

**Table S1.** The ingredients and nutrient levels of diets for pigs with body weight ranging from 25 to 45 kg (dry matter basis, %).

| Items                                 | Diets  |        |          |           |                 |
|---------------------------------------|--------|--------|----------|-----------|-----------------|
|                                       | CON    | LP     | LP + DCA | LP + GLUC | LP + DCA + GLUC |
| <b>Ingredients, %</b>                 |        |        |          |           |                 |
| Corn                                  | 62.00  | 73.85  | 73.85    | 71.75     | 71.75           |
| Soybean meal                          | 25.10  | 12.77  | 12.77    | 13.27     | 13.27           |
| Wheat bran                            | 7.80   | 7.39   | 7.39     | 7.39      | 7.39            |
| Fat powder <sup>1</sup>               | 2.00   | 2.00   | 2.00     | 2.00      | 2.00            |
| L-Lys HCl, 78%                        | 0.18   | 0.55   | 0.55     | 0.55      | 0.55            |
| DL-Met, 99%                           | 0.05   | 0.12   | 0.12     | 0.12      | 0.12            |
| L-Thr, 98.5%                          | 0.01   | 0.24   | 0.24     | 0.24      | 0.24            |
| L-Trp, 98%                            | 0.00   | 0.08   | 0.08     | 0.08      | 0.08            |
| CaHPO <sub>4</sub> ·2H <sub>2</sub> O | 0.69   | 0.90   | 0.90     | 0.90      | 0.90            |
| CaCO <sub>3</sub>                     | 0.87   | 0.80   | 0.80     | 0.80      | 0.80            |
| NaCl                                  | 0.30   | 0.30   | 0.30     | 0.30      | 0.30            |
| Sodium dichloroacetate                | 0.00   | 0.00   | 0.012    | 0.00      | 0.012           |
| Glucose                               | 0.00   | 0.00   | 0.00     | 1.80      | 1.80            |
| Premix <sup>2</sup>                   | 1.00   | 1.00   | 1.00     | 1.00      | 1.00            |
| Total                                 | 100.00 | 100.00 | 100.00   | 100.00    | 100.00          |
| <b>Nutrient levels, %</b>             |        |        |          |           |                 |
| ME <sup>3</sup> , MJ/kg               | 13.9   | 13.9   | 13.9     | 13.9      | 13.9            |
| Crude protein <sup>4</sup>            | 17.9   | 14.0   | 14.0     | 14.0      | 14.0            |
| Ca <sup>4</sup>                       | 0.62   | 0.61   | 0.61     | 0.61      | 0.61            |
| P <sup>4</sup>                        | 0.50   | 0.50   | 0.50     | 0.50      | 0.51            |
| Lys <sup>5</sup>                      | 0.94   | 0.94   | 0.94     | 0.94      | 0.94            |
| Met <sup>5</sup>                      | 0.32   | 0.32   | 0.32     | 0.32      | 0.32            |
| Thr <sup>5</sup>                      | 0.60   | 0.60   | 0.60     | 0.59      | 0.59            |
| Trp <sup>5</sup>                      | 0.22   | 0.22   | 0.22     | 0.22      | 0.22            |
| Arg <sup>5</sup>                      | 0.77   | 0.56   | 0.56     | 0.55      | 0.55            |
| His <sup>5</sup>                      | 0.44   | 0.33   | 0.33     | 0.33      | 0.33            |
| Ile <sup>5</sup>                      | 0.55   | 0.41   | 0.41     | 0.40      | 0.40            |
| Leu <sup>5</sup>                      | 1.05   | 0.83   | 0.83     | 0.81      | 0.81            |
| Val <sup>5</sup>                      | 0.73   | 0.57   | 0.57     | 0.56      | 0.56            |
| Phe <sup>5</sup>                      | 0.78   | 0.61   | 0.61     | 0.59      | 0.59            |
| Pro <sup>5</sup>                      | 0.73   | 0.56   | 0.56     | 0.55      | 0.55            |
| Cys <sup>5</sup>                      | 0.23   | 0.19   | 0.19     | 0.19      | 0.19            |
| Asx (Asp+Asn) <sup>5</sup>            | 1.76   | 1.34   | 1.34     | 1.32      | 1.32            |
| Ser <sup>5</sup>                      | 0.56   | 0.41   | 0.41     | 0.40      | 0.40            |
| Glx (Glu+Gln) <sup>5</sup>            | 2.46   | 1.82   | 1.82     | 1.79      | 1.79            |
| Gly <sup>5</sup>                      | 0.62   | 0.49   | 0.49     | 0.48      | 0.48            |
| Ala <sup>5</sup>                      | 0.67   | 0.52   | 0.52     | 0.51      | 0.51            |
| Tyr <sup>5</sup>                      | 0.34   | 0.26   | 0.26     | 0.26      | 0.26            |

<sup>1</sup>Fat powder provided is HTL-306 product (BergaFat, Berg + Schmidt Asia Pte Ltd, Singapore) which is fractionated palm fat combined with 6% selected phospholipids and free of trans fatty acids, supplying practically 100% energy in the form of fat with 36.82 MJ/kg digestible energy.

<sup>2</sup>Premix provided the following per kg diet: Cu (as copper sulfate), 100 mg; Fe (as ferrous sulfate), 100 mg; Zn (as zinc oxide), 120 mg; Mn (as manganese sulfate), 20 mg; I (as calcium

iodate), 0.3 mg; and Se (as sodium selenite), 0.3 mg; vitamin A, 3, 800 IU; vitamin D3, 800 IU; vitamin E, 10 IU; vitamin K, 1 mg; choline, 200 mg; pantothenic, 5 mg; vitamin B2, 2 mg; folic acid, 0.8 mg; niacin, 10 mg; vitamin B1, 1 mg; vitamin B6, 1 mg; biotin, 0.08 mg; vitamin B12, 0.01 mg.

<sup>3</sup>ME, metabolizable energy, calculated values.

<sup>4</sup>Analyzed values according to AOAC (2000).

<sup>5</sup>Values for standardized ileal digestible concentrations of amino acids in diets were calculated using standardized ileal digestible coefficients for the various ingredients provided by NRC (2012).

**Table S2.** The ingredients and nutrient levels of diets for pigs with body weight ranging from 45 to 65 kg (dry matter basis, %).

| Items                                 | Diets  |        |          |           |                 |
|---------------------------------------|--------|--------|----------|-----------|-----------------|
|                                       | CON    | LP     | LP + DCA | LP + GLUC | LP + DCA + GLUC |
| Ingredients, %                        |        |        |          |           |                 |
| Corn                                  | 65.00  | 76.00  | 76.00    | 73.70     | 73.70           |
| Soybean meal                          | 22.08  | 10.57  | 10.57    | 11.07     | 11.07           |
| Wheat bran                            | 7.80   | 7.39   | 7.39     | 7.39      | 7.39            |
| Fat powder <sup>1</sup>               | 2.00   | 2.00   | 2.00     | 2.00      | 2.00            |
| L-Lys HCl, 78%                        | 0.16   | 0.50   | 0.50     | 0.50      | 0.50            |
| DL-Met, 99%                           | 0.04   | 0.10   | 0.10     | 0.10      | 0.10            |
| L-Thr, 98.5%                          | 0.00   | 0.22   | 0.22     | 0.22      | 0.22            |
| L-Trp, 98%                            | 0.00   | 0.07   | 0.07     | 0.07      | 0.07            |
| CaHPO <sub>4</sub> ·2H <sub>2</sub> O | 0.72   | 1.00   | 1.00     | 1.00      | 1.00            |
| CaCO <sub>3</sub>                     | 0.90   | 0.85   | 0.85     | 0.85      | 0.85            |
| NaCl                                  | 0.30   | 0.30   | 0.30     | 0.30      | 0.30            |
| Sodium dichloroacetate                | 0.00   | 0.00   | 0.012    | 0.00      | 0.012           |
| Glucose                               | 0.00   | 0.00   | 0.00     | 1.80      | 1.80            |
| Premix <sup>2</sup>                   | 1.00   | 1.00   | 1.00     | 1.00      | 1.00            |
| Total                                 | 100.00 | 100.00 | 100.00   | 100.00    | 100.00          |
| Nutrient levels, %                    |        |        |          |           |                 |
| ME <sup>3</sup> , MJ/kg               | 13.9   | 13.9   | 13.9     | 13.9      | 13.9            |
| Crude protein <sup>4</sup>            | 16.6   | 13.2   | 13.2     | 13.2      | 13.2            |
| Ca <sup>4</sup>                       | 0.64   | 0.61   | 0.61     | 0.61      | 0.61            |
| P <sup>4</sup>                        | 0.48   | 0.48   | 0.48     | 0.48      | 0.48            |
| Lys <sup>5</sup>                      | 0.86   | 0.85   | 0.85     | 0.83      | 0.83            |
| Met <sup>5</sup>                      | 0.30   | 0.30   | 0.30     | 0.30      | 0.30            |
| Thr <sup>5</sup>                      | 0.57   | 0.57   | 0.57     | 0.56      | 0.56            |
| Trp <sup>5</sup>                      | 0.19   | 0.19   | 0.19     | 0.19      | 0.19            |
| Arg <sup>5</sup>                      | 0.70   | 0.56   | 0.56     | 0.55      | 0.55            |
| His <sup>5</sup>                      | 0.40   | 0.31   | 0.31     | 0.30      | 0.30            |
| Ile <sup>5</sup>                      | 0.49   | 0.39   | 0.39     | 0.38      | 0.38            |
| Leu <sup>5</sup>                      | 0.92   | 0.72   | 0.72     | 0.71      | 0.71            |
| Val <sup>5</sup>                      | 0.64   | 0.55   | 0.55     | 0.54      | 0.54            |
| Phe <sup>5</sup>                      | 0.68   | 0.54   | 0.54     | 0.51      | 0.51            |
| Pro <sup>5</sup>                      | 0.63   | 0.50   | 0.50     | 0.50      | 0.50            |
| Cys <sup>5</sup>                      | 0.20   | 0.14   | 0.14     | 0.14      | 0.14            |
| Asx (Asp+Asn) <sup>5</sup>            | 1.55   | 1.21   | 1.21     | 1.19      | 1.19            |

|                            |      |      |      |      |      |
|----------------------------|------|------|------|------|------|
| Ser <sup>5</sup>           | 0.49 | 0.39 | 0.39 | 0.38 | 0.38 |
| Glx (Glu+Gln) <sup>5</sup> | 2.13 | 1.78 | 1.78 | 1.75 | 1.75 |
| Gly <sup>5</sup>           | 0.55 | 0.42 | 0.42 | 0.41 | 0.41 |
| Ala <sup>5</sup>           | 0.61 | 0.47 | 0.47 | 0.46 | 0.46 |
| Tyr <sup>5</sup>           | 0.30 | 0.24 | 0.24 | 0.24 | 0.24 |

<sup>1</sup>Fat powder provided is HTL-306 product (BergaFat, Berg + Schmidt Asia Pte Ltd, Singapore) which is fractionated palm fat combined with 6% selected phospholipids and free of trans fatty acids, supplying practically 100% energy in the form of fat with 36.82 MJ/kg digestible energy.

<sup>2</sup>Premix provided the following per kg diet: Cu (as copper sulfate), 100 mg; Fe (as ferrous sulfate), 100 mg; Zn (as zinc oxide), 120 mg; Mn (as manganese sulfate), 20 mg; I (as calcium iodate), 0.3 mg; and Se (as sodium selenite), 0.3 mg; vitamin A, 3, 800 IU; vitamin D3, 800 IU; vitamin E, 10 IU; vitamin K, 1 mg; choline, 200 mg; pantothenic, 5 mg; vitamin B2, 2 mg; folic acid, 0.8 mg; niacin, 10 mg; vitamin B1, 1 mg; vitamin B6, 1 mg; biotin, 0.08 mg; vitamin B12, 0.01 mg.

<sup>3</sup>ME, metabolizable energy, calculated values.

<sup>4</sup>Analyzed values according to AOAC (2000).

<sup>5</sup>Values for standardized ileal digestible concentrations of amino acids in diets were calculated using standardized ileal digestible coefficients for the various ingredients provided by NRC (2012).

**Table S3.** The ingredients and nutrient levels of diets for pigs with body weight ranging from 65 to 95 kg (dry matter basis, %).

| Items                                 | Diets  |        |          |           |                 |
|---------------------------------------|--------|--------|----------|-----------|-----------------|
|                                       | CON    | LP     | LP + DCA | LP + GLUC | LP + DCA + GLUC |
| <b>Ingredients, %</b>                 |        |        |          |           |                 |
| Corn                                  | 72.44  | 82.11  | 82.10    | 79.80     | 79.80           |
| Soybean meal                          | 17.30  | 6.40   | 6.40     | 6.90      | 6.90            |
| Wheat bran                            | 6.00   | 6.00   | 6.00     | 6.00      | 6.00            |
| Fat powder <sup>1</sup>               | 1.28   | 1.60   | 1.60     | 1.60      | 1.60            |
| L-Lys HCl, 78%                        | 0.07   | 0.44   | 0.44     | 0.44      | 0.44            |
| DL-Met, 99%                           | 0.02   | 0.09   | 0.09     | 0.09      | 0.09            |
| L-Thr, 98.5%                          | 0.00   | 0.20   | 0.20     | 0.20      | 0.20            |
| L-Trp, 98%                            | 0.00   | 0.06   | 0.06     | 0.06      | 0.06            |
| CaHPO <sub>4</sub> ·2H <sub>2</sub> O | 0.64   | 0.90   | 0.90     | 0.90      | 0.90            |
| CaCO <sub>3</sub>                     | 0.95   | 0.90   | 0.90     | 0.90      | 0.90            |
| NaCl                                  | 0.30   | 0.30   | 0.30     | 0.30      | 0.30            |
| Sodium dichloroacetate                | 0.00   | 0.00   | 0.012    | 0.00      | 0.012           |
| Glucose                               | 0.00   | 0.00   | 0.00     | 1.80      | 1.80            |
| Premix <sup>2</sup>                   | 1.00   | 1.00   | 1.00     | 1.00      | 1.00            |
| Total                                 | 100.00 | 100.00 | 100.00   | 100.00    | 100.00          |
| <b>Nutrient levels, %</b>             |        |        |          |           |                 |
| ME <sup>3</sup> , MJ/kg               | 14.2   | 14.2   | 14.2     | 14.2      | 14.2            |
| Crude protein <sup>4</sup>            | 15.0   | 11.7   | 11.7     | 11.7      | 11.7            |
| Ca <sup>4</sup>                       | 0.64   | 0.61   | 0.61     | 0.61      | 0.61            |
| P <sup>4</sup>                        | 0.50   | 0.50   | 0.50     | 0.51      | 0.51            |
| Lys <sup>5</sup>                      | 0.79   | 0.79   | 0.79     | 0.79      | 0.57            |

|                            |      |      |      |      |      |
|----------------------------|------|------|------|------|------|
| Met <sup>5</sup>           | 0.27 | 0.27 | 0.27 | 0.26 | 0.26 |
| Thr <sup>5</sup>           | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 |
| Trp <sup>5</sup>           | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 |
| Arg <sup>5</sup>           | 0.60 | 0.47 | 0.47 | 0.46 | 0.46 |
| His <sup>5</sup>           | 0.34 | 0.26 | 0.26 | 0.26 | 0.26 |
| Ile <sup>5</sup>           | 0.42 | 0.32 | 0.32 | 0.32 | 0.32 |
| Leu <sup>5</sup>           | 0.79 | 0.61 | 0.61 | 0.60 | 0.60 |
| Val <sup>5</sup>           | 0.54 | 0.44 | 0.44 | 0.43 | 0.43 |
| Phe <sup>5</sup>           | 0.58 | 0.45 | 0.45 | 0.44 | 0.44 |
| Pro <sup>5</sup>           | 0.53 | 0.41 | 0.41 | 0.40 | 0.40 |
| Cys <sup>5</sup>           | 0.17 | 0.13 | 0.13 | 0.13 | 0.13 |
| Asx (Asp+Asn) <sup>5</sup> | 1.32 | 1.02 | 1.02 | 1.00 | 1.00 |
| Ser <sup>5</sup>           | 0.41 | 0.32 | 0.32 | 0.32 | 0.32 |
| Glx (Glu+Gln) <sup>5</sup> | 1.81 | 1.42 | 1.42 | 1.40 | 1.40 |
| Gly <sup>5</sup>           | 0.45 | 0.34 | 0.34 | 0.34 | 0.34 |
| Ala <sup>5</sup>           | 0.52 | 0.39 | 0.39 | 0.38 | 0.38 |
| Tyr <sup>5</sup>           | 0.25 | 0.19 | 0.19 | 0.19 | 0.19 |

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<sup>3</sup>ME, metabolizable energy, calculated values.

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<sup>5</sup>Values for standardized ileal digestible concentrations of amino acid in diets were calculated using standardized ileal digestible coefficients for the various ingredients provided by NRC (2012).