

## New Transdermal Patch Revolutionizing the Delivery of Medical Grade Cannabis



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Co-Founder and Chief Executive Officer

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**- Nial DeMena**

**CEOCFO: Mr. DeMena, what is the concept behind Manna Molecular Science?**

**Mr. DeMena:** The concept is to make medical grade delivery mechanisms for the cannabis industry and innovate in the manufacturing methods whenever we can.

**CEOCFO: Medical grade as opposed to what? What is available now and how will you be making things better?**

**Mr. DeMena:** A certain lack of sophistication goes into developing routes of administration and delivery forms today. We saw an opportunity to come in and bring people from pharmaceutical companies who have experience in GMP facilities, experience doing formulation and drug design work and chemical engineering, bring them together at the roundtable, looking at the various delivery forms that are available for cannabis and finding creative solutions for improving and iterating the manufacture and design of products. Starting with the transdermal patch, we not only prove that we can make the patch, but we also redesigned our manufacturing around agile light manufacturing with our own proprietary 3D printers, called the MannaBot One (“MB1”). It’s about how our product exists in the marketplace today and how it will exist 10 years from now and then building a bridge from one place and time to the next. Our product is one great example of what can be achieved when you have the most talented people around you and focus them on improving the design and manufacturing methods of products under the vision of what *ought* to be.

**CEOCFO: Have consumers been looking for something better or is it still too early for people to realize that there can be different and better ways?**

**Mr. DeMena:** A increasing number of people could use cannabis medically, will want to use it medically, but will not because of a number

of factors. It could be because of the laws in their state, because of stigma, because they do not want to get a certification, or they do not want to be discriminated against. In the case of firearms, you can lose your ability to carry if you are a medical marijuana patient. I do think there is a number of people and demographics out there, the 55 and older crowd, which is the fastest growing demographic in cannabis. Women are also a larger growing segment of cannabis. They all need delivery forms and products tailored to them – from performance to packaging to price. I've noticed there are a number of movements towards micro dosing, longer acting delivery, and controllable dosage forms. These were the things that we wanted to address when we were designing a transdermal patch for the marketplace. We wanted a long form product, one that could be worn during the day that would not interfere with cognition and would treat pain and discomfort and other ailments and have potential to be manipulated at the base formulation level to move in step with the science presenting itself and be used under an array of situations by the end user. In all these recreational states we even see a lot more people of different demographics that we now move in and try cannabis for medical purposes. It is a lot freer to go into a dispensary and try things for different conditions that you have on your own free time than to try to argue with a doctor that you should get a certification for a very specific condition. We are making medical delivery forms for those people out there that are afraid to talk to their doctor, who do not want to have their discussion, but who also should be prompted to do that because they are the people that can benefit the most from these kinds of delivery forms and from cannabis in general. As the cannabis movement gets more mainstream, we are trying to make products that are more recognizable to both physicians, to patients, and even to recreational users as a medical form that can be used in different situations that they find themselves in.

***CEOCFO: What are the benefits of the transdermal patch in general, and specifically, what you have developed?***

**Mr. DeMena:** A transdermal patch delivers a known therapeutic dose through the skin when applied to intact skin and it delivers that into the body at a constant rate. The advantages are for people that cannot swallow, do not like pills, who need something that is longer acting than what is available on the market, and those are all really good reasons. There is also the idea that we can reach a consistent peak plasma concentration so that it is automatically dosed. It is a discrete form of delivery – which, in cannabis specifically, takes on a greater importance - it is de-ritualized, it is not addictive. Those are the primary attributes that I see benefiting users of a cannabis transdermal patch. Researchers too can have an easier time understanding the therapeutic indications should they have a product that can achieve a quantifiable dose over a long time-course.

***CEOCFO: Would you tell us more about the manufacturing process you mentioned?***

**Mr. DeMena:** One of the things that we notice is that there are a number of good companies out there that are making cannabis transdermals. Two that we see out there have more of a centralized manufacturing approach. They buy equipment, install it, set up a big manufacturing plant, and get a license to produce marijuana infused products in states like Colorado, Oregon and Washington. Then they develop their sales channels. That works for those states but it does not work in vertically integrated states. As every new state comes online, we are seeing more

of a movement towards a vertically integrated model. That model means that there is one license holder in each state that goes through this licensing process that holds the license connoting the ability to grow, process and then distribute cannabis. It is a lot to ask them to buy a huge amount of capital equipment and to invest in a brand to produce one specific product, especially if that product is not something that is commonplace in people's minds when they think of cannabis. You are asking them to make a big bet. In our case, we design a manufacturing process that is light, agile, relatively inexpensive and has a high throughput, and can make a quality repeatable patch for every user with an hour of employee training. It can go up in the dose or it can go down in the dose, so anywhere from ten to thirty-five milligrams. It is extraction agnostic, meaning that we can work with whatever extracted oil you have so long as we have the tested potency. This is a way to free up dispensaries and processes and people with licenses in vertically and non-vertically integrated states to have the ability to disseminate transdermal patches of a high quality. We made our own proprietary 3D printer with the help of MannaRobotics, which is a joint venture spin off. We are able to give our licensees an installation kit, equipment included, SOPs, and back end analytical support. One of our co-founders is an analytical chemist who works in Massachusetts, specifically doing third party testing. We also give them front end support in the form of a dose strength calculator where all they have to do is punch in the tested potency of the oil they wish to use in the patches. We simply remove all the barriers between us and the use of the patch from the user. It should work like magic, really, at least, that is our goal.

**CEO CFO: *Is this the MannaBot One?***

**Mr. DeMena:** Yes. Through that process, all they have to do is take the patches that we supply them with, place them under the machine, using the dose strength calculator to mix up the excipients with the active, and the machine prints out a dose of each patch and you can do over a thousand per eight hours. For the demand that we are seeing in the marketplace, that is a great amount that you can make for one dispensary in one day. If you have a dedicated employee to do this, you can constantly make this at a higher volume production and you can get a second machine. It allows people to meet the demand that currently exists and scale up from there, all while being assured that the product is of the kind of quality that Manna Molecular Science stands by.

**CEO CFO: *What types of regulation do you fall under?***

**Mr. DeMena:** In general, we fall under nutraceuticals and that is because of the individual patchwork of state laws and the federal schedule 1. We cannot make any claims yet because we have not gone through clinical studies. Those are in the works. We have done in vitro and in vivo work to show our license partners that we know we are doing, that our product is efficacious, stores well, and that we have tested these critical quality attributes (CQAs). Because of these statutes to the federal and state level, we hesitate to make robust claims about individual indications until we can collect clinical data on perceived cannabis-mediated indications. We will leave the "why" of one's use up to the person using the patch and to the physician who recommends that person try cannabis. It is a pretty loose definition purposefully. What we are trying to do is self-police the industry through our own company by bringing those kinds of CQAs, GMP, and that repeatability and consistency to all the products that we make. While we are regulated as a nutraceutical, which is pretty hands-off, we strive to improve what that means, that definition, so that people

will come into a dispensary and feel very confident just like they do when they get things over the counter, very confident that what they are buying is safe, efficacious, the right dose form for them, the right dose amount, and will help them treat an array of very serious ailments. That is what we are trying to do. We are trying to develop long form with the transdermal patch, short form with tablet sublinguals and we are going to have pulmonary delivery that is not heat or combustion based. We are trying to address every kind of condition and address the patients' needs. What we are seeing is that in cannabis: there is a number of people with very chronic, lingering conditions and that is why we developed a patch first. We felt that people with Crohn's, MS, or chronic pain, and fibromyalgia are people that could best use cannabis and do not want it to interfere with their lives or cognition, but want something that can work as a modest analgesic devoid of harmful side effects. It is a very safe alternative or complimentary treatment for people like that. We seek to create products that those patients feel wholly comfortable in using as a daily treatment.

**CEOCFO: *Would you tell us about your agreement with Temescal Wellness?***

**Mr. DeMena:** We are really excited about that partnership. We are doing business with them in New Hampshire and we will now be doing business with them exclusively in Maryland. I know Ted Rebholz very well. I trust him and I know what they are doing in Maryland is building out a company that is going to be very successful now and 10 years from now They have demonstrated in several other states that they care about the patients, that they understand form factors, and, importantly, why variety is important for patients. They understand dosing. They understand the necessity to get these products in the hands of all the other dispensaries in all of the states in which they operate. Developing a robust, wholesale marketplace in Maryland and elsewhere is priority number one for all of our products.

**CEOCFO: *Are you funded for your next steps or seeking partnerships or investment?***

**Mr. DeMena:** We are in the midst of a raise, yes, but it looks like we'll have plenty of subscribers. If anyone is interested, they can go on the website of [MannaMolecular.com](http://MannaMolecular.com) and use the contact page or they can contact me via my email which is [Nial@MannaMolecular.com](mailto:Nial@MannaMolecular.com). We do have subscribers. That said, it is not necessarily only about the money, it is about the right fit. We want people to share in the vision that we have for the industry and the vision that we have for developing an entire portfolio of products around safe, efficacious and medical delivery.

