

2-Br-LSD Treatment of Mood and Depressive Disorders

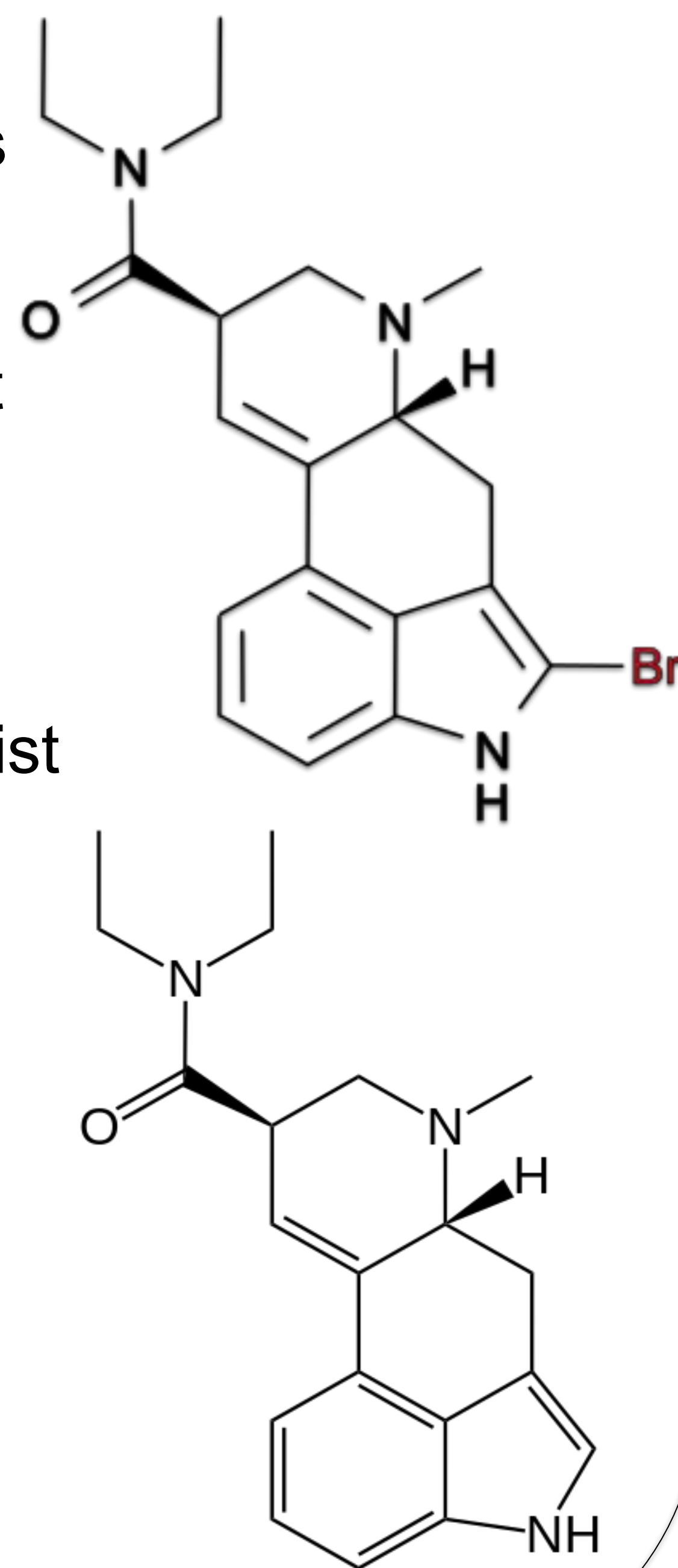
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Background

- Treatment for mood and depressive disorders (Lewis et al., 2023).
- Highly potent partial agonist of 5-HT_{2A} serotonin receptors.
- Competitive partial antagonist
- 5-HT_{2A} major pathways (Lewis et al., 2023):
 - β -arrestin (hallucinations)
 - Gq/11 (positive mood effects)
- Functional differences between LSD and 2-BR-LSD.

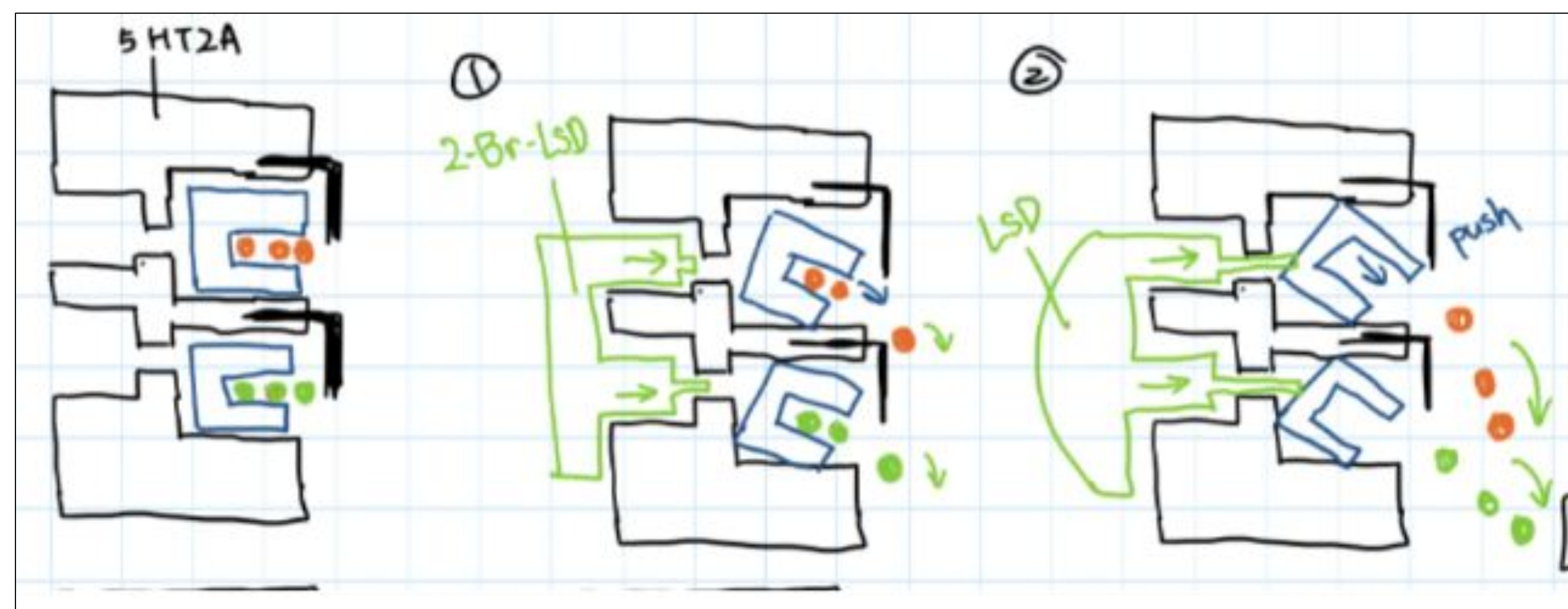


Model Creation Process

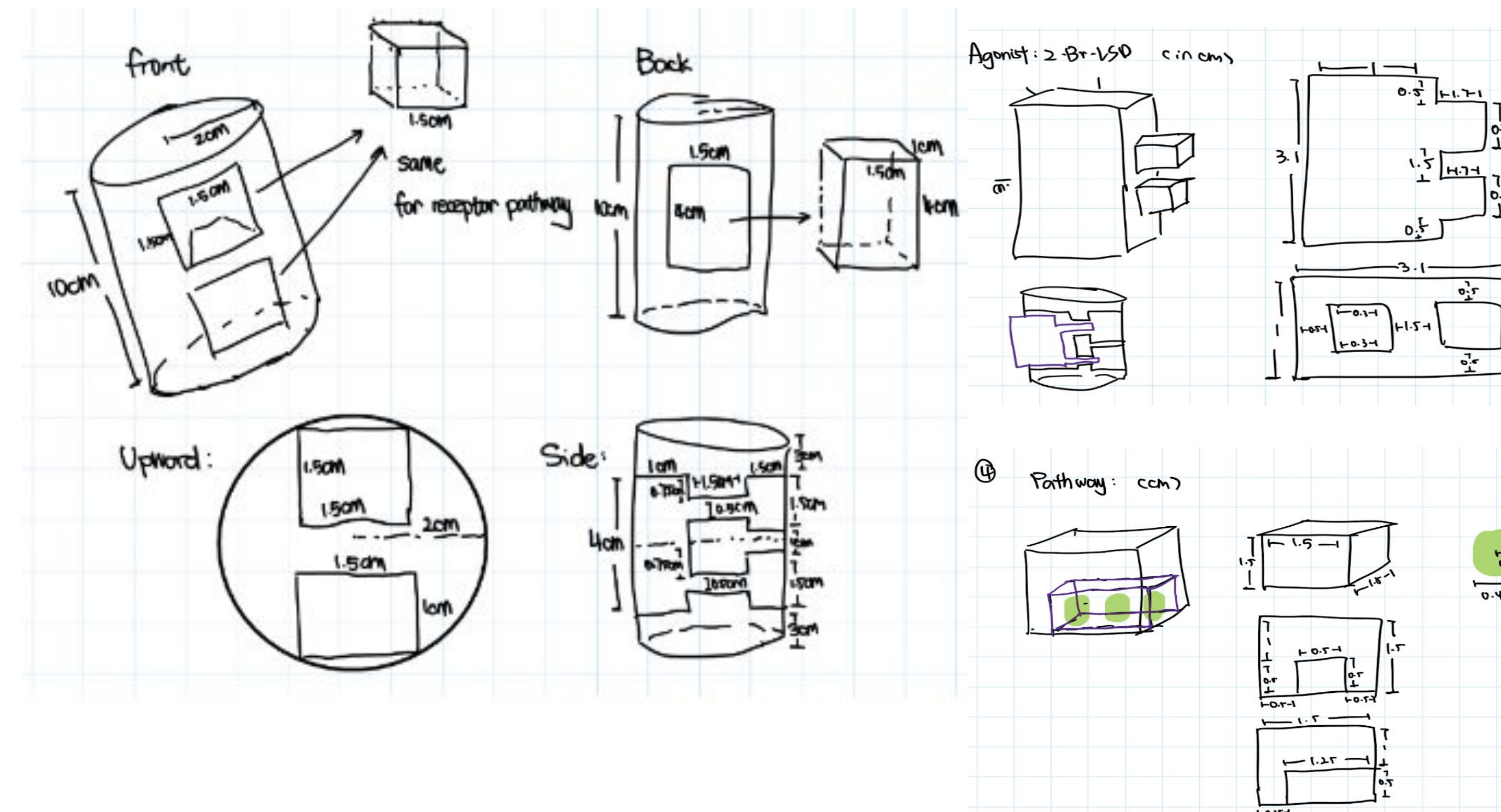
Prototypes



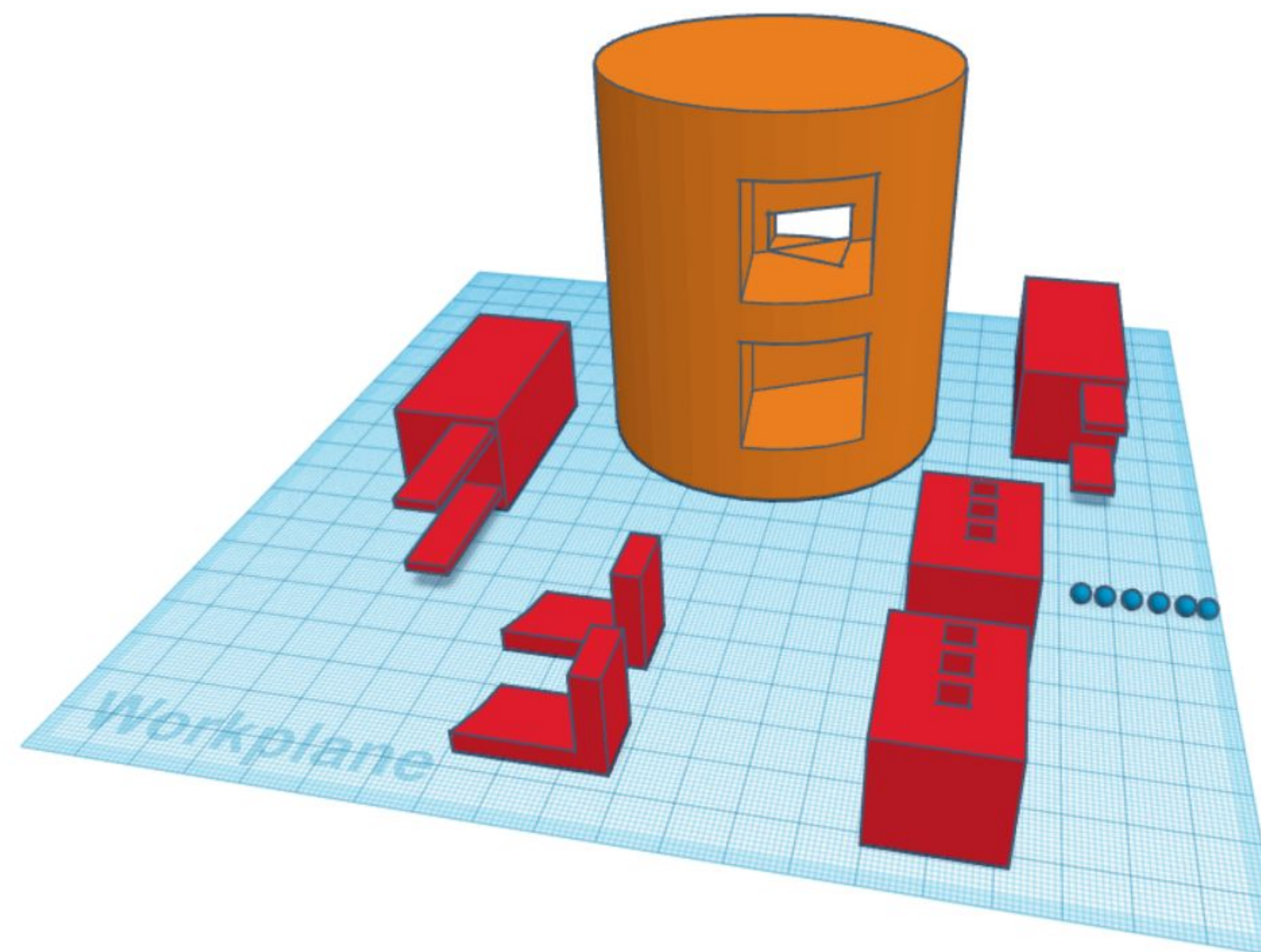
First sketches



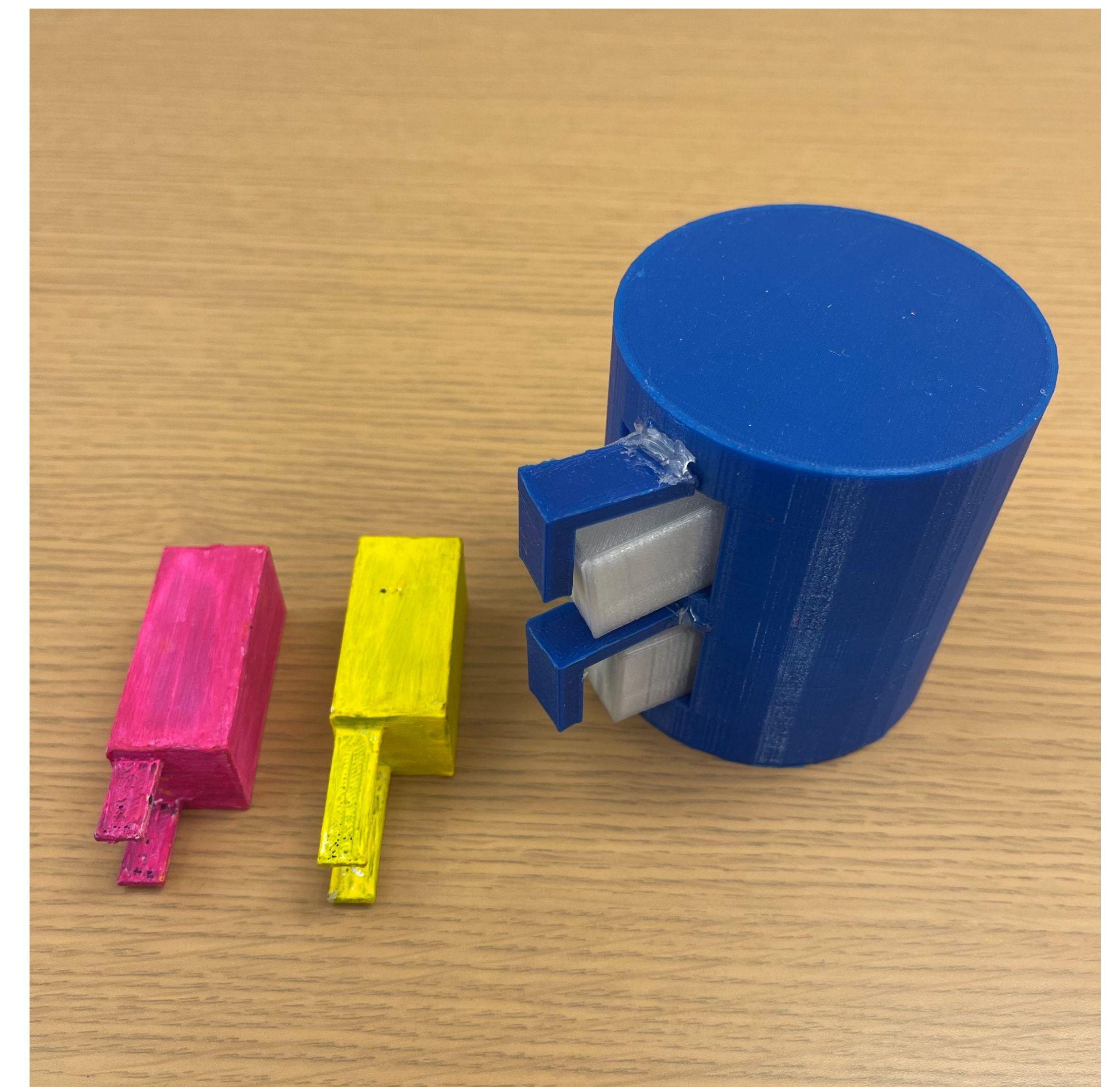
Finalized sketch



3D modeling



Final Model



Video Demo

Methods and Materials

- Research
- Initial Prototype
- Design Sketches
- Tinkercad
- 3D Printing at BeAM Makerspace



References and Contributions



Discussion

Limitations:

- Differences between partial agonist and agonist
- Differences between two secondary messenger pathway
- No serotonin (competitive antagonist)
- No depiction of the specific loop where ligand binding site is located
- Accuracy of conformational change after agonist binds

Future Directions:

- Larger system that includes secondary messengers and intracellular structures
- Change in receptor shape when bound to agonist/partial agonist