**Supplemental Digital Content**

**Table 1.** Experimental diet composition

|  |  |  |  |
| --- | --- | --- | --- |
| **Macronutrients** | **Conventional diet****% kJ (%Kcal)** | **Milk tablet****% kJ (% kcal)** | **Experimental diet****% kJ (% kcal)** |
| Proteins (%) | 92.1 (22) | 25.1 (6) | 58.6 (14) |
| Lipids (%) | 41.9 (10) | 67 (16) |  54.4 (13) |
| Carbohydrates (%) | 284.6 (68) |  326.5 (78) |  305.6 (73) |
| Calories (kcal/g) | 16.3 (3.9) | 17.2 (4.1) | 16.7 (4.0) |

Diet choice was based on the results of the pilot project. Conventional diet (Purina®, São Paulo, Brazil) was offered to the Lean group, whereas the dietary intervention to induce experimental obesity standardized in our laboratory consisted of offering equal parts of commercial rat chow (Purina®) enriched with condensed milk caramel tablet candy to the experimental group for 12 weeks.

**Table 2.** General characteristics

|  |  |  |
| --- | --- | --- |
| **Variables** | **L** | **Ob** |
| Food intake/week (g.week-1) | 28.1 ± 3.3 | 24.2 ± 1.9 |
| Calorie intake/week (kcal.week-1) | 108.2 ± 11.6 | 95.9 ± 7.8 |
| Final body weight (g) | 431.5 ± 34.5 | 439.8 ± 38.3 |
| Nasal-anal length (cm) | 26.5 ± .1 | 26.8 ± 1.2 |
| FBW/length1 (g.cm-1) | 16.6 ± .3 | 17.1 ± 1.4 |

Values are means (SD) of 28 rats/group. L: Lean, Ob: obese. Differences between groups were assessed using Student’s t-test.

FBW, final body weight.

1Length: distance between nose and anus without the tail.

**Table 3**. Forward and reverse oligonucleotide sequences of target gene primers

|  |  |  |
| --- | --- | --- |
| **Gene** | **Primer** | **Primer sequences (5′-3′)** |
| TNF-α  | Forward | ACA AGC CCG TAG CCC ACG TC |
| Reverse | AGG AGC ACG TAG TCG GGG CA |
| IL-6  | Forward | CTC CGC AAG AGA CTT CCA G  |
| Reverse |  CTC CTC TCC GGA CTT GTG A |
| Nrf2  | Forward | GAG ACG GCC ATG ACT GAT |
| Reverse | GTG AGG GGA TCG ATG AGT AA |
| GPx  | Forward | CTC TCC GCG GTG GCA CAG T |
| Reverse | CCA CCA CCG GGT CGG ACA TAC |
| Catalase  | Forward | GGC AGC TAT GTG AGA GCC |
| Reverse | CTG ACG TCC ACC CTG ACT |
| 36B4  | Forward | AAT CCT GAG CGA TGT GCA G |
| Reverse | GCT GCC ATT GTC AAA CAC |

TNF-α, tumor necrosis factor alpha; IL-6, interleukin-6; Nrf2, nuclear factor erythroid 2-related factor 2; GPx, glutathione peroxidase; 36B4, acidic ribosomal phosphoprotein P0.

**Table 4.** Measurement of adiposity by dual-energy X-ray absorptiometry (DEXA)

|  |  |  |  |
| --- | --- | --- | --- |
| **Variables** | **L** | **Ob** | **p** |
| Total body fat (%) | 28.6 ± 6.1 | 36.8 ± 8.6 \*\* | 0.002 |
| Trunk fat (%) | 27.2 ± 5.7 | 35.8 ± 8.7 \*\* | 0.001 |

Values are means (SD) of 28 rats/group. L, Lean; Ob, obese. Difference between groups was assessed using Student’s t-test. \*\*p <0.01 *versus* Lean group.

**Table 5.** Metabolic and hormonal profile in serum

|  |  |  |  |
| --- | --- | --- | --- |
| **Variables** | **L** | **Ob** | **p** |
| Triglycerides (mg.dl-1) | 114.6 ± 29.6  | 136.7 ± 55.5 \* | 0.04 |
| Total cholesterol (mg.dl-1) | 95.8 ± 35.2 | 117.9 ± 40.5 \* | 0.02 |
| Insulin (ng.dl-1) | 2.9 ± 1.8 | 5.7 ± 3.2 \*\*\* | 0.0001 |
| Leptin (ng.dl-1) | 5.2 ± 3.2 | 11.0 ± 5.1 \*\*\* | 0.0001 |

Values are means (SD) of 28 rats/group. L, Lean; Ob, obese. Difference between groups was assessed using Student’s t-test. \*p <0.05 *versus* Lean group, \*\*\*p <0.001 *versus* Lean group.

**Table 6.** Body composition of Lean and Obese groups

|  |  |  |  |
| --- | --- | --- | --- |
| **Variables** | **L** | **Ob** | **p** |
| Epididymal AT/FBW | 0.0122 ± 0.0028 | 0.0168 ± 0.0048 \*\*\* | 0.0001 |
| Retroperitoneal AT/FBW | 0.0160 ± 0.0047 | 0.0251 ± 0.0078 \*\*\* | 0.0001 |
| Total visceral AT/FBW | 0.0282 ± 0.0063 | 0.0419 ± 0.0119 \*\*\* | 0.0001 |
| Inguinal subcutaneous AT/FBW | 0.01586 ± 0.0033 | 0.0211 ± 0.0062 \*\*\* | 0.0001 |

Composition of adipose tissue compartments. L: Lean, Ob: obese. Values are means (SD) of 28 rats/group. Differences between groups were assessed using Student’s t-test.

\*\*\**vs.* Lean (p<0.001)

AT/FBW, adipose tissue/body weight; FBW, final body weight.

**Table 7.** Lung functional and morphometric variables

|  |  |  |  |
| --- | --- | --- | --- |
| **Variables** | **L** | **Ob** | **p** |
| Est,L (cmH2O.ml-1) | 1.48 ± 0.5 | 1.90 ± 0.6 | 0.1701 |
| Raw (cm H2O.ml-1.s-1) | 0.008 ± 0.003 | 0.016 ± 0.005\*\* | 0.0027 |
| Normal (%) | 94.1 ± 5.3 | 75.5 ± 6.5\*\*\* | 0.0001 |
| Collapsed (%) | 5.9 ± 2.3 | 24.5 ± 6.1\*\*\* | 0.0001 |

Values are mean (SD) of 8 rats/group. L, Lean; Ob, obese; Est,L, static lung elastance; Raw, airway resistance.

All values were computed in 10 random, non-coincident microscopic fields per rat. Normal: fraction area of lungs occupied by normal alveoli. Collapsed: volume fraction of the lung occupied by collapsed alveoli. Analyses were done in animals treated with sodium thiopental. Differences between groups were assessed using Student’s t-test. \*\* p<0.01 compared to Lean, \*\*\* p<0.001 compared to Lean.

**Table 8.** Blood gas analysis in obese animals

|  |  |  |  |
| --- | --- | --- | --- |
| **Variables** | **THIO** | **PRO** | **DEX** |
| PaO2/FiO2 | 299.5 ± 42.9 | 342.8 ± 39.4 | 308.1 ± 40.9 |
| pHa | 7.43 ± 0.04 | 7.40 ± 0.07 | 7.43 ± 0.05 |
| PaCO2 (mmHg) | 41 ± 4 | 43 ± 7 | 39 ± 4 |
| HCO3- (mmol/l) | 27.7 ± 1.2 | 26.3 ± 1.6 | 27.1 ± 2.4 |

Values are means (SD) of 8 rats/group. Difference among groups was tested using one-way ANOVA followed by Bonferroni’s post-hoc test. PaO2/FiO2. arterial oxygen partial pressure and inspired oxygen fraction ratio; pHa, arterial pH; PaCO2, arterial carbon dioxide partial pressure; HCO3-, arterial bicarbonate; THIO, sodium thiopental; PRO, propofol; DEX, dexmedetomidine

**Table 9.** Static lung elastance (Est,L) and airway resistance (Raw) at baseline PEEP in obese rats

|  |  |  |  |
| --- | --- | --- | --- |
| **Variables** |  **THIO** |  **PRO** |  **DEX** |
| Est,L (cmH2O.ml-1) | 2.01 ± 0.8 | 2.29 ± 0.5 | 1.78 ± 0.5 |
| Raw (cmH2O.ml-1.s-1) | 0.023 ± 0.005 | 0.020 ± 0.005 | 0.024 ± 0.008 |

Values are means (SD) of 8 rats/group. Difference among groups was tested using one-way ANOVA followed by Bonferroni’s post-hoc test.

Est,L, lung static elastance; Raw, airway resistance; THIO, sodium thiopental; PRO, propofol; DEX, dexmedetomidine

**Supplemental Figure Legend**

**Figure 1.** Timeline representing the experimental protocol. FiO2, inspiratory fraction of oxygen; VT, tidal volume; RR, respiratory rate; ZEEP, zero end-expiratory pressure; PEEP, positive end-expiratory pressure; MEC, mechanical analysis; THIO, sodium thiopental; PRO, propofol; DEX, dexmedetomidine.

**Figure 2.** Mean arterial pressure (MAP) during the experimental protocol. All values are expressed as mean and standard deviation of 8 animals/ group. ­­Differences between and within groups (group and time effects, baseline ZEEP, baseline PEEP, 30 min, 45 min, and 60 min, as well as their interactions) were tested by one-way ANOVA and adjusted according to Bonferroni’s post-hoc test. ZEEP, zero end-expiratory pressure; PEEP, positive end-expiratory pressure; THIO, sodium thiopental; PRO, propofol; DEX, dexmedetomidine.