

| Figure 1<br>1B | Variable<br>% of cell stained / dapi | Number of well<br>6  | Number of cells/well<br>50-80                            |                  |     |
|----------------|--------------------------------------|--|--|------------------|-----|
|                |                                      |  |  | Student's t-test |     |
| Figure 2<br>2A | Variable<br>body weight              | t-values<br>E17 $t_{25}=5.437$<br>P1 $t_{52}=18.35$<br>P2 $t_{20}=11.64$<br>P4 $t_{20}=9.02$ | p-values<br>p<0.0001<br>p<0.0001<br>p<0.0001<br>p<0.0001 | CTRL             | LPD |
|                |                                      |  |  | 12               | 15  |
|                |                                      |  |  | 27               | 27  |
|                |                                      |  |  | 11               | 11  |

| Figure 3A | Reactome pathway   | LPD vs CTRL P1 |       | LPD vs CTRL P4 |        |
|-----------|--|----------------|-------|----------------|--------|
|           |  | Nominal pValue | FDR   | Nominal pValue | FDR    |
|           | FCER1_MEDIATED_NF_KB_ACTIVATION                            | 0,000          | 0,000 | 0,000          | 0,052  |
|           | DECTIN_1_MEDIATED_NONCANONICAL_NF_KB_SIGNALING             | 0,000          | 0,000 | 0,000          | 0,145  |
|           | CELLULAR_RESPONSE_TO_HYPOXIA                               | 0,000          | 0,000 | 0,000          | 0,047  |
|           | REGULATION_OF_APOPTOSIS                                    | 0,000          | 0,000 | 0,000          | 0,1269 |
|           | CROSS_PRESENTATION_OF_SOLUBLE_EXOGENOUS_ANTIGENS_ENDOSOMES | 0,000          | 0,015 | 0,000          | 0,092  |
|           | INTERLEUKIN_1_SIGNALING                                    | 0,000          | 0,014 | 0,000          | 0,163  |
|           | TNFR2_NON_CANONICAL_NF_KB_PATHWAY                          | 0,000          | 0,038 | 0,000          | 0,1373 |
|           | INTERLEUKIN_17_SIGNALING                                   | 0,000          | 0,065 | 0,667          | 0,976  |
|           | ANTIGEN_PROCESSING_CROSS_PRESENTATION                      | 0,750          | 1,000 | 0,000          | 0,0643 |
|           | LYSOSOME_VESICLE_BIOGENESIS                                | 1,000          | 1,000 | 0,000          | 0,106  |

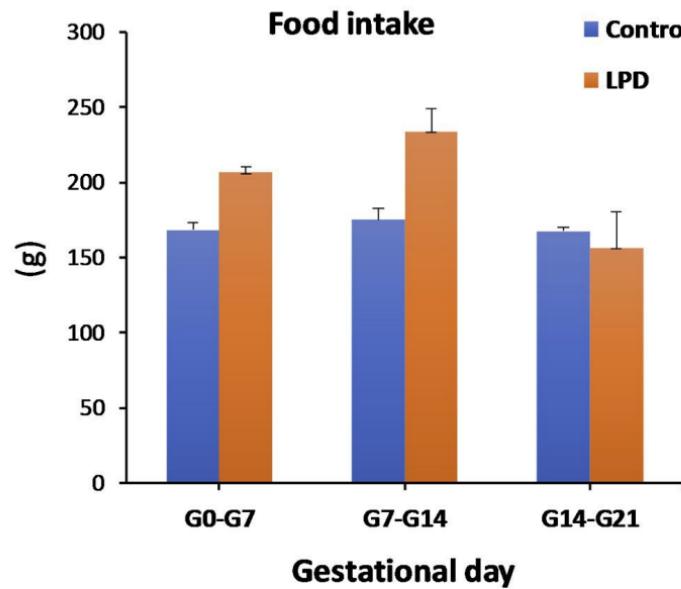
| Figure 4 | Variable | 2 Way Anova                       |          | N=number of animals |               |
|----------|----------|-----------------------------------|----------|---------------------|---------------|
|          |          | F-values                          | p-values | CTRL                | LPD           |
| 4C       | ROS      | Interaction: $F_{(60,320)}=3.808$ | P<0.0001 | 5 HBSS, 5 PMA       | 5 HBSS, 5 PMA |
| 4D       | ROS AUC  | Interaction: $F_{(1,16)}=19.35$   | P=0.0004 | 5 HBSS, 5 PMA       | 5 HBSS, 5 PMA |

| Figure 5E | Reactome pathway                                | CTRL P4 vs CTRL P1 |       | LPD P4 vs LPD P1 |       |
|-----------|---|--------------------|-------|------------------|-------|
|           |   | Nominal pValue     | FDR   | Nominal pValue   | FDR   |
|           | TNFR2_NON_CANONICAL_NF_KB_PATHWAY               | 0,000              | 0,047 | 0,000            | 0,177 |
|           | FCER1_MEDIATED_NF_KB_ACTIVATION                 | 0,000              | 0,000 | 0,000            | 0,215 |
|           | INTERLEUKIN_1_SIGNALING                         | 0,000              | 0,026 | 0,000            | 0,210 |
|           | DECTIN_1_MEDIATED_NONCANONICAL_NF_KB_SIGNALING  | 0,000              | 0,050 | 0,000            | 0,184 |
|           | ANTIGEN_PROCESSING_CROSS_PRESENTATION           | 0,000              | 0,220 | 0,000            | 0,152 |
|           | REGULATION_OF_APOPTOSIS                         | 0,000              | 0,055 | 0,182            | 0,900 |
|           | STABILIZATION_OF_P53                            | 0,000              | 0,058 | 0,200            | 0,900 |
|           | G2_M_CHECKPOINTS                                | 0,000              | 0,041 | 0,000            | 0,148 |
|           | MITOTIC_G1_G1_S_PHASES                          | 0,000              | 0,127 | 0,000            | 0,159 |
|           | DNA_REPLICATION_PRE_INITIATION                  | 0,000              | 0,097 | 0,020            | 0,148 |
|           | G2_M_DNA_DAMAGE_CHECKPOINT                      | 0,000              | 0,098 | 0,031            | 0,161 |
|           | NUCLEOTIDE_EXCISION_REPAIR                      | 0,154              | 0,436 | 0,000            | 0,167 |
|           | DNA_REPAIR                                      | 0,111              | 0,390 | 0,000            | 0,000 |
|           | DNA_DOUBLE_STRAND_BREAK_REPAIR                  | 0,000              | 0,031 | 0,000            | 0,191 |
|           | GLOBAL_GENOME_NUCLEOTIDE_EXCISION_REPAIR_GG_NER | 0,133              | 0,373 | 0,000            | 0,157 |
|           | OXIDATIVE_STRESS_INDUCED_SENESCENCE             | 0,785              | 0,885 | 0,000            | 0,109 |
|           | CELLULAR_SENESCENCE                             | 0,923              | 0,943 | 0,000            | 0,168 |
|           | EPIGENETIC_REGULATION_OF_GENE_EXPRESSION        | 1,000              | 1,000 | 0,037            | 0,229 |

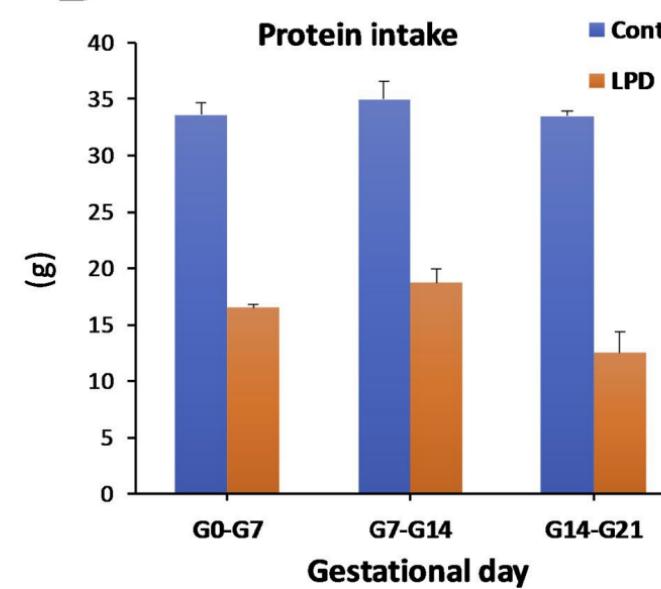
| Figure 5F | Reactome pathway                               | CTRL P4 vs CTRL P1 |       | LPD P4 vs LPD P1 |       |
|-----------|--|--------------------|-------|------------------|-------|
|           |  | Nominal pValue     | FDR   | Nominal pValue   | FDR   |
|           | COP1_DEPENDENT_GOLGI_TO_ER_RETROGRADE_TRAFFIC  | 0,583              | 0,807 | 0,000            | 0,078 |
|           | GOLGI_TO_ER_RETROGRADE_TRANSPORT               | 0,583              | 0,841 | 0,000            | 0,078 |
|           | INTRA_GOLGI_AND_RETROGRADE_GOLGI_TO_ER_TRAFFIC | 0,417              | 0,813 | 0,000            | 0,230 |
|           | MITOCHONDRIAL_TRANSLATION                      | 0,000              | 0,238 | 0,615            | 0,884 |

Supplementary Figure 1: Weekly food intake (A), protein intake (B) and body weight (C) in pregnant rats fed with normal (N=17) and low protein (N=20) diets.

**A**



**B**



**C**

