## Supplementary Table 1

### Experiment design

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| --- | --- | --- | --- |
| **Name** | **Data type (default)** | **Describe or request** | **Sub-class** |
| Designer | Name | Describe | Collection |
| Collection name | Phrase | Describe | Collection |
| Parent A | List from database | Describe | Genotype |
| Parent B | List from database | Describe | Genotype |
| Genders included | Checkboxes (both male and female) | Describe | Genotype |
| Balancers to remove | Checkboxes (none) | Request | Genotype |
| Incubator used for rearing | List from database | Describe | Protocol |
| Food used for rearing | List from database (Cornmeal) | Describe | Protocol |
| Experiment temperature | Number (23) | Request | Protocol |
| Visual stimulus | List from database (r/v = 40) | Request | Protocol |
| Visual stimulus delay | Number (0) | Request | Protocol |
| Visual stimulus elevation | Number (0) | Request | Protocol |
| Visual stimulus azimuth | Number (45) | Request | Protocol |
| Photoactivation protocol | List from database (50 ms, 50%) | Request | Protocol |
| Photoactivation delay | Number (0) | Request | Protocol |
| Video compression | List (MP4) | Request | Protocol |
| Record trigger type | List (When ready) | Request | Protocol |
| Additional stimulus delay | Number (50 ms) | Request | Protocol |
| Post-stimulus record time | Number (100 ms) | Request | Protocol |

A FlyPEZ “experiment” is defined by its identification number such that data acquired over the course of multiple days can be grouped, given that all the metadata associated with the experiment ID is true for that data. Each item listed in the table can be grouped as either a description or a request. Descriptions refer to the history of the flies prior to the experiment, while requests will be used during the experiment to ensure that flies are treated with the correct experimental procedure. Additionally, for easy cross-referencing, the 16-digit ID is comprised of three parts: a collection, genotype, and protocol.