

Supporting information

# A Novel Method in Identifying Pyroptosis and Apoptosis Based on the Double Resonator Piezoelectric Cytometry Technology

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**Table S1.** Methods for detecting both cell apoptosis and pyroptosis.

Technique	Indicators	Real-time	Non-invasive	Quantitative
Microscopy analysis/Scanning electron microscopy/Transmission electron microscopy	Cell morphology changes		√	
MTT/MTS assay	Cell viability			√
Flow cytometry/Fluorescence Microscopy	Staining status			√
WesternBlotting/ Immunofluorescence/Q-PCR	Molecular Biomarkers			
TUNEL method	DNA fragmentation			√
DRPC technology	Cell mechanical changes	√	√	√

**Table S2.** Mean values of mechanical parameters during HeLa pyroptosis and apoptosis.

Cells condition	Time Region (h)	$\Delta S$ (dyne/cm)	$G'$ (pascal)	$G''$ (pascal)	
LPS + CTB	Cell adhesion stage	10.0 ~ 14.5	$14,378.9 \pm 1822.4$	$3684.1 \pm 125.1$	$45,161.6 \pm 185.4$
	Pyroptosis stage	24.0 ~ 27.0	$- 8850.1 \pm 5965.5$	$17,326.1 \pm 1616$	$60,754.8 \pm 1757.1$
TNF + CHX	Cell adhesion stage	10.0 ~ 12.5	$13,333.1 \pm 1683.3$	$9165.8 \pm 81.8$	$52,352.8 \pm 247.9$
	Apoptosis stage	24.0 ~ 27.0	$20,865.9 \pm 3999.0$	$2784.8 \pm 710.8$	$47,958.0 \pm 1354.4$

**Table S3.** Mean values of mechanical parameters during GSDMD<sup>-/-</sup>-DEV D- HeLa non-pyroptosis and pyroptosis.

Cells condition	Time Region (h)	$\Delta S$ (dyne/cm)	$G'$ (pascal)	$G''$ (pascal)	
LPS + CTB	Cell adhesion stage	10.0 ~ 14.5	6324.1±943.5	52,127.5±1122.3	83,604.9±921.6
	Non-Pyroptosis stage	24.0 ~ 27.0	21,173.9±1637.6	60,754.8±1757.1	108,792.2±421.0
TNF + CHX	Cell adhesion stage	10.0 ~ 12.5	13,861.7±1193	1813,5±147.8	42,390.7±678.9
	Pyroptosis stage	24.0 ~ 27.0	-19,248.3±4764.8	1891.9±304.4	44,258.3±306.5