

Supplementary data

Enhancement of Cisplatin Sensitivity by Microwave Radiation in Ovarian Cancer Cells

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Antenna and Incubator performance evaluation

The generator power-adjustable in a range of zero to 33 dBm, which was fixed at 33dBm during irradiation in this study. The exposure condition was selected as the frequency of 2450±30 MHz, and the intensity of 3.5 mW/cm² at a distance of 25 cm from the antenna.

To evaluate our antenna function, the radiated power density was measured with the Spectrum Analyzer at a distance of 25cm from the antenna (inside the incubator, the cell flask location) which was 3.5 ± 0.1mW/cm². Using the Friis transmission formula, the power density in distance R from an antenna with power P_t and gain G_t can be calculated as follows ⁴⁷:

$$S \left(mW / cm^2 \right) = \frac{P_t (mW)}{4\pi R^2} G_t (dBi) \quad (1)$$
$$P_t (dBm) = 10 \log \left(\frac{P_t (mW)}{1 mW} \right)$$

Where the power density will be 3.56mW/cm² which is in agreement with measurement.

At First, we should check to make sure our incubator (Hand-made) is working properly. Therefore; two cell lines (A2780, A2780CP) were cultured with different concentrations in 96 well plates and incubated for 24, 48 hours. As can be seen in Fig A-1, the cell metabolic activity was assessed using the MTT test and the optical density was obtained and compared with the commercial CO₂ incubator (Mettmert type: INC 108, made in Germany).

Using SPSS software and due to the high sample size (approximately 41 samples in each group), even though in all cases there was no normal distribution, the T-test was used for comparison. The results of the T-test on optical density were compared for both incubators, taking into account the cultured cell category, incubation time and once in general. As can be deduced from Table A-1, the p-value is higher than 0.05 which shows that there is no statistically significant difference between the two incubators.

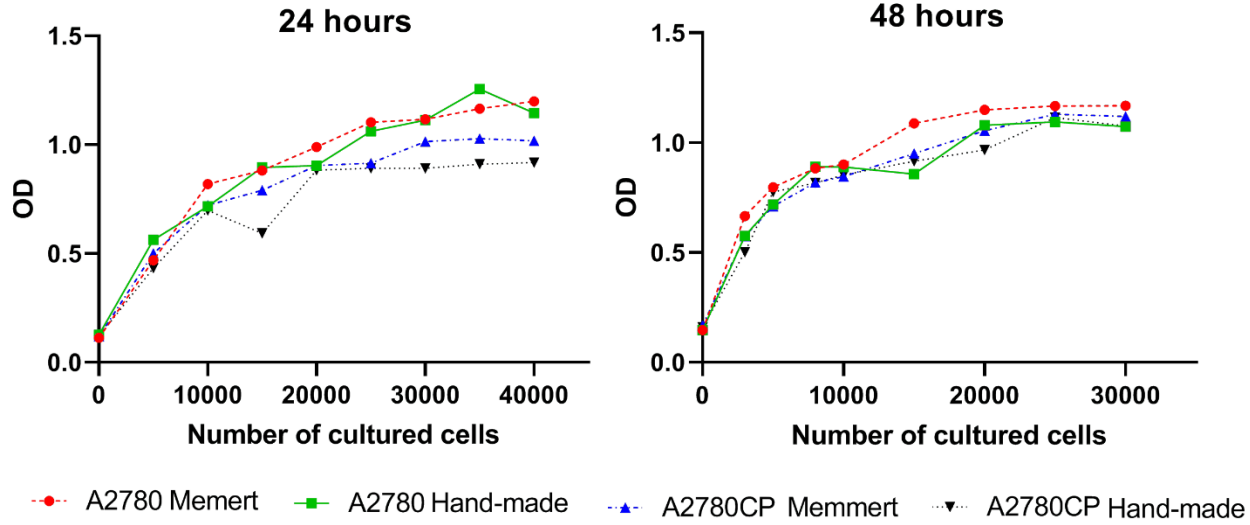


Figure S1. Comparison between the optical density obtained using MTT test for two CO₂ incubators (Memmert and hand-made) in two incubation times (24, 48 hr), and two cell lines (Cisplatin-resistant; CP, Sensitive; S).

Table S1. Comparison of cell viability in Memmert and hand-made incubator. Results are based on the incubation time, cell line, and overall (incubation time and cell line) comparison by MTT test.

Cell Line	CO ₂ Incubator	Mean OD±SD	P-value
A2780CP	Memmert	0.815±0.30	0.952
	Hand-made	0.744±0.28	
A2780	Memmert	0.886±0.33	0.537
	Hand-made	0.834±0.31	
Incubation time			
24 hours	Memmert	0.850±0.31	0.948
	Hand-made	0.791±0.31	
48 hours	Memmert	0.851±0.32	0.481
	Hand-made	0.787±0.29	
Overall comparison			
	Memmert	0.850±0.32	0.580
	Hand-made	0.789±0.32	