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Title: Self-Administration of Drugs in Mouse Models of Feeding and Obesity

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Author Questionnaire

1. **Microscopy**: Does your protocol require the use of a dissecting or stereomicroscope for performing a complex dissection, microinjection technique, or something similar? **No**

2. **Software:** Does the part of your protocol being filmed include step-by-step descriptions of software usage? **No**

3. **Interview statements:** Considering the COVID-19-imposed mask-wearing and social distancing recommendations, which interview statement filming option is the most appropriate for your group? **Please select one**.

   ☒ Interviewees wear masks until videographer steps away (≥6 ft/2 m) and begins filming, then the interviewee removes the mask for line delivery only. When take is captured, the interviewee puts the mask back on. Statements can be filmed outside if weather permits.

4. **Filming location:** Will the filming need to take place in multiple locations? **No**

Current Protocol Length

Number of Steps: 05
Number of Shots: 14

Introduction

1. Introductory Interview Statements

REQUIRED:

1.1. **Olivia Osborn:** Preclinical studies in mice often rely on invasive drug delivery such as injections or oral gavage that can have significant effects on food intake and body weight.

1.1.1. INTERVIEW: Named talent says the statement above in an interview-style shot, looking slightly off-camera. *Suggested B-roll: 3.1.4 for 'effects on food intake'*

1.2. **Rizaldy Zapata:** To overcome these limitations, drugs can be mixed with highly palatable food, such as peanut butter, allowing mice to self-administer compounds with minimal stress compared with an injection or gavage.

1.2.1. INTERVIEW: Named talent says the statement above in an interview-style shot, looking slightly off-camera. *Suggested B-roll: 2.1.4 for 'be mixed with highly palatable food'*

Ethics Title Card

1.3. Procedures involving animal subjects have been approved by the Institutional Animal Care and Use Committee (IACUC) at the University of California, San Diego.

Protocol

2. Making the Drug-Peanut Butter Pellet

2.1. Begin by pulverizing the drug tablets in a mortar using a pestle **[1]**. Weigh the calculated amount of peanut butter in a weigh boat on a tared scale **[2]**, then melt it over a beaker of warm water **[3]** and mix the calculated amount of the pulverized drug into the melted butter **[4]**.

2.1.1. WIDE: Establishing shot of talent pulverizing the tablets in a mortar.

2.1.2. Talent weighing peanut butter on a tared scale.

2.1.3. Talent melting the butter over a beaker.

2.1.4. Talent mixing the drug into the butter.

2.2. When cooled, place the peanut butter-drug mix into a mold **[1]**. Prepare the placebo pellets with peanut butter alone in a similar fashion **[2]**. Freeze the mold in minus 80 degrees Celsius to allow the peanut butter to harden until use **[3]**.

2.2.1. Talent adding butter-drug mix to a mold. *Videographer: This step is important!*

2.2.2. Talent adding butter to a mold.

2.2.3. Talent placing the mold in a deep freezer.

3. Mouse Setup and Training to Self-Dosing of Drug-Peanut Butter

3.1. Prepare standard mouse cages with a lining of highly absorbent paper bedding and enrichment, including paper towels and a housing dome **[1]**. House a single mouse in each cage **[2]**. Provide ad libitum food and water in the cages **[3]** and allow the mice to acclimate to the housing for approximately three days **[4]**.

3.1.1. WIDE: Talent setting up the mice cages. *Videographer: This step is important!*

3.1.2. Talent placing a mouse in a cage.

3.1.3. Food and water/bottle in the cages.

3.1.4. Talent replacing water bottles/adding food in cages.

3.2. Before starting the training, fast the mice for 24 hours **[1]**.

3.2.1. Cages with a single mouse each, without food and water supply.

3.3. On the next day, place a placebo peanut butter pellet, as a control, on the wall of the cage approximately 1.5 inches from the base **[1]**. Due to novelty, it may take approximately 1 hour for the mouse to consume the peanut butter pellet on the first day of a trial **[2]**.

3.3.1. Talent placing pellet on the wall of the cage. *Videographer: This step is important!* NOTE: 3.3.1 is misslated, actually it is 3.3.1-3.3.2

3.3.2. The mouse consuming the pellet. *Videographer: This step is important!* NOTE: Only one take

Results

4. Results: The Effect of Drug Delivery Methods on Food Intake and Weight Gain in Mice

4.1. The chronic delivery of risperidone in peanut butter for 14 days **[1]** facilitated significantly higher daily food intake **[2]** and more weight gain in C57BL6 female mice **[3]** compared with control **[4]**.

4.1.1. LAB MEDIA: Figure 1 a, b.

4.1.2. LAB MEDIA: Figure 1 a, b. *Video Editor: Emphasize the black bar in figure a.*

4.1.3. LAB MEDIA: Figure 1 a, b. *Video Editor: Emphasize the black bar in figure b.*

4.1.4. LAB MEDIA: Figure 1 a, b. *Video Editor: Emphasize control bars in both figures.*

4.2. Intraperitoneal delivery of risperidone in the same dosage did not significantly affect food intake **[1]** or weight gain compared to self-delivery in peanut butter **[2]**.

4.2.1. LAB MEDIA: Figure 1 c, d. *Video Editor: Emphasize the black bar in figure c.*

4.2.2. LAB MEDIA: Figure 1 c, d. *Video Editor: Emphasize the black bar in figure d.*

Conclusion

5. Conclusion Interview Statements

5.1. **Besma Chaudry:** When conducting this protocol, it is important to be consistent with the accuracy of the measurements of food intake and body weight and the timing of drug administration throughout the study.

5.1.1. INTERVIEW: Named talent says the statement above in an interview-style shot, looking slightly off-camera. *Suggested B-roll: 3.1.3 for 'food intake'*

5.2. **Dinghong Zhang:** Future applications of this technique include studies of the timing of drug delivery on food intake and weight gain in the context of circadian rhythms and metabolic health.

5.2.1. INTERVIEW: Named talent says the statement above in an interview-style shot, looking slightly off-camera. *Suggested B-roll: 3.3.2 for 'drug delivery'*