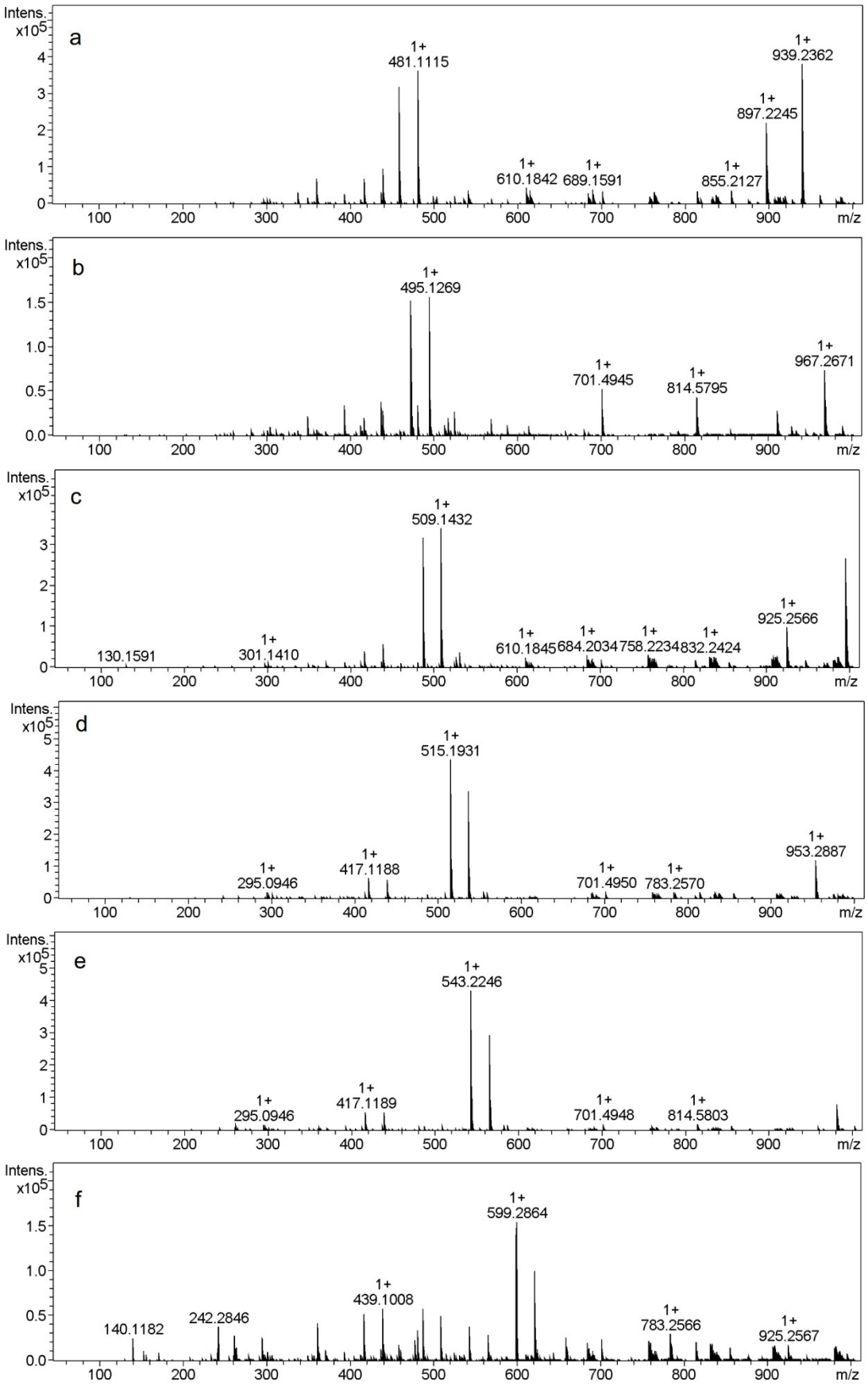

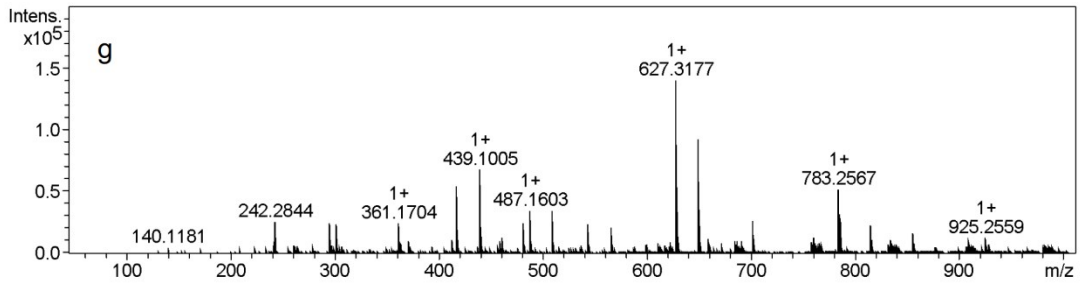

Fig. S1 Preparation of PAES. a-g show high resolution mass spectrum analysis of PAES. a represents Puerarin acetate: $C_{23}H_{22}NaO_{10}$, 481.11 m/z $[M+Na]^+$; b represents Puerarin propanoate: $C_{24}H_{24}NaO_{10}$, 495.13 m/z $[M+Na]^+$; c represents Puerarin butyrate: $C_{25}H_{26}NaO_{10}$, 509.14 m/z $[M+Na]^+$; d represents Puerarin hexanoate: $C_{27}H_{30}O_{10}$, 515.17 m/z $[M+H]^+$; e represents Puerarin octanate: $C_{29}H_{34}O_{10}$, 543.20 m/z $[M+H]^+$; f represents Puerarin laurate: $C_{33}H_{42}O_{10}$, 599.26 m/z $[M+H]^+$; g represents Puerarin myrisate: $C_{35}H_{46}O_{10}$, 627.29 m/z $[M+H]^+$

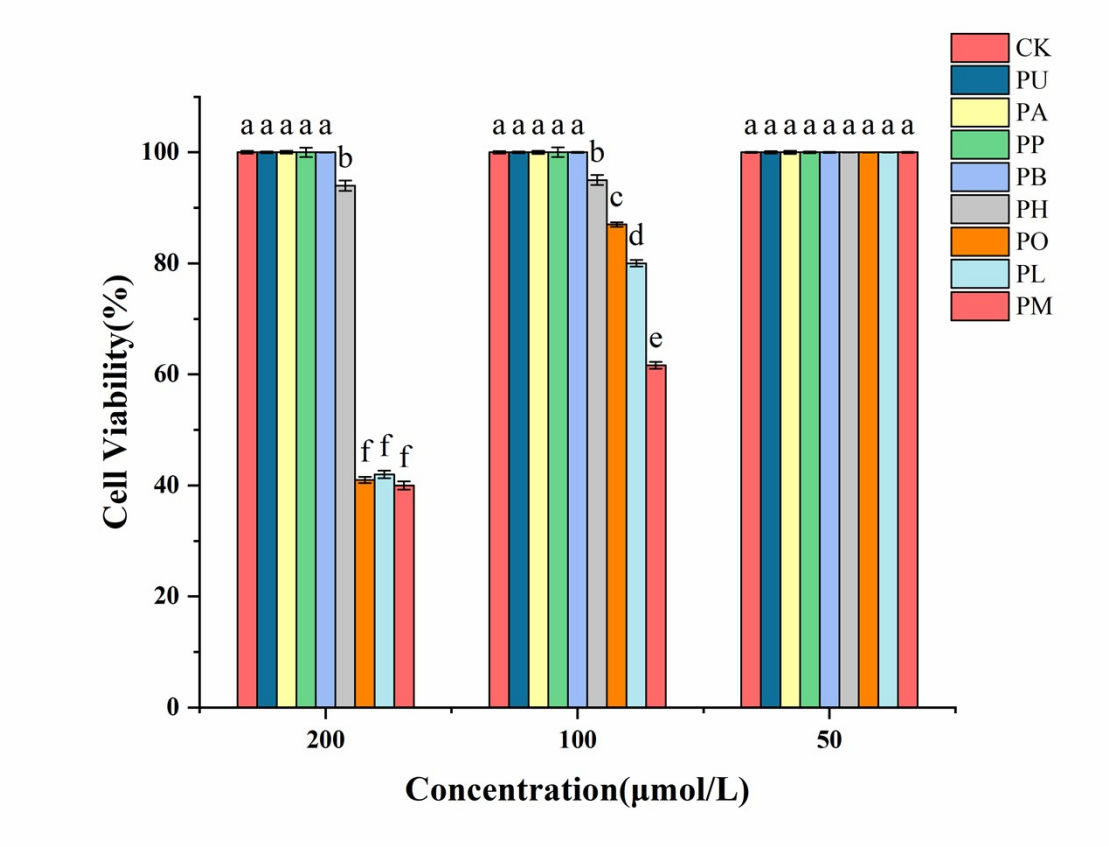

Fig. S2. The cell viability of puerarin and puerarin acid esters

Note: CK: group control, PU: puerarin, PA: puerarin acetate, PP: puerarin propanoate, PB: puerarin butyrate, PH: puerarin hexanoate, PO: puerarin octanate, PL: puerarin laurate, PM: puerarin myrisate. Values of different groups with different lower-case letters (a-f) was significantly different at $P < 0.05$.

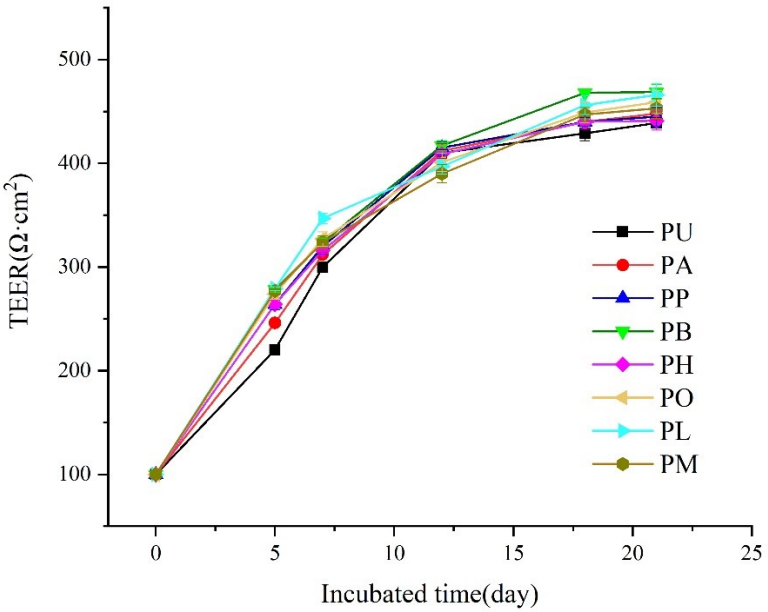

Fig. S3. Relationship between culture time and the TEER value of Caco-2 monolayer

Note: PU: puerarin, PA: puerarin acetate, PP: puerarin propanoate, PB: puerarin butyrate, PH: puerarin hexanoate, PO: puerarin octanate, PL: puerarin laurate, PM: puerarin myrisate.

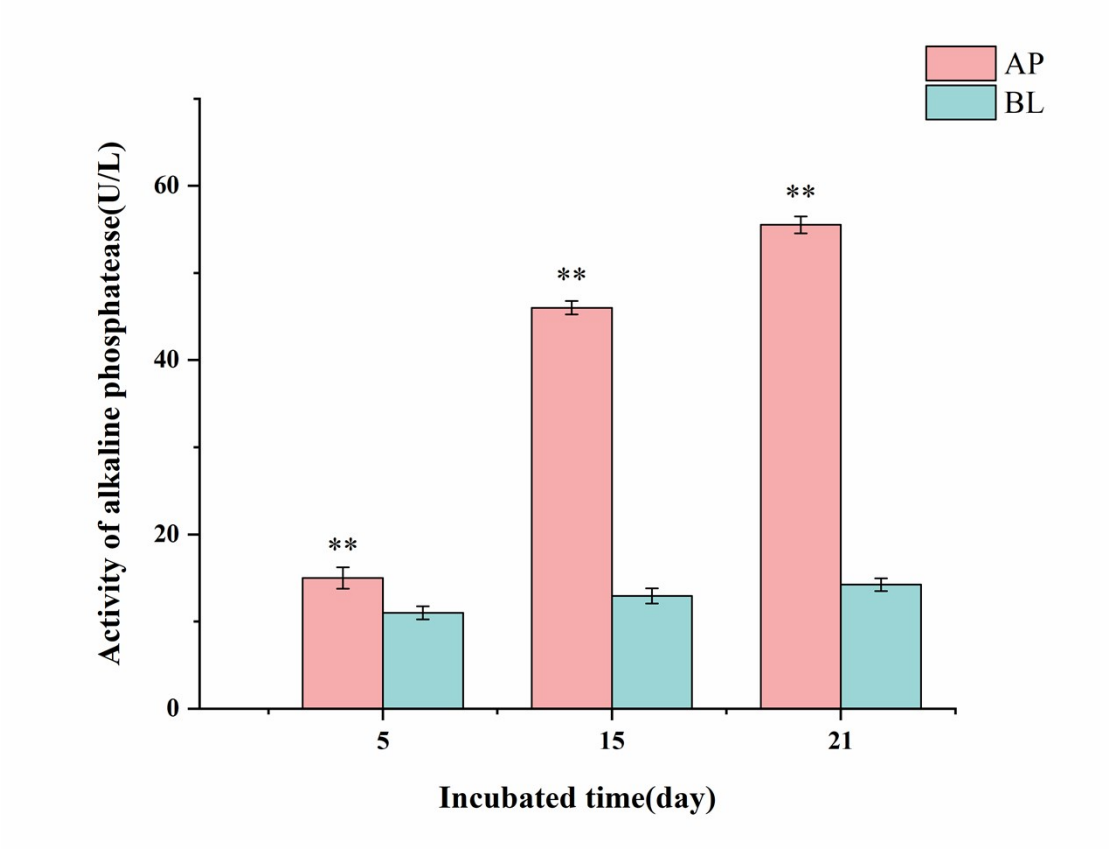

Fig. S4. Relationship between activity of alkaline phosphatease and culture time

Note: Compared with the BL side, * represents $P < 0.05$, ** represents $P < 0.01$.