**Formulas to calculate oxygen consumption, CO2 production, and energy expenditure**

1. Oxygen consumption (VO2, Subject = Vi O2i - Vo O2o)
2. CO2 production (VCO2, Subject = VoCO2o – ViCO2i).

where Vi = volume input airflow (mL),

Vo = volume output airflow (mL),

O2i = the input O2 concentration,

O2o = the output O2,

CO2i = the input CO2 concentration,

CO2o = the output CO2.

VO2, Subject, and VCO2, Subject values are automatically corrected by the software for body weight or lean mass in Kg.

1. Energy expenditure (EE) or Heat production in calories per minute per mouse are obtained by multiplying CV \* VO2 Subject.

CV = calorific value is derived from Graham Lusk's empirical table, to generate the following formula:

CV = 3.815 + 1.232 \* RER (respiratory exchange ratio).