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## A Taste of the Current Protection Offered by Intellectual Property Law to Molecular Gastronomy

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A TASTE OF THE CURRENT PROTECTION OFFERED BY INTELLECTUAL PROPERTY  
LAW TO MOLECULAR GASTRONOMY

BY MARY GRACE HYLAND<sup>1</sup>

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## I. INTRODUCTION: 1 CUP SCIENCE, A HALF CUP FOOD

The food world has witnessed the emergence of a new style of cooking, a mixture of science, art, technology, and of course, food. With the use of carbon dioxide, liquid nitrogen, hydrocolloids, enzymes, and other curious substances, chefs are transforming the look, feel, and taste of food.<sup>2</sup> People use many terms to describe this type of cooking; some favored by chefs, others distasteful, but for the purposes of this article, I will refer to the practice as “molecular gastronomy.”<sup>3</sup> “Molecular gastronomy experiments have resulted in new innovative dishes like hot gelatins, airs, faux caviar, spherical ravioli, crab ice cream and olive oil spiral,” to just name a few.<sup>4</sup> To understand better why the molecular gastronomy world should be afforded intellectual property protection to, it is important to ground oneself in the history and foundation of the practice.

A. *The History of Molecular Gastronomy*

In 1988, Hervé This, a French chemist coined the term “molecular gastronomy.”<sup>5</sup> In 1992, the term would become the title for a set of workshops held in Italy (originally titled “Science and Gastronomy”) that brought together scientists and professional cooks for discussions about the science behind traditional cooking preparations.<sup>6</sup> Most people who attended the workshops were scientists, not cooks.<sup>7</sup> The high attendance of scientists made sense. Hervé This himself stated, “I defined molecular *cooking* as a culinary trend using ‘new’ tools, ingredients, and methods. Molecular *gastronomy* is science and science only.”<sup>8</sup> In an article written by the chemist, This declared:

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<sup>2</sup> *Molecular Gastronomy*, WIKIPEDIA, THE FREE ENCYCLOPEDIA, [https://en.wikipedia.org/wiki/Molecular\\_gastronomy](https://en.wikipedia.org/wiki/Molecular_gastronomy) (last visited Nov. 11, 2016).

<sup>3</sup> Although the term “molecular gastronomy” is not clearly defined, it generally refers to the application of scientific processes to change the texture and appearance of food. See Emily Cunningham, *Protecting Cuisine Under the Rubric of Intellectual Property Law: Should the Law Play a Bigger Role in the Kitchen?*, 9 J. High Tech. L. 25 (2009); D.T. Max, *A Man of Taste*, New Yorker, May 12, 2008 [http://www.newyorker.com/reporting/2008/05/12/080512fa\\_fact\\_max](http://www.newyorker.com/reporting/2008/05/12/080512fa_fact_max) (“[M]olecular gastronomy . . . aims to take familiar foods and, using scientific techniques, give them new tastes and textures. Molecular gastronomists talk of ‘manipulating’ ingredients rather than ‘cooking’ them.”).

<sup>4</sup> *What is Molecular Gastronomy?*, MOLECULARRECIPES.COM, <http://www.molecularrecipes.com/molecular-gastronomy/> (last visited May 2, 2017).

<sup>5</sup> Gianfranco Chiarini, *Origin and Concepts of Molecular Cuisine*, WORLD GOURMET SOCIETY (May 24, 2013), <http://www.world-gourmet-society.com/en/blog/culinary-guru-corner/44-origin-and-concepts-of-molecular-cuisine>.

<sup>6</sup> Harold McGee, *Modern Cooking, Science, and the Erice Workshops on Molecular and Physical Gastronomy*, CURIOUS COOK: EXPLORING THE SCIENCE OF FOOD (May 2008), <http://www.curiouscook.com/site/erice.html>.

<sup>7</sup> *Id.* (Out of the people who attended, about 1 out of 5 were cooks, the majority were scientists.)

<sup>8</sup> Chiarini, *supra* note 5 (emphasis added).

By 2010 the term Molecular Gastronomy had wrongly become identified with a culinary trend that had been spreading among chefs worldwide for some 20 years. As a result, the designation of the scientific discipline that was created in 1988 by myself and Nicholas Kurti often became associated with the cooking trend rather than with the scientific application behind the techniques used to fashion unique culinary creations.<sup>9</sup>

This' policing of the general public's understanding of the practice was purposeful. The practice of molecular gastronomy employs the use of materials such as liquid nitrogen, alginates, vapor, air, powders, other senses, methylcellulose, and transglutaminase. This wanted to ensure that the public recognized and respected that the methods and materials used in molecular gastronomy were those more closely linked to a laboratory, not a kitchen. An explanation of the scientific makeup and its culinary application is included to underscore this point.

### *1. Liquid Nitrogen*

The particularly extreme temperatures (-350.5°F) and fast freezing are what sets molecular gastronomy apart.<sup>10</sup> Liquid nitrogen is most often used to make especially creamy ice cream but it is also possible to freeze alcohol, berries, citrus, herbs, and honey—the substance of which makes these ingredients so cold and brittle that they can be broken into tiny pieces, or even crushed into a powder.<sup>11</sup>

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<sup>9</sup> Hervé This, *Molecular Gastronomy: The Science Behind the Cuisine: Year in Review 2010*, ENCYCLOPEDIA BRITANNICA (Aug. 31, 2010), <https://www.britannica.com/topic/Molecular-Gastronomy-The-Science-Behind-the-Cuisine-1707433>.

<sup>10</sup> Chiarini, *supra* note 5.

<sup>11</sup> Brady Klopfer, *Liquid Nitrogen, the Trendiest Element in Modern Cooking*, WONDERHOWTO, (July 29, 2015), <http://food-hacks.wonderhowto.com/news/weird-ingredient-wednesday-liquid-nitrogen-trendiest-element-modern-cooking-0163252/>.

## 2. Alginates

Sodium alginate is “a natural polysaccharide product extracted from brown seaweed that grows in cold water regions; [i]t is soluble in cold and hot water with strong agitation and can thicken and bind.”<sup>12</sup> Sodium alginate can create fruit juice “caviar,” ravioli without pasta, and much more.<sup>13</sup> The most popular use of sodium alginate, however, is the creation of spheres using the “spherification”<sup>14</sup> technique developed by Chef Ferran Adria at El Bulli restaurant.<sup>15</sup> “The resulting spheres have a thin membrane of gel and are filled with liquid.”<sup>16</sup>

## 3. Vapor

The purpose of vapor is to, “bathe the diners in scents that cause a deepening of the flavors of food.”<sup>17</sup> In 1997, El Bulli’s chef created such a dessert: “[c]hocolate sponge with mint ice cream and orange –blossom flavored liquorice.”<sup>18</sup> The dish has been described as, “presented covered by a cloche, which just before serving had been warmed and sprayed with orange blossom water so that, when the waiter removed it at the table, the aroma was released and intensified the experience of the dessert.”<sup>19</sup> In other establishments, bags filled with food scents are stuck with holes and weighted so there is a constant release of odor during the meal.<sup>20</sup> Vaporization gently releases delicate scents and aromas without imparting bitter or unpleasant flavors.<sup>21</sup> “[T]he vaporizable ingredients are released in a gentle way by hot air heated at the exact temperature the essential oils become volatile, thus preserving aromas of the original ingredient without the toxic combustion substances.”<sup>22</sup>

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<sup>12</sup> *Sodium Alginate*, MOLECULARRECIPES.COM, <http://www.molecularrecipes.com/hydrocolloid-guide/sodium-alginate-alginate-algin/> (last visited Apr. 26, 2017).

<sup>13</sup> *Id.*

<sup>14</sup> *Id.*

<sup>15</sup> *Spherification 101*, STAR CHEFS STUDIO: A KITCHEN WITHOUT BOUNDARIES, (Nov. 2007), <http://www.star chefs.com/events/studio/techniques/JAndres/>.

<sup>16</sup> *Sodium Alginate*, *supra* note 12.

<sup>17</sup> Chiarini, *supra* note 5.

<sup>18</sup> EL BULLI CREATIVE DESIGN METHODS, PRODUCT DESIGNS, 30 <http://product.design.umn.edu/courses/pdes3715/documents/elbulli-1.pdf>.

<sup>19</sup> *Id.*

<sup>20</sup> Jaime Frater, *The Ultimate Book of Top Ten Lists: A Mind-Boggling Collection of Fun, Fascinating and Bizarre Facts on Movies, Music, Sports, Crime, Celebrities, History, Trivia and More*, LISTVERSE.COM (Dec. 15, 2008), <http://listverse.com/2008/12/15/top-10-unusual-cooking-concepts/>.

<sup>21</sup> *Vaporization: Flavoring Food with Pure Aromatic Vapor*, MOLECULARRECIPES.COM (Feb. 7, 2012), <http://www.molecularrecipes.com/molecular-gastronomy/vaporization-flavoring-food-pure-aromatic-vapor/>.

<sup>22</sup> *Id.*

#### 4. Air

In the finest modern restaurants, chefs are replacing gravy and sauces with airs and foams.<sup>23</sup> Using lecithin as a stabilizer, liquids can be frothed to a point where the result resembles a cloud like product.<sup>24</sup> “Lemon air” is a component used on oysters on the half shell—said to add or give value to both the presentation and taste side to the dish.<sup>25</sup>

#### 5. Powders

Using a variety of chemical interventions, flavors can be dried into a concentrated matter that is served as dust alongside your food.<sup>26</sup> In some restaurants, flavored dust is as an entire course on their own.<sup>27</sup> World Gourmet Society notes, “The main method for preparing powders is to mix an oil-based liquid with Maltodextrin. This is then processed in a food processor until you get a powder of the consistency you prefer.”<sup>28</sup>

#### 6. Other senses

The practice of molecular gastronomy experiments with sight, hearing, touch, smell, and taste.<sup>29</sup> When eating in a pitch-black environment, diners have a much greater appreciation of individual flavors in food because they are not distracted by the built-in perceptions of food that come from appearance.<sup>30</sup> Other restaurants use sound to enhance flavor.<sup>31</sup> Scientists have shown that when a person eats a carrot with the crunch amplified via a microphone and headphones, the consumer believes it to be much fresher and cleaner tasting than a carrot without the audio equipment.<sup>32</sup> Heston Blumenthal’s Fat Duck was Britain’s first restaurant with its own laboratory, complete with “multi-sensory tasting room” to analyze the effects of sound and vision on our taste buds.<sup>33</sup>

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<sup>23</sup> Chiarini, *supra* note 5.

<sup>24</sup> *Id.*

<sup>25</sup> *Lemon Air*, MOLECULAR GASTRONOMY NETWORK, <http://www.moleculargastronomynetwork.com/268-recipes/Lemon-air.html> (last visited Apr. 26, 2017).

<sup>26</sup> Chiarini, *supra* note 5.

<sup>27</sup> *Id.*

<sup>28</sup> *Id.*

<sup>29</sup> EL BULLI CREATIVE DESIGN METHODS, *supra* note 18.

<sup>30</sup> Chiarini, *supra* note 5.

<sup>31</sup> *Id.*

<sup>32</sup> Frater, *supra* note 20.

<sup>33</sup> *Snail Porridge? It’s a matter of taste*, INDEPENDENT (Nov. 12, 2004), <http://www.independent.co.uk/life-style/food-and-drink/news/snail-porridge-its-a-matter-of-taste-533040.html>.

### 7. *Methylcellulose*

Methylcellulose is a compound that turns to a firm gel when it is heated.<sup>34</sup> Molecular gastronomes use it to make hot ice cream, which Jaime Frater described as, “mixing a standard ice cream based with methyl cellulose and submerging a scoop filled with the liquid into a pot of hot water. The hot water causes the ice cream to go hard.”<sup>35</sup>

### 8. *Transglutaminase*

Transglutaminase is described as “meat glue,” a product which is used to break down the cells of meat and [to] turn it into a consistency that can be piped or shaped. Transglutaminase is an enzyme that can be used to bind proteins to make uniform portions of fish filet, tenderloins, etc, that cook evenly. It can also be used to bind chicken skin to scallops, create shrimp noodles and make checkerboards with different types of fish.<sup>36</sup>

Food experts, writers, critics, and plain-old “foodies” rave over the unique combinations and unexpected flavor outcomes of molecular gastronomic creations. Currently, it is thought of as “highbrow” eating, reserved for adventurous eaters with sophisticated palates. However, just as fine art and high fashion all blend into the mainstream, molecular gastronomy likely will as well. For those chefs who put time and effort into creating these unique inventions, it seems reasonable for them to have some legal protection over their creation and its use. The foundation of molecular gastronomy is firmly rooted in science because it looks for the “mechanism of phenomena occurring during dish preparation and consumption.”<sup>37</sup> The above description of the interventions used to produce inventive products illustrates the roots and present functioning of the practice. True molecular gastronomic chefs continue to use scientific interventions to create unique foods and are scientists, not food producers. By aligning molecular gastronomic chefs with a scientific discipline, their products are better able to receive intellectual property protection—just like innovations in other scientific disciplines and technologies.

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<sup>34</sup> Frater, *supra* note 20.

<sup>35</sup> *Id.*

<sup>36</sup> *Transglutaminase (meat glue)*, MOLECULARRECIPES.COM, <http://www.molecularrecipes.com/hydrocolloid-guide/transglutaminase-meat-glue/> (last visited Apr. 26, 2017).

<sup>37</sup> Hervé This, *Molecular Gastronomy is a Scientific Discipline, and Note by Note Cuisine is the Next Culinary Trend*, FLAVOUR JOURNAL (Jan. 1, 2013), <https://flavourjournal.biomedcentral.com/articles/10.1186/2044-7248-2-1>.

### B. The Era of Social Media

In the era of Instagram, Facebook, Snapchat and all other social media, sharing pictures of food online is an established trend.<sup>38</sup> Prior to tasting a dish, many restaurant goers will take a photo of the dish set in front of them and upload it to their personal page to share. Creative food techniques, artistic plating, and unique presentations make the social media watcher envious of the experience and drive interest from food bloggers and critics. However, with this growing popularity comes a growing concern among chefs that social media posting of their food infringes on their intellectual property rights.<sup>39</sup> Intellectual property, such as patents and trademarks, allow chefs to effectively use social media. For example, potential customers could search their patented dish on the web—higher traffic on a social media platform translates into more traffic to the restaurant, more customers, and more “brand” recognition.

An internet obsession in 2013, the Cronut pastry was launched on May 10, 2013 by chef Dominique Ansel.<sup>40</sup> After the launch, pastry fans spanned the world from Berlin to Singapore, making it the most virally talked about dessert item in history.<sup>41</sup> As of January 2017, the hashtag “#cronut” has 180,566 posts on Instagram alone.

This interest is good for the restaurant business, and chefs continually seek to create the next dish, which goes viral on the web. Across the globe, talented chefs are battling for recognition within the culinary field.<sup>42</sup> However, that far reaching exposure costs a price to their creative work—now any and all chefs can view the product, and attempt to copy it, if they so choose. Many chefs have sought to ban cameras in their restaurants altogether, claiming an infringement on their intellectual property by tipping off rivals about their food presentation.<sup>43</sup>

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<sup>38</sup> Louise Eccles, *Stop taking food snaps, plead chefs: French restaurant bans cameras after head cook complained about diners taking pictures of their meals*, DAILY MAIL.CO (Feb. 16, 2014), <http://www.dailymail.co.uk/news/article-2560940/Stop-taking-food-snaps-plead-chefs-French-restaurant-bans-cameras-head-cook-complained-diners-taking-pictures-meals.html>.

<sup>39</sup> Oliver Herzfeld, *Protecting Food Creations*, FORBES (Mar. 7, 2014), <http://www.forbes.com/sites/oliverherzfeld/2014/03/07/protecting-food-creations/#4190511a659c>.

<sup>40</sup> *Cronut*® 101, DOMINIQUE ANSEL BAKERY, <http://dominiqueansel.com/cronut-101/> (reading, in relevant part: “Taking 2 months and more than 10 recipes, Chef Dominique Anel’s creation is not to be mistaken as simply croissant dough that has been fried. Made with a laminated dough which has been likened to a croissant (but uses a proprietary recipe), the Cronut pastry is first proofed and then fried in grapeseed oil at a specific temperature. Once cooked, each Cronut pastry is flavored in three ways: 1. rolled in sugar; 2. filled with cream; and 3. topped with glaze. The entire process takes up to 3 days.”) (last visited Jan. 9, 2017).

<sup>41</sup> *Id.*

<sup>42</sup> See Richard J. Scholem, *Top Chefs You Never Heard Of*, N.Y. TIMES (Nov. 15, 1998), <http://www.nytimes.com/1998/11/15/nyregion/top-chefs-you-never-heard-of.html?src=pm&pagewanted=1> (explaining the popularity of talented chefs around the world).

<sup>43</sup> *Id.*

Protection via intellectual property laws is more important in today's world due to the rise in culinary creativity, the widespread use of social media, and the efforts chefs go to distinguish themselves. However, intellectual property protection should be reserved for those truly inventive food techniques. The unique combinations and appearances of molecular gastronomic dishes make them a prime subject for social media posting, which places the chef's creative work in a vulnerable arena—subject to copying. This article focuses on the use of non-traditional trademark protection as the most appropriate intellectual property protection for molecular gastronomy. An overview of patent protection for molecular gastronomy provides comparison value.

### *C. Intellectual Property Protection: Pros and Cons*

There is disagreement in the culinary world whether intellectual property protections positively or negatively impact the food industry. In general, the custom in the industry is that chefs treat their creations as Android treats its code: open source.<sup>44</sup> In 2006 when Australian chef, Robin Wickens demonstrated the custom when he gained popularity for the creative dishes he was plating.<sup>45</sup> Once pictures of these dishes made their way online, the blog eGullet recognized them as the creations of Grant Achatz, a Chicago chef who had mentored Wickens.<sup>46</sup> As one would expect, this caused an uproar in the online culinary community but no litigation stemmed from the incident.<sup>47</sup> Puzzling as it may appear, the existence of a set of social norms that regulate the exchange of information in the industry provide an explanation for the lack of litigation in.<sup>48</sup> According to Fauchart and von Hippel, the exchange of information in the culinary industry is regulated by three basic social norms. Based on when a chef receives recipe-related information from another chef, he: (1) must not copy the recipe exactly;<sup>49</sup> (2) must credit the author of the recipe if he is going to significantly rely on it in the development of a dish;<sup>50</sup> and (3) must not pass the recipe-related information to a third party without asking for permission of the author.<sup>51</sup>

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<sup>44</sup> Rick Licari, *Eat Your "Art" Out: Culinary Arts and IP Law*, CREATIVE ARTS ADVOCATE, <http://creativeartsadvocate.com/the-culinary-arts-and-the-cutting-edge-of-ip-law/> (last visited Jan. 6, 2017).

<sup>45</sup> *Id.*

<sup>46</sup> *Id.*

<sup>47</sup> *Id.*

<sup>48</sup> See Emmanuelle Fauchart & Eric von Hippel, *Norms-based Intellectual Property Systems: The Case of French Chefs*, 19(2) ORGANIZATION SCIENCE 187–201 (2008), <http://web.mit.edu/evhippel/www-old/papers/vonhippelfauchart2006.pdf>.

<sup>49</sup> *Id.* at 16.

<sup>50</sup> *Id.*

<sup>51</sup> *Id.* at 17.

Of course, the above example from 2016 broke these informal rules but despite the obvious copy, no litigation followed.<sup>52</sup> As creative arts advocate Rick Licari put it, “[t]he community severely frowns upon passing a dish off as your own, but the continually exploratory nature of cuisine and the constant improvement in the art enables chefs to take a dish, experiment with it, and create something new and exciting.”<sup>53</sup> With that said, additional consideration for intellectual property protection should be afforded to molecular gastronomy as its level of creativity, technology, and scientific techniques sets it apart from the culinary industry as a whole.

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<sup>52</sup> Licari, *supra* note 44.

<sup>53</sup> Eccles, *supra* note 38.

Molecular gastronomy has introduced new techniques to an otherwise relatively tradition bound industry, and chefs are now seeking intellectual property protection for their creations.<sup>54</sup> Chefs are moving toward seeking patent protection for their molecular based recipes, but to date, chefs have obtained utility patents only for culinary techniques, and not for any individual dishes.<sup>55</sup> Chef Homaro Cantu of Moto restaurant in Chicago has a large intellectual property portfolio<sup>56</sup> not due to the fear of individuals recreating his dishes but rather fear of corporations capitalizing on his gastronomic inventions and restaurant management methods without authorization.<sup>57</sup> Despite the scientific and technological innovation found within the practice of molecular gastronomy, the arena of intellectual property remains hesitant and skeptical of the food world as a whole. Eben Freeman, known in the cocktail world as the creator of smoked Coke, stated, “In no other creative business can you so easily identify money attached to your creative property...there is an implied commerce to our intellectual property. Yet we have less protection than anyone else.”<sup>58</sup> Author Carolyn Levy investigated the cause of the disparate treatment for food items and concluded that many believe that sight and hearing are “higher” senses, as compared to taste and smell, because they are “more physically distant from the perceiver.”<sup>59</sup> Many legal professionals have recognized this “dead space” in intellectual property and are advocating for members of the hospitality and food and beverage industries, especially restaurants, to seek legal protection for their creations.<sup>60</sup> This advice is meant to better align the molecular gastronomy world with protection that has been put into place for other food related products, methods, or designs.

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<sup>54</sup> See HERVÉ THIS, *MOLECULAR GASTRONOMY: EXPLORING THE SCIENCE OF FLAVOR* (Malcom B. DeBevoise trans., Columbia Univ. Press 2006).

<sup>55</sup> See System and Methods for Preparing Substitute Food Items, U.S. Patent No. 7,307,249 (filed Sep. 29, 2005) (application from chef Homaru Cantu describing the process for creating cotton-candy paper).

<sup>56</sup> *Homaro Cantu*, WIKIPEDIA, THE FREE ENCYCLOPEDIA, [https://en.wikipedia.org/wiki/Homaro\\_Cantu](https://en.wikipedia.org/wiki/Homaro_Cantu) (asserting Homaru Cantu has filed more than 100 patent applications) (last visited Jan. 9, 2016).

<sup>57</sup> Martha Neil, *Mixing IP with M M M M M M*, 6 ABA J. E-REPORT 3 (May 11, 2007).

<sup>58</sup> Chantal Martineau, *The Era of Copyrighted Cocktails?*, THE ATLANTIC (Aug. 31, 2010), <http://www.theatlantic.com/health/archive/2010/08/the-era-of-copyrighted-cocktails/62153/>.

<sup>59</sup> Carolyn Levy, *Culinary Production: Mastery of Skills in the Pursuit of Excellence and Art; Ardent Passion; and the Attachment to a History of Progress, Nobility, and Distinction*, 21 (June 5, 2007) (M.A. thesis, Simon Fraser University).

<sup>60</sup> See *A New Ingredient in the Kitchen: Intellectual Property*, F.K. LAW FIRM, [http://fklawfirm.com/2014/07/business\\_law/a-new-ingredient-in-the-kitchen-intellectual-property/](http://fklawfirm.com/2014/07/business_law/a-new-ingredient-in-the-kitchen-intellectual-property/) (last visited Jan. 8, 2017) (“Although ownership rights of food may seem trivial at first, disputes between owners of restaurants and the chefs preparing food can lead to a messy end for both parties. For this reason, restaurant owners can operate their businesses more efficiently by establishing ownership rights for their recipes, and by ensuring through employment contracts that distinctive, unique recipes cannot be replicated by a competitor.”).

## II. PATENT PROTECTION OF MOLECULAR GASTRONOMY

One of the hurdles a chef faces in filing a patent is correctly describing the food technique or recipe in a manner likely to receive patent protection.<sup>61</sup> The borrowing of scientific techniques has allowed chefs to create “better scientific description[s] of [their] invention” for the patent application process.<sup>62</sup> The use of molecular-based recipe or food techniques is more akin to a scientific invention in the eyes of a patent examiner and thus, more likely to be approved.<sup>63</sup> In 2011, the United States Patent Office approved close to 1,200 patents related to food or edible material.<sup>64</sup> If an individual patents her culinary invention and then hears that another chef is using the same technique without a license, the inventor may bring legal action against the infringer.<sup>65</sup>

### A. Legal Authority

The U.S. Constitution provides that Congress has the power “To promote the Progress of Science and useful Arts, by securing for limited Times to . . . Inventors the exclusive right to their respective . . . Discoveries.”<sup>66</sup> The United States Code sets out the basic statutory framework for patentability. Section 101 of the U.S. Patent Act sets forth the general requirements for patent protection in a single sentence: “Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.”<sup>67</sup> The law would classify food as a *composition of matter*.<sup>68</sup> Of course, the test for patentability is more complicated than meeting the requirements set forth in the sentence above. All valid patents must claim subject matter that (1) is novel; (2) has utility; and (3) is non-obvious.<sup>69</sup>

Molecular gastronomic dishes can more readily meet the novelty requirements because they are better able to describe the composition on a molecular level.<sup>70</sup> This method helps distinguish the creation from other food dishes.<sup>71</sup> If the chef can point to concrete molecular differences between dishes, it grants them a “significant advantage when arguing for patentability during patent prosecution.”<sup>72</sup>

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<sup>61</sup> See 35 U.S.C. § 101 (2012).

<sup>62</sup> Robert J. Lewis, *Protecting a Sensory Attribute of Food by Patent*, 18 No. 11 INTELL. PROP. & TECH. L.J. 17 (2006).

<sup>63</sup> *Id.*

<sup>64</sup> Leslie A. Gordon, *Patently Delicious: Meat Specialist Seeks to Patent a Certain Cut of Meat*, A.B.A. J.: OPENING STATEMENTS (Oct. 1, 2012, 9:10 AM), [http://www.abajournal.com/magazine/article/patently\\_delicious\\_meat\\_specialist\\_seeks\\_to\\_patent\\_a\\_certain\\_cut\\_of\\_meat](http://www.abajournal.com/magazine/article/patently_delicious_meat_specialist_seeks_to_patent_a_certain_cut_of_meat).

<sup>65</sup> See 35 U.S.C. § 271(e)(4) (2012).

<sup>66</sup> U.S. CONST. art. I, § 8, cl. 8.

<sup>67</sup> 35 U.S.C. § 101 (2012).

<sup>68</sup> Andrew Chadeayen, *Food Patents - Can I Patent a Food or Recipe?*, INVENTING PATENTS (Aug. 25, 2015), <http://inventingpatents.com/food-patents-can-i-patent-a-food/>.

<sup>69</sup> *Id.*

<sup>70</sup> *Id.*

<sup>71</sup> *Id.*

<sup>72</sup> *Id.*

To meet the utility requirement, molecular gastronomic dishes need to be useful. In other words, an inventor needs to be able to explain why their creation offers certain advantages over ordinary food. For example, Homaro Cantu's patent for a system and methods for preparing substitute food items discloses an edible paper having utility because it allows consumers who wish to ingest a food item, but do not have the requisite food components, time, means or skill to apply the necessary techniques to prepare the food item, to do so.<sup>73</sup>

To meet the non-obvious requirement, molecular gastronomic dishes need to meet the standard put forth by the Supreme Court in a 1966 case, *Graham v. John Deere*.<sup>74</sup> In short, "[t]he inventor must show that the food would not have been a trivial or routine advance beyond other previously disclosed foods."<sup>75</sup>

There is a high threshold of originality and creativity required to be eligible for patent protection. For example, in *Application of Levin*, the Court of Customs and Patent Appeals stated:

[N]ew recipes or formulas for cooking food which involve the addition or elimination of common ingredients, or for treating them in ways which differ from the former practice, do not amount to invention merely because it is not disclosed that, in the constantly developing art of preparing food, no one else ever did the particular thing upon which the applicant asserts his right to a patent. In all such cases, there is nothing patentable unless the applicant by a proper showing further establishes a coaction or cooperative relationship between the selected ingredients which produce a new, unexpected, and useful function.<sup>76</sup>

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<sup>73</sup> U.S. Patent No. 7,307,249 col. 1 l. 34–37 (filed Sep. 29, 2005).

<sup>74</sup> Andrew Chadeayen, *Graham Test for Obviousness*, INVENTING PATENTS (July 15, 2013), <http://inventingpatents.com/graham-test-for-obviousness/>.

<sup>75</sup> Andrew Chadeayne, *Patenting Foods and Recipes*, INVENTING PATENTS (Aug. 25, 2015), <http://inventingpatents.com/food-patents-can-i-patent-a-food/>.

<sup>76</sup> *Application of Levin*, 178 F.2d 945, 948 (C.C.P.A. 1949).

As such, meeting the patentability requirements poses a hurdle for molecular gastronomy. Currently, there are six different types of patents issued by the United States Patent and Trademark Office, with the three most common being utility patent, design patent, and plant patent.<sup>77</sup> Utility patents are the most relevant to molecular gastronomy as the process invents new ways to make food or entirely new food products. In short, some dishes should be considered an “invention.”<sup>78</sup> “Invention” may reside in a composition of matter “formed by the intermixture of two or more ingredients which” results in a product possessing characteristics of utility that are new, additional, and materially different from the property or “properties which the several ingredients individually do not possess in common.”<sup>79</sup>

Utility patents require a high standard of originality and, as such, food items rarely meet the requirements.<sup>80</sup> However, molecular gastronomy has been able to secure utility patents for their creations by showing that their technique and/or recipe is novel, has utility, and is non-obvious.<sup>81</sup>

### *B. Molecular Gastronomy Inventions that have Received Patent Protections*

As chef and molecular gastronomist Homaro Cantu or Wylie Dufresene’s food inventions prove, talented chefs are focusing their practice on utilizing science in their kitchens to attain a new level of “wow.”<sup>82</sup> With patent protection, the creations have been considered “inventions”<sup>83</sup> with the results being “materially different”<sup>84</sup> from the properties that were used to create the product.

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<sup>77</sup> *Three Types of Patents Issued in the United States*, JACKSON WHITE: ATTORNEYS AT LAW, <http://www.jacksonwhitelaw.com/ip/three-types-of-patents-issued-united-states/> (last visited Apr. 24, 2017).

<sup>78</sup> See Application of Levin, 178 F.2d at 948.

<sup>79</sup> P.E. Sharpless Co. v. Crawford Farms, Inc. 287 F. 655, 658 (2d Cir. 1923).

<sup>80</sup> See generally General Mills, Inc. V. Pillsbury Co., 378 F. 2d 666 (8th Cir. 1967).

<sup>81</sup> See, e.g., U.S. Patent No. 9,320,297 (filed Mar. 13, 2013) (concerning a spherification/reverse spherification automated and integrated system and method).

<sup>82</sup> Heather Shouse, *Tables Turned*, CHI. TIMES, March 21, 2004, <http://www.chicagotribune.com/mmx-040321-moto-story.html>.

<sup>83</sup> See JOHN GLADSTONE MILLS III, DONALD C. REILEY III & ROBERT C. HIGHLEY, PATENT LAW FUNDAMENTALS, § 1:24 (2d ed. 2008).

<sup>84</sup> See Edwin L. Harding, *Food Patents in the Courts*, 12 FOOD DRUG COSM. L. J. 271, 288 (1957).

Known as the “real life Willy Wonka,”<sup>85</sup> Homaro Cantu invented food products such as edible, flavored paper<sup>86</sup> (which he printed his daily menu on) and flavor altering utensils.<sup>87</sup> Located on that edible menu is a legal notice printed beneath the cotton candy image that reads, “*Confidential Property of and © H. Cantu. Patent Pending. No further use or disclosure is permitted without prior approval of H. Cantu.*”<sup>88</sup> In addition to this public statement of ownership, there is a multipage nondisclosure agreement that visitors must sign before they enter the kitchen at Moto restaurant in Chicago.<sup>89</sup> Cantu’s edible paper is comprised of a soybean and cornstarch mix, which he has created to withstand text imprinting of images and flavors, using organic, food-based inks of his own concoction.<sup>90</sup> In addition to the copyright he has on the paper, Cantu has filed a patent application on the process he uses to create the paper.<sup>91</sup> Cantu is experimenting with liquid nitrogen, helium superconductors, and a handheld ion-particle gun to make foods levitate.<sup>92</sup> Multiple food companies and NASA’s Institute for Advanced Concepts have approached Cantu because they are interested in his patents and have requested to collaborate with him, often giving him more credit because of his formal process of filing patent applications for his inventions.<sup>93</sup> In addition, Cantu himself contacted the American Red Cross about using the edible paper as a lightweight form of famine relief.<sup>94</sup> Sadly, Cantu passed away in 2015,<sup>95</sup> ending his quest to tap into new revenue streams for his inventions.

El Bulli was formerly a three-star Michelin restaurant in Spain and once deemed the best restaurant in the world by critics.<sup>96</sup>

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<sup>85</sup> *Rising Stars: Homaro Cantu*, STARCHefs.COM, [http://www.starchefs.com/chefs/rising\\_stars/2005/chicago/html/bio\\_h\\_cantu.shtml](http://www.starchefs.com/chefs/rising_stars/2005/chicago/html/bio_h_cantu.shtml) (last visited Apr. 24, 2017).

<sup>86</sup> *Id.*

<sup>87</sup> Elaine Glusac, *Can This Berry Solve Both Obesity and World Hunger?*, SMITHSONIAN.COM, (Dec. 4, 2014), <http://www.smithsonianmag.com/innovation/can-this-berry-solve-both-obesity-and-world-hunger-180953389/>.

<sup>88</sup> Pete Wells, *New Era of the Recipe Burglar*, FOOD & WINE (Nov. 2006), <http://www.foodandwine.com/articles/new-era-of-the-recipe-burglar>.

<sup>89</sup> *Id.*

<sup>90</sup> See David Berstein, *When the Sous Chef is an Inkjet*, N.Y. TIMES (Feb. 3, 2005), <http://www.nytimes.com/2005/02/03/technology/circuits/when-the-souschef-is-an-inkjet.html>.

<sup>91</sup> Wells, *supra* note 88.

<sup>92</sup> Berstein, *supra* note 90.

<sup>93</sup> Wells, *supra* note 88. (“In Cantu’s view, licensing his intellectual property is a more efficient way to tap new revenue streams than opening a casual Moto brasserie across the street. ‘That would take up all my time and I couldn’t think about food—I’d just be thinking about what color chairs we were going to have. I guarantee you that going this route can be as or more profitable than doing a restaurant empire.’”).

<sup>94</sup> *Id.*

<sup>95</sup> Noland Feeney, *Prominent Chicago Chef Homaro Cantu Dead at 38*, TIME, (Apr. 15, 2015), <http://time.com/3822476/homaro-cantu-died/>.

<sup>96</sup> Rob Zawrotny, *Fine Art and Fine Food: Two Peas in Different Pods?* 2011 <http://ipjournal.law.wfu.edu/2011/02/fine-art-and-fine-food-two-peas-in-different-pods/>.

[A] typical thirty-course meal might include: crystal of parmigiano, a glass-looking substance that is actually cheese; “spherical olives” that look like olives but are actually olive oil bound in thin membranes; or mimetic almonds, where the almonds variously have ice cream textures, gel textures, and regular almond textures.<sup>97</sup>

El Bulli was run by chef Ferran Adria, who has successfully secured multiple patents<sup>98</sup> and is still considered one of the best chefs in the world.<sup>99</sup>

An analysis of patented molecular gastronomy inventions is provided below.

### *1. Transparent Ravioli*

Created by Chef Ferran Adria, the disappearing transparent raviolis are made with round oblate, ultra-thin and transparent edible film discs made of potato starch and soy lecithin that instantly dissolves as they get in contact with water. The edible film discs do not dissolve when in contact with oil or liquid ingredients with low water content. Their neutral flavor makes them ideal for any type of savory or sweet preparation.<sup>100</sup>

Traditional ravioli is a dumpling composed of a filling sealed in between layers of thin pasta dough.<sup>101</sup> It is usually served in broth or sauce.<sup>102</sup> The expected ravioli is paired with red pasta sauce and the ravioli is filled with either meat or cheese.<sup>103</sup> Creative chefs can, and do, put their own spin on their ravioli: pumpkin ravioli, crab-filled with creamy white sauce, brown butter sage sauce over butternut squash ravioli—the list goes on and on. However, these combinations can be thought of as derivative work, not an invention, because they are “obvious to someone skilled in the art of cooking.”<sup>104</sup>

Conversely, to create his ravioli, Chef uses oblate, a Japanese edible film made of potato starch and soy lecithin, to hold three different filings: raw pine nut praline, roasted pine nut praline, and pine cone oil with roasted pine nut.<sup>105</sup> The chemical makeup of the product resulted in the ravioli “pasta” instantly melting in the mouth.<sup>106</sup> This constitutes a non-obvious process used to create ravioli, never before available to the public, composed of ingredients that are materially different from the properties used to create the ravioli.

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<sup>97</sup> *Id.*

<sup>98</sup> *Patents by Inventor Ferran Adria*, JUSTIA PATENTS, <http://patents.justia.com/inventor/ferran-adria> (last visited May 2, 2017).

<sup>99</sup> Brett Moore, *Biography of Chef Ferran Adria*, THE SPRUCE (Sep. 14, 2016), <https://www.thespruce.com/biography-of-chef-ferran-adria-1664996>.

<sup>100</sup> *Disappearing Transparent Ravioli*, MOLECULARRECIPES.COM (May 30, 2012), <http://www.molecularrecipes.com/techniques/disappearing-transparent-raviolis/>.

<sup>101</sup> *Ravioli*, WIKIPEDIA, <https://en.wikipedia.org/wiki/Ravioli> (last visited Apr. 25, 2017).

<sup>102</sup> *Id.*

<sup>103</sup> *Id.*

<sup>104</sup> Mark Levy, *Can I Patent a Food Recipe?*, INVENTORPRISE (2014), [http://store.inventorprise.com/content\\_articles.php?id=1049](http://store.inventorprise.com/content_articles.php?id=1049).

<sup>105</sup> *Disappearing Transparent Ravioli*, *supra* note 100.

<sup>106</sup> *Id.*

## 2. Olive Oil Caviar

Molecularrecipes.com described the olive oil caviar dish as:

The caviar membrane is thin and easily bursts in your mouth releasing the wonderful aromas of excellent Spanish olive oil which has not been modified with any additives. Caviaroli has great bright yellow color and clean transparency to add a magical touch to any dish. [...] This olive oil caviar is not made using the traditional method of basic spherification because the sodium alginate cannot be dissolved in oil. It is made using a new technique which surrounds olive oil drops with a thin layer of water with sodium alginate and the drops then go into a calcium bath (basic spherification). Olive oil does not gelatinize, but with this technology, Caviaroli is able to create a thin capsule of gelatin around the olive oil drop to form the olive oil caviar. With this patented method, the olive oil inside the sphere remains pure as it has never been altered by adding an alginate or any other ingredient.<sup>107</sup>

Traditional olive oil is a fat, used for cooking, which comes in liquid form.<sup>108</sup> Traditional caviar is a delicacy consisting of salt cured fish eggs “harvested from a large, white-fleshed fish known as the sturgeon.”<sup>109</sup> Put the two together, and you have oily fish eggs. But the ingredients are not what sets caviaroli apart. What makes it eligible for a patent is the method of production. Because of olive oil’s properties, Chef Ferran Adria created “a new technique which surrounds olive oil drops with a thin layer of water with sodium alginate” which protects the olive oil and encloses it in a way which allows the chef to present the oil in a never before seen form, non-obvious to the reasonably skilled cook.<sup>110</sup> The additive used in the spherification process is sodium alginate, which depends on the presence of ions to form the gel.<sup>111</sup> Chef Adria controls the moment when the alginate encounters the oil and thereby diversifies the liquid to be gelled, and the form obtained.<sup>112</sup>

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<sup>107</sup> *Caviaroli: Olive Oil Caviar by Ferran Adria*, MOLECULARRECIPES.COM (June 23, 2011), <http://www.molecularrecipes.com/spherification-1/caviaroli-olive-oil-caviar-ferran-adria/>.

<sup>108</sup> *Olive Oil*, WIKIPEDIA, [https://en.wikipedia.org/wiki/Olive\\_oil](https://en.wikipedia.org/wiki/Olive_oil) (last visited Apr. 25, 2017).

<sup>109</sup> Will Budianman, *What is Caviar?*, THE DAILY MEAL (July 25, 2012, 4:11 PM), <http://www.thedailymeal.com/what-is-caviar>.

<sup>110</sup> *Caviaroli: Olive Oil Caviar by Ferran Adria*, *supra* note 107.

<sup>111</sup> *Molecular Gastronomy*, <http://blogs.uoregon.edu/kkn254aad199/> (last visited Jan. 9, 2017).

<sup>112</sup> *Id.*; see also *Caviaroli: Olive Oil Caviar by Ferran Adria*, *supra* note 107.

### 3. *Saffron Tagliatelle*

Tagliatelle is made using the technique invented by Ferran Adria of producing a thin film of jellified liquid using Gellan and then cutting it into stripes using a pasta cutter.<sup>113</sup>

Traditional taglioni is made with egg pasta, with a ratio of one egg to one hundred grams of flour.<sup>114</sup> Here, Chef Adria uses gelification, the process of turning liquids into gelatinous forms with Agar-agar, carrageenan, gellan gum, methylcellulose, and pectin to create a product which he terms “tagliatelle.”<sup>115</sup> This process “involves a rearrangement of the molecules that align and attach themselves until they form a network that traps the liquid. The network looks like meshes of a net that keep all of the particulars in suspension, preventing their aggregation and the collapse of the structure.”<sup>116</sup>

A chef is no different from a scientist in a laboratory, using their education to create new products. Affording patent protection to unique and creative food techniques and recipes fulfills the purpose of patent rights: to promote the progress of science and the useful arts by securing for a limited time to inventors the exclusive right to their discoveries.<sup>117</sup> However, as mentioned above, to obtain a utility design the product must be an “invention.” Upholding this high standard will ensure that patent protection should be extended only to those inventions that truly employ a substantial mixture of both scientific material and techniques. However, as a practical matter, obtaining a patent is an expensive and time consuming process, a process which is not the most appropriate intellectual property protection avenue for molecular gastronomy—a low margin, quick innovation practice in the restaurant industry.

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<sup>113</sup> *Saffron Tagliatelle of Consomme Recipie*, MOLECULARRECIPIES.COM (Jan. 13, 2011), <http://www.molecularrecipes.com/gelification/saffron-tagliatelle-consomme-recipe/>.

<sup>114</sup> *Fresh Egg Pasta*, ORGANIC TUSCANY, <http://www.organicuscany.org/recipes/fresh-egg-pasta/> (last visited Jan. 8, 2017).

<sup>115</sup> *Saffron Tagliatelle of Consomme Recipie*, *supra* note 113.

<sup>116</sup> *Id.*

<sup>117</sup> U.S. CONST. art. I, §8, cl. 8.

### III. TRADEMARK LAW PROTECTION OF MOLECULAR GASTRONOMY

#### A. Trademark

Trademarks are any word, name, symbol, device, or combination thereof, which a producer uses to distinguish its goods from those of other manufacturers or sellers and to indicate the course of those goods.<sup>118</sup> Historically, trademarks have consisted of letters, numbers, pictures, or a combination of these fundamental features.<sup>119</sup> Trademark protects words or symbols used in commerce to identify specific goods or services.<sup>120</sup> While it is often described as a form of intellectual property protection, in actuality, trademark law stems from the common law doctrine focused on unfair competition.<sup>121</sup> Rather than focusing on incentives of creation, as we did above with patents, trademark is intended to protect consumers from deception, which promotes the sale of high quality products.<sup>122</sup> In the food world, it protects both consumers and producers. Consumers rely on trademarks when they purchase goods to ensure a particular quality of a good, and producers, who invest “energy, time, and money” in presenting their product, against the harms of “misappropriat[ion] by pirates and cheats” are protected.<sup>123</sup> With that said, courts have held that consumers generally do not perceive flavors as trademarks.<sup>124</sup>

To obtain protection for trademarks, the chef must show (1) that the mark is used in commerce; (2) that it is nonfunctional; (3) that it is distinctive, either inherently or through secondary meaning; and (4) that it is recognized by consumers as symbolic of, or associated with, a source of goods or services.<sup>125</sup>

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<sup>118</sup> 74 AM. JUR. 2D *Trademarks and Tradenames* § 1 (2d ed. 2007) (quoting *HBP, INC. v. Am. Marine Holdings, Inc.*, 290 F. Supp. 2d 1320 (M.D. Fla. 2003)). Words, names, symbols, combinations of words and designs, trade dress sounds, scents and colors can generally serve as trademarks. Sheldon H. Klein, *Understanding Trademark Law*, PRACTICING LAW INST. (2007).

<sup>119</sup> Daniel I. Schloss, *A New Reality: Special Problems in the Registration of Nontraditional Trademarks*, 5 No. 4 INTELL. PROP. STRATEGIST 1 (Jan. 1999).

<sup>120</sup> See *Two Pesos, Inc. v. Taco Cabana, Inc.*, 505 U.S. 763, 768 (1992).

<sup>121</sup> See *Trade-Mark Cases*, 100 U.S. 82 (1879).

<sup>122</sup> See *Qualitex Co. v. Jacobson Prods. Co.*, 514 U.S. 159, 164 (1995).

<sup>123</sup> S. Rep. No. 79-1333, at 3 (1946) as reprinted in 1946 U.S.C.C.A.N. 1274, 1274.

<sup>124</sup> In re *N.V. Organon*, 79 U.S.P.Q.2d 1639, 1648 (T.T.A.B. 2006); see also Amanda E. Compton, *Acquiring a Flavor for Trademarks: There's No Common Taste in the World*, 8 Nw. J. Tech. & Intell. Prop. 340, 350 (2010).

<sup>125</sup> See 15 U.S.C. § 1125 (2012).

In a recent case of first impression, the United States Trademark Trial and Appeal Board addressed the issue of a trademark flavor, holding that an orange flavor for an antidepressant pharmaceutical was not a protectable trademark because it was functional.<sup>126</sup> The Board found that the orange flavor was not a source identifier, and consumers were not predisposed to associate the taste of the medication with the brand or manufacturer.<sup>127</sup> Therefore, the mark was not entitled to registration under the Lanham Act.<sup>128</sup> Consequently, flavor and taste will likely have to acquire secondary meaning or acquire distinctiveness in order to gain legal protection.<sup>129</sup> The primary apprehension is that consumers will perceive the flavor as just another characteristic of the goods, and not as inherently distinctive.<sup>130</sup>

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<sup>126</sup> In re N.V. Organon, 79 U.S.P.Q.2d at 1648 (finding the orange flavor to be functional because it made the medication more palatable and appealing to those taking it).

<sup>127</sup> *Id.* at 1650–51.

<sup>128</sup> The Trademark Act of 1946, 15 U.S.C. §§ 1051–1072, 1091–1096, 1111–1129, 1141–1142, is popularly referred to as the Lanham Act. The Lanham Act governs the registration of trademarks, trade names, and other identifying marks used in interstate commerce, and it protects registered trademarks from interference or infringement.

<sup>129</sup> In re N.V. Organon, 79 U.S.P.Q.2d at 1639.

<sup>130</sup> *Id.*

### B. Trade Dress

Trade dress is a subset of trademark law: Trade dress protects the design, shape, color, packaging, and appearance of products, but only to the extent that they identify the source and origin of the owner's products.<sup>131</sup> Trade dress protects the overall look and feel of a product's packaging or design.<sup>132</sup> Under U.S. trademark law, a trade dress encompasses characteristics or the overall visual appearance of a product or its packaging that signifies the source of the product or service to consumers.<sup>133</sup> Classic examples of trade dress are the shape of a Coca Cola bottle<sup>134</sup> or Tiffany & Co.'s robin's-egg-blue jewelry boxes.<sup>135</sup> Courts have yet to rule whether they will protect the "look and feel" of individual restaurant dishes as protectable trade dress. However, recently, trade dress has been used to protect "nontraditional marks," such as sounds, scents, and product designs.<sup>136</sup> The expansion of protection to these nontraditional marks is due to a broad interpretation of the statutory definition of trademark as including: "any word, name, symbol, or device or any combination thereof used by any person "to identify and distinguish his or her goods, including a unique product, from those manufactured or sold by others and to indicate the source of the goods, even if that source is unknown."<sup>137</sup> This broad interpretation has resulted in restaurants beginning to claim trade dress in the plating of their signature dishes.<sup>138</sup>

<sup>131</sup> See Herzfeld, *supra* note 39.

<sup>132</sup> See Cent. Mut. Inc. Co. v. StunFence, Inc., 292 F. Supp. 2d 1072, 1077 (N.D. Ill. 2003).

<sup>133</sup> Robert P Mergers, Peter S. Mendell, Mark a. Lemley, *Intellectual Property in the New Technological Age* (4th rev. ed.) (p. 650). New York: Wolters Kluwer (2007); Two Pesos, Inc. v. Taco Cabana, Inc., 505 U.S. 763, 765 n. 1 (1992).

<sup>134</sup> Registration No. 1,057,884.

<sup>135</sup> Registration No. 2,359,351 ("The mark consists of a shade of blue often referred to as robin's-egg blue which is used on boxes. The matter shown in broken lines represents boxes of various sizes and serves to show positioning of the mark. No claim is made to shape of the boxes.").

<sup>136</sup> See generally Anne Gilson LaLonde & Jerome Gilson, *Getting Real with Nontraditional Trademarks: What's Next After Red Oven Knowns, the Sound of Burning Methamphetamine, and Goats on a Grass Roof?*, 101 Trademark Rep. 186, 212–210 (2011).

<sup>137</sup> 15 U.S.C. § 1127 (2006).

<sup>138</sup> A signature dish may be defined as

a recipe that identifies an individual chef. Ideally, it should be unique and allow an informed gastronome to name the chef in a blind tasting. It can be thought of as the culinary equivalent to an artist finding their own style, or an author finding their own voice . . . In a weaker sense, a signature dish may become associated with an individual restaurant, particularly if the chef who created it has since moved on or died.

*Signature Dish*, WIKIPEDIA, [https://en.wikipedia.org/wiki/Signature\\_dish](https://en.wikipedia.org/wiki/Signature_dish) (last visited Jan. 11, 2017).

Exactly how much protection the court would be willing to give to a signature dish is unknown, however, aspects of the appearance and presentation of the dish have been considered “distinctive” enough to be afforded protection through trademark law. Many nontraditional marks have succeeded making it onto the register, which gives hope to molecular gastronomic dishes to obtain protection.<sup>139</sup> Nontraditional trademark protection is the most appropriate for molecular gastronomy and these creative dishes should be afforded the protection, however, the requirements of distinctive and nonfunctional will be the most challenging for molecular gastronomic creations.

The Lanham Act codifies a producer’s right to protect its trade dress.<sup>140</sup> To obtain protection of trade dress, chefs must show (1) that the mark is used in commerce; (2) that it is nonfunctional; (3) that it is distinctive, either inherently or through secondary meaning; and (4) that it is recognized by consumers as symbolic of, or associated with, a source of goods or services.<sup>141</sup> To put it another way, “In the minds of the public, the primary significance of a [mark has to be] to identify the source of the product rather than the product itself” for trade dress protection to attach to a particular product design.”<sup>142</sup>

In *Mini’s Cupcakes, Inc. v. LuAnn’s Cupcakes, Inc.*, the plaintiff alleged trade dress infringement of its “Breakfast at Tiffany’s” cupcake (depicted in the first picture below) when the plaintiff saw that the defendant had been offering a seemingly identical cupcake, named the “Tiffany Jewels” (depicted in the second picture below).<sup>143</sup> As the case notes, the alleged trade dress “features vanilla cake, blue cream cheese frosting, and silver and white gems.”<sup>144</sup>

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<sup>139</sup> See LaLonde & Gilson, *supra* note 136 (describing many nontraditional marks that have been claimed in recent years).

<sup>140</sup> The Lanham Act provides

any person who, in connection with any goods or services [...] uses in commerce any word, term, name, symbol, or device, or any combination thereof, or any false designation of origin, false or misleading description of fact, or false or misleading representation of fact, which—(A) is likely to cause confusion, or to mistake, or to deceive as to the affiliation, connection, or association of such person with another person, or as to the origin, sponsorship, or approval of his or her goods, services, or commercial activities by another person [...] shall be liable in civil action by any person who believes that he or she is or is likely to be damaged by such act.

15 U.S.C. § 1125 (2012).

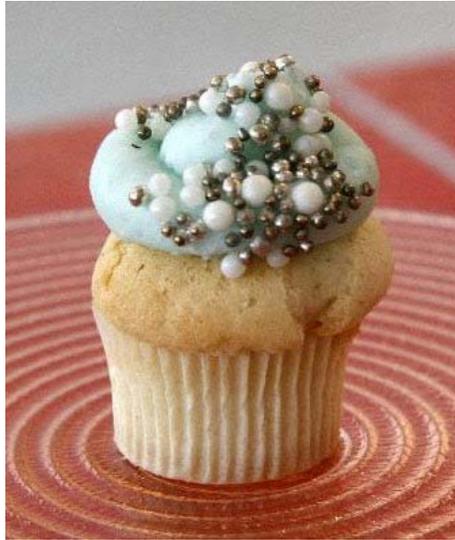
<sup>141</sup> See *id.*

<sup>142</sup> *Inwood Labs., Inc. v. Ives Labs., Inc.*, 456 U.S. 842, 851 n.11 (1982) quoted in *Wal-Mart*, 529 U.S. at 211, and *Two Pesos, Inc.*, 505 U.S. at 766, n.4.

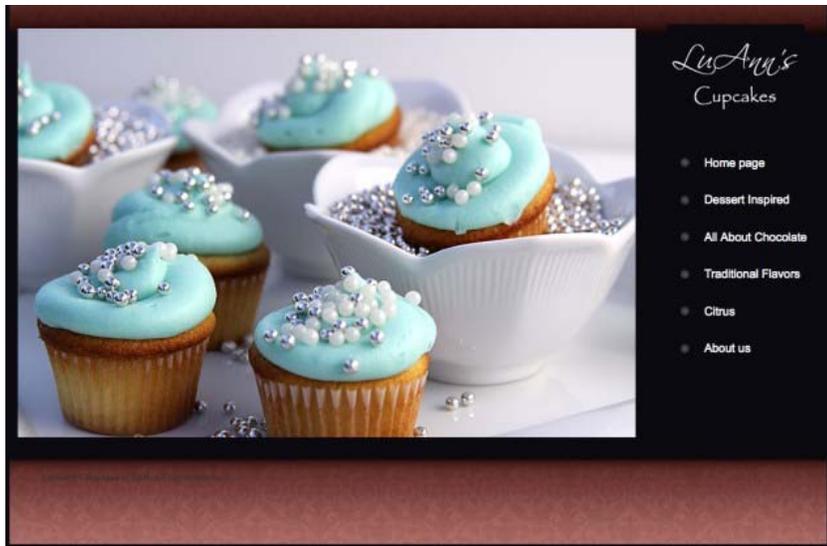
<sup>143</sup> No. 2:10-cv-57 (D. Utah May 15, 2010).

<sup>144</sup> See Amended Complaint, *Mini’s Cupcakes, Inc. v. LuAnn’s Cupcakes, Inc.*, No. 2:10-cv-57 (C.D. Utah May 15, 2010).

Mini's Cupcake's "Breakfast at Tiffany's" Cupcake<sup>145</sup>:



LuAnne's "Tiffany Jewels" Cupcake<sup>146</sup>:



<sup>145</sup> No. 2:10-cv-57 (D. Utah May 15, 2010).

<sup>146</sup> *Id.*

With no federal registration to back up any claim of distinctiveness for her cupcake design, the key issue Mini faced was whether consumers would recognize its particular design as distinctive trade dress or whether they would simply see it as ornamental.<sup>147</sup> This required Mini to show that the design had acquired a distinctiveness such that consumers would associate the particular cupcake design with Mini.<sup>148</sup> In other words, Mini had to prove confusion. Confusion exists where those observing the trade dress presume that the product or service it represents comes from or is associated with a different source that uses a similar dress.<sup>149</sup> Absent likelihood of consumer confusion, a claim of infringement will be unsuccessful.<sup>150</sup>

In *Nabisco, Inc. v. PF Brands, Inc.*, Pepperidge Farms was able to obtain trademark protection for the shape of its goldfish crackers.<sup>151</sup> Although the U.S. District Court for the Southern District of New York found no likelihood of confusion between Nabisco's use of a fish shaped cracker and Pepperidge Farm's GOLDFISH trademark, it upheld an injunction based on Pepperidge Farms' dilution claim.<sup>152</sup> In doing so, Pepperidge Farms was able to prevent Nabisco from selling similarly shaped crackers.<sup>153</sup> The U.S. Court of Appeals for the Second Circuit affirmed the District Court's decision and found that the shape of Pepperidge Farms' product was "reasonably distinctive" because (1) there was massive marketing for the product, (2) Pepperidge Farms had acquired two trademark registrations for a word mark and a design, (3) a fish shape has no logical relationship to a cheese cracker, and (4) there were no other similar types of crackers.<sup>154</sup>

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<sup>147</sup> Ryan Gile, *Utah Cupcake Maker Sues Competitor for Trade Dress Infringement*, LAS VEGAS TRADEMARK ATTORNEY, <http://www.vegastrademarkattorney.com/2010/05/blog-post.html> (last visited Jan. 8, 2017).

<sup>148</sup> *Id.*

<sup>149</sup> 74 Am. Jur. 2d *Trademarks and Tradenames* § 85 (2d ed. 2007). Factors that are relevant to the analysis of consumer confusion are the degree of similarity between the two marks or dress, the intent of the alleged infringer in adopting the mark or dress, evidence of actual confusion, and the functionality or commonplaceness of the mark or dress.

<sup>150</sup> See *Fuddrucker's, Inc. v. Doc's B.R. Others, Inc.*, 826 F.2d 837, 845 (9th Cir. 1987).

<sup>151</sup> *Nabisco, Inc. v. PF Brands, Inc.*, 191 F. 3d 208 (2d. Cir. 1999), *overruled in part on other grounds* by *Moseley v. V Secret Catalogue, Inc.*, 537 U.S. 418 (2003).

<sup>152</sup> *Id.* at 214.

<sup>153</sup> *Id.*

<sup>154</sup> *Id.* at 217–18.

Applying the Court of Appeals decision to molecular gastronomic dishes, this case indicates that chefs seeking to obtain intellectual property protection for a signature dish should attempt to register the food item in the form of a design mark and promote the dish, along with its food shape, sufficiently to create secondary meaning.<sup>155</sup> However, as with any trademark, it is essential that the chef's chef is uniquely shaped, molecular-based dish performs the function of identifying, distinguishing, and indicating the source of the goods or services; guaranteeing their quality; or possessing inherent advertising appeal that serves to create a market for the dish.<sup>156</sup> Applying this reasoning to molecular gastronomic dishes, it is easy to see how chefs would be able to protect their signature dishes under trade dress. The use of molecular gastronomic methods to produce a dish inherently changes the form and shape of the food, which allows chefs to play with the presentation of a dish much more than standard cooking. As the examples contained in this paper have demonstrated, precise plating is part of molecular gastronomy. That precise plating of a certain eye-catching dish could serve to identify the chef, to distinguish the chef from other chefs, and to indicate the chef as the source of that particular dish.

### C. Trade Secret

Most utilized by chefs are trade secret protections.<sup>157</sup> A trade secret is:

[i]nformation, including a formula, pattern, compilation, program, device, method, technique, or process that: (i) derives independent economic value . . . from not being generally known to, and not being readily ascertainable by proper means by others who can obtain economic value from its disclosure or use, and (ii) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.<sup>158</sup>

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<sup>155</sup> Lisa Krizman, Trademark Protection for Restaurant Owners: Having your Cake and Trademarking it, Too, 99 Trademark Reporter, 1004, 1026 (July-Aug, 2009).

<sup>156</sup> *Id.*

<sup>157</sup> See Caroline M. Reeb, *Sweet or Sour: Extending Copyright Protection to Food Art*, 22 DEPAUL J. ART, TECH. & INTELL. PROP. L. 41, 57 (2001).

<sup>158</sup> Uniform Trade Secrets Act § 1.4, 14 U.L.A. 537 (1985).

The most famous examples of trade secrets come from Kentucky Fried Chicken (“KFC”) and Coca Cola. Kentucky Fried Chicken has locked the “secret recipe of eleven herbs and spices” for its chicken in a 770-pound high tech safe that is located within a vault with two feet thick concrete walls in Louisville, Kentucky.<sup>159</sup> Once when the KFC recipe was moved, the company locked the recipe in a briefcase that was handcuffed to a security guard.<sup>160</sup> The few employees who know the Coca Cola secret recipe are all subject to non-disclosure agreements.<sup>161</sup> Additionally, the only writing of the formula is kept in a special purpose vault within the company’s headquarters in Atlanta, Georgia.<sup>162</sup> As the use of the vaults illustrate, trade secret law does not protect information that is considered general knowledge available to the public.<sup>163</sup> As implied by the name “trade secrets,” information and methods that chefs want protected must be kept *somewhat* secret to receive legal protection. I emphasize *somewhat* because absolute secrecy is not required<sup>164</sup>—disclosure of the recipe or technique to a few employees is generally necessary to run a popular restaurant. This limited disclosure is generally done using nondisclosure, noncompete, and confidentiality agreements all of which have become increasingly popular.<sup>165</sup> For example, Coca Cola limits the knowledge of the recipe to a few corporate executives.<sup>166</sup> Kentucky Fried Chicken also limits knowledge of the recipe to a small number of individuals.<sup>167</sup> However, if that employee were to disclose the information to a third party, the chef could seek legal recourse for misappropriation of trade secrets.<sup>168</sup> Once a trade secret is lost, it is lost forever.<sup>169</sup> For example, McDonald’s “secret sauce” is no longer considered a trade secret because, as part of a public relations stunt to show consumers how McDonald makes its hamburgers, the

<sup>159</sup> Diane Brady, *KFC’s Big Game of Chicken*, BLOOMBERG BUS (Mar. 29, 2012), <https://www.bloomberg.com/news/articles/2012-03-29/kfcs-big-game-of-chicken>.

<sup>160</sup> *Colonel’s Secret Recipe Gets Bodyguards*, CNBC (Sept. 9, 2008, 5:17 AM), <http://www.cnbc.com/id/26618866>.

<sup>161</sup> Meagan E. Vianello, *For your Eyes Only: Protecting the IP Rights of #FoodPorn*, THE NATIONAL LAW REVIEW, (Feb. 26, 2016) [http://www.natlawreview.com/article/your-eyes-only-protecting-ip-rights-foodporn#\\_edn64](http://www.natlawreview.com/article/your-eyes-only-protecting-ip-rights-foodporn#_edn64).

<sup>162</sup> Ivan Kottasova, *Does Formula Mystery Help Keep Coke Afloat?*, CNN, (Feb. 19, 2014) <http://edition.cnn.com/2014/02/18/business/coca-cola-secret-formula/>.

<sup>163</sup> *Id.* (“The subject matter of a trade secret must be secret.”). Trade secret law does not extend to items that are of public of general knowledge in an industry, or information acquired through selling goods in a particular area. *Fast Food Gourmet, Inc. v. Little Lady Foods, Inc.*, 542 F. Supp. 2d 849 (N.D. III. 2008).

<sup>164</sup> Restatement of Torts § 757 cmt. b (Am. Law Inst. 1939).

<sup>165</sup> See, e.g., *KatiRoll Co., Inc. v. Kati Junction, Inc.*, No. 14-cv-1750 (SAS), 2015 WL 5671881, at \*1 (S.D.N.Y. Sept. 25, 2015) (denying defendants employees’ motion for summary judgment for trademark and trade dress infringement, unfair competition, and trade secret misappropriation claims, and holding that plaintiff restaurant’s recipes may constitute unique trade secrets).

<sup>166</sup> Karl Smallwood, *Is the Recipe for Coca-Cola Really Only Known by Two People?*, TODAY I FOUND OUT (Oct. 28, 2014), <http://www.todayifoundout.com/index.php/2014/10/formula-coca-cola-know-two-people/>.

<sup>167</sup> *‘Secret’ Recipe to KFC’s Success is Locked Away*, USA TODAY (July 22, 2005, 3:21 PM), [http://usatoday30.usatoday.com/money/industries/food/2005-07-22-kfc-secret-recipe\\_x.htm](http://usatoday30.usatoday.com/money/industries/food/2005-07-22-kfc-secret-recipe_x.htm).

<sup>168</sup> *Harry r. Defler Corp. v. Kleeman*, 243 N.Y.S.2d 930, 935 (App. Div. 1963) (It has been well-established that an employee, who has had entrusted to him confidential information pertaining to the conduct and clientele of his employer’s business which he would not have obtained were it not for his status as a trusted employee and which affords him an advantage over other competitors to whom the information is not available, may not subsequently use the information to further his own ends.).

<sup>169</sup> *North Atlantic Instruments, Inc. v. Haber*, 188 F.3d 38, 49 (2d Circ. 1999).

company posted a tutorial on YouTube explaining how to make the sauce.<sup>170</sup> Employee turnover in the restaurant business is high, and apprenticeship commonplace, thus, disclosure of secret information to competitors can easily occur. This mixture of high employee turnover and chefs yearning for exclusive recipes is what makes the use of trade secrets within the industry so popular. It provides chefs with the best protection against unfair competition in the industry. It also helps to strike a fair balance between the restaurant culture of apprenticeship and idea sharing versus legal protection against abuse of these practices.<sup>171</sup>

#### IV. CONCLUSION

Molecular Gastronomy offers a hybrid food that better conforms to the restraints of intellectual property protection. With the heavy reliance on social media, the sharing of photos and information pertaining to unique foods will only increase. Although the food industry has historically relied upon informal norms to police the copying of dishes and methods, such norms are relatively fragile. As the practice of molecular gastronomy grows, these industry norms may fail to protect creative chefs adequately. Patent and trademark protection already exists for some methods and products but the protection for molecular gastronomy is most appropriate by non-traditional trademarks.

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<sup>170</sup> *Make a Big Mac at Home! McDonald's Top Chef Explains the Secret to Chain's Burger (But Why Doesn't It Look Quite Like What You Get at the Counter?)*, DAILYMAIL.COM (July 10, 2012), <http://www.dailymail.co.uk/news/article-2171302/How-make-Big-Mac-home-McDonalds-chef-explains-secret.html>.

<sup>171</sup> Sarah Segal, *Keeping it in the Kitchen: An Analysis of Intellectual Property Protection Through Trade Secrets in the Restaurant Industry*, 37 CARDOZO L. REV. 1523, 1529 (2016).

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