

**Yunnanterpene G , a Spiro-triterpene from the Roots of  
*Cimicifuga foetida* Down-regulates the Expressions of CD147  
and MMPs in PMA Differentiated THP-1 Cells**

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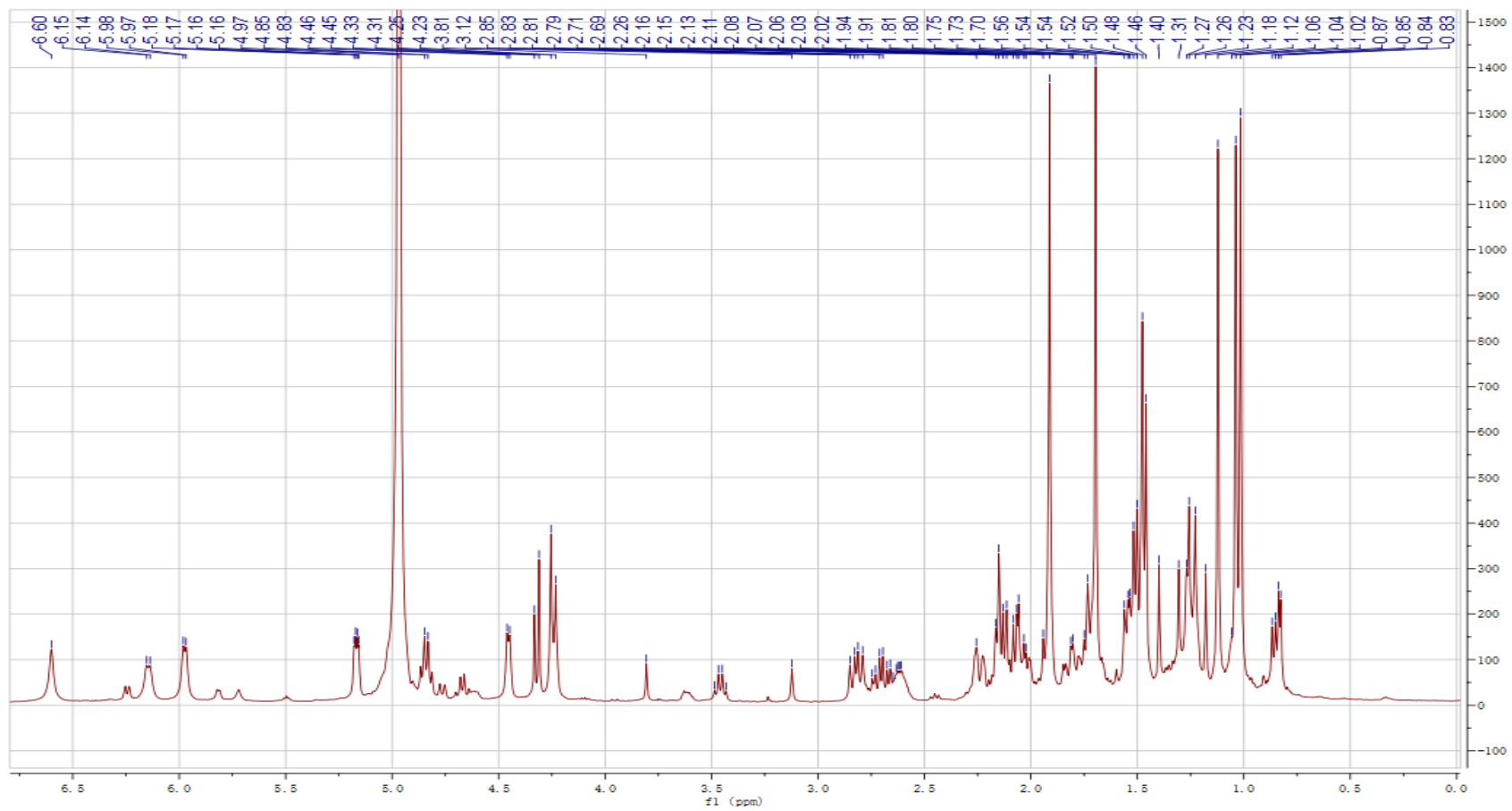
### Supporting Information List

Page 3-12,  $^1\text{H}$ ,  $^{13}\text{C}$ , HSQC, HMBC, COSY and ROESY NMR spectra, UV and IR spectra, and OR and HREIMS experiments of compound **1**.

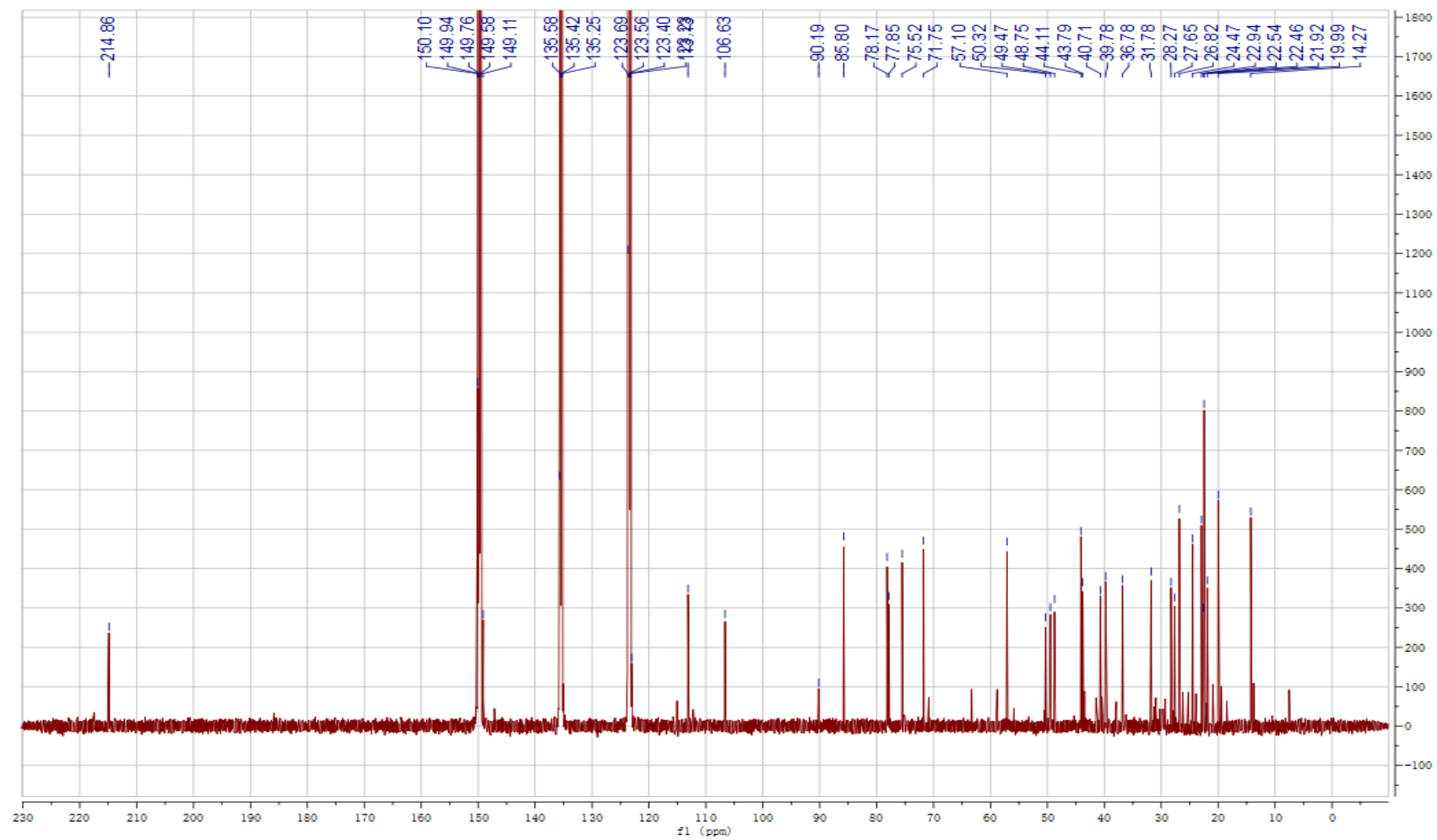
Page 13, **Figure S11**. Cell morphology and expression of CD68 and CD11b of differentiated and undifferentiated THP-1 cells

Page 14, **Table S1**. Primers' information for CD147 and MMPs in the present study

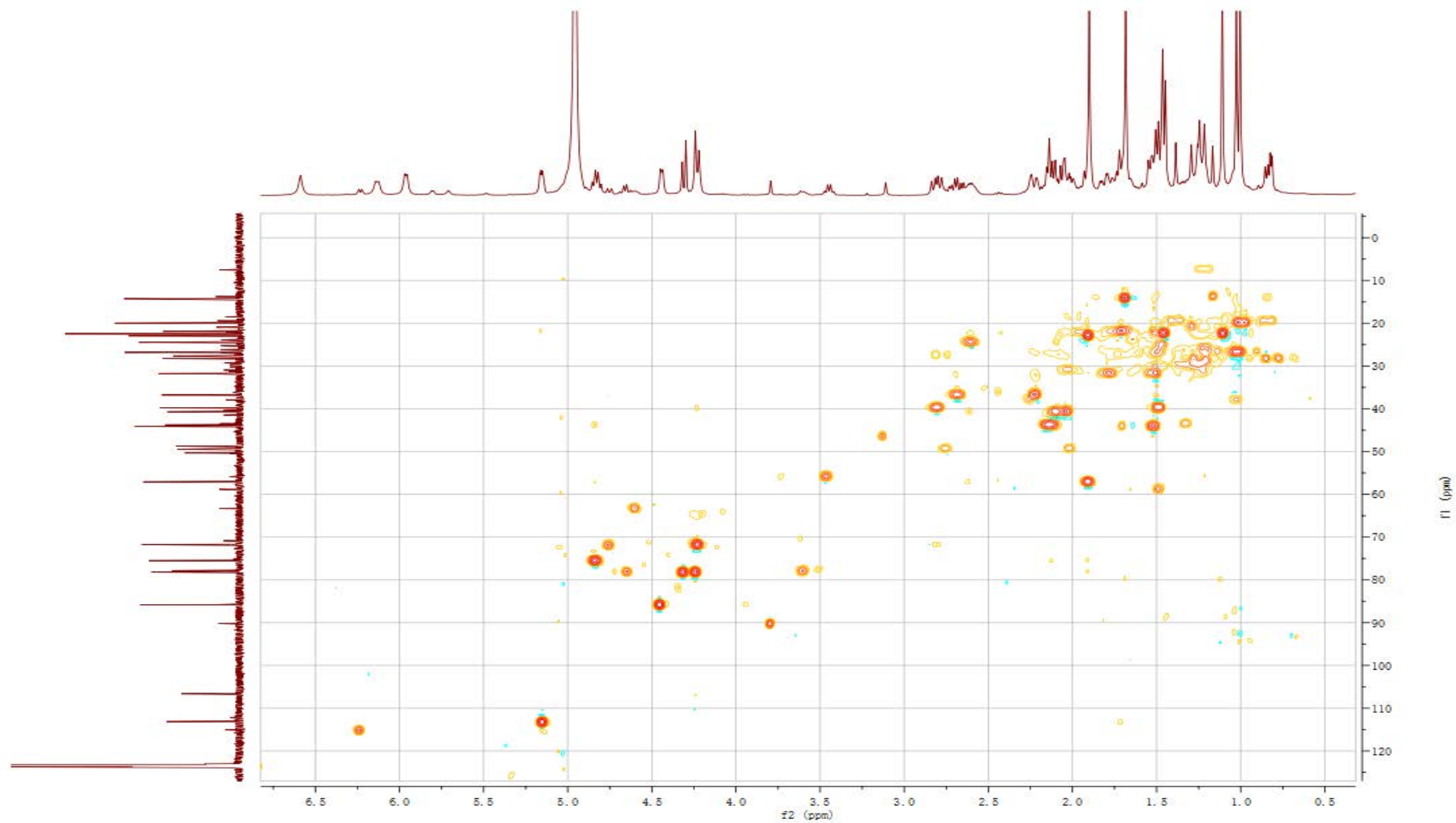
**Figure S1.**  $^1\text{H}$  (100 Hz) NMR Spectrum of Yunnanterpene G (**1**) in Pyridine- $d_5$



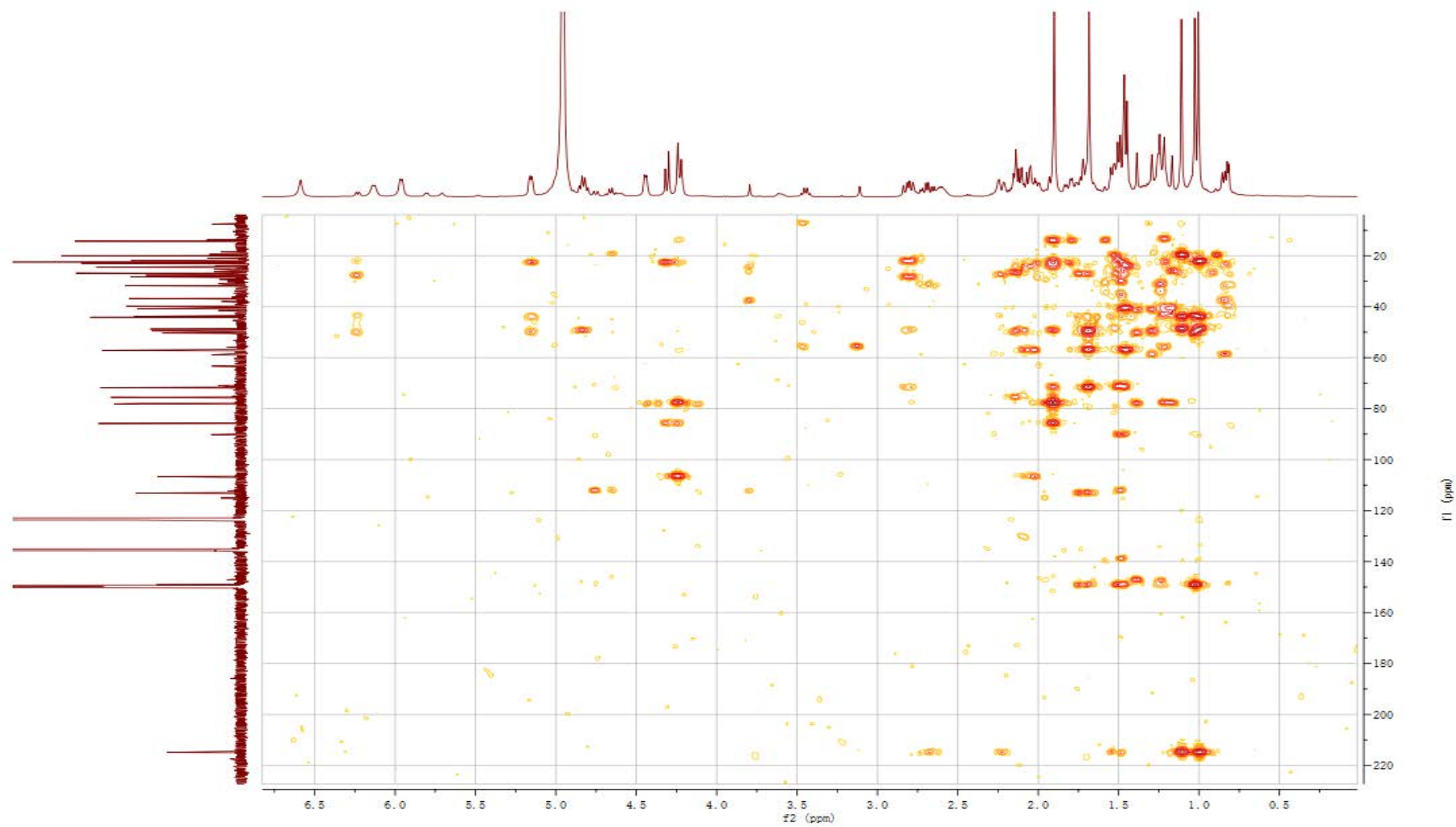
**Figure S2.**  $^{13}\text{C}$  (150 Hz) NMR Spectrum of Yunnanterpene G (**1**) in Pyridine- $d_5$



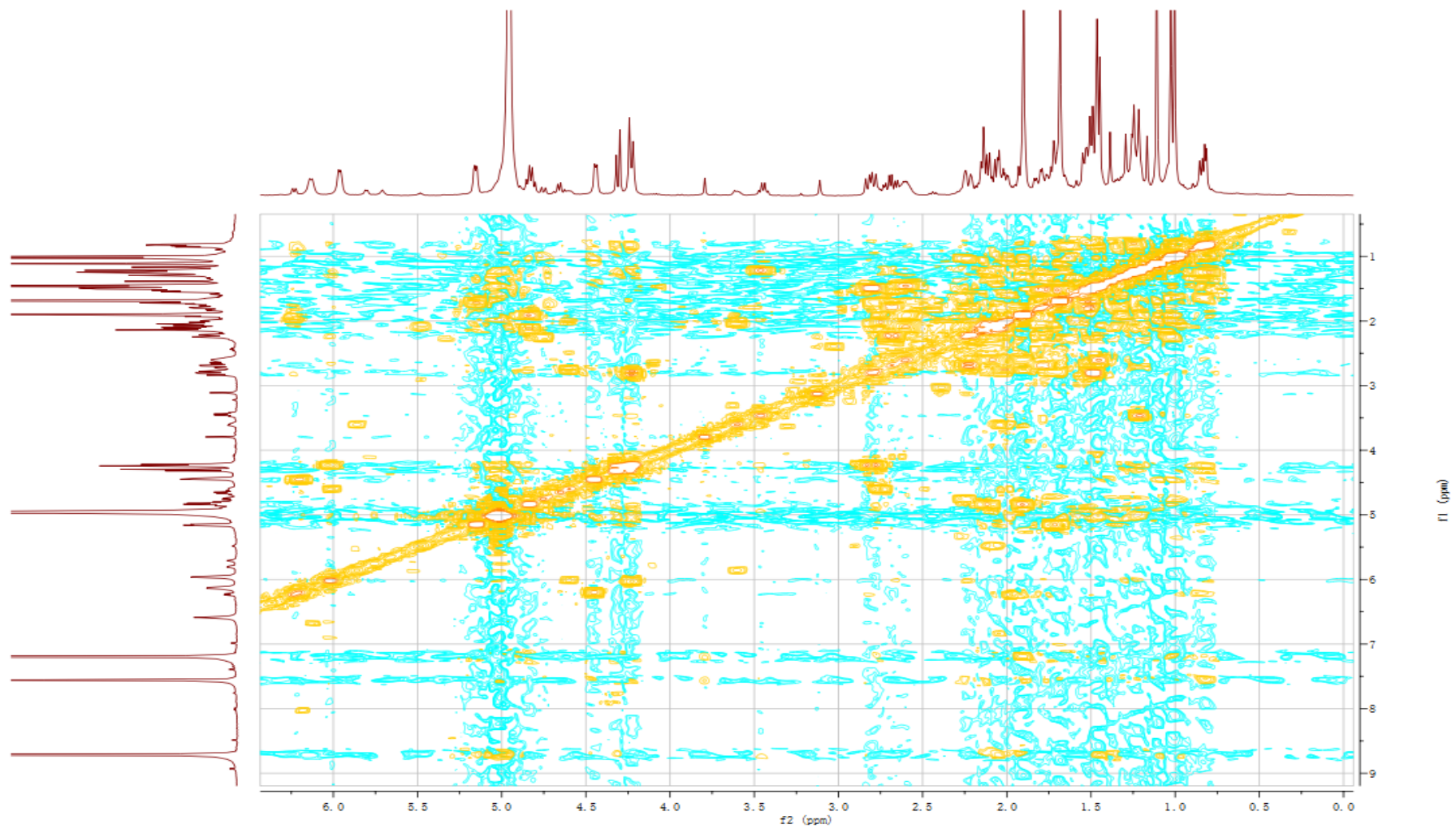
**Figure S3.** HSQC (600 Hz) Spectrum of Yunnanterpene G (**1**) in Pyridine-*d*<sub>5</sub>



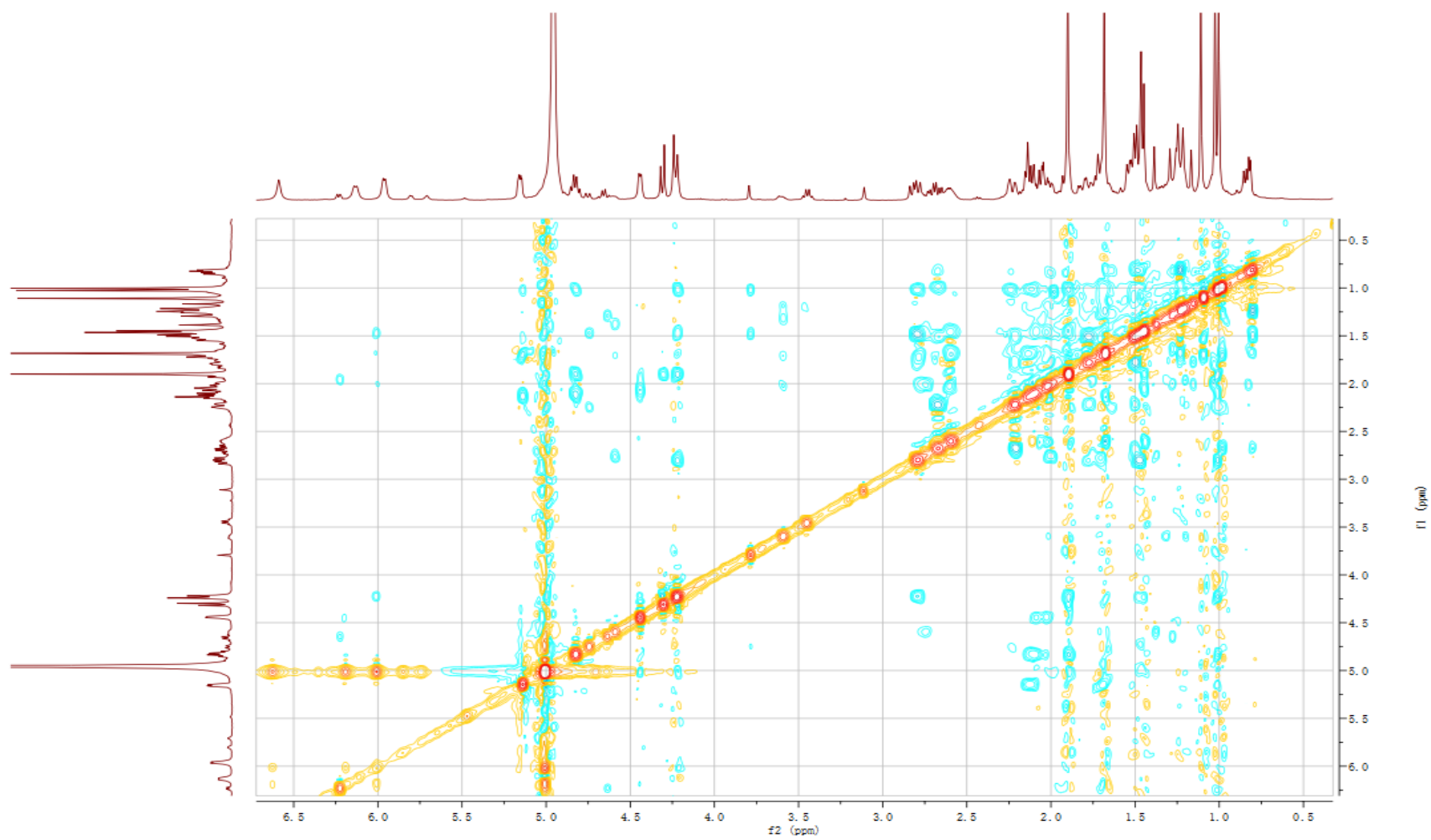
**Figure S4.** HMBC (600 Hz) Spectrum of Yunnanterpene G (**1**) in Pyridine- $d_5$



**Figure S5.**  $^1\text{H}$ - $^1\text{H}$  COSY (600 Hz) Spectrum of Yunnanterpene G (**1**) in Pyridine- $d_5$



**Figure S6.** ROESY (600 Hz) Spectrum of Yunnanterpene G (**1**) in Pyridine- $d_5$





# Figure S7. HREIMS of Yunnanterpene G (1)

## Elemental Composition Report

Page 1

### Single Mass Analysis

Tolerance = 10.0 PPM / DBE: min = -10.0, max = 120.0

Selected filters: None

#### Monoisotopic Mass, Odd and Even Electron Ions

22 formula(e) evaluated with 1 results within limits (up to 51 closest results for each mass)

Elements Used:

C: 0-200 H: 0-400 O: 5-7 Na: 1-1

WQ9-9

15:16:29 20-Apr-2016

Magnet EI+

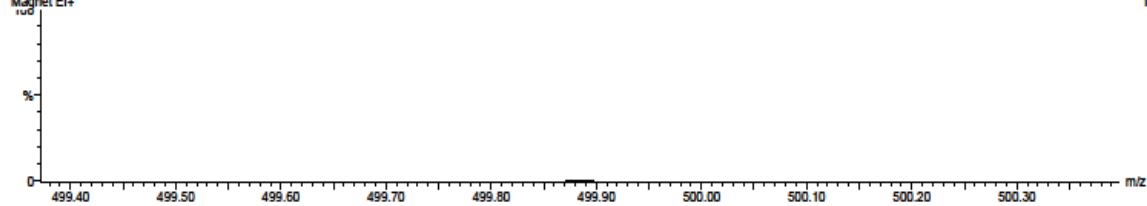
KIB

M160420E-05 15 (1.103)

Autospec Premier

P776

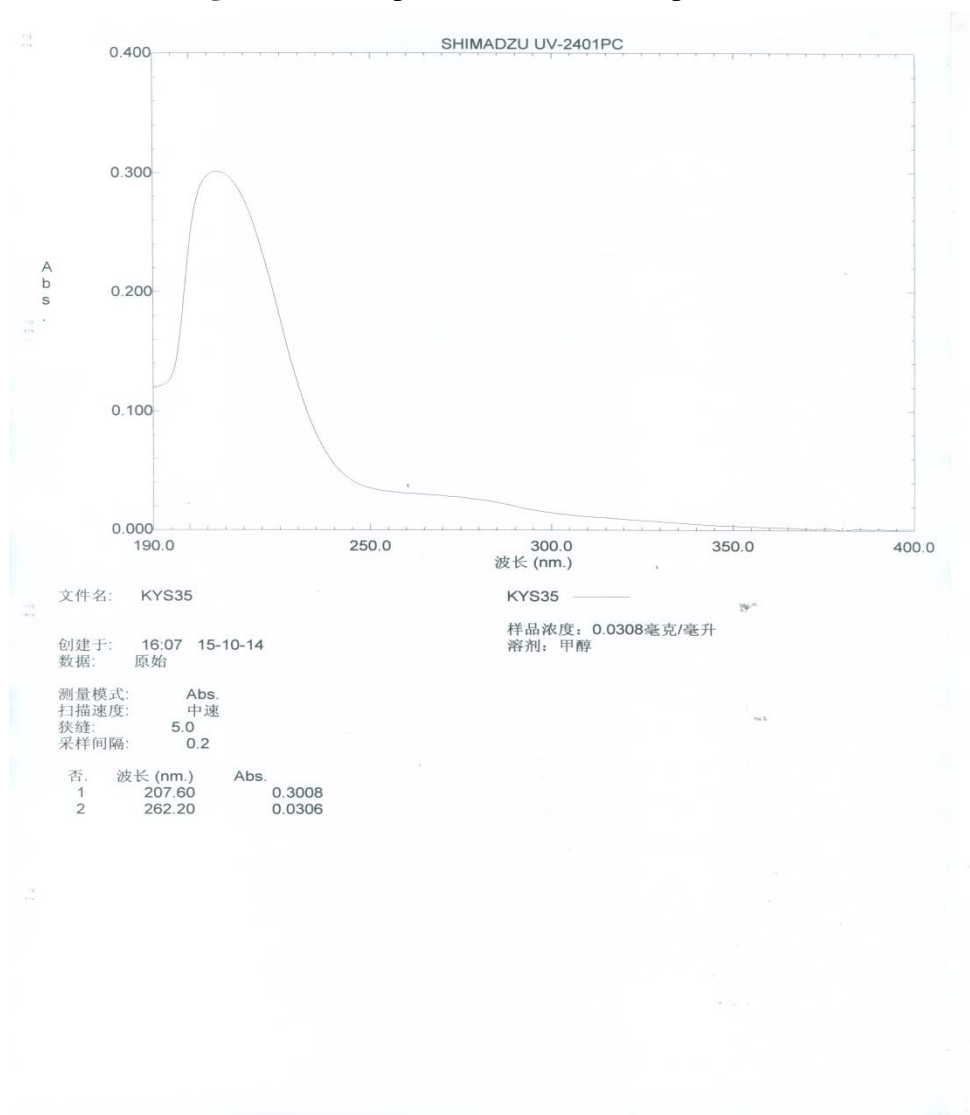
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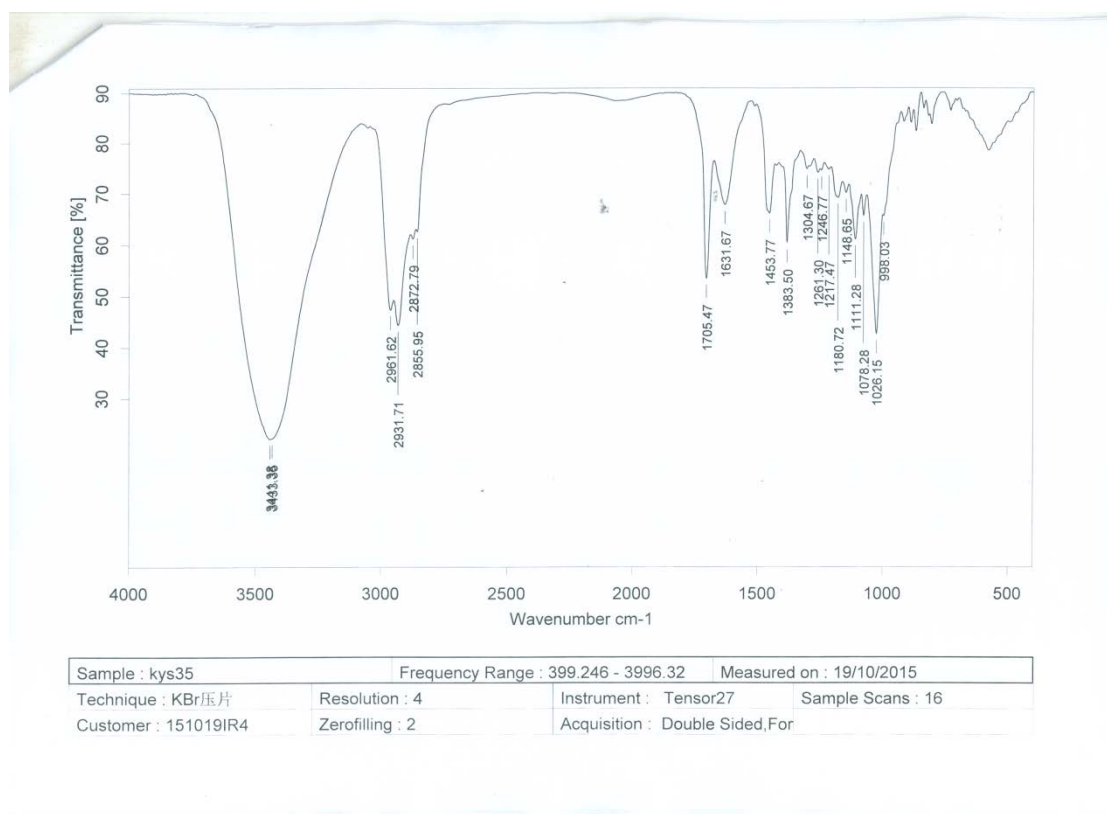
Minimum: -10.0  
Maximum: 120.0

Mass	Calc. Mass	mDa	PPM	DBE	Formula
523.3029	523.3036	-0.7	-1.3	8.5	C30 H44 O6 Na

**Figure S8.** UV spectrum of Yunnanterpene G (1)



**Figure S9.** IR spectrum of Yunnanterpene G (1)



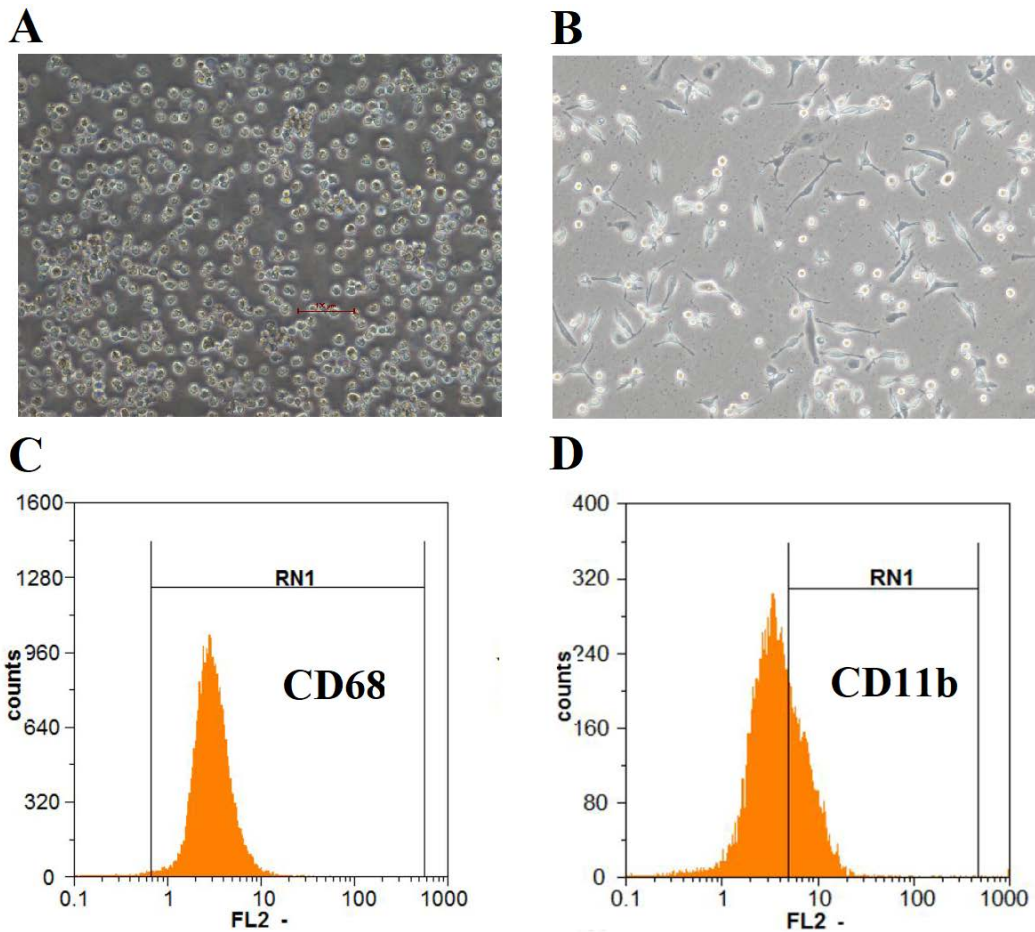
**Figure S10.  $[a]_D$  value of Yunnanterpene G (1)**

Optical rotation measurement

Model: P-1020 (A060460638)

No.	Sample	Mode	Data	Monitor Blank	Temp. Cell Temp Point	Date Comment Sample Name	Light Filter Operator	Cycle Time Integ Time
No.1	21 (1/3)	Sp.Rot	-40.0000	-0.0044 0.0000	19.2 10.00 Cell	Tue Oct 13 19:48:43 2015 0.00110g/mL MeOH KYS35	Na 589nm	2 sec 10 sec
No.2	21 (2/3)	Sp.Rot	-40.9090	-0.0045 0.0000	19.1 10.00 Cell	Tue Oct 13 19:48:56 2015 0.00110g/mL MeOH KYS35	Na 589nm	2 sec 10 sec
No.3	21 (3/3)	Sp.Rot	-36.3640	-0.0040 0.0000	19.1 10.00 Cell	Tue Oct 13 19:49:10 2015 0.00110g/mL MeOH KYS35	Na 589nm	2 sec 10 sec

*-39.0909°*



**Figure S11.** Cell morphology and expression of CD68 and CD11b of differentiated and undifferentiated THP-1 cells. **A.** Undifferentiated THP-1 cells; **B.** Induction of monocyte-macrophage differentiation by 100 nM PMA for 24 h; **C.** CD68 expression of the differentiated cells; **D.** CD11b expression of the differentiated cells. Expression of CD68 and CD11b were measured by flow cytometry using FITC-labeled anti-CD68 mAb and anti-CD11b mAb. Analysis was conducted on a PARTEC brand flow cytometer.

**Table S1.** Primers' information for CD147 and MMPs in the present study

CTGGTACAAGATCACTGAC	EMMPRIN(H)-F
GAGGAACTCACGAAGAAC	EMMPRIN(H)-R
CTGAAGGACACACTAAAGA	MMP2(H)-F
CGATGGTATTCTGGTCAA	MMP2(H)-R
GGCAGATTCCAAACCTTT	MMP9(H)-F
GCAAGTCTCCGAGTAGT	MMP9(H)-R
TCCATCAACACTGCCTAC	MMP14(H)-F
CCTCATCAAACACCCAATG	MMP14(H)-R
AAAGGGTCATCATCTCTG	GAPDH-F
GCTGTTGTCATACTTCTC	GAPDH-R