Supplemental Materials

Pharicin A, an ent-kaurene diterpenoid, induces a novel mitotic arrest with therapeutic potential in paclitaxel-resistant cancer cells

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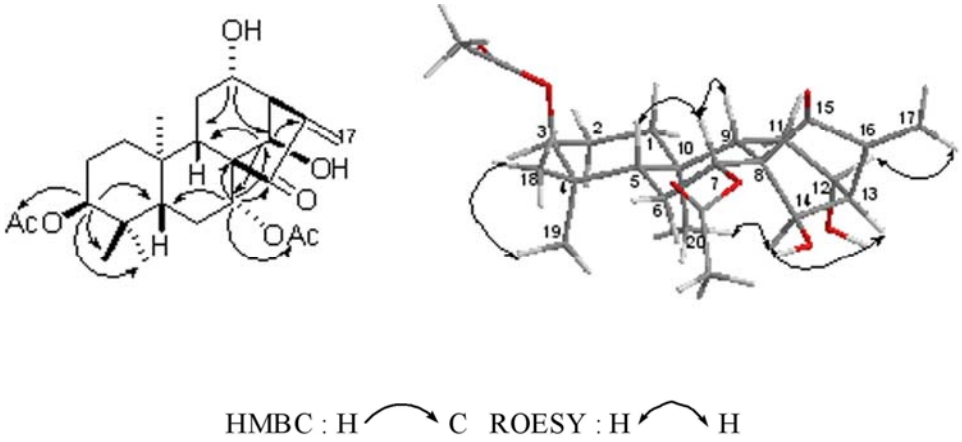
Supplemental Table 1. ^{1}H and ^{13}C NMR data of pharicin A (in $CDCl_3$, δ in ppm, J in Hz)

Carbon.	δ_H	δ_C	Carbon	δ_H	δ_C
1	1.30 (1H, td, 3.2, 13.4) 1. 44 (1H, br d, 12.9)	32.8 t	13	3.11 (1H, d, 3.2)	53.8 d
2	1.61 (1H, overlapped) 1.88 (1H, m)	22.5 t	14	5.19 (1H, s)	69.6 d
3	4.63 (1H, s)	77.3 d	15		205.7 s
4		36.6 s	16		144.1 s
5	1.53 (1H, overlapped)	46.7 d	17	6.15 (1H, s) 5.43 (1H, s)	119.5 t
6	1.64 (2H, overlapped)	25.0 t	18	0.87 (3H, s)	27.8 q
7	5.52 (1H, dd, 11.8, 4.2)	76.4 d	19	0.90 (3H, s)	21.5 q
8		60.9 s	20	1.29 (3H, s)	15.6 q
9	1.61 (1H, overlapped)	55.8 d	OAc	2.05 (3H, s)	170.6 s
10		38.3 s			21.2 q
11	1.96 (1H, dd, 11.6, 3.6) 1.62 (1H, overlapped)	24.5 t	OAc	1.99 (3H, s)	168.1 s
12	4.09 (1H, brs)	72.0 d			21.2 q

Notes: Pharicin A, obtained as white amorphous powder, had the molecular formula of $C_{24}H_{34}O_7$. Its HRESIMS (*m/z* 457.2191 $[M + Na]^+$, calculated 457.2202) indicated eight degrees of unsaturation. IR absorptions at 3383 and 1726, and 1647 cm^{-1} implied the presence of hydroxyl, carbonyl groups, and α,β-unsaturated ketone, respectively. The ^{13}C NMR spectrum of **1** displayed 24 carbon signals. Besides the resonances of two acetyl (δ_C 170.6, s, 168.1, s, 21.2, q, 21.2, q), other resonances corresponded to three methyls, five methylenes (including a sp^2 one), seven methines (including four oxygenated ones), five quaternary carbons (including two sp^2 ones). These lines of evidence indicated that this compound possessed an *ent*-kaurane diterpenoid skeleton.



Key HMBC and ROESY correlations of pharicin A

Figure S1. Key HMBC and ROESY correlations of Pharicin A. The HMBC correlations from H-3 (δ_H 4.63) to C-1 (δ_C 32.8), C-5 (δ_C 46.7) and C-19 (δ_C 21.5), from H-7 (δ_H 5.52, dd, J = 11.8, 4.2 Hz) to C-8 (δ_C 60.9), C-14 (δ_C 69.6) and C-15 (δ_C 205.7), from H-12 (δ_H 4.09) to C-9 (δ_C 55.8) and C-14 (δ_C 69.6), and from H-14 (δ_H 5.19) to C-7 (δ_C 76.4), C-15 (δ_C 205.7) and C-16 (δ_C 144.1), indicated the presence of four oxygenated methines that were located at C-3, C-7, C-12, and C-14, respectively. In addition, according to HMBC cross-peaks of H-3 (δ_H 4.63) with OAc (δ_C 170.6) and of H-7 (δ_H 5.52) with OAc (δ_C 168.1), two acetoxy groups were determined to be placed at C-3 and C-7, respectively. The relative configuration of pharicin A was established on the basis of ROESY correlations of H-3/H-19, H-7/H-5β and H-9β, H-12/H-9β and H-17a, H-14/H-13α and Me-20 as shown, which revealed substitution groups of C-3, C-7, C-12, and C-14 were β, α, α, β-orientations, respectively. Thus, this compound was unambiguously identified as 3β, 7α-diacetoxy-12α,14β-dihydroxy-*ent*-kaur-16-en-15-one.

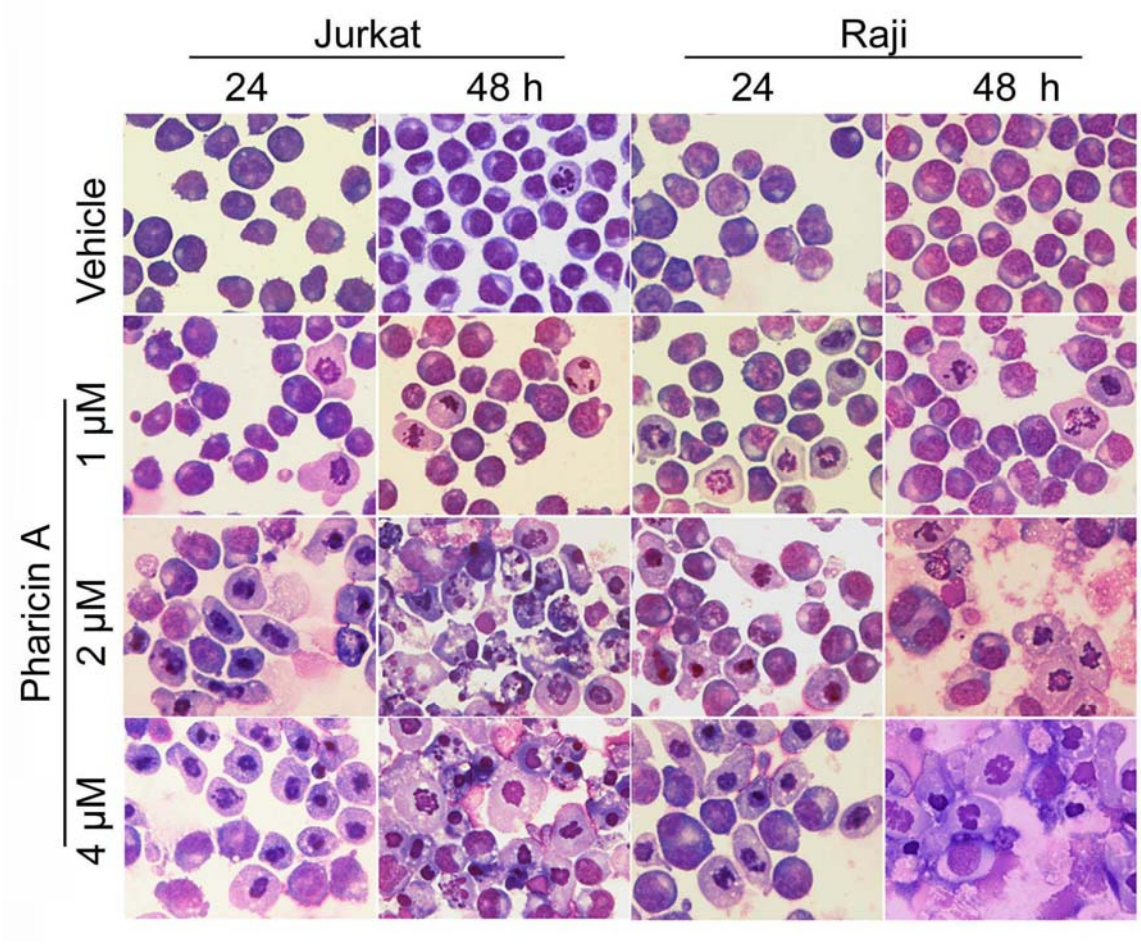


Figure S2. Pharicin A induces mitotic arrest in Jurkat and Raji Cells. After treatment with 1, 2, and 4 μM of pharicin A for 24 or 48 h, Jurkat and Raji cells were collected onto slides by cytospin, stained with Wright-Giemsa dye, and examined under an Olympus B×60 microscope equipped with a 100×/1.3 objective lens. Representative images were shown.