**Supplement**

1. 1A: SDS-PAGE map of differentially expressed phosphorylated proteins in the control group (Mock) and antimicrobial peptide mericidin treatment group (Drug); 1B: Two-dimensional scatter plot of repeated sample-to-sample quantitative principal component analysis; PC1 and PC2 represent two types of characteristics of principal component analysis, respectively. Red circle indicates three repetitions in the control group, and blue circle indicates three repetitions in the antimicrobial peptide treatment group.1C: Length distribution of the peptide segment. The horizontal axis represents the length of the peptide segment, and the vertical axis represents the amount of protein.



2. Concentration selection and cell selection.

Lung adenocarcinoma (A549 cell) is the most common and most widely studied lung cancer; hence, we first selected the A549 cell. After merecidin treatment of A549 cells in the CCK-8 experiment, we concluded that IC50 was about 9 mol/ L, and hence, we used it as the experimental concentration. In addition, merecidin in our experimental group found that merecidin promotes the apoptosis of colon cancer HCT116 cells; however, these data have not been published.