

Unveiling the Unique Mechanism of Allopregnanolone, a GABA-A

Receptor Selective PAM, on Antidepressant Action

A. Shah, W.T. Stevens, L. Seymour, G.H. Bullard, N. Elkin, R. Penton, PhD



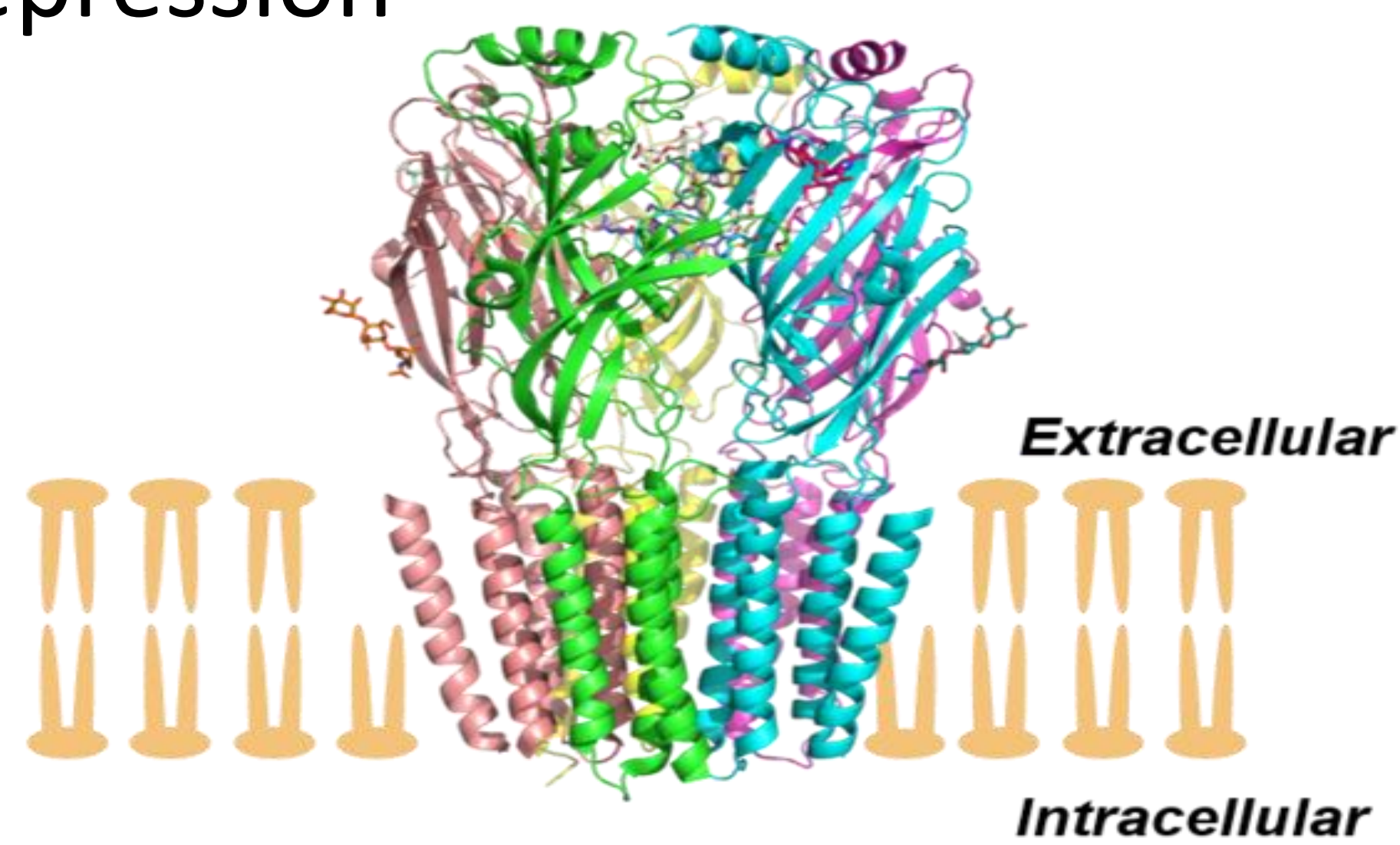
References and Contributions



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Introduction

- Gamma-aminobutyric acid (GABA-A) receptor is an ionotropic ligand-gated receptor
- Allopregnanolone: positive allosteric modulator that binds to the steroid allosteric site, enhances GABA agonists
- Hyperpolarizes membrane and opens of chloride ion channels
- Commonly used in alleviating symptoms of postpartum depression



Methods

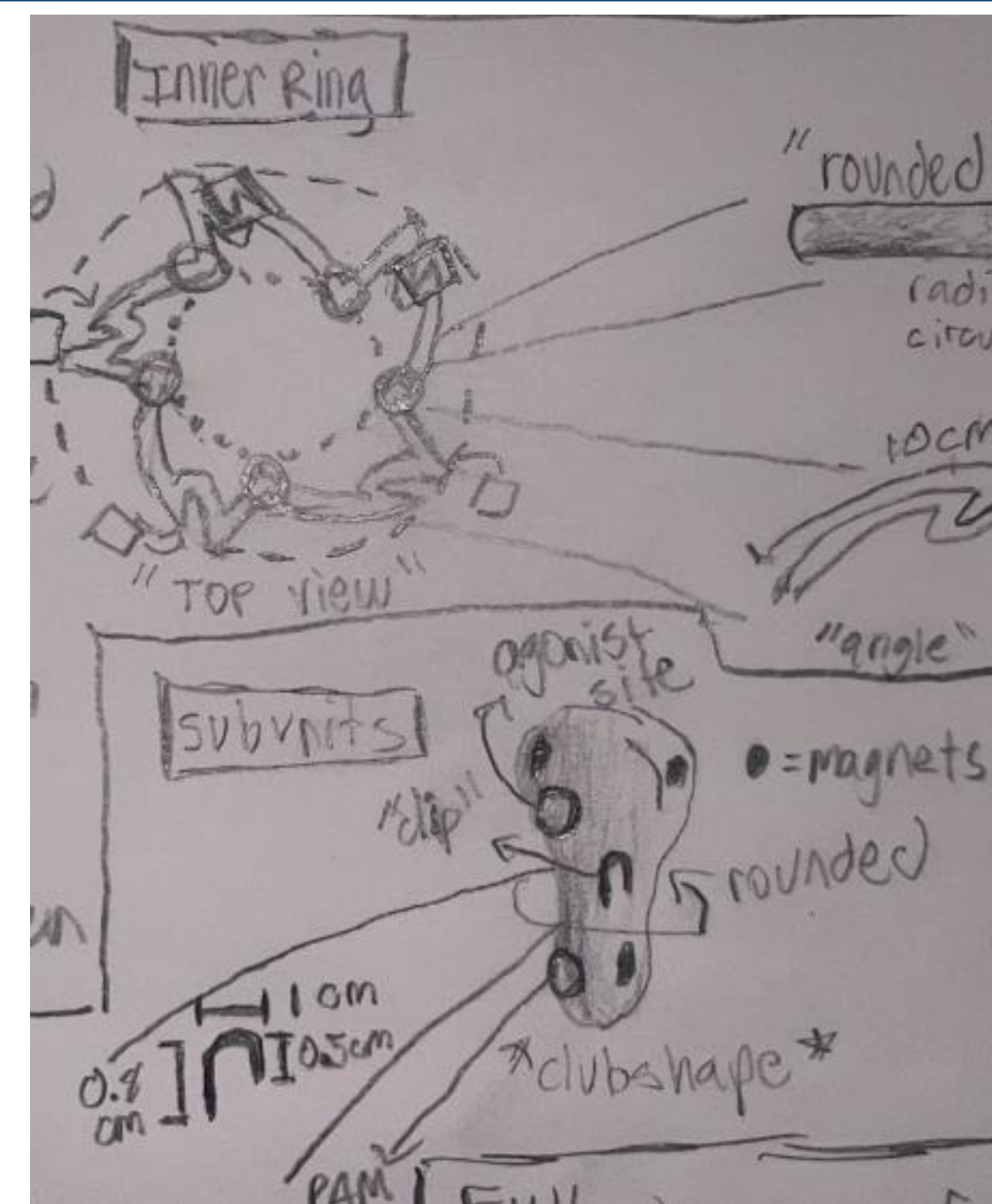
1. Research
2. Initial Prototypes
3. Design Sketches
4. Tinkercad
5. 3D Printing
6. Iteration



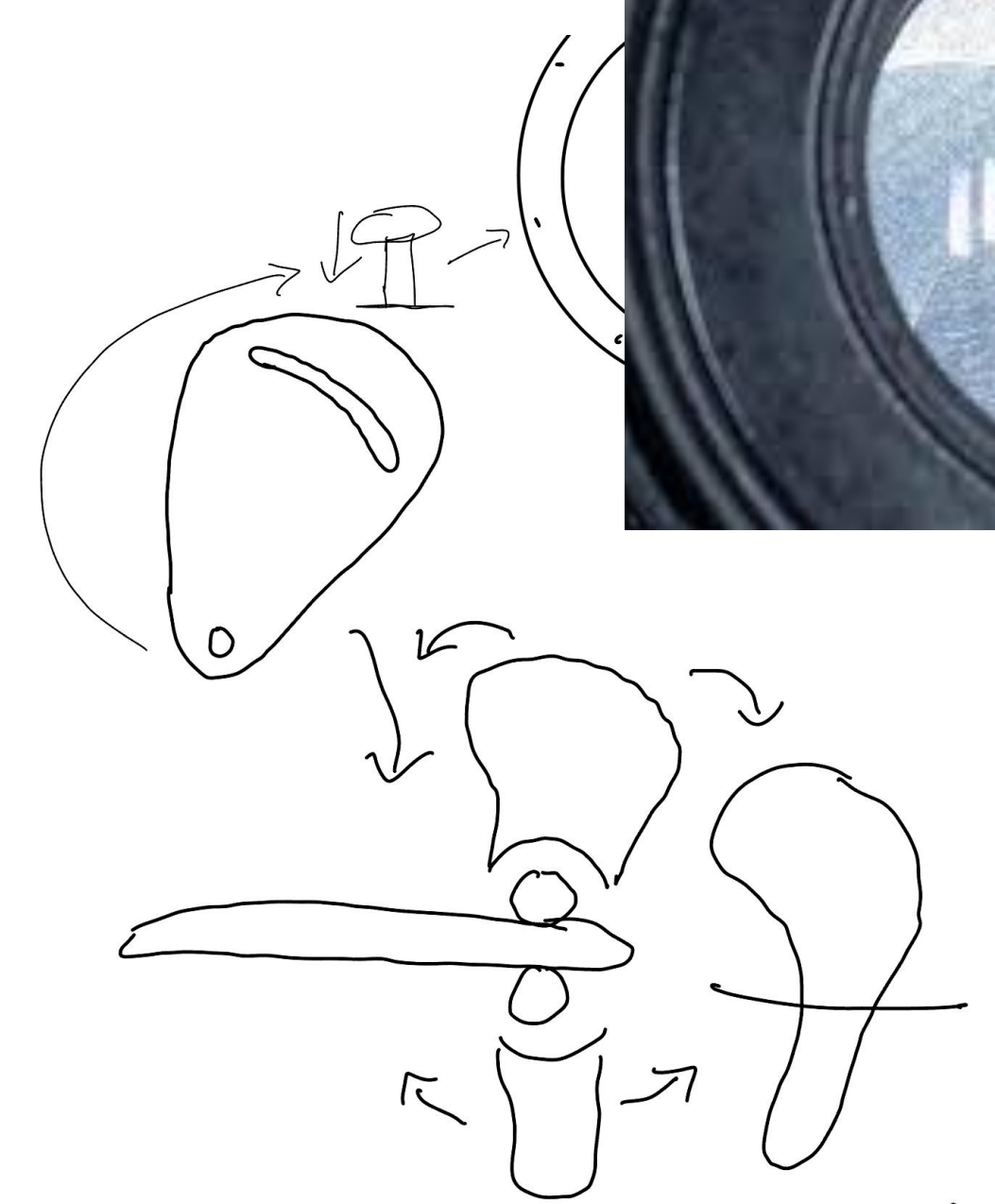
Design Process



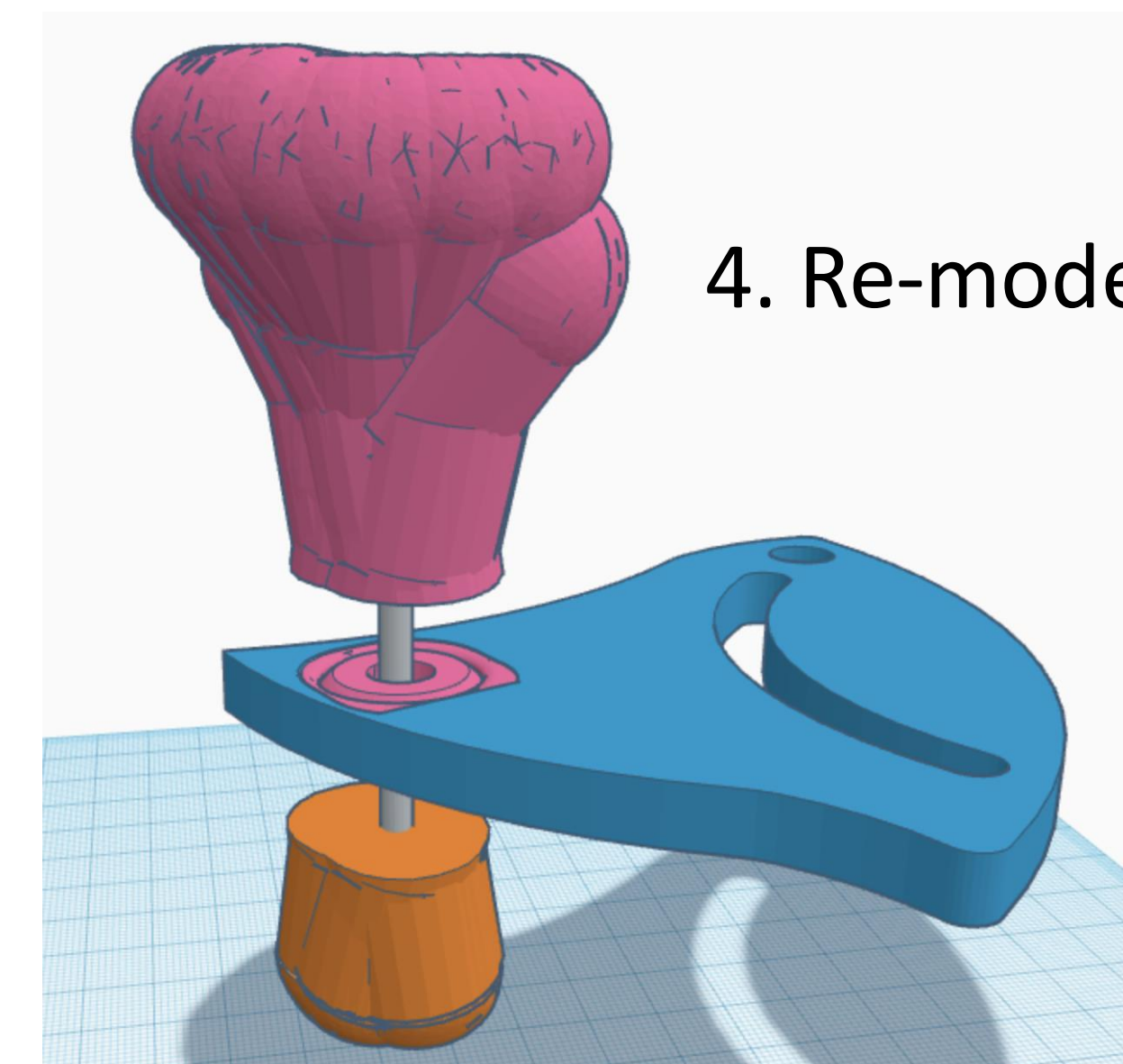
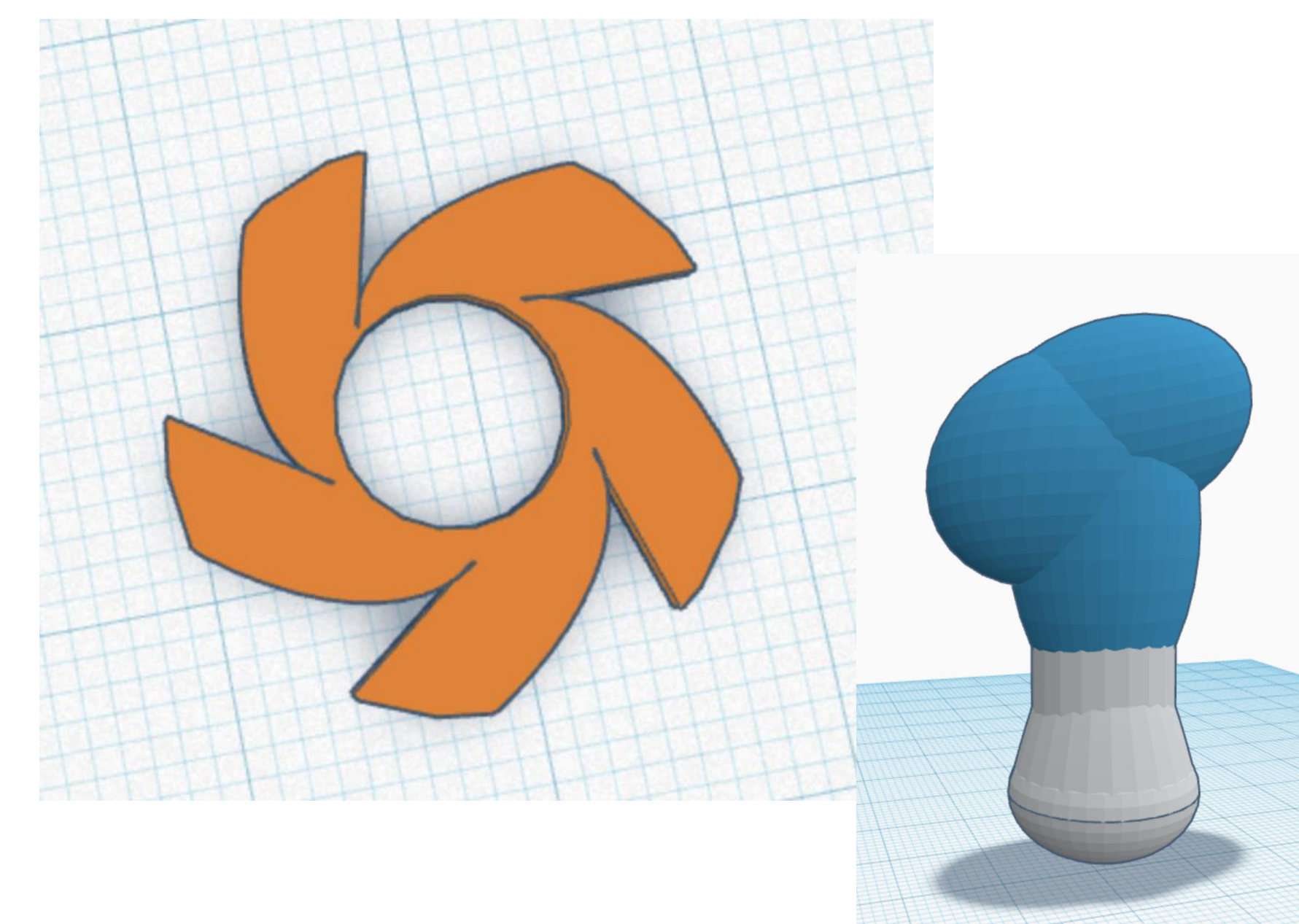
1. Prototyping



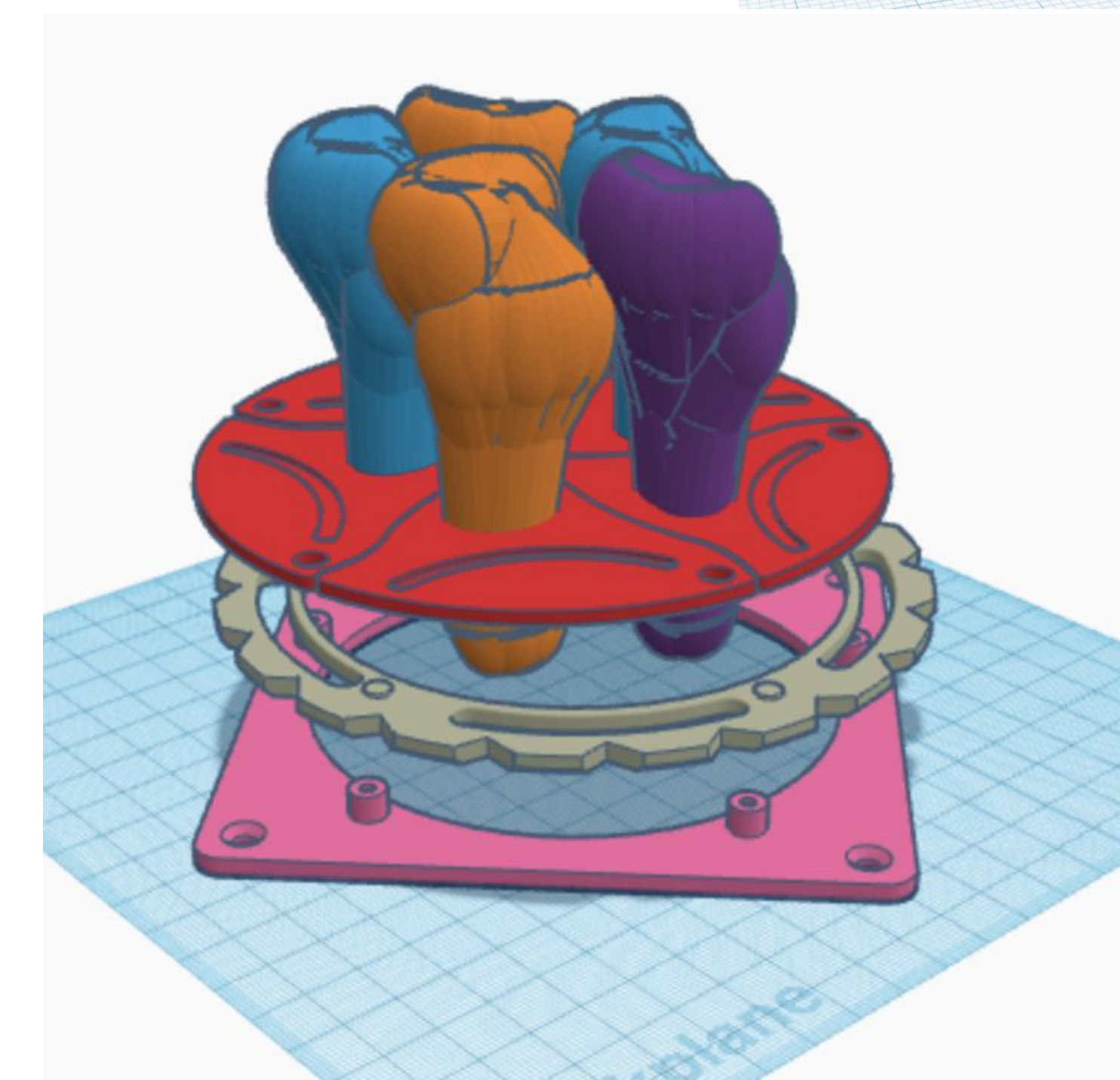
2. Design



4. Re-design

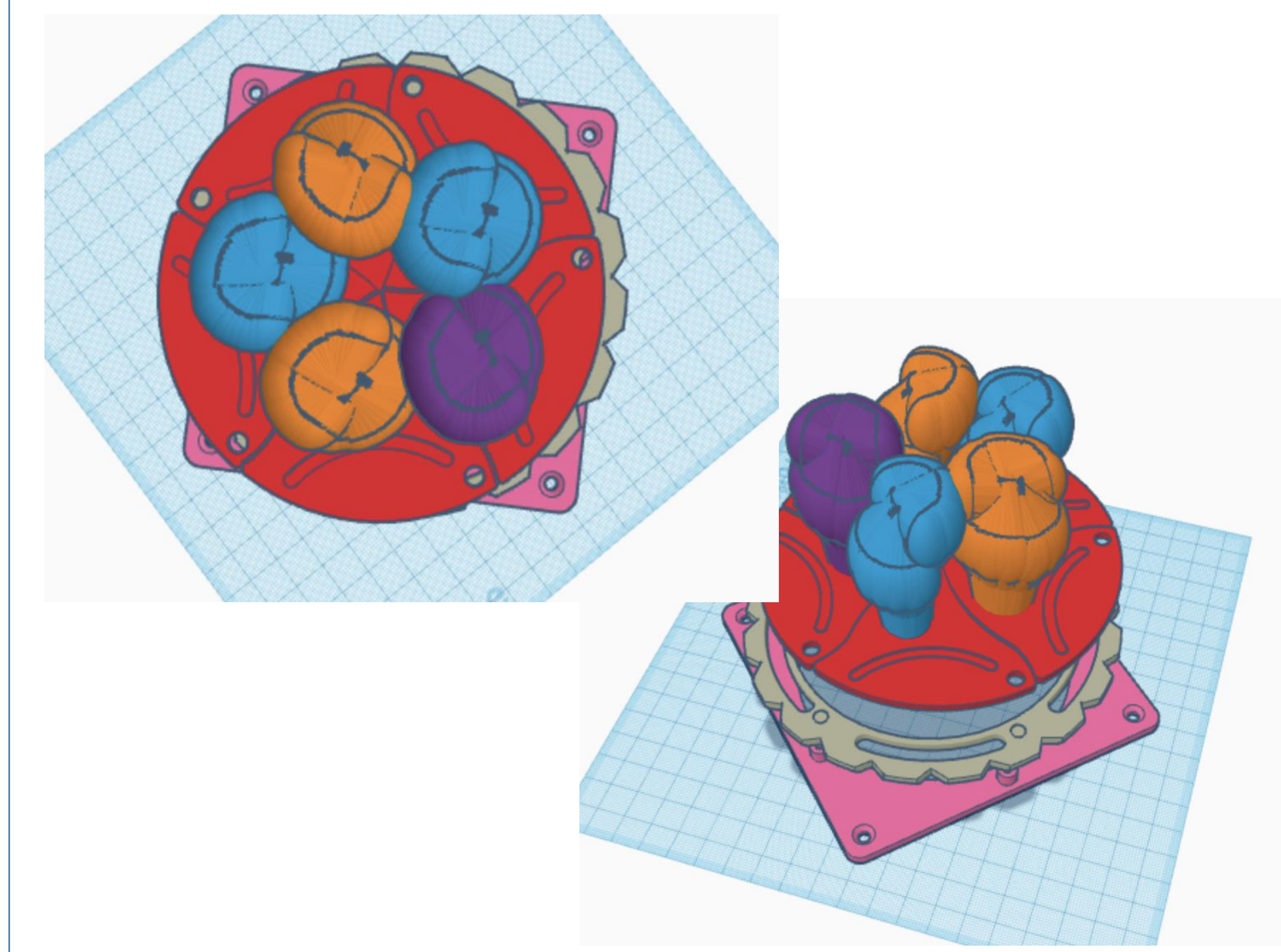


4. Re-model



5. Final Model

Final Model



Future Directions

- Advancing pharmacological research leading to larger effects
- Differences among opening time of GABA-A receptor
- Inaccurate lens aperture for structural mechanisms
- Intracellular binding site is difficult to see

Model Demonstration

