

Log book

September 14 -20 - I started therapy and began brainstorming ideas. I decided that I wanted to do a project on gene editing.

I did a course on genetic and cellular biology last year, and I knew that it was a point of interest of mine.

September 21-25 - I started looking into genetic engineering tools, specifically CRISPR. I decided I wanted to make a gene editing tool to work on a genetic illness, but I had yet to decide on a field.

September 26-30 - I started researching psychiatric genetics, as psychiatry is a major interest of mine.

I myself have several partially genetic psychiatric disorders, so having seen the effects of generational mental health, I want to work on a way to use genes to change the outputs of chemicals in the brain that cause neural dysfunction.

Current Questions

1. Which psychiatric disorder is affected the most by genetics?
2. What chemical outputs cause neural dysfunction seen in certain psychiatric disorders (namely, major depressive disorder (MDD), bipolar disorder (BD), and obsessive compulsive disorder (OCD))?
3. How can genetic engineering change the outputs of these chemicals?

October 1-6 - I continued my research, answering the stated questions. I decided I wanted to do an experimental project working with hospitals/universities to use psychiatric genetic engineering for MDD, OCD, and BD. I began to draft emails to universities and hospitals, and made a plan to finish my drafts, send them to the teachers working on the science fair to review them, and then send them.

October 7 - 17 - I was admitted to the hospital, where I met psych nurse Anthony. Though I wasn't able to work on my project due to the teachers' strike and therefore no electronic use, I asked the staff their opinion/knowledge on psychiatric engineering and various disorders. I asked Anthony his opinion on dissociative identity disorder (DID), to which he responded that he believes it's a "misplacement of intelligence". After a few follow-up questions I discovered he had never had a patient with DID after 15 years working as a psych nurse (it's important to note that he works with kids and has always worked with DID, which tends to present later in life), and his view on DID could be changed if given enough evidence. I decided that I wanted my project to be on researching DID to prove that it is a trauma based disorder and just as valid as any other disorder.

October 18 - 30 - Following my discharge from the hospital, I began doing research on DID to get my background information.

1. What is DID?
2. How does DID develop?
3. What are some treatment plans for DID?
4. What is non-possessive DID?
5. What is PTSD?
6. What are dissociative disorders?
7. What is dissociation?

October 31 - November 18 - I was again hospitalized, where I again saw Anthony and continued to ask him more about his view on DID. I was interested because my research had told me that DID is officially recognized in the DMS 5 as a dissociative disorder, so how could a psychiatric nurse deny its validity? I had also only seen it represented in media through the movie "Split, that painted DID patients as violent and out of control.

My current questions were;

1. What are alters in DID?
2. How does traumatic history affect DID?
3. How do social-cultural factors affect DID?

November 19 - 26 - I continued my research on DID, deciding for my question to be on the effect of traumatic history on DID.

My current question was

1. How are alters formed?
2. When does DID develop?
3. When does DID present?

November 26 - 30 - I decide that I want to take an approach to my research that focuses on increasing function in DID patients, not just survival.

Current Questions

1. How does DID impact functioning?
2. How does DID impact memory?
3. How does DID impact safety?

December 1 - 14 - I begin research on alters in DID.

Current questions

1. What are the different types of alters?
2. How does a system work?
3. How does DID work as a coping mechanism?
4. How do alters help DID work as a coping mechanism?
5. What is switching?
6. How does switching work?
7. Is it involuntary or voluntary?
8. What are the triggers to switch?
9. Why is DID a risk factor for psychogenic non-epileptic seizures?

December 15 - 31 - My research continued, and I started to draft a scientific report.

Current questions

1. What is ritual abuse?
2. What are some cases of DID?
3. How does DID affect neuroanatomy?
4. What is the hippocampus and its function?
5. What is grey matter and its function?
6. What is white matter and its function?

January 1 - 20 - I continue working on and finish my scientific report.

Current to-do list

1. Finish writing my report
2. Finish formatting my report

3. Finish editing my report
4. Finish deciding my next steps for my project

January 21 - 28 - I start and finish working on my trifold for my school science fair project and print out brain scans to go onto my project.

January 29 - I have my school science fair.

February 5 - I find out I'm able to go to CYSF.

February 6 - 13 - I make a project plan for my next steps. I have decided that I want to connect by using other people's findings to create a treatment plan for DID that will be more effective than the currently used ones by combining psychological, neurological, and biological treatments.

Current Method

1. Create a list of specific symptoms/effects of DID
2. Research how these symptoms/effects impact health
3. Look at research done into DID or similar disorders with the same symptoms/effects.
4. Research how these symptoms/effects develop.
5. Research clinical and preclinical methods of preventing the further development of these symptoms/effects
6. Explain how these treatments could work for DID
7. Put them all together for a treatment plan

Current questions

1. What causes hippocampal volume loss seen in Alzheimer's (AD)?
2. What causes hippocampal volume loss?
3. What is neural atrophy, and how can it be slowed?
4. What are the methods of protecting cells against atrophy?
5. What is neurogenesis?
6. How can neurogenesis increase?
7. What are the methods of increasing NSC (neural stem cells) proliferation, differentiation, and migration?
8. What is NSC transplantation therapy?
9. What is NSC migration therapy?
10. How do stress exposure, diet, and exercise affect neurogenesis?

February 14 - 21 - I concluded my research on DID.

Researched questions

1. What are non-epileptic seizures?
2. What are treatments against non-epileptic seizures?
3. What are psychological symptoms/changes in DID?
4. How does the neuroanatomy of DID control differ from that of healthy controls specifically?
5. What is the sociocognitive model of DID?
6. What is interidentity amnesia?

February 21 to March - I began to work on adding my additional research to my scientific report. I finished my scientific report, and all I have to turn in for CYSF.

I plan to work on my trifold, adding any extra details to myproject, and practicing my presentation until April 9.