

**Supp. Figure 1:** Summary of anesthesia trials.

**Supp. Figure 2:** Anesthesia assessment. Criteria used to determine the depth of anesthesia.

Responses are defined as absent (red), absent/reduced (light pink), and normal (white).

**Supp. Figure 3:** Egg production before and after anesthesia. Table shows drug combination, and the mean ratio of eggs/lizard collected 5 weeks preceding and 5 weeks after anesthesia.

**Supp. Figure 4:** Summary of all anesthetic/analgesic combinations and their effects on anesthesia induction, level, and recovery time. Drug combinations with alfaxalone and TBE are shown in blue and red, respectively. (A) Induction, (B) deep, (C) surgical, (D) moderate, (E) light, and (F) total anesthesia time. Data from lizards that died under anesthesia in groups A/D/H30 and T500 are not shown in graphs (B-F).

Fig. S1

| Anesthesia Trial | Lizards/group | Anesthetics/analgesics   | Drug combination abbreviations | Dose                                |
|------------------|---------------|--|--------------------------------|-------------------------------------|
| 1                | 2             | Alfaxalone   | A-CA                           | 30mg/kg                             |
|                  | 5             | Alfaxalone   | A-DE                           | 30mg/kg                             |
| 2                | 5             | Alfaxalone/<br>Dexmedetomidine   | A/D                            | 30mg/kg<br>0.1mg/kg                 |
| 3                | 4             | Dexmedetomidine  | Dex                            | 0.1-10mg/kg                         |
| 4                | 4             | Alfaxalone/<br>Dexmedetomidine/<br>Hydromorphon                                  | A/D/H30                        | 30mg/kg<br>0.1mg/kg<br>1mg/kg       |
|                  | 4             |  | A/D/H20                        | 20mg/kg<br>0.06mg/kg<br>0.6mg/kg    |
| 5                | 4             | Ketamine/<br>Dexmedetomidine/<br>Hydromorphon                                    | K/D/H                          | 30mg/kg<br>0.1mg/kg<br>1mg/kg       |
| 6                | 4             | Alfaxalone/<br>Dexmedetomidine/<br>2nd Alfaxalone 30min<br>post                  | A/D+A30min                     | 30mg/kg<br>0.1mg/kg<br>+<br>30mg/kg |
| 7                | 11            | Tribromoethanol  | T50-500                        | 50-500mg/kg                         |
|                  | 5             |  | T400                           | 400mg/kg                            |
|                  | 4             |  | T500                           | 500mg/kg                            |
| 8                | 4             | Tribromoethanol/<br>Dexmedetomidine  | T400/D                         | 400mg/kg<br>0.1mg/kg                |
| 9                | 4             | Tribromoethanol/<br>Dexmedetomidine<br><b>(Surgery)</b>                          | T400/D                         | 400mg/kg<br>0.1mg/kg                |
| 10               | 4             | Alfaxalone/<br>Dexmedetomidine/<br>2nd Alfaxalone 30min<br>post <b>(Surgery)</b> | A/D+A30min                     | 30mg/kg<br>0.1mg/kg<br>+<br>30mg/kg |
| Lizard#          | 64            |  |                                |                                     |

**Fig.S2**

| Anesthesia Assessment | Respiratory Rate & Depth | Tail/Cloacal Clamp | Dorsal skin/ Pelvis pinch | Hindlimb withdrawal | Limb tone       | Jaw tone        | Palpebral/ corneal | Righting        |
|-----------------------|--------------------------|--------------------|---------------------------|---------------------|-----------------|-----------------|--------------------|-----------------|
| Deep                  | Absent/ Shallow          | Absent             | Absent                    | Absent              | Absent          | Absent          | Absent             | Absent          |
| Surgical              | Shallow/ Reduced/ Normal | Absent             | Absent                    | Absent              | Absent          | Absent          | Absent             | Absent          |
| Moderate              | Normal                   | Reduced            | Absent/ Reduced           | Absent/ Reduced     | Absent/ Reduced | Absent          | Absent             | Absent          |
| Light                 | Normal                   | Normal             | Normal                    | Normal              | Reduced/ Normal | Reduced/ Normal | Reduced/ Normal    | Reduced/ Normal |
| Recovered             | Normal                   | Normal             | Normal                    | Normal              | Normal          | Normal          | Normal             | Normal          |

**Fig.S3**

| Anesthesia Trial | Drug combination | Lizard# | Mean ratio of eggs/lizard before anesthesia | Mean ratio of eggs/lizard after anesthesia | Mean ratio difference: after - before |
|------------------|------------------|---------|---|--|---------------------------------------|
| 1                | A-CA             | 2       | 0.75 ± 0.4                                  | 1.40 ± 0.49                                | 0.65                                  |
|                  | A-DE             | 5       | 1.05 ± 0.6                                  | 1.20 ± 0.11                                | 0.15                                  |
| 2                | A/D              | 5       | 0.60 ± 0.29                                 | 0.55 ± 0.21                                | -0.05                                 |
| 3                | Dex              | 4       | 0.70 ± 0.41                                 | 0.55 ± 0.11                                | -0.15                                 |
| 4                | A/D/H30          | 4       | 0.85 ± 0.65                                 | 0.45 ± 0.33                                | -0.40                                 |
|                  | A/D/H20          | 4       | 1.30 ± 0.62                                 | 0.70 ± 0.33                                | -0.60                                 |
| 5                | K/D/H            | 4       | 0.95 ± 0.37                                 | 1.10 ± 0.38                                | 0.15                                  |
| 6                | A/D+A30min       | 4       | 1.33 ± 0.37                                 | 1.23 ± 0.28                                | -0.10                                 |
| 7                | T400             | 5       | 1.25 ± 0.13                                 | 1.13 ± 0.38                                | -0.13                                 |
|                  | T500             | 4       | 0.8 ± 0.33                                  | 1.33 ± 0.82                                | 0.53                                  |
| 8                | T400/D           | 4       | 0.93 ± 0.55                                 | 1.00 ± 0.18                                | 0.07                                  |

Fig. S4

