

The Center for the Neuroscience of Psychedelics in Conversation with Michael Pollan: Official Launch Transcript Tuesday, March 9, 2021

00:53

Jerry Rosenbaum

Hi, Hello everybody. If your destination is the conversation with Michael Pollan along with the members of the [Center of the Neuroscience of Psychedelics](#), then you've boarded the right zoom. So, welcome to you all. On behalf of the Mass General Hospital, its Center for the Neuroscience of Psychedelics, its Advisory Council, and all the friends of the Center. Please, welcome to our launch event to celebrate the creation of this Center. But what an extraordinary thing this is we appear to have over 1200 people registered.

I'm Jerry Rosenbaum I'm the psychiatrist and Chief Emeritus of the Massachusetts General Hospital and a Professor of Psychiatry at Harvard Medical School, and the first director of the Center for the Neuroscience of Psychedelics. Right now, behind me, you'll see some of my colleagues from the Massachusetts General Hospital, they- I've been here a long time, but not that long. This is a scene right from 1846. When members of the Mass General Hospital's departments of anesthesia, well, it wasn't anesthesia then but did become anesthesia and surgery and medicine, gathered to do the first public demonstration of ether anesthesia. Which word of that event went forward to the world and changed the face of surgery for sure, and, and medicine, in general, an extraordinary event that I described to you now because I think it represents really who we are at the at this institution. So we are indeed a patient care institution. In fact, this week, according to Newsweek magazine, was one of the top three hospitals in the world. But that really is one strand of our DNA. In fact, we are also the nation's largest biomedical research institution that's associated with a hospital with spending over \$1.2 billion a year on scientific discoveries focused on patient care and medicine. So we have a mission to provide care but also a mission to advance care.

For those of you familiar with psychedelics, you're familiar with the term set and setting. So I would say that applies to this institution, we have the mindset, and the intention to make a huge difference to patients around the world, and we have the tools and talent to make that possible. We truly are able to move from bench to bedside and bedside to bench seamlessly. We have patients and scientists working shoulder to shoulder and many of our scientists are also physicians. Like so many of you, we came to be hopeful and were struck by the promise of psychedelic agents to really potentially be game-changers for the future of psychiatric and more broadly brain health. And we see our specific place in this realm, our specific mission is to understand how this can occur to sort out through our scientific tools, how these agents allow the brain to change, and then to use that knowledge to advance the future of therapeutics, potentially to create a future of precision psychedelics. So that's really our mission, how we got into it.

It's an interesting story, but I want to acknowledge the people who, who inspired us and made it made it possible. Certainly, it was a conversation with Katya Malievskaia, who really was amused to encourage the idea of the Center for Neuroscience of Psychedelics; and our moderator today and my friend, Dick Simon, who has been both muse and patron, and our heartfelt thanks to those who have provided initial support for the Center, including George Goldsmith and Katya Malievskaia and the Blank and Soussan family who have enabled our initial research to go

forward. I also want to give my, my heartfelt thanks to Michael Pollan, a member of our Advisory Council for being the celebrity guest for this launch event and no doubt being the reason so many of you have signed on to hear today's program.

I want to finally let you know that you'll have an opportunity - we're going to start with a conversation between Dick Simon and Michael Pollan, then the Center leadership will engage Michael in a conversation and discussion - and then there'll be an opportunity for Q&A from the audience. And please use the Q&A function at the bottom of your screen to ask questions, and we'll try to get to as many as we can.

So now it's my great pleasure to introduce with great gratitude and admiration, the Chair of our Advisory Council Dick Simon.

06:31

Dick Simon:

Thank you so much, Jerry. I spend all of my time helping destigmatize and advance the potential use of psychedelics to alleviate suffering. This is both because of the incredible evidence and data for its efficacy, addressing otherwise treatment-resistant mental health issues, and on a very personal level, having learned in our own family, how difficult and intractable these problems are, and the desperate need for better tools.

I'm involved in a range of activities in this space, and I'm honored to be Chair of this Advisory Council, which is being officially launched today. I'd like to thank the Advisory Council. And this includes many of the leaders in this space, including Rick Doblin of MAPS, Robin Carhart Harris of Imperial College, Katya Malievskaia of Compass Pathways, and of course, Michael Pollan, who will be speaking with later today, or in a few moments.

To all the members of the Advisory Council who contribute in so many ways - Thank you. I also want to point out that incredible work has been done in this space over decades by fantastic researchers and scientists, at institutions and organizations around the world, and without whose courage, talent, and brilliance, the whole area of psychedelic research destigmatization, and hopefully soon, patient treatment to alleviate suffering, wouldn't be where it is today. Some of you are joining us, and there's a tremendous debt of gratitude. Thank you.

So I'd like to share what's so important to me about MGH's Center for the Neuroscience of Psychedelics and why I'm focusing here. One of them is certainly Dr. Jerrold Rosenbaum, who's too modest to say it, but is probably the most senior in terms of activity and things that he has done in his career in any institution, leading a psychedelic Research Center in the world. And as 20 years as Chief of MGH Psychiatry, generally the top-rated psychiatry department in the US for much of that tenure, and really important- his experience and expertise within the institution, which makes so much possible. He's earned tremendous support within MGH and faces far fewer issues of overcoming institutional barriers than in some other locations as he himself has been central in the leadership at MGH and partners for decades. Basically, if Jerry says it's a good idea, everybody follows.

And Jerry has been able to draw leaders and researchers at MGH in neurology, molecular biology and we'll be hearing of some of that, as well as other practice areas outside of mental health, to work together collaborating, no silos, looking at the possibilities in their disciplines, other CNS or central nervous system diseases, including Parkinson's, and possibly other movement disorders,

Alzheimer's, and those who are interested in possible applications of psychedelics on their patients based on what preliminary studies may show. I don't want to get over-optimistic here, but there's reason for some optimism in this very interdisciplinary center. And as you will hear, the leadership team brings brilliance, passion, and beyond state-of-the-art technology to explore how psychedelics work on the brain, and how to make them that much more effective.

The opportunity to leverage this incredible institution, technology, and people is why I invest my time and resources in the Center. Now, MGH is huge as Jerry pointed out, but this Center and its work are purely philanthropically supported. This is the time, now, for philanthropy related to psychedelics to create leveraged impact and sustainable change. Because today, traditional major sources of medical research are not funding- not yet funding work in psychedelics. There's virtually no government funding, and to date with the exception of a few great and innovative foundations and organizations, very limited support from mainstream major foundations. So this is the opportunity to make huge impact.

So, we're incredibly privileged today to be joined by Michael Pollan, who really needs no introduction. Michael is the author of eight books, six of which have been New York Times bestsellers, including his latest, *How to Change Your Mind - What The New Science of Psychedelics Teaches Us About Consciousness, Dying, Addiction, Depression, and Transcendence*. Many working in the psychedelics area/arena, break the hits recent history of the space into BP and AP: Before Pollan and After Pollan, given the effect of his work to bring the topic of psychedelic medicine and therapy into mainstream awareness.

Michael is a professor of journalism at Berkeley, and also serves at Harvard. And he's one of the founders and leaders of the UC Berkeley Center for the Science of Psychedelics, focused on research, training, and public dialogue. A very important area to improve the quality of media and journalism covering the ever-evolving world of psychedelic science and access and a role he is absolutely uniquely set- suited to. So I'm honored also to consider Michael a friend and someone whose writings on nature, agriculture, and the food system have been a beacon for and deeply impacted my life. We're now buying a farm and engaging in regenerative agriculture, thanks in no small part to Michael's long-term influence, which I'm deeply grateful for.

So Michael, welcome. And thank you for being here.

12:17

Michael Pollan

Thank you Dick, that was a very generous introduction. Thank you very much. It's great to be here and to play some role in this Center, which I regard as one of the most encouraging developments in the whole field, actually, in the last several years. So I'm very happy to be here.

12:32

Dick Simon

Great. So we'll get back to the Center in a moment, can you share what led you to write *How To Change Your Mind*?

12:39

Michael Pollan

Yeah, I never set out to write a book on psychedelics or write about mental health. My interests, as you know, were very much about nature, the environment, agriculture - I've been writing about

that for many, many years. But I have always been interested in the- in the symbiotic relationship between humans and other species, and particularly plant species, which has been my passion since I began gardening as an eight-year old. And I had written before about how we use plants and how they use us. And one of the things plants do for us to get themselves moved around the world, given really good habitat, things like that, is changed our consciousness. This is a very interesting strategy on their part and it's a very interesting desire on our part.

So I've followed that thread in our relationship to the natural world for many years. In *Botany of Desire* I wrote a chapter on cannabis, I wrote a piece about growing my own opium in the 90s, which got me in a little hot water. So this was in the background of my interests, but when I heard that, and I read an article in The New York Times that said that, at both Hopkins and NYU, they were giving psilocybin, which I knew a little bit about and had some experience with but pretty limited to cancer patients, terminal cancer patients to help not with their cancer, but to relieve their, what the doctors called their "existential distress", their anxiety and depression at the prospect of death and the fact of this diagnosis. And I thought this was such a curious development that I had to look into it. And this led to an article I wrote for the The New Yorker called *The Trip Treatment*, where I really got to know some of the patients and the researchers. And in the course of writing that piece, which was one of the most provocative pieces of journalism I'd ever had the occasion to report, I decided there was a really interesting book in this, that through psychedelics, there was so much you could learn about mental health, about the mind and the brain, and that and the fact that after having all these interviews with these cancer patients who had had their lives transformed by a single experience, I got intensely curious to see what that was all about. And, and so decided to embark on the book, *How To Change Your Mind*, which involved as you know, not simply third-person reporting, but first-person reporting. And that was transformative for me.

15:24

Dick Simon

So when I first read the book, I thought I, and at that point, I was actively involved in trying to advance psychedelic research and destigmatization, I thought I could sort of retire from my work in destigmatization, here was you writing an incredible book with an amazing platform, but I realized that was still a lot to do. And there have been major changes in the roughly three years since it's been released. Could you just comment on what the landscape looks like now versus when your book first came out?

15:57

Michael Pollan

Yeah, it's remarkable what's happened in the last three years. And I certainly don't take credit for it. I think the book has influenced a lot of people it has made psychedelics a more acceptable topic. Before I published, most of the scientists I talked to would tell me, who weren't already committed to psychedelics, that very small group that, you know, the visionary group that got the work started, other scientists, and this was true at my campus at Berkeley, told me well, this is a death sentence for graduate students to study psychedelics, you know, this is just out of bounds. And so I thought that was very interesting and certainly now it's, it's in bounds.

There are psychedelic centers popping up at very prestigious universities all over the country, all over the world. So that's one big change. I also see change, though, in the public's interest in psychedelics, in that people who were very resistant are now at least curious. So I think the conversation has changed in many ways.

Now, as a journalist, I don't pretend that, you know, I can move the public dialogue. What journalists are good at, is maybe seeing around one corner, you know, we're not visionaries, but we do have our fingers in the air, and when the Zeitgeist is kind of shifting, we often pick up on it a little bit early. And I had some sense that there was something in the air with psychedelics before I published the book. I knew it after the New Yorker piece came out and had such a strong reaction. But there was you know, I could see that there were two things converging - one was this promising new treatment, that was showing some, as you point out, rightly, very promising preliminary results. And that is still mostly what we have, although a lot of research has been done since the book came out in 2018. So you had that trajectory, and then you had the fact that mental health crisis was deepening, you know, not just in this country, but in the world. And it's been made, of course, much worse by the pandemic. And I didn't fully understand how limited the tools that mental health treatment has, and how, how sore the need is for new tools.

And I think that I expected a great deal of resistance from, you know, conventional psychiatry and one of the biggest surprises for me was that I didn't encounter that resistance. In fact, I encountered great curiosity and, and a willingness to take this seriously, which I take as a measure of the state of psychiatry as much as anything else, that there's a general recognition that, you know, we've got some really unsatisfactory pharmaceutical agents, and that we have a lot of mental illness that's not being treated successfully. So that the openness to innovation that I never expected to find, is really quite profound. And the beginning of The Center is, I think, one more indication of that, that we can do a lot better, potentially, and deal not just with symptoms, as a lot of the drugs we use do, but actually deal with causes and cures.

19:26

Dick Simon

Yeah. Which is really pretty amazing, it's so exciting.

19:31

Michael Pollan

Yeah it's very exciting. You know, I mean, we may, you know, look, we may be disappointed when we get to phase three studies of all these agents, but from everything I see the Phase 3 work is supporting the earlier work and you know, signs are very encouraging.

19:52

Dick Simon

So, you graciously agreed to be on MGH Advisory Council and to speak today. Why do you feel like the work at this Center is significant and worth focus?

20:04

Michael Pollan

Well, this is the only advisory board I have agreed to join apart from the one at Berkeley, which is kind of my home campus. I do regard Harvard though, as also a home campus. I'm a professor in the English department. There are a couple of reasons I thought this was really an important venture to take some small part in. One is, well, to the extent that MGH is part of Harvard, the return of psychedelics to Harvard is a big historical event.

I remember the first year I spent in Cambridge, I was a Radcliffe fellow back in, I don't know 2015 and Franklin King who's involved with the Center, a young psychiatrist at the center, reached out

to me and we had lunch at Harvard, and, and he talked about his burning desire to bring psychedelic research back to Harvard, and to the medical school. And I laughed, I said, this is the last institution in America that will go near psychedelics after the experience with Timothy Leary and the scandals of the early 60s, and I said You're better off moving somewhere else. I was wrong and he was right. And I know he is one of the was one of the driving forces, as has been the case in many institutions, it's the younger psychiatrists who are, you know, really encouraging this, this change. So that's one reason, it's kind of a trivial one, but I thought it was important that Harvard bring psychedelics back and they are, alas, doing it.

But the other reason was, Dick, you introduced me to Jerry, and we had lunch at another Cambridge spot and he told me about his angle on both mental illness and on psychedelics, which I found incredibly interesting and provocative. And that was his focus on rumination, and really, Jerry should be describing this not me, but basically, he was, he's interested in the hypothesis that underlying a lot of supposedly discrete mental disorders such as depression, anxiety, addiction, OCD, perhaps eating disorders too, that they may not be as separate as we think, and that these diagnoses are not actually rooted in biology necessarily, they're rooted in the DASM - the Diagnostic and Statistical Manual. They're artifacts of human theory about something that's very poorly understood. And his hunch was that underlying all those supposedly discrete disorders was a single kind of brain, a single kind of mind, that was kind of stuck in loops of rumination.

This chimed with what I had been learning about psychedelics. And I remembered vividly a call an interview I did with Tom Insel, formerly head of the National Institute of Mental Health, who made a similar point when I was when I asked him, I remember asking him, aren't you a little suspicious about a drug that supposedly can help with so many different things? Doesn't that sound like a panacea? And, you know, my journalistic skepticism, had been excited by that idea. And he said, Well, why do you assume they're all different things, maybe they're all manifestations of the same thing. And he said something very similar about the brain that was very stuck. And Robin Carhart Harris, who's one of the- who's on the advisory board as well, a leading researcher on psychedelics, has also made this point. And that we may see that, in fact, psychedelics may help us understand that these disorders are more alike than not.

So I thought as a way to attack mental illness and use psychedelics as a tool, the coming together of these two ideas was really powerful. And I think is going to yield some really powerful insights into depression and anxiety and OCD. And so I just think he's asking the right questions, and I'm very excited to see what the answers will be.

24:22

Dick Simon

Thanks. And we're certainly very excited to have you as part of this process. So thank you. Why do you think that people should care about research and understanding more about mechanisms of action, rather than just let's make this available to everybody tomorrow, which is part of the movement, you know, that is going on today?

24:41

Michael Pollan

Yeah, well, look, I think, you know, I think that the system we have for drug approval, you know, whatever you think of it and its limitations. It grew out of a disaster, a scandal in the early 60s

around thalidomide, a drug that was introduced with insufficient testing and turned out to lead to a great number of birth defects. That's when we started the current system in the early 60s.

I think even though humanity has had a long experience with psilocybin and the safety profile appears to be remarkably good, there is good reason to do this research. And take it through all these different phases, make sure we're using the right dose, optimizing the way we're administering it, you know, the way we administer psilocybin has never been validated scientifically, really, it's just kind of traditionally how it was done. Psychedelic therapy, many aspects of it were devised by amateurs and handed down as custom. Now, I believe that's a legitimate form of knowledge, and I think it'll hold up, but we still, you know, we need to go through these exercises and convince ourselves.

In terms of brain mechanism, it's true that we have many drugs we use, that we don't truly understand how they work. I remember when someone was vetting my chapter on neuroscience in the book, I had a neuroscientist at Berkeley named David Crest, he read it. And I had said, because I assumed and I'd heard all the time that you know, SSRIs work by increasing the level of serotonin in the brain. And he said, you know, that's actually never been proven. And I don't, you know, we have some idea how SSRIs work, but not really, I mean, there's a lot we don't know. So we do use drugs without understanding them. I think in this case, though, understanding the mechanisms of action are really important, because these are very different kinds of drugs.

The operative theory, and this has really been put forth by people like Roland Griffiths at Hopkins and Robin Carhart Harris, is that what is causing the change in the brain or in the mind, is in *experience*. It's not about playing with the neurochemistry, even though you need the chemical to occasion this experience. It's the powerful, sometimes called mystical experience, or experience of an ego dissolution that correlates best with a successful outcome. So this is, yes, this is pharmacology but it's, it's of a very different sort. We are administering an experience to people and it is that experience that appears to heal them. Now, this idea needs to be tested too and somebody has proposed an interesting test, offered as a challenge to Roland Griffiths, and his belief that you need a mystical experience to have a successful outcome. And I know that's a freaky idea to a lot of scientists that we're administering spiritual experience to people, but that's precisely what I think is so interesting about this. And that was to, well what if you gave psilocybin to someone under deep anesthesia, and you got the same change, whether it was the breaking of an addiction, or the lifting of a depression, and Roland agreed that if that if that worked, he would stand down on his theory.

But the point is, it's important to know this, I think, what are we really dealing with here? And, and then there's the purely intellectually exciting opportunity to figure out new things about the brain and the mind and the relationship between the two. Because psychedelic stands right on that border. I mean, we are doing something to the brain that's changing the mind. And, and I think that the potential here to learn important things, not just about mental disorders, but about consciousness, and about how brains produce minds, is really exciting.

29:07

Dick Simon

I'd like to ask you one more question. And then we'll bring in the CNP, our Center for Neuroscience Psychedelics leadership team to join the conversation. So you've recently announced your next book *Your Mind on Plants*, which I've pre-ordered. And can you talk a bit about the focus of the

book and particularly, what you've learned about mescaline and what are the psychoactive plants that you're most fascinated with?

29:34

Michael Pollan

Sure, yeah. So my next book, which is coming out in July, is called *This Is Your Mind On Plants*, which is meant to allude to the drug war, now, thankfully, subsiding, if not quite ending. And what I do there is look at our relationship to three psychoactives and I chose them very carefully. So one is opium, and another is caffeine- which is the psychoactive most of us are involved with on a daily basis and don't even think of as a drug or as an addiction, but there you have it. And that raises all sorts of questions about what is a drug, and why are some stigmatized and some celebrated? And then the third is mescaline, so that's the only psychedelic in the book.

Mescaline is really interesting to me, because it was the first psychedelic that was explored in the West, it comes to the attention of science and psychology in the late 1880s, and 90s, It's synthesized in 1897. And it came to the West through indigenous channels. It had been used by Native Americans for thousands of years, and used in Peru, by the civilizations of the Andes, also for thousands of years. And it really helped get started the psychedelic revolution with Aldous Huxley's book, *The Doors of Perception*, which is just a canonical book in the field. But nobody uses it anymore and it's not really being used in research. And so I was curious to learn about it, and I wanted to do something in this book I hadn't done in *How To Change Your Mind*. In *How To Change Your Mind*, I stuck pretty closely to the science and the research, because the subject was so, you know, not credible, but I needed lots of white coats around and, you know, stethoscopes to get people to take it seriously. But the fact is, everything we're doing around psychedelics is based on a foundation of Indigenous knowledge. These substances have been used by civilizations for as I said, millennia, 6000 years in the case of mescaline, we shouldn't forget that we haven't learned all we can from Indigenous cultures and how they use these medicines in healing and in their own spiritual growth. So mescaline was an opportunity for me to explore that. And so I look at the Native American church, which is a very hopeful development in American Indian life and has helped this community that's suffered from dispossession and, you know, alcoholism, and so much trauma, has done more to help them than anything else. And mescaline is, of course, the chemical in peyote and they use it in the form of peyote, but I wanted to explore that world and see what happened behind the teepee where a psychedelic is being used in this healing context.

And caffeine is just a fascinating substance. Why do plants make it? Why do we like it so much? What does it do for us? I think it's changed the history of civilization, actually, the advent of caffeine. And opium is really a parable of the drug war. And a reminder that, at the same time the government was fighting the drug war with such ferociousness and loading the prisons, it, of course, was a legal pharmaceutical that really caused the biggest public health crisis, and that, of course, is the opioid addiction. And, you know, it's a look at the drug war and all the damage that it's done. So anyway, it's, it's a different kind of book for me. I love learning about plants and, and marveling at their power and, and how they've changed our history. And of course, have we've changed theirs.

33:39

Dick Simon

Right, well, thank you. So we will go to introducing the leadership of the Center, and then we'll have an interactive conversation here. And as people are coming on screen, I'll just point out that

you had referenced Harvard and MGH, Mass General Hospital as Harvard Medical school's primary teaching hospital, just for those who are not familiar. Great. I'll just give the names and then people will mention their role within the center and what they're doing there. So - Dr. Sharmin Ghaznavi.

34:15

Sharmin Ghaznavi

Hi, I'm the Associate Director for The Center and the Director of Cognitive Neuroscience. I'm a Psychiatrist and Neuroscientist and I'll be heading up the first few studies looking at psilocybin for rumination and other cognitive processes in treatment-resistant major depression. And I think I'm excited about The Center because I'm excited to understand how psychedelics affect brain networks that underlie how we think and feel, and I'm really hopeful for my patients.

34:44

Dick Simon

Thanks so much. Dr. Steven Haggarty,

34:47

Steve Haggarty

Hi, I'm Steve Haggarty, I'm Director of Chemical Neurobiology for The Center. I'm really excited to have this opportunity to work with my clinical colleagues taking advantage of some of the advances both in our ability to model human diseases using stem cell technology, but really leveraging some of the insights from ethnobotany and the history of our discovery of the relationship of plants and humans and the opportunities, I think at a basic research level to create new tools. As Michael just explained to us, we need to help, I think, our colleagues and have some new future medicines in this area.

35:22

Dick Simon

Thanks so much. Dr. Bruce Rosen.

35:27

Bruce Rosen

Hi I'm Bruce Rosen, I'm a Radiologist and Physicist and the Director of the Athinoula Martinos Center for Biomedical Imaging, a large research laboratory at the Mass General, dedicated to developing new tools to study the brain and, of course, applying them in a wide range of illnesses. I'm very excited to be here as part of the center to help facilitate the work of great clinicians like Sharmin and Franklin, Jerry himself on the use of the imaging tools that we've developed at the Martino center to study the effects of these compounds on brain action. And that's what has me so excited is the opportunity to work with these great minds on such an interesting problem.

36:14

Dick Simon

Thanks so much. And I should just mention when Bruce talks about these tools, Bruce was actually involved in the creation of the entire field of fMRI on which all brain imaging nowadays is based in. So, these tools, thank you, Bruce.

Dr. Jacob Hooker.

36:29

Jacob Hooker

Hi, I'm Jacob Hooker. I'm a Chemical Neuroscientist and the Director of Translational Biomarkers for the Center. I'm excited to have the opportunity to connect the dots between the basic science at the receptor and neurochemical level, all the way up to the human experience, thinking about how we connect that science by fluid biomarkers, imaging biomarkers, so that we can develop an interpretation of the outcomes back down to the mechanism, and then drive the next iteration of innovation in this space. I'm very excited to work with everybody in this regard.

37:04

Dick Simon

Great. Thanks so much, Jacob. And finally, Dr. Franklin King, who I want to say, I'm really glad you didn't listen to Michael back then he was wrong. You were right. Thank you for saying.

37:14

Franklin King

So I'm Franklin King with The Center. I'm the Director of Training and Education. And I guess Michael's already alluded to my long-standing enthusiasm for this, which really comes from I think, both a curiosity in terms of what psychedelics can bring to us in investigating neuroscientific principles and also in their promise in treating intractable diseases that we, as clinical psychiatrists, deal with every day. My specific sub interests within psychedelics include I'm really interested in education, I see some questions already on sort of how do we translate what these medicines do to a sort of unknowing public to clinicians that aren't well versed in this, and also in sort of the experiential components of the therapy- ways that we might be able to optimize the psychedelic-assisted therapy model that we have right now. So really excited to be, you know, with such an outstanding group of people here. And yeah, looking forward to the rest of the talk.

38:05

Dick Simon

Great. Jerry, I'll turn to you to help lead this process now.

38:11

Jerry Rosenbaum

So I'll ask the first question based on some of the things we've heard. You've met a lot of our team and can appreciate we are making a big bet on the science and understanding of biology and mechanism of action, and in the way science works with the hope that it will lead us to new opportunities to reduce human suffering in the end.

But as you refer to the action of these drugs and the importance of the experience, I guess the essential question about the available psychedelics is whether you think we really already have all we need. It would be interesting to understand how they do what they do, but whether we'll improve on it. Whether it's the experience, and these substances already generate that experience that allows change to take place. Do you still feel that our focus and emphasis, hope, and aspirations to pursue the science and understand in new ways how they work is the right way to go?

39:14

Michael Pollan

This is for me?

39:15

Jerry Rosenbaum

Yes, thanks Michael, yeah.

39:17

Michael Pollan

I mean, you know, the reason we're working on I mean, the two substances that are getting the most attention are psilocybin and MDMA. You know, these are historical accidents to some degree. Psilocybin was chosen in the 90s when a group decided to bring back psychedelic research. For a practical reason - It's shorter-acting than LSD, you know, the session is over in four to six hours as opposed to 12 and you know, clinicians want to get home for dinner too. It's difficult to work- and you need two therapists, or least we think you do, and also because psilocybin didn't carry the cultural baggage of LSD. LSD would have excited a lot more opposition, I think. And the people who made these decisions were thinking, you know, most people don't know what psilocybin is, even now, so it can go below the radar.

Are there other compounds that might be superior? Well, there may be, and one of the things I know you're up to is looking at this, that you have this enormous resource, which is the collection of samples of psychoactive plants that Richard Evans Schultes, the great Harvard ethnobotanist, gathered in the Amazon and Central America and other places, many of which have not really been tested for their value.

I think in the short term, psilocybin will be the drug of choice, because as of now, we've done all this work, you know, there's a sunk cost here, but in a very positive sense, in that we know a lot about the safety profile, which is, which is remarkable for, you know, when you compare it to other drugs. I mean, there doesn't appear to be a lethal dose of psilocybin, and that's astonishing. And there are risks associated with psychedelic therapy, but they're, they're really manageable with this substance. But I can imagine even new compounds, I mean, like, what if you could tweak mescaline, so it was a six-hour trip and not a 14-hour trip, that might be a very, you know, mescaline has some of the qualities of MDMA. They are described as heart-opening and connecting qualities that might make it suitable for group work in a way that psilocybin isn't.

So, yeah, I think there's a lot of work to be done. And I think we should be scanning these other molecules and figuring out what they're good for. Sasha Shogun, you know, the great psychedelic chemist, came up with hundreds of compounds by tweaking the mescaline structure. But you know, so I think that that's important work to be done. That's kind of some basic science that needs to be done. But I think if our goal is to alleviate human suffering as soon as we can, working with psilocybin and MDMA makes very good sense.

42:23

Sharmin Ghaznavi

Michael, following up on Jerry's line of questioning, one of the criticisms that has come up is this tension between the experience that psychedelics provide and researching it, and I was wondering if you could speak to that, because it's kind of like, you know, analysts who worry about studying psychoanalysis, you know, is that tension real? How do we, how do we address it and, and make people comfortable with the idea that we're not trying to take away from the experience?

42:56

Michael Pollan

Yeah, I mean, psychedelics, you know, what's so interesting about them is that they're right on this kind of frontier, where the experience is clearly very important. And studying it in the absence of that may or may not be productive, but you really need the subjective reports of the people who have these experiences. In that sense, it is like psychoanalysis. It brings the mind back into brain science or insists that we bring the mind back into brain science, and may show ways to, you know, kind of bridge that divide. I think it's curious that some of the people who've done the most work were behaviorists by training, Roland Griffith and Matt Johnson at Hopkins, and you know, which kind of brackets whatever's going on inside the black box, and it's just interested in, you know, effects, responses to stimuli of various kinds.

But I think they've found themselves drawn into another kind of conversation where the phenomenology is really important to understanding what goes on, unless this experiment with anesthetics, you know, pans out, and maybe we'll have to do a rethink. But, you know, I think that the challenge is to figure out what's going on in the brain while the mind is having a certain kind of experience. And I think the scanning work that you guys are going to do, I know you've got some really powerful tools... we still don't know a lot about whether there are visible or measurable changes in the brain after a single psychedelic experience. Some of that scanning work is starting to be done. But you know, we have reason to believe that experience does change the brain. I mean, you know, learning changes the brain, right? Trauma, we know changes the brain and in a way that one of the hypotheses here is that in the same way, a deeply negative experience can change a human brain, could a deeply positive experience change it in another direction? And so I think it's- that's- it's a dilemma to some, but I actually think it's an opportunity.

45:19

Jerry Rosenbaum

Bruce, you want to take it from there?

45:23

Bruce Rosen

Well, only to reinforce the point that we're really just at the threshold now of developing the tools that should allow us to be able to look for both the short term changes that are happening, actually during the experience, and how those kinds of perturb the functioning and the network dynamics across the brain. And we now have the tools to be able to do that. But then further, since we have reason to believe that that experience seems to change the plasticity of the brain and its openness to change over a more extended period of time. What I'm very excited about are ways that we might be able to learn what *are* the mechanisms of plasticity through the effects of these drugs to know how to look for it and document it.

And that's a situation where not only our experienced with these drugs, but the kind of compounds that Steve is going to be able to explore might be valuable, because it may give us a hint into a much broader class of compounds that are really targeted towards enhancing plasticity. Obviously, that's highly relevant for, you know, all the disorders we've been talking about, but equally relevant for disorders like recovery from stroke, and other neurological disorders. And so, the ability to get into the fundamentals of how the brain can rewire itself, I think is a fantastic opportunity that Sharmin is setting up to do and is really setting us up to be able to explore.

46:50

Michael Pollan

Yeah, you know, just follow up on that one of the interesting lines of research that's been going on with animals and psychedelics has been demonstrating the power of MDMA, and also LSD to reopen critical periods in development, which is obviously closely related to plasticity.

Gould Dolan is a neuroscientist at Hopkins, not part of their psychedelic team but she's done this with rats and with octopuses, which are both very solitary creatures. But she found with both MDMA, which she's published, and LSD, which she hasn't yet, that this period of maximum adolescence, sociality in these species can be reopened. And that does- that is very suggestive in terms of things like stroke. I mean, we all have- we all know a little bit about critical periods, you know, there's this period where you can learn languages very easily, you know, and then that closes. And, and around how social- how sociable, we are. Very important, potentially, to studying Autism, if you could open a socially critical period again. So, I think I think that whole line of inquiry is fascinating, and potentially very, very promising.

48:10

Jerry Rosenbaum

So Jacob, you want to pick up on that, you know, the idea that we can go afield to other conditions like Autism with these tools?

48:23

Jacob Hooker

Yeah, you know, I think the potential of the therapeutic strategies is quite large. And because of that, we've seen just tremendous commercial interest. We've seen, you know, biotechnology companies emerge quite large ones at this point, that have an interest in supporting commercialization of these ideas. I think to some degree, they're excited about helping us understand the science too. But oftentimes, they come to us with very specific goals that would help their sort of commercialization strategy, the science that needs to get done to get them, you know, through the clinic. You know, one thing we wrestle with is to what extent to leverage that money to try and help do the science we need versus, you know, to seek more, I guess, academic money, if you will, grants, philanthropy and related. How would you see sort of us maximizing the relationship with sort of the commercialization arm of psychedelics as we grow and move The Center forward?

49:29

Michael Pollan

You know, I think it's a tremendous question, and we're grappling with it at Berkeley, whether we want to do corporate partnerships. There is a kind of gold rush going on right now. There's just so much capital. And you know, they've been a couple of successful IPOs that have, you know, companies have been started, you know, this week with plans to have an IPO next summer. I mean, it's just kind of a crazy amount of capital chasing what is probably too few good ideas. And there are some interesting complications in this field. I mean, we're talking about compounds that have existed and been used for thousands of years, in some cases, that people are interested in patenting in some ways, or some- somehow controlling, monopolizing.

So, I think any universities that get involved with corporate sponsorship need to be very careful about preserving their principles of open science, if they have them. And, you know, driving really hard bargains. I mean, the fact is that you know, Dick alluded to this earlier that there's not the usual sources of research funding available to psychedelic research. NIH is not funding it, as of now, that could change. Right now is, as Dick said, the moment for philanthropy. This is a moment

where philanthropists have incredible leverage that a relatively small gift has the potential to change the playing field around mental health, around the understanding of the brain and mind. And so far, tens of millions of dollars have come in this way. It's really unusual for an area of research like this to be privately funded. You know, most such research is funded by the government. And then the other alternative is corporate money. And, you know, I'm sure there are terms on which to strike those deals that advance the research project without compromising important principles. But I think everybody has to have their eyes open.

51:44

Jerry Rosenbaum

I know before, right, and I know Dick has a question to ask, but you made some references to neuroplasticity and I think we've talked - you've made some references to the intensity of therapeutic interaction during the experience. So, neuroplasticity is just an opportunity for change to take place and therefore, change could happen in different directions. Some might think that, in (certain) conditions, situations of trauma, you know, there's plasticity and the result may be the post-traumatic stress, for example. So how do you think about the issue of risk with these drugs in terms of creating an opportunity for change, but it could go both positive or negative?

52:33

Michael Pollan

Yeah, that's a good question. I need to remind everybody I'm an English major with no scientific background whatsoever, okay, please factor that in. I don't think I've had a science course since high school. But I, you know, I've learned a lot about science as a journalist, and I've had great teachers like you guys to tutor me in these things.

You know, Timothy Leary, one of his most valuable contributions was this notion of set and setting, that the particular nature of the psychedelic experience is that it is shaped in a profound way, by the expectations of the person taking the psychedelic, and by the physical setting: the internal and external environment. And I think this is true to some extent, with all drugs, the placebo effect suggests as much, but it's extreme in this case. And you know, there are a lot of people who think that psychedelics have the potential to change our attitudes in a positive way toward nature or authoritarianism. I worry that they could go in a very different direction, depending on who's taking them and for what purpose. You know, we take them for very positive purposes, generally, our intentions are all in the direction of improvement- doing good.

You know, the CIA did a lot of work on this and we actually don't know what they discovered. The general sense is that they were doing psychedelic research all through the 50s and 60s, up until the 70s. Some truly horrible experiments, but they were curious to know whether these drugs could be an agent of mind control. They destroyed most of their research in the 70s, we don't really know what they found. But I'm not convinced, you know, I think if you give the drug to the average person interested in taking it, they will feel more nature connected after they get out of that experience. But I think if you gave it to the Koch brothers, or the remaining Koch brother, or Donald Trump, you know, all bets are off so I'm not exactly sure. And so maybe we'll end up thinking about these drugs as amplifiers of the therapeutic agenda. You know, because one of the most interesting things about psychedelics is what James called the noetic quality by which he meant this sense that whatever insight, whatever ideas were planted during this experience, the mystical experience, had the force of revealed truth. And so, you talk to these addicts, who come out of the experience with a very banal insight like smoking cigarettes is really stupid, I'm

going to stop doing it. Now, they've had this idea, presumably many times before, but they've never believed it with the intensity they do now.

So maybe, maybe we'll find that that's kind of a big part of how this works is that you can, with the help of the therapist, plant ideas that are become more deeply rooted than any other way. Is that a kind of mind control? I mean, that's a derogatory term for that. It could be mind control in a very positive pursuit, but I'm speculating completely. That's all I'm doing.

55:58

Jerry Rosenbaum

Franklin, you have a question at this point?

56:01

Franklin King

Yeah. And Michael, you actually alluded to something I'd wanted to ask you to touch upon, which is the idea that these medicines have been used in traditional practice, really, across the world for thousands of years. And I think, you know, in an era of sort of renewed interest in social justice, which includes Indigenous People's rights, I'm wondering, I have sort of a two-fold question: One, you know, as the medical institutions are sort of pursuing these ancient treatments, is there a way that the medical institutions like ourselves can draw upon this Indigenous Knowledge in a way that sort of respectful and honors that? And two, is there sort of a responsibility on the part of the science to try to protect the traditional practices that are ongoing right now and are threatened, obviously, by the scheduled nature of these substances?

56:45

Michael Pollan

Yeah, I think, absolutely. I think we have an obligation to recognize the sources of this knowledge, even if it strikes us as unscientific. But so much of what we learned about setting intentions about creating a container for the experience has come down to us from Indigenous cultures. I think there is a lot more, I think that the way peyote is used to Native American culture, particularly around addiction, but also trauma and other problems... we should be studying it closely and see what there is to learn. But I think we have to find a way to reciprocate that and return resources to... peyote's in very short supply right now, there's a real crisis, the demand for it exceeds the supply. It's very slow-growing, very hard to cultivate. And, you know, at the end of my research, I decided that non-Native people probably shouldn't use peyote. It should be reserved to the Native American church, and there are other forms of mescaline that people can have.

But, you know, I think we have to be very sensitive to cultural appropriation, I think we have to find models, where, you know, our, our interest in this- in these practices is reciprocated. And I do think that's very, very important. And, and I know that there are some startups that are expressly designed to return resources to indigenous communities, there's a company called Journey Collab, that has a pretty interesting corporate charter. And whether it'll work or not, we'll see but they're acutely aware of it.

So yes, I think we have an obligation to recognize and talk about where these ideas come from, so people can appreciate it. And then we also have an obligation to return the favor and somewhat compensate these cultures, for what they've given us.

58:42

Jerry Rosenbaum

That's a great segue to ask, or, see if Steve has questions. He has the deepest and broadest knowledge and ethnobotany on our team and wonder if he has some follow up?

58:57

Steven Haggarty

Yeah, I think Michael really hit on some of the important issues that those of us that are thinking about how to leverage the incredible legacy of knowledge of those that have created the field of ethnobotany, or how we know that psilocybin exists dates back from some incredible mycologists and plant biologists who laid that sort of foundation. And I think these important issues of reciprocity and understanding, you know, are there alternatives? You know, maybe once we discover a chemical, of course, from the mescaline example, we could synthesize it, but does that capture the full spirit of what peyote absolutely has. And that's a really important debate about synthetics versus what nature provide- but Michael, I wanted to make- I wanted to ask a slightly different sort of question here. That's about projecting into the future a little bit because we've been really touching on these two major ways in which psychedelics are used either sort of in a religious model, in that case with the Native American church versus this medicalization of it that we're all really excited about for the reasons you articulated again about showing that the molecules are safe and effective, and we create an evidence base. But, sometimes I wonder if we're putting too much pressure on the current clinical trials? And is there another way that you would project ahead and if in a few years if we'll be looking at this and say, oh, that was the obvious path to go down here- Or not?

1:00:19

Michael Pollan

That's a really interesting question and it's one I've been thinking about. I mean, we are sort of cramming psychedelics into our model, right? Our model of mental health, our model of drug discovery and maybe that's not right. A lot of people who work with psychedelics in the underground have a different conception. They're using them therapeutically but they see it as a kind of process, and I shouldn't generalize, but many of them that I've talked to, not so much as solving x problem, you have depression, or you have addiction, and we're going to fix that. But more as a process that over several different psychedelic experiences leads to a kind of growth, leads to self-acceptance leads to, you know, greater happiness, not in such a dramatic way where you know, just fixing problem A with substance B. But more of a process of spiritual growth, and that is that more true to the substances? It might be, it might be.

On the synthetic issue, I think that's a really interesting one. I mean, there's something like- you know better than I- 50 other alkaloids in peyote. And in psilocybin, too, we're working with synthetic psilocybin in all these trials, but there are other, and some of them we know to be psychoactive, alkaloids in the mushroom. And should we be, you know, baeocysteine is one, should we be working with that, too? And I don't think that kind of research has been done.

Is there any kind of entourage effect when you have, you know, the whole plant versus the synthetic? There, again, is another example of taking a very rich and complicated thing and forcing it into these round holes. You know, the FDA really just wants to hear about one molecule. They don't want to hear about a, you know, a group of molecules. It's one of the reasons Ayahuasca doesn't get a lot of studying because it's multi- you know, there are lots of different alkaloids involved, and not just alkaloids. But what if that is what is most active? So, so I think we should

be sensitive to the fact that we're taking something complicated and putting it into a simple framework.

1:02:45

Jerry Rosenbaum

At this point, Michael, do you have questions for our team, about our program and what it tends to do or questions for any of our-

1:02:57

Michael Pollan

Yeah, I would love to hear a little bit more from Steven about his plans for looking at all these, you know, relatively unknown substances and how he plans to go about studying them and figuring out if there's - if there's gold in them there hills.

1:03:17

Steven Haggarty

You know, we're in our, I would say, earliest stages of formulating exactly what that's going to look like. But I can give you very practical examples. In that spin in many ways, we're tracing back the legacy of the late Harvard professor and great ethnobotanist Richard Evans Schultes, who-someone I discovered as a graduate student at Harvard, I recognize that people like Franklin King had uncovered his work and a little book such as this, you know, a golden guide, where he captured this amazing diversity of psychoactive substances, right? And the fact that someone like Schultes really told us in the late 70s, that these plants may provide some of the tools that would be useful in psychiatry right now, is part of this fascinating history. And he tells us about all of these other plants. Now, many of these are not ones that are readily accessible, either because they are found only in the Amazon jungle or in other locations from that.

And we're trying to think about how we leverage some of Harvard's resources through the Harvard herbarium where some of those collections exist, where we may not be actually sampling those plants but that knowledge, we can connect to another sample source of it. So, technologies, including genome sequencing, that let us you know, create a molecular barcode of that plant. We want to bring some of this information to life right now.

Very practically, though, what we're doing in the lab is trying to make extracts from some of these plants that he described that we haven't found the active psychoactive component, in some cases, not for lack of trying, but in other cases, great chemists like Albert Hoffman and Schultes didn't find the component. And so, I'd like to think if Schultes was alive today, some of these technologies have both our human stem cell cultures but the kinds of neuroimaging methodologies that Jacob mentioned and our ability to look at some of these, which are not controlled substances right now, and that's this whole interesting area. And so, I think I want to also broaden the word psychedelics- that's one class of psychoactive molecules, neuroplasticity modulators in general. And my gut feeling here is that nature has a lot to teach us. Nature's a fantastic chemist, she's able to make molecules that would humble even the best chemist out there. And so how do we take advantage of some of those technologies to create new, new tools in this?

1:05:29

Michael Pollan

I think we also need to create a new generation of ethnobotanists, one of the one of I think a great failing of Harvard was to let that department lapse after Schultes retirement or death. And so much important work was done. And if you think of the people he trained, you know, you know, Wade Davis, and Andy Weill and Mark Plotkin, you know, a whole generation of really important thinkers and explorers. It would be great to bring back some of that. And there's, there's still more things to be found, you know, in the Amazon and other places. So that'd be great work to support.

You know, Schultes used to keep a basket of peyote buttons outside his office for students during office hours. This goes back to before Peyote was scheduled. But yeah, there he was, he was handing them out like candy, I think to his graduate students. Maybe that's why they let the department lapse.

Steven Haggarty

1:06:31

They ran out of Peyote buttons.

1:06:34

Dick Simon

So, I think we're going to transition at this point, to- we have so many questions coming in from the audience, I'm going to synthesize some of them in order to try to get as many covered as possible.

There are several around the question of rumination and how it's being looked at and what it really means to sort of break down, and transdiagnostic criteria, and what is going to be done in the study at MGH and more broadly. So, I'll turn that over to Jerry, Sharmin.

1:07:18

Jerry Rosenbaum

So, I'll start to answer and then turn it over to Sharmin. I'm, as you know, a psychiatrist, a lot of my career was focused on treating people who had failed treatment elsewhere. And I was struck at one point that so much of the anguish and suffering of people, again as Michael said earlier, trans diagnostically whether there was anxiety, OCD, or depression was this burning some anguishing all-consuming phenomenon of cognitive stuckness, of rumination of thinking about and self-deprecatory way about thoughts, regrets, so forth, and it tracked so much with the disorder, but it was also separate, and many times people got better from the depression, but you could still tell that rumination was an issue. Rumination often increased before even the depression did so, and it wasn't well characterized or represented in our diagnostic criteria, in our nosology. So, I was intrigued by it.

And then when I was Chief, I could call a meeting and everybody would come, and we started a task force to try to understand rumination. And Sharmin was a great discovery because she was in our department, an MD/PhD from Yale and her graduate work had been in rumination. So, she took on a lot of the initial tasks of designing a tool to measure rumination as a state that we could use in studies. And as she mentioned, the next projects that we're doing with psilocybin will focus on rumination but, Sharmin, you want to take it from there from that introduction, and answer the question more scientific savvy?

1:09:04

Sharmin Ghaznavi

I mean, I think it's worth saying that we don't, we don't know a lot about rumination and clinical populations. In large part because it's, it's existed in ivory towers, and has been studied in a sort of what are called healthy analogs. So, long before we started looking at psychedelics for rumination, you know, we recognized that there was a need in our clinical populations to be able to understand it and characterize it across different disorders. Because one of the things I learned when I became a psychiatrist, and during my residency training was that, you know, as much as rumination was studied in major depression, all of my patients struggled with it, which meant that we, and like Jerry said, they struggled with it even after the disorder was under control otherwise. Which meant that this was an enduring phenomenon that needed to be addressed and understood if we were going to help all of these patients. And one of the nice things about is that it is transdiagnostic, so it's not focusing on treating one illness, it's looking at ways that, you know, a number of people can be helped across different illnesses.

And in terms of how we're going to study it, you know, one of the first things we had to do is come up with a measure to understand rumination. Not so much it's a personality trait, which is how it's largely been studied, but sort of how does it change over time? Unfortunately, we'd already started that work and we were also trying to think about how to treat it so that we could actually help our patients, not just study it. And that's actually how we came to know the world of psychedelics and our interest in it.

1:10:44

Michael Pollan

Fascinating. I mean, I think that one way to think about it, too, is it's about habits, right? It's about habits of thought, and what psychedelics seem to be good at is breaking habits. I mean, that's another way to think about plasticity. But these very set ways of thinking are loosened. And that may have to do with, you know, we were talking about this ability to map connections in the brain. That if those connections are even temporarily disrupted, that may create an opening to break habits, and you know, so there's a lot of different ways into this issue but I do think rumination is a very powerful concept to work with.

Bruce Rosen

So interesting the way you describe it as *state* and not *trait*, which of course also gives you hope to be able to accomplish exactly what Michael has laid out.

1:11:47

Dick Simon

So, there are several questions in the area of if The Center will be looking beyond what are called classic psychedelics, looking at things like MDMA, which is now in Phase 3 trials with MAPS for PTSD, and looking at ketamine. There are a lot of questions around ketamine, which is, as ketamine assisted psychotherapy, as opposed to ketamine infusion. Ketamine is regularly used as an antidepressant, an anti-suicidal agent, but there's a lot of talk about ketamine assisted psychotherapy.

So, I open the floor to whoever would like to address that: Any thoughts on MDMA and any work that's going on in MDMA that anyone would like to speak about and/or possibilities around ketamine assisted psychotherapy.

Jerry Rosenbaum

Franklin, you want to kick off this discussion on MDMA?

1:12:38

Franklin King

Sure, so I'm one of the principal investigators on the study, essentially seeking to combine mindfulness-based intervention with MDMA assisted psychotherapy in a PTSD population. So, MDMA is certainly one of the agents that we hope to be working on, fairly early on in the sequence of studies that we have going on.

1:13:00

Jerry Rosenbaum

As far as ketamine, and like a lot of other clinical settings, we have ketamine treatment available and as it has been historically, it's been used as a therapeutic itself. So, ketamine infusions, we've done intranasal ketamine but they have just started really to think more about the potential of ketamine assisted therapy.

Some of that, I think, is becoming more widespread because of the gap that exists between the availability of psychedelics for psychedelic assisted therapy. So while there have been practitioners who have been doing ketamine assisted therapy for a while, I think enthusiasm for it is sort of to fill that, that that interval, as we wait for psychedelics with a possibility that ketamine has some biological mechanisms that overlap with psychedelics, particularly in terms of evidence of having profound effects on neuronal plasticity. So, there is a group in our Center that right now is putting together an approach to do some feasibility work with ketamine assisted therapy with a goal of studying that as well. But I think it's an opportunity to do that while we wait for psychedelics because it may have some similar potential. I don't know if others have more to say about that. Maybe, maybe Franklin do you?

Franklin King

Well, I think the other interesting thing about ketamine is that it not only sort of fills the space, but I think it also allows opportunities for clinicians and other people who are interested in working with psychedelics to sort of get their feet wet and get a little bit of experience working with patients in a clinical setting under non ordinary states of consciousness.

Jerry Rosenbaum

That's a great point. We can prescribe ketamine now. It's off-label but doctors can write a prescription for it and patients can obtain it and we can use it as a drug or as a vehicle to assist therapy - we can explore it. We can't do research on it without an IND, but you can use it clinically, which is sort of interesting irony.

1:15:20

Michael Pollan

You know, one thing that occurs about MDMA, if you study the history of psychedelic therapy, there was a third mode of psychedelic therapy that nobody talks about very much it was called psycholytic therapy. And this was very popular in the late 50s in the psychiatric community, particularly in LA, where you give a medium dose, not a microdose, but you know, a medium dose of LSD, and then later MDMA to patients in talk therapy, and it would have the effect, they could still hold the conversation, but their defenses were lowered, and could talk more freely and establish a stronger bond very quickly.

There are some underground therapists I've recently learned who've continued to do this. And that, once these drugs are approved, I think it'd be a very interesting thing to explore. And it would bring psychedelics into the, you know, the weekly psychotherapy meeting with someone who isn't necessarily mentally ill. But for the reasons, any of us seek that kind of therapy, it could improve it and speed it dramatically. And I think that would be a wonderful thing for people to look at. And hopefully, you know, somebody will.

1:16:41

Steve Haggarty

It's interesting, Michael, I know, Franklin has plans to study exactly this question of the therapeutic interaction itself. Of course, you know, all these therapies, and, you know, assistant or guided approaches involve two people. And that's two brains and how they interact. And there are actually tools that Franklin has been discussing with other colleagues of ours, to be able to actually study the nature of that interaction, you know, from a neuroscience standpoint, was, of course mapping out, you know, the therapeutic implications of that. So, it's something that we can bring some, you know, real quantitative science behind as well as, of course, the important behavioral implications.

1:17:22

Jerry Rosenbaum

And Bruce is referring to something called hyper scanning, where literally both therapist and, and subject are in the scanner at the same time while interacting. (Not the same scanner).

Bruce Rosen

That's a different kind of study (chuckles)

1:17:37

Dick Simon

All of which, this supports again, what I was saying earlier, the incredible potential here, because you've got so many different arms of working together to look at all angles of something that in other places you might just think about.

1:17:53

Michael Pollan

Let me just add one little thing to that. I mean, part of what's exciting about this is, you know, there have been these small groups of visionary scientists who've taken us as far as we've gotten so far. But to bring the kind of resources that you have the kind of expertise, with whether it's scanning or chemistry or psychotherapy that MGH brings, could really be a game changer. I mean, this is a whole other order of brainpower being brought to the, to the field. And I think that in itself bodes well.

1:18:29

Dick Simon

Great, thank you. Thank you. Can we talk a little bit? Can somebody take on several questions around training practitioners, educating doctors, building pipelines for future research talent? What role might this Center at MGH have in that, both broadly and very specifically?

1:18:51

Franklin King

So, I think, you know, in some of our early studies, we're going to be going essentially using the training protocols that have been preexisting based on other investigational new drug protocols approved by the FDA. But certainly, the hope over the longer term is to sort of come up with our own training program, our own training institution, *potentially* in the long run. I think you're alluding also to sort of education, I think there's a big gulf between how psychedelics work and how they're so fundamentally different from the general medical model where somebody comes in and gets a prescription and leaves.. that there's going to, I think we really have our work cut out for us as the psychiatric community and sort of translating the language of psychedelics to a broader unknowing, both psychiatric practitioner public as well as the lay community. So, that's going to be another significant arm.

We are partnering with our psychiatry Academy, which is MGH Psychiatry's Educational Division – with 65,000 members around the globe. So, one thing that they do is they sort of put out educational programs to educate psychiatrists and other mental health clinicians so we're actually working on developing a program to educate clinicians on psychedelics right now.

1:20:07

Steve Haggarty

Just add to that, in addition to sort of clinicians, you know, we're already working with a number of really talented graduate students and undergraduate students at Harvard who have really sort of already shown interest in this sort of area. And so, I think that's critical also, that we've had the opportunity to create training all along that sort of pipeline here to really advance the field.

1:20:28

Jacob Hooker

One important model that I think we'll end up using is training across the disciplines, right, training on the fundamental chemistry as it applies to the translational biology and to the clinic. And so, I think The Center will be in a really unique position to cross-train across those silos to create a generation of scientists that hasn't been seen yet. That- that's one of the exciting aspects of central office to me.

1:20:56

Dick Simon

Thank you. I was just going to add one thing, Franklin, if you can clarify for people who aren't familiar with it, the Psychiatry Academy at MGH. I just think it exemplifies the sort of scale of operations and potential that exists starting through this Center.

1:21:15

Franklin King

Sure, so the psychiatry Academy is a pretty large division within the Department of Psychiatry, and I couldn't put a number to how it compares, but I'm pretty sure it's probably one of the largest in the world of any institution that sort of provides educational materials. And not just that, the Psychiatry Academy, they work with nongovernmental organizations, other hospitals, they train up whole swaths of clinicians, we offer conferences, many, many different conferences, both here in Boston and in other locations. So, it's, it's a very influential figure within the realm of psychiatric education.

Just worth mentioning, for those of you that don't know, if you're a clinician, whether you're a psychiatrist, psychologist, or what have you, you have to do certification every few years and sort

of prove that you continue to stay abreast of the literature. And so, institutions like the Academy provide that. So, we're really hoping to sort of try to fill a role in translating psychedelic knowledge to clinicians utilizing this Academy. We have a presence in the majority of countries throughout the world. So it's, it's a big program.

1:22:23

Dick Simon

Great, thank you. There are questions about first responders, and many questions here related to veterans and the potential for helping veterans either, you know, who were suffering from PTSD, traumatic brain injury, and a host of other things. Is there any work going on now or potentially at the center that that will be able to impact these groups?

1:22:46

Jerry Rosenbaum

Well, I think the first thing to mention in response to the question is, Mass General is the home to the Home Base Program, which I think is the largest sort of public/private center for offering treatment to veterans and not just locally, but regionally and nationally. So, because of the strength of the philanthropic support for our Home Base Program, we actually fly in veterans with PTSD from all over the country for programs that may be two weeks long or four days long, as well as treating veterans from our own community and region.

There have been collaborations and educational efforts with first responders in the region, as well. The program's executive director is a retired US Army Brigadier, General Jack Hammond, who has done an amazing job of building out the program. We have an incredible center, a state-of-the-art treatment facility, where a lot of this work takes place. And, and many of those who deliver treatment at Home Base are members of the Department of Psychiatry, psychologists, psychiatrists, and other professionals. And Home Base is excited about being a partner with us and what we expect to be our first treatment program for PTSD with MDMA that was alluded to earlier. So, it's an it's an incredible opportunity, and we're sort of well placed to, to work with that population. That's so much a part of our ecosystem at Mass General and so big a part of the commitment of the Department of Psychiatry to those who have served us and served our country.

1:24:37

Dick Simon

Thank you very much. So, we're coming toward the end of our time. So, I'd like to do two things, please. First, I want to thank everyone for participating from, you know, who's joined us as well as you know, leadership in the panel and certainly you Michael, but we have two more things coming up, so you definitely want to stay connected here. First is Michael, if you had one message coming out of all this that you would like to make sure people take home with them, what might that be? And I'll give you a moment to think about that. And after that we will have Dr. Jerry Rosenbaum close and with some remarks, and again, thank you to all the leadership at The Center for the incredible work you all do.

Michael Pollan

I guess my message would be that this is- this area is promising enough, and potentially could be profound in its impact, both on mental illness, which really is, as I said earlier, a crisis a public health crisis all around the world and that it is not being supported by government, by and large, and that it is an opportunity for anyone who has the ability to support the work in whatever way they want, whether it's clinical work or basic science. This is a field that's been generated kind of

bottom up. And, and this is an opportunity, I think, for philanthropists to step forward and have a tremendous, have potentially a tremendous impact. So, I think that's what I leave people with.

1:26:16

Dick Simon

Great thing to leave with. Thank you very, very much again, Michael. And Jerry.

1:26:19

Jerry Rosenbaum

I obviously, I echo what Michael said and I wanted to reflect on something Jacob said about graduate students and young scientists who are excited about working in this area. We see the same phenomenon - young physicians, young psychiatrists, palliative care doctors, pain specialists, so many are interested. But if you take the point about graduate students, I mean, you can't just have a graduate student go explore a career in this area, you have to give them a foundation, you have to, you have to support them. For graduate students who commit their career to this space, they've got to have some resources, and they have to probably have at least three years of funding, and that's just one graduate student. You can imagine, you know, what our resource needs will be if we're going to fully develop this field.

We want to give these people an opportunity, we want to take advantage of the opportunity that lies before us. And, and for those of you who enjoy philanthropy, for whom that you know, rocks your life and gives you pleasure, and you have the capacity to do it - I think that this is a worthwhile space to be making a contribution to, so I thank you in advance for all you may do to help people, either here or elsewhere, that is committed to this work.

And I want to close by thanking so many of you for joining us today and being part of this exciting venture that we're on and for your interest and commitment to this field. And Dick and Michael, you know, it was just a phenomenal presentation. You know, Michael, you're an extraordinarily thoughtful and well-versed person and have given us such a great gift today. So, so thank you so much and everybody good luck and stay safe.