov/books/NBK564659/">https://www.ncbi.nlm.nih.gov/books/NBK564659/</a> |
| 2113           | <a href="https://www.nccih.nih.gov/health/in-the-news-berberine">https://www.nccih.nih.gov/health/in-the-news-berberine</a> ;<br><a href="https://www.washingtonpost.com/wellness/2023/06/20/berberine-weight-loss-natures-ozempic/">https://www.washingtonpost.com/wellness/2023/06/20/berberine-weight-loss-natures-ozempic/</a> ; <a href="https://www.wired.com/story/berberine-social-media-trend">https://www.wired.com/story/berberine-social-media-trend</a> ; <a href="https://www.fda.gov/consumers/consumer-updates/fda-101-dietary-supplements">https://www.fda.gov/consumers/consumer-updates/fda-101-dietary-supplements</a>                                                                   |
| 2114           | <a href="https://dsld.od.nih.gov/label/282103">https://dsld.od.nih.gov/label/282103</a> ;<br><a href="https://dsld.od.nih.gov/label/293642">https://dsld.od.nih.gov/label/293642</a> ;<br><a href="https://dsld.od.nih.gov/label/310819">https://dsld.od.nih.gov/label/310819</a> ; <a href="https://dsld.od.nih.gov/label/60586">https://dsld.od.nih.gov/label/60586</a> ;<br><a href="https://ods.od.nih.gov/factsheets/Chromium-Consumer/">https://ods.od.nih.gov/factsheets/Chromium-Consumer/</a>                                                                                                                                                                                                       |

Declaration of Stephen A. Holzen

| Exhibit | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2115    | <a href="https://www.nnbnutrition.com/">https://www.nnbnutrition.com/</a> ; <a href="https://www.nnbnutrition.com/about">https://www.nnbnutrition.com/about</a> ;<br><a href="https://www.nnbnutrition.com/gluco-vantage-a-gentle-solution-for-metabolic-health">https://www.nnbnutrition.com/gluco-vantage-a-gentle-solution-for-metabolic-health</a> ; <a href="https://www.nnbnutrition.com/ingredientology/">https://www.nnbnutrition.com/ingredientology/</a> ;<br><a href="https://www.nnbnutrition.com/ingredients/gluco-vantage/">https://www.nnbnutrition.com/ingredients/gluco-vantage/</a> ;<br><a href="https://www.nnbnutrition.com/ingredients/gluco-vantage/gluco-vantage/">https://www.nnbnutrition.com/ingredients/gluco-vantage/gluco-vantage/</a> ;<br><a href="https://www.nnbnutrition.com/patents/">https://www.nnbnutrition.com/patents/</a> ;<br><a href="https://www.nnbnutrition.com/true-innovation-for-brands/">https://www.nnbnutrition.com/true-innovation-for-brands/</a> ;<br><a href="https://web.archive.org/web/20250808201651/https://www.nnbnutrition.com/patents">https://web.archive.org/web/20250808201651/https://www.nnbnutrition.com/patents</a> |
| 2116    | <a href="https://www.nature.com/articles/srep12155">https://www.nature.com/articles/srep12155</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 2117    | <a href="https://www.mdpi.com/2072-6643/14/1/124">https://www.mdpi.com/2072-6643/14/1/124</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 2118    | <a href="https://www.mareksupplements.com/products/berberine">https://www.mareksupplements.com/products/berberine</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 2119    | <a href="https://www.bonerge.com/about-bonerge">https://www.bonerge.com/about-bonerge</a> ;<br><a href="https://www.bonerge.com/branded-ingredients">https://www.bonerge.com/branded-ingredients</a> ;<br><a href="https://www.bonerge.com/branded-ingredients/dihydroberberine">https://www.bonerge.com/branded-ingredients/dihydroberberine</a> ;<br><a href="https://www.bonerge.com/news/natural-products-west-anaheim-longevity-fisetin">https://www.bonerge.com/news/natural-products-west-anaheim-longevity-fisetin</a> ; <a href="https://www.bonerge.com/odm-cdmo">https://www.bonerge.com/odm-cdmo</a> ;<br><a href="https://www.bonerge.com/research-articles/dihydroberberine-vs-berberine-benefits-bioavailability">https://www.bonerge.com/research-articles/dihydroberberine-vs-berberine-benefits-bioavailability</a>                                                                                                                                                                                                                                                                                                                                                       |
| 2120    | <a href="https://prlabs.com/premier-glucose-manager.html">https://prlabs.com/premier-glucose-manager.html</a> ;<br><a href="https://www.nutraingredients.com/Article/2026/02/16/glp-1-boom-spurs-supplement-innovation-as-bragg-expands-into-metabolic-health/">https://www.nutraingredients.com/Article/2026/02/16/glp-1-boom-spurs-supplement-innovation-as-bragg-expands-into-metabolic-health/</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 2121    | <a href="https://www.organicpowdersupply.com/dihydroberberine-dhb-bulk-powder/">https://www.organicpowdersupply.com/dihydroberberine-dhb-bulk-powder/</a> ; <a href="https://www.conscientia-industrial.com/plant-extracts/berberine-hydrochloride-cas-633-65-8">https://www.conscientia-industrial.com/plant-extracts/berberine-hydrochloride-cas-633-65-8</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

Declaration of Stephen A. Holzen

| Exhibit | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2122    | <a href="https://uspto.report/TM/87004949">https://uspto.report/TM/87004949</a> ; <a href="https://uspto.report/TM/88477171">https://uspto.report/TM/88477171</a> ;<br><a href="https://tmsearch.uspto.gov/search/search-results/98638859">https://tmsearch.uspto.gov/search/search-results/98638859</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 2123    | <a href="https://www.walmart.com/ip/Berberine-HCL-500mg-120-Capsules-Barberry-Extract-Supplement-Non-GMO-Gluten-Free-By-Piping-Rock/2113563145">https://www.walmart.com/ip/Berberine-HCL-500mg-120-Capsules-Barberry-Extract-Supplement-Non-GMO-Gluten-Free-By-Piping-Rock/2113563145</a> ; <a href="https://www.walmart.com/ip/BESTVITE-Berberine-500mg-120-Vegetarian-Capsules-No-Fillers-No-Stearates-Vegan-Gluten-Free-Non-GMO/191146997">https://www.walmart.com/ip/BESTVITE-Berberine-500mg-120-Vegetarian-Capsules-No-Fillers-No-Stearates-Vegan-Gluten-Free-Non-GMO/191146997</a> ;<br><a href="https://www.walmart.com/ip/Dihydroberberine-Super-Berberine-Supplement-GlucoVantage-200mg-Now-5X-More-Effective-Than-Regular-HCL-Powder-Capsules-Metabolism-Support-Keto-Friendl/2212733860">https://www.walmart.com/ip/Dihydroberberine-Super-Berberine-Supplement-GlucoVantage-200mg-Now-5X-More-Effective-Than-Regular-HCL-Powder-Capsules-Metabolism-Support-Keto-Friendl/2212733860</a> ; <a href="https://www.walmart.com/ip/NTC-Dihydroberberine-200-MG-V1-60-CAP/6524505406">https://www.walmart.com/ip/NTC-Dihydroberberine-200-MG-V1-60-CAP/6524505406</a> ;<br><a href="https://www.walmart.com/ip/Nutricost-Dihydroberberine-Capsules-100mg-60-Capsules-More-Bioavailable-Metabolite-of-Berberine/6524661681">https://www.walmart.com/ip/Nutricost-Dihydroberberine-Capsules-100mg-60-Capsules-More-Bioavailable-Metabolite-of-Berberine/6524661681</a> ; <a href="https://www.walmart.com/ip/Nutri-Dihydroberberine-Supplement-With-Ceylon-Cinnamon-200mg-60-Capsules/15321407408">https://www.walmart.com/ip/Nutri-Dihydroberberine-Supplement-With-Ceylon-Cinnamon-200mg-60-Capsules/15321407408</a> ; <a href="https://www.walmart.com/ip/Ultra-Berberine-Enhanced-Absorption-60-Capsules/15950771287">https://www.walmart.com/ip/Ultra-Berberine-Enhanced-Absorption-60-Capsules/15950771287</a> ;<br><a href="https://www.walmart.com/ip/WellBetX-Berberine-500-mg-by-Natural-Factors-120-Capsules/694115274">https://www.walmart.com/ip/WellBetX-Berberine-500-mg-by-Natural-Factors-120-Capsules/694115274</a> |

Declaration of Stephen A. Holzen

| Exhibit     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2124        | <a href="https://www.amazon.com/Dihydroberberine-Supplement-200mg-Capsules-Effective/dp/B0CWC6F56X/ref=sr_1_2_sspa?th=1;">https://www.amazon.com/Dihydroberberine-Supplement-200mg-Capsules-Effective/dp/B0CWC6F56X/ref=sr_1_2_sspa?th=1;</a><br><a href="https://www.amazon.com/product-reviews/B095JCB9B9/ref=cm_cr_arp_d_paging_btm_2?ie=UTF8;">https://www.amazon.com/product-reviews/B095JCB9B9/ref=cm_cr_arp_d_paging_btm_2?ie=UTF8;</a><br><a href="https://www.amazon.com/Super-Berberine-GlucoVantage%C2%AE-Berberine-Metabolism/dp/B095JCB9B9/ref=sr_1_7?dib=eyJ2IjoiMSJ9.U1S-iDsa_TH6V8xwfiXrshIUfKTC9vmOXyaCZXk-nUnlTrh8q0zrzufpTf68sFO4r9TkGDax-jitZSwXKMnA3-b0j1_T91Y82s5zqpIdOB0zG4jDRMa_5fVsf8i1dpAYWNOGRoSlyksJ_cK1nz9-t0vW6u-eyMfgmzWJActKr8XaFXOwYbYN07jWYaj2Y8GjWTPC4zjRYmp0qt8ZSQVrM6-De7-La4KWomwC85hJkZ6quozg2EYraIUyQOIrYiEDDUb8gq1zdHlej96ue0g6Pgm93cQHUFukpy4Agd_IEQ.kWMsjwjfbypqHqAcUHEH-Adh4V5siBKFYreWiE3m_pU&amp;dib_tag=se&amp;keywords=glucovantage&amp;qid=1782988940&amp;rdc=1&amp;sr=8-7">https://www.amazon.com/Super-Berberine-GlucoVantage%C2%AE-Berberine-Metabolism/dp/B095JCB9B9/ref=sr_1_7?dib=eyJ2IjoiMSJ9.U1S-iDsa_TH6V8xwfiXrshIUfKTC9vmOXyaCZXk-nUnlTrh8q0zrzufpTf68sFO4r9TkGDax-jitZSwXKMnA3-b0j1_T91Y82s5zqpIdOB0zG4jDRMa_5fVsf8i1dpAYWNOGRoSlyksJ_cK1nz9-t0vW6u-eyMfgmzWJActKr8XaFXOwYbYN07jWYaj2Y8GjWTPC4zjRYmp0qt8ZSQVrM6-De7-La4KWomwC85hJkZ6quozg2EYraIUyQOIrYiEDDUb8gq1zdHlej96ue0g6Pgm93cQHUFukpy4Agd_IEQ.kWMsjwjfbypqHqAcUHEH-Adh4V5siBKFYreWiE3m_pU&amp;dib_tag=se&amp;keywords=glucovantage&amp;qid=1782988940&amp;rdc=1&amp;sr=8-7</a> |
| 2125        | <a href="https://synapse.patsnap.com/article/bonerge-begins-human-trials-for-glucosoberC2AE-dihydroberberine-and-befisetinC2AE-fisetin">https://synapse.patsnap.com/article/bonerge-begins-human-trials-for-glucosoberC2AE-dihydroberberine-and-befisetinC2AE-fisetin</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 2126 HC-AEO | Deposition of Matthew Peterson, February 26, 2026; Exhibits 7, 11, 15, 16, 18, and 19 - HC-AEO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2127        | <a href="https://www.naturesfusions.com/product/nutri-dihydroberberine-supplement-with-ceylon-cinnamon-100mg-60-capsules;">https://www.naturesfusions.com/product/nutri-dihydroberberine-supplement-with-ceylon-cinnamon-100mg-60-capsules;</a><br><a href="https://www.naturesfusions.com/product/nutri-dihydroberberine-supplement-with-ceylon-cinnamon-200mg-60-capsules/?add-to-cart=27349">https://www.naturesfusions.com/product/nutri-dihydroberberine-supplement-with-ceylon-cinnamon-200mg-60-capsules/?add-to-cart=27349;</a> <a href="https://www.naturesfusions.com/product-category/supplements/">https://www.naturesfusions.com/product-category/supplements/</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

Declaration of Stephen A. Holzen

| <b>Exhibit</b> | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2128           | 1.14 VINATURA; 1.19 Pure Nootropics; 1.21 Dihydroberberine – Recalibrate Me; 1.34 Irwin Naturals; 2.7 Stacked Hydroxycut Pro; 3.20 NutraBio GDA; 3.8 Nutricost                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2129           | <a href="https://www.intimaterose.com/products/dihydroberberine-supplement">https://www.intimaterose.com/products/dihydroberberine-supplement</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 2130           | <a href="https://www.gq.com/story/berberine-tiktok">https://www.gq.com/story/berberine-tiktok</a> ;<br><a href="https://www.teenvogue.com/story/berberine-isnt-natures-ozempic">https://www.teenvogue.com/story/berberine-isnt-natures-ozempic</a> ;<br><a href="https://nypost.com/2023/05/31/experts-warn-of-dangers-of-natures-ozempic-on-tiktok/">https://nypost.com/2023/05/31/experts-warn-of-dangers-of-natures-ozempic-on-tiktok/</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 2131           | <a href="https://clinicaltrials.gov/study/NCT07210684">https://clinicaltrials.gov/study/NCT07210684</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 2132           | <a href="https://www.globenewswire.com/news-release/2023/02/20/2611285/0/en/Berberine-Supplements-Market-is-estimated-to-be-worth-US-2-1-Billion-by-2033-end-Exclusive-Report-by-Persistence-Market-Research.html">https://www.globenewswire.com/news-release/2023/02/20/2611285/0/en/Berberine-Supplements-Market-is-estimated-to-be-worth-US-2-1-Billion-by-2033-end-Exclusive-Report-by-Persistence-Market-Research.html</a> ;<br><a href="https://www.persistencemarketresearch.com/market-research/berberine-supplements-market.asp">https://www.persistencemarketresearch.com/market-research/berberine-supplements-market.asp</a> ;<br><a href="https://www.verifiedmarketresearch.com/product/berberine-supplement-market/">https://www.verifiedmarketresearch.com/product/berberine-supplement-market/</a> ; <a href="https://advancedlabsinc.com/berberine-market-to-grow-128-but-we-tested-brands-with-0-potency/">https://advancedlabsinc.com/berberine-market-to-grow-128-but-we-tested-brands-with-0-potency/</a> ; <a href="https://market.us/report/berberine-supplements-market/">https://market.us/report/berberine-supplements-market/</a> ; <a href="https://www.factmr.com/report/berberine-supplement-market">https://www.factmr.com/report/berberine-supplement-market</a> |

Declaration of Stephen A. Holzen

| <b>Exhibit</b> | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2133           | <a href="https://www.spins.com/about">https://www.spins.com/about</a> ; <a href="https://www.spins.com/wp-content/uploads/2023/08/2023-Mid-Year-Trends-VMS_Powering-Up-Mid-Year-VMS-Trends-Report.pdf">https://www.spins.com/wp-content/uploads/2023/08/2023-Mid-Year-Trends-VMS_Powering-Up-Mid-Year-VMS-Trends-Report.pdf</a> ; <a href="https://www.spins.com/wp-content/uploads/2024/01/SPINS-2024-Trends-Predictions.pdf">https://www.spins.com/wp-content/uploads/2024/01/SPINS-2024-Trends-Predictions.pdf</a> ; <a href="https://www.supplysidesj.com/supplements/new-data-confirms-how-tiktok-sprayed-gasoline-on-the-flame-of-berberine-sales">https://www.supplysidesj.com/supplements/new-data-confirms-how-tiktok-sprayed-gasoline-on-the-flame-of-berberine-sales</a> ; <a href="https://agfundernews.com/from-glp-1-companion-foods-to-natures-ozempic-what-the-new-breed-of-weight-loss-drugs-means-for-the-food-industry">https://agfundernews.com/from-glp-1-companion-foods-to-natures-ozempic-what-the-new-breed-of-weight-loss-drugs-means-for-the-food-industry</a> |
| 2134           | <a href="https://www.cbinsights.com/company/nnb-nutrition">https://www.cbinsights.com/company/nnb-nutrition</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 2135           | <a href="https://www.vcbeathealth.com/entity/218476">https://www.vcbeathealth.com/entity/218476</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 2136           | NNB000008 – 14; NNB000119 – 126; NNB000127 – 130; NNB000131 – 142                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 2137           | <a href="https://www.ccof.org/directory-member/natures-fusions-llc">https://www.ccof.org/directory-member/natures-fusions-llc</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 2138 HC-AEO    | Gross Profit for GlucoVantage HC-AEO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 2139           | <a href="https://www.exchange-rates.org/exchange-rate-history/cny-usd-2019">https://www.exchange-rates.org/exchange-rate-history/cny-usd-2019</a> ; <a href="https://www.exchange-rates.org/exchange-rate-history/cny-usd-2020">https://www.exchange-rates.org/exchange-rate-history/cny-usd-2020</a> ; <a href="https://www.exchange-rates.org/exchange-rate-history/cny-usd-2021">https://www.exchange-rates.org/exchange-rate-history/cny-usd-2021</a> ; <a href="https://www.exchange-rates.org/exchange-rate-history/cny-usd-2022">https://www.exchange-rates.org/exchange-rate-history/cny-usd-2022</a> ; <a href="https://www.exchange-rates.org/exchange-rate-history/cny-usd-2023">https://www.exchange-rates.org/exchange-rate-history/cny-usd-2023</a> ; <a href="https://www.exchange-rates.org/exchange-rate-history/cny-usd-2024">https://www.exchange-rates.org/exchange-rate-history/cny-usd-2024</a> ; <a href="https://www.exchange-rates.org/exchange-rate-history/cny-usd-2025">https://www.exchange-rates.org/exchange-rate-history/cny-usd-2025</a>                 |

Declaration of Stephen A. Holzen

| <b>Exhibit</b> | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2140 HC-AEO    | BON01141_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY-<br>BON01143_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY;<br>BON01147_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY;<br>BON01151_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY-<br>BON01152_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY;<br>BON01159_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY;<br>BON01163_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY;<br>BON01167_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY-<br>BON01169_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY;<br>BON01171_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY-<br>BON01182_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY;<br>BON01191_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY;<br>BON01193_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY;<br>BON01195_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY;<br>BON01197_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY-<br>BON01199_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY |
| 2141           | <a href="https://www.uspto.gov/web/offices/pac/mpep/s2141.html">https://www.uspto.gov/web/offices/pac/mpep/s2141.html</a> ;<br><a href="https://www.uspto.gov/web/offices/pac/mpep/s2143.html">https://www.uspto.gov/web/offices/pac/mpep/s2143.html</a> ;<br><a href="https://www.uspto.gov/web/offices/pac/mpep/s716.html">https://www.uspto.gov/web/offices/pac/mpep/s716.html</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 2142           | <a href="https://blog.priceplow.com/supplement-research/dihydroberberine">https://blog.priceplow.com/supplement-research/dihydroberberine</a> ;<br><a href="https://blog.priceplow.com/supplement-research/dihydroberberine/glp1-weight-loss">https://blog.priceplow.com/supplement-research/dihydroberberine/glp1-weight-loss</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2143 HC-AEO    | GlucoVantage SALES DATES-Till 2026.3.31 HC-AEO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 2144 HC-AEO    | NNB Consolidated Income Statement 2019-2025.07 HC-ATTYS EYES ONLY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

Declaration of Stephen A. Holzen

| <b>Exhibit</b> | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2145           | <a href="https://www.iherb.com/pr/best-naturals-berberine-500-mg-120-capsules/125080">https://www.iherb.com/pr/best-naturals-berberine-500-mg-120-capsules/125080</a> ; <a href="https://www.iherb.com/pr/natural-factors-wellbetx-berberine-120-vegetarian-capsules-500-mg-per-capsule/85657">https://www.iherb.com/pr/natural-factors-wellbetx-berberine-120-vegetarian-capsules-500-mg-per-capsule/85657</a> ; <a href="https://www.iherb.com/pr/nutricost-dihydroberberine-100-mg-60-capsules/143018">https://www.iherb.com/pr/nutricost-dihydroberberine-100-mg-60-capsules/143018</a> ; <a href="https://www.iherb.com/pr/nutri-dihydro-berberine-60-vegan-capsules/144385">https://www.iherb.com/pr/nutri-dihydro-berberine-60-vegan-capsules/144385</a> ; <a href="https://www.iherb.com/pr/source-naturals-berberine-500-mg-120-vegetarian-capsules/144255">https://www.iherb.com/pr/source-naturals-berberine-500-mg-120-vegetarian-capsules/144255</a> ; <a href="https://www.iherb.com/pr/toniiq-dihydro-berberine-1000-60-capsules/155891">https://www.iherb.com/pr/toniiq-dihydro-berberine-1000-60-capsules/155891</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 2146           | <a href="https://doublewoodsupplements.com/products/dihydroberberine">https://doublewoodsupplements.com/products/dihydroberberine</a> ; <a href="https://www.dpsnutrition.net/i/36407/double-wood-supplements-dihydroberberine-100-mg-6.htm">https://www.dpsnutrition.net/i/36407/double-wood-supplements-dihydroberberine-100-mg-6.htm</a> ; <a href="https://www.vitacost.com/products/best-naturals-berberine-500-mg-120-capsules-125080">https://www.vitacost.com/products/best-naturals-berberine-500-mg-120-capsules-125080</a> ; <a href="https://www.vitacost.com/products/nutri-dihydro-berberine-60-vegan-capsules-144385">https://www.vitacost.com/products/nutri-dihydro-berberine-60-vegan-capsules-144385</a> ; <a href="https://nutriflair.com/products/dihydroberberine-250mg-60-capsules">https://nutriflair.com/products/dihydroberberine-250mg-60-capsules</a> ; <a href="https://www.vitaminshoppe.com/p/ultra-berberine-60-capsules/hfm-14610">https://www.vitaminshoppe.com/p/ultra-berberine-60-capsules/hfm-14610</a> ; <a href="https://www.naturecity.com/products/true-berberine">https://www.naturecity.com/products/true-berberine</a> ; <a href="https://www.xymogen.com/product/berberine-es-5-60-capsules">https://www.xymogen.com/product/berberine-es-5-60-capsules</a> ; <a href="https://business.walmart.com/ip/Best-Naturals-Berberine-500mg-120-Capsules-Supports-Immune-Function-Cardiovascular-Gastrointestinal-Function/253667316">https://business.walmart.com/ip/Best-Naturals-Berberine-500mg-120-Capsules-Supports-Immune-Function-Cardiovascular-Gastrointestinal-Function/253667316</a> ; <a href="https://www.zotazo.com/us/reviews/natures-pure-berberine-hcl-capsules">https://www.zotazo.com/us/reviews/natures-pure-berberine-hcl-capsules</a> |
| 2147           | Complaint for Patent Infringement, Case No. 5:25-cv-00271, January 31, 2025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 2148           | REDACTED Exh. 2126 - Deposition of Matthew Peterson, February 26, 2026; Exhibits 7, 11, 15, 16, 18, and 19 - HC-AEO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

Declaration of Stephen A. Holzen

| <b>Exhibit</b> | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2149           | REDACTED Exh. 2138 - Gross Profit for GlucoVantage HC-AEO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 2150           | REDACTED Exh. 2140 - BON01141_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY-BON01143_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY; BON01147_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY; BON01151_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY-BON01152_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY; BON01159_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY; BON01163_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY; BON01167_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY-BON01169_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY; BON01171_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY-BON01182_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY; BON01191_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY; BON01193_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY; BON01195_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY; BON01197_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY-BON01199_HIGHLY CONFIDENTIAL ATTORNEYS EYES ONLY |
| 2151           | REDACTED Exh. 2143 - GlucoVantage SALES DATES-Till 2026.3.31 HC-AEO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 2152           | REDACTED Exh. 2144 - NNB Consolidated Income Statement 2019-2025.07 HC-ATTYS EYES ONLY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 2153           | Curriculum Vitae of Stephen Holzen                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |