  

FIGURE 1 Multi-generational effects of di(2-ethylhexyl) terephthalate (DEHTP) on reproduction (A) and lifespan (B) of *C. elegans*, and trade-off relationships between reproduction and lifespan (C). \*, significantly different from control group (1.0) at 0.05 level by ANOVA with a Tukey *post hoc* test at α = 0.05 (*p* < 0.05); #, significantly different from their previous generation at the same concentration; +, significantly different from the lower concentration in the same generation. The data in the figure were represented as mean ± standard deviation.

 



FIGURE 2 Multi-generational effects of di(2-ethylhexyl) terephthalate (DEHTP) on behavior of *C. elegans*. (A-D) Radar graph; different colors represent concentrations in F1 to F4, 1.0 represents the control level, values higher than 1.0 represent stimulation and those lower than 1.0 represent inhibition; (E) Heatmap for the correlations; asterisk represents significance at a level of 0.05; positive (or negative) values represent positive (or negative) correlation.





 



FIGURE 3 Multi-generational effects of di(2-ethylhexyl) terephthalate (DEHTP) on lipid metabolites, enzymes and their connection analysis. (A and B) Parallel analysis on the lipid metabolism enzymes and metabolites; ATGL, adipose triglyceride lipase; GPAT, glycerol-3-phosphateacyl transferases; ACS, acyl-CoA synthetase; CPT, carnitine palmitoyl transferase; FAS, fatty acid synthase; ACC, acetyl-CoA carboxylase; TG, triacylglycerol; NEFA, non-esterified fatty acid; FA-CoA, acyl-CoA; ACA, acetyl-CoA. (C and E) Heatmap for the correlations; asterisks represent significance at a level of 0.05; positive (or negative) values represent positive (or negative) correlation; (D) Diagram for the connection underlying the effects of DEHTP on the enzymes and metabolites; stars represent significant positive correlations.





FIGURE 4 Multi-generational effects of di(2-ethylhexyl) terephthalate (DEHTP) on neural regulation and their connection analysis. (A) Parallel analysis on neural regulation; 5-HT, serotonin; DA, dopamine; ACH, acetylcholine; AChE, acetylcholinesterase; GABA, γ-aminobutyric acid; (B) Heatmap for the correlations; asterisks represent significance at 0.05 level, positive (or negative) values represent positive (or negative) correlation; ATGL, adipose triglyceride lipase; GPAT, glycerol-3-phosphateacyl transferases; ACS, acyl-CoA synthetase; CPT, carnitine palmitoyl transferase; FAS, fatty acid synthase; ACC, acetyl-CoA carboxylase; TG, triacylglycerol; NEFA, non-esterified fatty acid; FA-CoA, acyl-CoA; ACA, acetyl-CoA.



FIGURE 5 Hierarchical clustering analysis (HCA) in the multi-generational effects of di(2-ethylhexyl) terephthalate (DEHTP) on *Caenorhabditis elegans*. 5-HT, serotonin, as one example to show the connection changes over generations; DA, dopamine; ACH, acetylcholine; AChE, acetylcholinesterase; GABA, γ-aminobutyric acid; ATGL, adipose triglyceride lipase; GPAT, glycerol-3-phosphateacyl transferases; ACS, acyl-CoA synthetase; CPT, carnitine palmitoyl transferase; FAS, fatty acid synthase; ACC, acetyl-CoA carboxylase; TG, triacylglycerol; NEFA, non-esterified fatty acid; FA-CoA, acyl-CoA; ACA, acetyl-CoA.