



# InCognito

For all your study-related needs and feeds

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## Interview: Natasha Mason about Psychedelic Research

By Evan Lewis-Healey

**With more and more interest accumulating, we at the newsletter decided to focus on the elusive topic of psychedelics. So what is it like to investigate the effects of psychedelics from a scientific perspective? I interviewed Natasha Mason, a PhD candidate from the University of Maastricht, to find out about the promises and pitfalls of psychedelic research.**

*Hi Natasha, first can I ask you what your research focuses on?*

My research assesses drug-induced neuroadaptations and their relationship with cognitive and subjective alterations, with a particular focus on the potential therapeutic mechanisms of psychedelic substances.

*How did you get into the field of psychedelic research?*

I have always been interested in the effect drugs can have on the body and mind. Pursuing this interest, I started my studies at the University of Wisconsin-Madison. Here I was focusing on pharmacy, with the intent to be a pharmacist in the end. Subsequently, I was also working in a few pharmacies to gain some experience. During my time working at the pharmacy, however, I started to become disillusioned with the field. Specifically, I was hearing a lot of complaints from individuals about their medication (particularly for depression/anxiety), that it was not working or inducing intolerable side effects.

**“The idea that you could take a substance one time and experience long lasting (positive) effects really fascinated me.”**

This was also about the time that publications started coming out about the (long lasting) effect of a single dose of psilocybin on depression and anxiety. The idea that you could take a substance one time and experience long lasting (positive) effects (vs an antidepressant that you take every day) really fascinated me. I started diving more into the literature, including the older psychedelic studies and the proposed mechanisms of action. From there I changed my focus from pharmacy to (neuro)psychology and started gaining neuropsychopharmacological research experience in a lab at the university.



On the side of my studies, I started organizing events to raise awareness for the therapeutic potential of these substances. In doing so I reached out to MAPS [Multidisciplinary Association for Psychedelic Studies] to ask advice on how to pursue a career in this field, and they directed me to the small list of researchers who were able to do this type of work. From there I found Dr. Kim Kuypers at Maastricht University, and her work on MDMA. In order to work with her, I enrolled in the Research master in Neuropsychology at Maastricht, and upon completion stayed with her to do my PhD.

*How do the drug policies in the Netherlands differ to other countries in terms of access to psychedelics in controlled clinical conditions? Do they differ or are there still quite strict policies?*

Like most other countries, psychedelics (except psilocybin-containing truffles) are illegal in the Netherlands. So in regards to drug policy, there is not much of a difference. Coming from the US, I do see that they are less stigmatized socially, thus perhaps this could have an effect in regards to ability to perform controlled clinical trials. However there are two big factors when getting approval for a (psychedelic) drug trial that are separate from drug policy per se. Expertise in the form of both bureaucratic (getting the required permits for example) and practical (in regards to being able to responsibly handle individuals under the influence of specific substances) factors play a large role in approval to conduct a study. And finally there is the difficulty of being able to purchase the desired

substance. The drugs that we administer during clinical trials are not ones you buy on the street, rather they have to be synthesized under strict conditions in order to ensure quality and purity. Currently no-one is making many of these substances (ayahuasca for example), thus it is difficult to study them in a laboratory setting. I played a large role in getting them out to the general public. I think there is a large hope that these drugs work, and with that will gradually come potential funding opportunities.

*What are some big problems/unanswered questions in psychedelic research at the moment?*

Current clinical trials are still small, and many of them were not placebo controlled. Thus it still needs to be established that these drugs work (compared to a placebo), and importantly, that they work better compared to current treatment options. Additionally, we do not know what exactly they are doing in the brain/body, and what is leading to the long-lasting positive effects we are seeing. That is a focus here at Maastricht University, assessing the underlying neurobiological mechanisms of some of these substances.

*How do you think the research field will change in the next 5-10 years?*

Currently results are promising and there is a lot of hope in the therapeutic utility of psychedelics. If this trend remains (and clinical trials continue to be conducted according to rigorous scientific and ethical standards), it will become easier to study these substances. Many believe that MDMA and psilocybin will be approved as medications for certain pathologies within the next 10 years. This will make it easier to study such substances, and also open up opportunity for groups who were previously unable to do so.

*What are your main duties in the lab?*

As a PhD candidate I am responsible for the organization and execution of my specific research projects. These projects include experimental studies where we administer drugs (e.g. psychedelics) to healthy participants and assess (neuro)cognitive effects. They also include observational studies, where we go collect data "in the wild", testing individuals who are using these drugs in a natural setting.

*Has there been a major breakthrough in the past several decades of research?*

The fact that we are able to run studies with these substances again is a major breakthrough in itself!

# How Well Do You Know Your Drugs?

## Visit the Mouse Party!

By Birte Zuidinga

**When I was in a biology class in high school, we had to learn about the effects of different drugs on the brain. My awesome teacher had found an application that lets you investigate the effects of seven common drugs on the mouse brain – that, upon closer inspection, suspiciously resembles the human brain...**

Upon revisiting that website, I thought it would be fun to make it into a short puzzle. As a true behavioral neuroscientist, I will try my best to describe the behavior of the mice as accurately as possible. You can try to guess what they gave these poor (or lucky) rodents. Realize for yourself what your knowledge says about you. Check your answers at the bottom of this page.

**Mouse #1:** This grey mouse is sitting – or maybe it's better to say laying – on the couch. It is looking upwards with its mouth open. The only movements it makes are with its forepaw, rubbing the right eye once in a while.

**Mouse #2:** This brown mouse is standing with its back paws on the ground and making some sort of wavy move that goes from its chest down to his belly. The forepaws are swinging in the same rhythm. Its eyes don't blink but are continuously open.

**Mouse #3:** This light grey mouse is sitting on the floor. The mouse is staring intensely at the white tube-like object that it puts into its mouth once in a while.

**Mouse #4:** This white mouse is standing next to mouse #3. When it occasionally receives a whiff of the air mouse #3 blows out it backs away, seemingly repelled by it. However, afterwards it leans forward again with a grumpy look on its face. What also stands out is that this mouse is very lean, to the point where you can see the outline of its ribs through its fur.

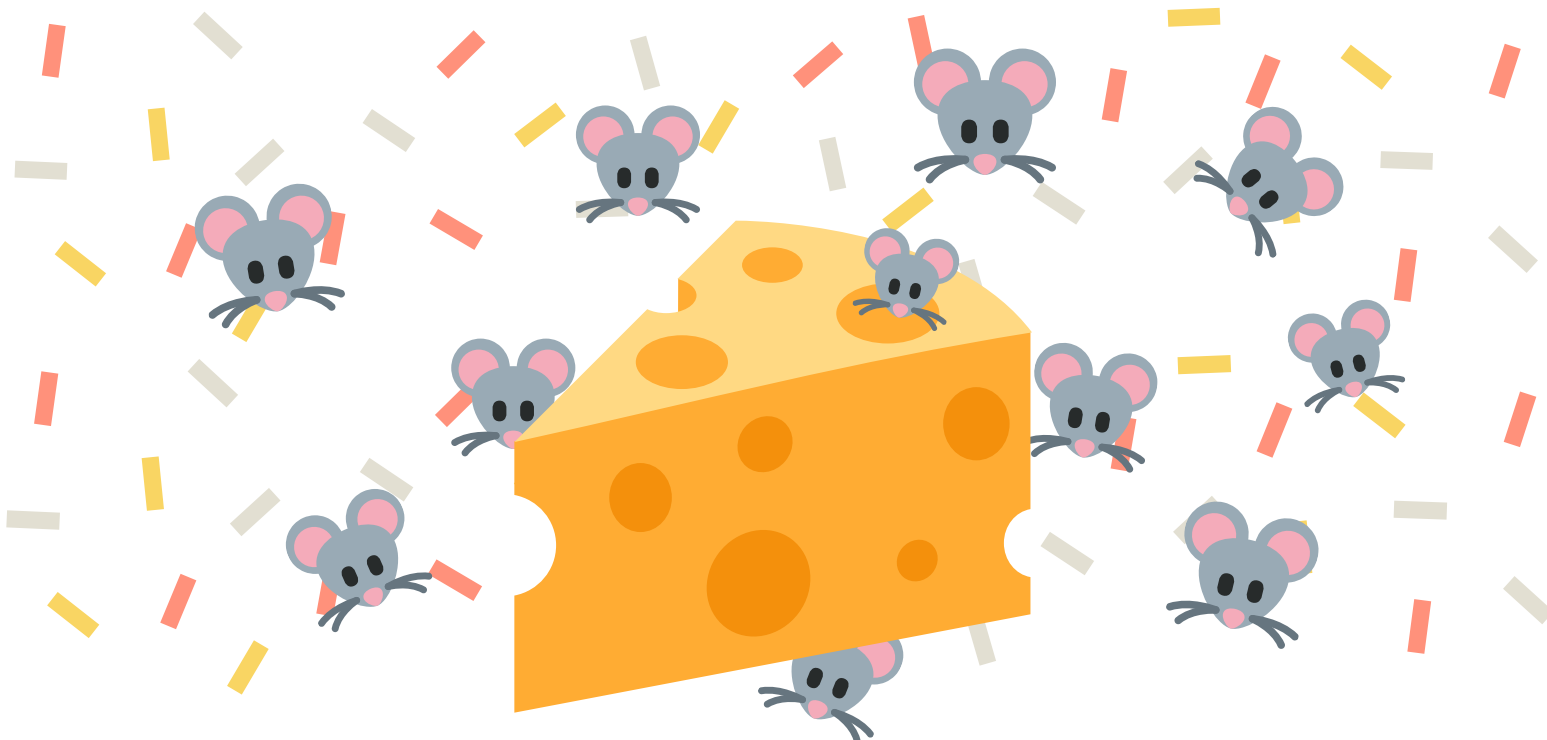
**Mouse #5:** This light brown mouse is sitting on the floor, holding an object in its left paw. Its head is facing the ground with the eyes closed. It doesn't move much, except for ducking away when mouse #3 exhales.

**Mouse #6:** This mouse with a medium brown color is standing straight on its hind paws. Its head moves around fast, like it is checking out its environment vigorously. It holds its front paws together and is fidgeting with them constantly.

**Mouse #7:** This white mouse is sitting on the floor and not moving very much. Its eyes are wide open and the only movement this mouse makes is waving its right hand in front of its face. The hand seems move slower than usual, and it looks like it is at different places at the same time.

If you want to verify my observations with your own eyes, check out Mouse Party at:

<https://learn.genetics.utah.edu/content/addiction/mouse/>



*There exist all different kinds of mouse parties it seems...*

### OVERHEARD:

*"We kunnen ook Nederlands praten"*  
"Yes"

- Anonymous

Overheard something funny? Email the quote to us at [newsletter.cognito@gmail.com](mailto:newsletter.cognito@gmail.com)

### LIFE HACK OF A COGNITO MEMBER:

Put old chips/crisps that have become stale in a hot oven for a while to make them taste fresh and crispy again!

- Credits to Sebastiaan

# Psychedelics: A Brief Trip Through Time

By Evan Lewis-Healey

**Psychedelics have been used all over the world for millennia. The oldest interpretation of hallucinogenic art dates back up to 9000 years ago in the Saharan desert and hallucinogenic practices remain the backbone of many indigenous cultures in South America. Such practices use fungi (most notably containing the psychoactive component psilocybin) and plant species (ayahuasca, namely containing dimethyltryptamine - DMT).**

Western science made an unprecedented shift into the realm of psychedelic research following the synthesis of Lysergic Acid (LSD) in the 1930s. Through the sheer morbid curiosity of many not-so-scientific scientists, LSD has been heavily investigated in terms of its spiritual significance, its clinical benefits, and (most bizarrely) its mind control properties (Project MK Ultra). These investigations found that LSD may aid in alcoholism, alleviate anxiety, and provide a deeper insight into spirituality and consciousness. However, these studies did not fall within modern regulatory guidelines, and should be looked upon with skepticism.

As the 1960's emerged, a wave of counter culture swept the Western world. A scientist called Timothy Leary, one of the pioneers of psychedelic research in that decade, encouraged individuals to use LSD, and preached its benefits. Leary maybe went (a bit) too far, and was fired from his academic post for giving acid to undergraduates. Unfortunately, the hysteria and anti-government backlash led to stricter and more stringent global drug policies (but most notably in the US), which ground psychedelic research to a halt. This has had a huge implication for the progression of properly conducted scientific research, as these prohibitory boundaries still cause researchers to jump over hurdles just to get clearing for their investigations, let alone to gain access to LSD or psilocybin.

## Psychedelics, Psychopathology and the Network State

Yet now, due to the increasing technological capacity of brain imaging, alongside the increasing tolerance for psychedelic use in research, there has been a re-surge of interest within the scientific community. Carhart-Harris et al. have recently been working with psilocybin and LSD for a number of years, documenting its therapeutic effects on depression, anxiety and how it may alter functional connectivity within the brain. In a clinical trial conducted in 2016, they investigated the effects of psilocybin on treatment-resistant depression. Twelve participants were recruited, and went through a low and then a high dosing session, accompanied by two psychiatrists to guide them through the trip and provide any necessary psychological support.



The results showed that eight patients achieved complete remission of depressive symptoms on week after the high dose session and three months after, five out of twelve patients remained in a remission state.

In order to take a deeper look at how LSD affects the brain, the same research group imaged people's brains using fMRI and MEG while they were on it (which sounds horrible, but all in the name of science...). They found that there was a significant increase in resting state functional connectivity (RSFC) between V1 and various cortical and subcortical structures, which of course corresponds to the visual hallucinations they experienced. As well as this, the researchers found reduced functional connectivity in the default mode network (a functional network of spatially separated brain areas, where their activation is implicated in mind-wandering and a range of psychopathological conditions). This reduced connectivity also correlated with a disintegration of their sense of self (ego-death) on various self-report measures. This decrease in default mode network synchronisation has also been found in fMRI studies with psilocybin and depression, which has significant and long lasting effects on resting state functional connectivity.

This change in the default mode network is particularly interesting as the long-lasting changes may have a relationship with the reduction in depressive symptoms. Strikingly, one of the lectures presented at MPP was given by Denny Borsboom, who discussed the re-conceptualisation of psychopathology. Supposedly validated statistical models of mental disorders have focused on an intangible latent variable that drives the psychopathology within an individual. However, his research proposes, through computer science, statistics and clinical psychology, a network state theory of mental disorders - positing that mental disorders arise due to the strength of connections between

symptoms in a network. Psilocybin and LSD could provide an insightful investigation into further conceptualising the network states of individuals with psychopathology, as Carhart-Harris describes psilocybin to act as a "reset therapeutic mechanism".

## Moving Forward

Although these studies should be met with scientific skepticism, the emphasis should be placed on re-framing the prohibitory status of certain drugs within research. Two organisations are spearheading this idea in Amsterdam; Both the OPEN foundation and the Amsterdam Psychedelic Research Association (APRA) are interdisciplinary institutions with an aim of furthering academic research into psychedelics. With dedicated people and more free access, modern science can harness psychedelics to further shine a light into many aspects of neuroscience, psychopathology and consciousness.

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# Announcements of the Month

By Sven Wientjes

## UvA Career Skills Week

### Career Skills Week

Have you been thinking about what to do after finishing the MBCS programme? If you are not sure about staying in academia it can be beneficial to develop your skills and knowledge relevant for industry. The UvA is organizing a career skills week from 19 – 22 February, where you can get workshops on different professional skills, talk to recruiters, visit a company fair, get feedback on your CV from a professional recruiter and ask for personal career advice. You won't only hear about working at large companies but can for instance also talk to start-ups about their experiences. Everything is freely accessible except for the recruitment interviews. You can sign up through the UvA website, just google for the UvA career skills week!

## DE NATIONALE AI CURSUS

### AI course

Dutch universities have started a free online course on Artificial Intelligence that takes about 4-5 hours to complete. Experts from different universities teach in the course, which is meant for the general public. The goal is to give a lay audience a more realistic picture of developments and possibilities in Artificial Intelligence and to make public debates relevant for the practice of AI. Their ambition is that 1% of the population of the Netherlands will take the course and get the certificate. Find it here (in Dutch): [www.ai-cursus.nl](http://www.ai-cursus.nl). This initiative is inspired by the Finnish 'Elements of AI' course, developed in Helsinki, which quickly became the most popular course in Finland. Elements of AI takes 30-60 hours to complete and is available in English: <https://www.elementsofai.com/>.



### Survey on sexual transgressive behaviour on the UvA

The ASVA, one of the student unions in Amsterdam, is researching sexual transgressive behaviour amongst students of the UvA. They want to estimate how common this is, and what steps students take after the incident. This study is part of a critical examination of the policy of the university towards sexually transgressive behaviour and the ASVA is looking for crucial points of improvement. If you have any opinions or experiences that could be relevant, the survey can be found using the link or the QR-code. [https://uvacommscience.eu.qualtrics.com/jfe/form/SV\\_darbjeYrsOdzhj](https://uvacommscience.eu.qualtrics.com/jfe/form/SV_darbjeYrsOdzhj).



### Cognito Sleepover

The 16th of February our amazing Social Committee is organizing a sleepover event! It will be in the picturesque village of Heemstede, at Sebastiaan's parents. A great opportunity to travel to the most beautiful side of the Amsterdam surroundings and experience the historical 'Oude Lijn', the train tracks between Haarlem and Leiden, where the train station of Heemstede is located. This is the first functioning railroad ever built in the Netherlands!



## APRA

Amsterdam Psychedelic Research Association

### Lecture series MDMA treatment for PTSD

The Amsterdam Psychedelics Research Association (APRA) is organizing a lecture series on MDMA as a treatment for PTSD patients. There will be two evenings, the 21st and the 28th of February, with talks by different experts from the field. Both general clinical insights into PTSD and how exactly MDMA can fit in as functional treatment will be presented. It will be a very interdisciplinary event at the frontiers of knowledge, so highly relevant to our programme!

## Neuroscience Joke

"We only use 10% of the brain."

"What about the other 90%?"

"We will save that part for another dish", replied the cannibal.



## Klara's Lemon Soup

By Nutsa Nanuashvili

**Sometimes it seems the gloomy winter is here to stay, and with it bouts of sun-deprivation and depressed mood. While one can never be optimistic about sunshine in the Netherlands, sulky mood could be successfully tackled. For this reason Klara Gawor was very kind to share with us a lemon soup recipe which according to her "works as an instant mood improver". This recipe is originally from Greece but it's been in her traditional family menu for more than a hundred years.**

### Ingredients:

- 200g of rice
- 2 egg yolks
- 2 lemons
- Black pepper/Salt
- 1,5 L of stock
- Chopped parsley

### Optional ingredients:

- Cooked carrots or other vegetables
- Cooked chicken breast

### Steps

- Blanch lemons; zest one lemon, and squeeze both lemons.
- Boil the broth in a pot, add the rinsed rice to the boiling broth and cook for about 15 minutes stirring from time to time.
- After that, pour lemon juice into the soup, add grated lemon peel, and cook for about 10 minutes.
- Mix the yolks with a small amount of hot soup (in a separate dish), and add into the soup pot, stirring constantly.
- Boil for a moment and season to taste.
- Serve the soup sprinkled with parsley and garnished with slices of lemon.

You can add boiled carrots or chicken breast to make it more filling. Instead of rice, Klara's grandmother used small squares of semolina but their preparation is time-consuming.

