FIGURES AND LEGENDS

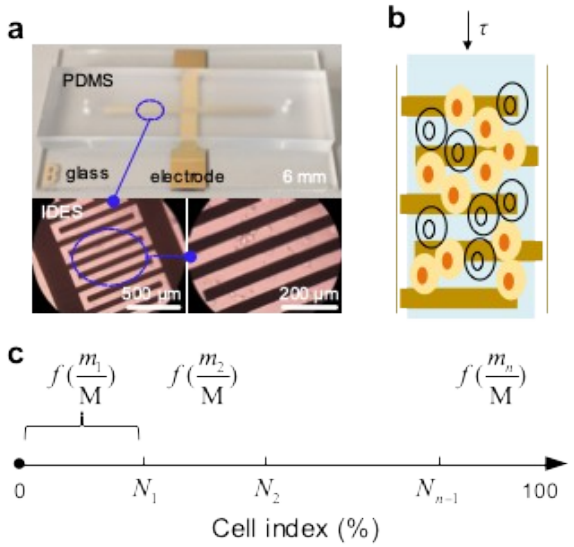

FIGURE 1 Experimental setup and schematic diagram. (a) An integrated microfluidic chip with cells adherent on IDES. The scale bar is shown in continuously enlarged graphs. (b) A diagram of the cells partially detaching from IDES under the exposure to flow shear stress τ. (c) The explanation diagram on the mathematical definition of the number of cancer cells with different sensitivities to drug, $\boldsymbol{m}$.

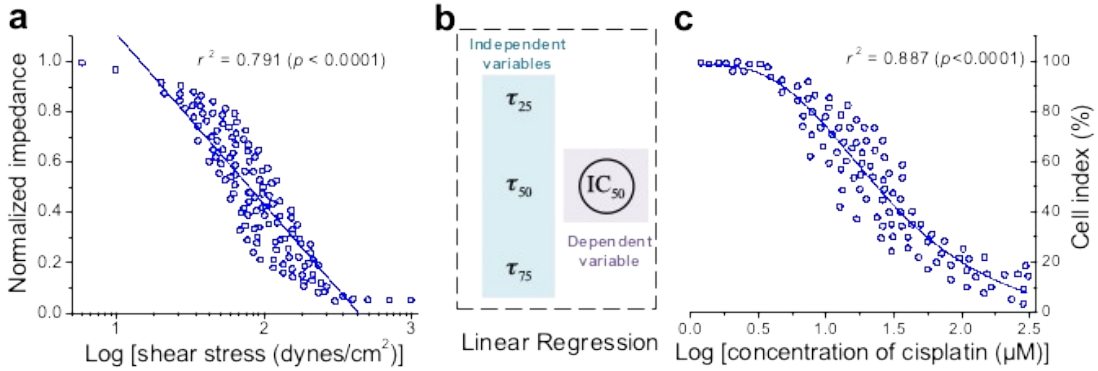

FIGURE 2 Extraction of adhesion strength parameters for cell viability evaluation based on MLR. (a) Linear fitting of normalized impedance response to flow shear stress. (b) The structure of linear regression. The adhesion strengths τ_{25}, τ_{50}, τ_{75} are the independent variables and IC_{50} is the dependent variable of MLR model. (c) Cell index response to different concentrations of cisplatin.

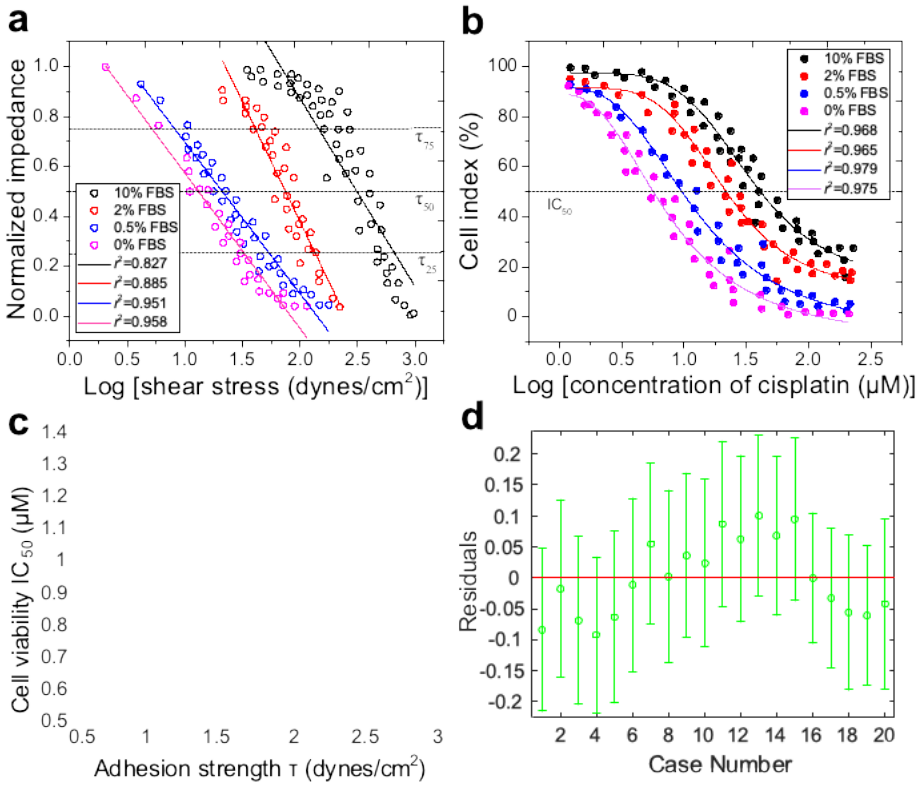

FIGURE 3 Parameters extraction and prediction of IC_{50}. (a) Linear fitting of normalized impedance response to flow shear stress with different concentrations of FBS. Adhesion strength τ_{25}, τ_{50}, τ_{75} are extracted. (b) Nonlinear fitting of cell index response to different concentrations of cisplatin with different concentrations of FBS. IC_{50} is extracted. (c) The results of linear regression. '+' represents actual values and the red line represents the prediction values. (d) The residual case order plot of MLR model.

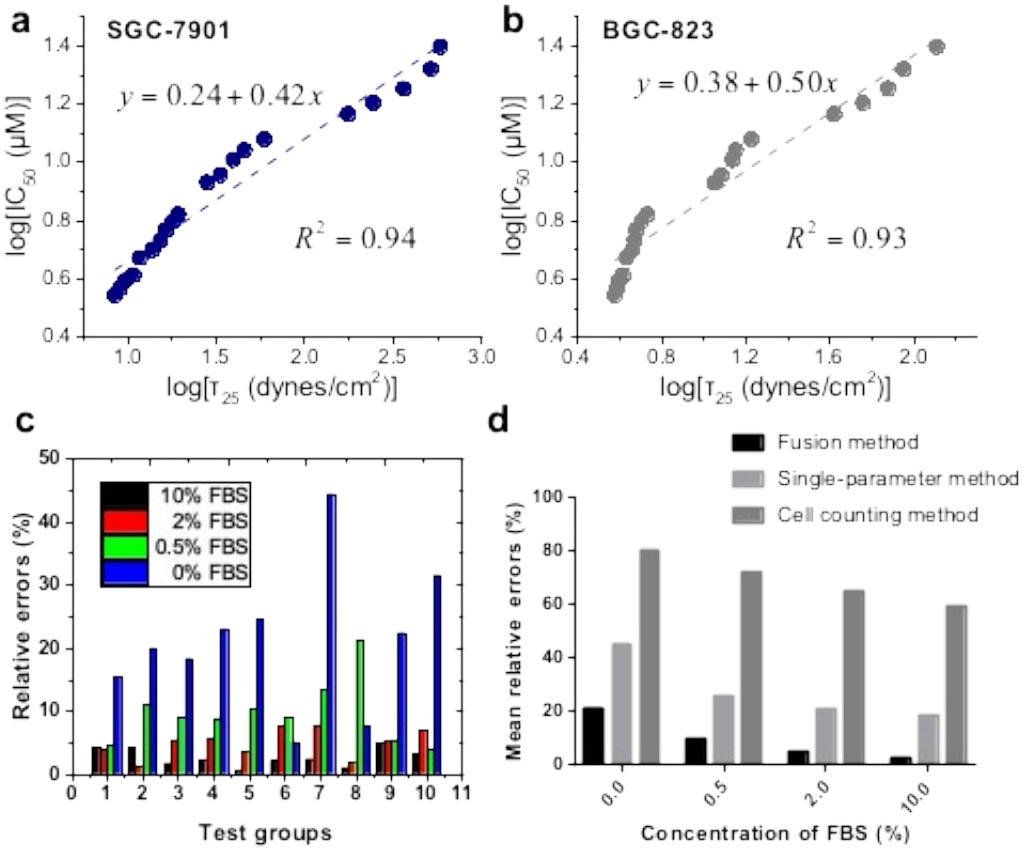

FIGURE 4 Single-parameter linear regression of SGC-7901 (a) and BGC-823 (b) cells. The relative errors of test groups using the fusion method. (b) Comparison of mean relative errors among the fusion method, single-parameter method and cell counting method.