447 Design of a Novel Peptide for HER2 Targeting Based on Pertuzumab-HER2 Complex. Presenter: Xiaoling Li, University of the Pacific, U.S.A.. Author(s): D. Su, B. Jasti, X. Li. VIEW ABSTRACT

449 Development of Functionalized Iron Oxide Nanoparticles for Cancer Detection. Presenter: Neelam Chavan, Postdoctoral fellow, U.S.A.. Author(s): N. Chavan, M. Bikram, J. Young, R. Drezek, J. Almaguer, C. Karmonik, A. Brazdeikis. VIEW ABSTRACT

450 Distribution and functional analysis of Eph receptor A10 as a novel drug target for breast cancer. Presenter: Yuka Maeda, National Institute of Biomedical Innovation, JAPAN. Author(s): Y. Maeda, K. Nagano, T. Yamashita, S. Kanasaki, T. Furuya, M. Inoue, H. Nabeshi, T. Yoshikawa, Y. Yoshioka, N. Itoh, Y. Abe, H. Kamada, Y. Tsutsumi, S. Tsunoda. VIEW ABSTRACT

451 Enhacement anticancer effect of Baicalein and Gemcitabine using multifunctional solid lipid nanoparticle on A549 cells line. Presenter: Ming-Jun Tsai, Department of Neurology, China Medical University Hospital, TAIWAN. Author(s): M. Tsai, T. Weng, M. Lin, C. Huang, Y. Tsai. VIEW ABSTRACT

452 Enhanced Anticancer Activity by Specific Target Effect using anti-HER2 antibody and LMPXPEG. Presenter: Mi-Kyeong Jang, Sunchon National University, KOREA. Author(s): M. Jang, J. Nah. VIEW ABSTRACT

453 Fatty Acid-Glycosylated RGD Amphiphiles for Targeted Delivery of Paclitaxel to TumorsOverexpressing α vβ3 Integrins:In Vitro Cellular Uptake and Cytotoxicity Studies. Presenter: Xiaoling Li, University of the Pacific, U.S.A.. Author(s): P. S. Saraf, N. Javali, X. Li, B. Jasti. VIEW ABSTRACT

454 In Situ Hydrogel for the Sustained Release of Anti-Cancer Drug. Presenter: Maggie Lu, ITRI, TAIWAN REP OF CHINA. Author(s): M. Lu, Y. Lo, M. Lin, C. Huang, T. Hu, S. Chou, C. Tu. VIEW ABSTRACT

455 In Vivo Stability of an Injectable Antibody Displaying System. Presenter: Yi Wen, Division of Pharmaceutical Science, Duquesne University, Pittsburgh, PA, U.S.A.. Author(s): Y. Wen, W. S. Meng, H. Kolonich, E. S. Gawalt, N. Giannokakis. VIEW ABSTRACT

456 Nanocomposite particles for treatment of lung carcinoma. Presenter: Keishiro Tomoda, Tokyo University of Science, JAPAN. Author(s): K. Tomoda, K. Hirota, T. Nakajima, H. Terada, K. Makino. VIEW ABSTRACT

Enhacement anticancer effect of Baicalein and Gemcitabine using multifunctional solid lipid nanoparticle on A549 cells line

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bine and baicalein in a multifunctional solid lipid
ity in vitro and in vivo study was investigated. T
f gemcitabine and baicalein enhanced anti-tumor
A549 cells. The multifunctional solid lipid nano
amount and prolong the retained the retained tim
c.

synthesis with a broad spectrum of anti-tumor
ney, pancreas, lung, and biliary tract cancers [1].
n recognized its effect on human hepatocellular
onsmall carcinoma cell lines [2]. Combination of
modes of action may provide greater anti-tumor
e and overcome the chemo-resistance. Hence, the
d baicalein on the anti-tumor efficacy in human
aluated in this study. In n order to increase the
he multifunctional solid lipid nanoparticles (SLN)
he effect of component of solid lipid nanoparticle
dy.

repared separately. The lipid phase consisted of
nine, baicalein and gemcitabine were dissolved in
tion. The mixture was evaporated at 75 ℃ for 15
nder a nitrogen steam for 30 mins. The aqueous
d to the lipid phase and mixed using a probe-type
erature was maintained at 85℃ sonication.

ination
s entrapment efficiency, in-vitro release study,
enograft tumor model were investigated for
SLNs.

nd combination of baicalein and gemcitabine in
cell line, A549 cells were 17.36, 46.25 and 14.97

SLNs decreased with ratio of HSPC and gelucire
then increased slightly to ratio of 9/1. The zeta
rylamine (positive charge) and lecinol (negative
ulation to modify the zeta potential of SLNs. As
ly charged SLNs were slightly increased. The
higher for positively charged SLNs. In the WST-
SLNs with or without charge did not showed
ays storage, only the positively charged SLNs

nificantly decreased by PEG added (**Table 2**).
cy of gemcitabine and baicalein were also
(Polysthylene Glycol Monostearate 25 E.O.)

The average size of SLNs slightly increased and the entrapment efficiency significantly increased (A1/A2) by incorporated of vitamin E (**Table 3**). Adding vitamin E and PEG significantly decreased the average particle size and slightly inceased entrapment efficiency(A2/A3). Replacement of HSPC by folic acid or low melting point lipid(DPPC) showed no improbement both in average particle size and entrap,emt effciency(A3/A4/A5).

The release amount of baicalein and gemcitabine carried by SLNs were lower than those dissolved in solution control, indicated that the SLNs had slow release effect (**Fig.2**).As shown in **Fig.3**, treatment with Formulation A2 containing vitamin E, the tumor side did not found radioactivity and most of the radioactivity disappear fast within 1 h. The radioactivity was found in all tissue in 5 min after injection of Formulation A2 containing vitamin E and PEG, and most of the radioactivity disappeared in 96 h, indicated that PEG can prolong the retention time of solid lipid nanoparticle in body. Treatment of Formulation A4 containing vitamin E, PEG and folic acid, it was found that the radioactivity significantly retained in tumor side when compared with the treated of formulation A2 and A3.

4. Conclusion

Combination of gemcitabine and baicalein could enhance the cytotoxic effect in A549 cell line. The drugs-loaded SLNs could enhance the cytotoxicity about 4-folds when compared with drug solution control. The SLNs containing PEG and folic acid could enhance the retained amount and time of drugs in tumor side

Table 1. Size, Polydispersity index (PI), zeta potential (ZP) and entrapment efficiency (E.E.) of drugs-loaded SLNs containing different ratio of lipid and charge modifier.

	Added	Size (nm)	PI	ZP (mV)	E.E. % Gemcitabine	E.E. % Baicalein
HSPC/Gelucire 4/6		75.67±1.81	0.19±0.03	1.63±0.75	37.08±2.94	41.23±3.25
HSPC/Gelucire 5/5		80.17±4.56	0.21±0.03	0.47±0.55		
HSPC/Gelucire 6/4		75.33±1.02	0.28±0.04	1.47±0.81		
HSPC/Gelucire 4/6	stearylamine	75.67±1.81	0.40±0.04	52.60±3.06	65.91±1.88	64.92±1.80
HSPC/Gelucire 5/5		71.50±3.57	0.43±0.07	44.10±4.10		
HSPC/Gelucire 6/4		81.40±5.62	0.48±0.01	38.03±7.06		
HSPC/Gelucire 4/6	lecinol	94.91±2.40	0.30±0.02	-45.34±4.84	41.45±0.47	53.25±6.25
HSPC/Gelucire 5/5		87.67±4.63	0.43±0.07	-49.73±2.26		
HSPC/Gelucire 6/4		95.80±1.15	0.40±0.02	-44.37±1.25		

Table 2. Size, polydispersity index (PI), zeta potential (ZP) and entrapment efficiency (E.E.) of drugs-loaded SLNs with different molecule weight of PEG of 30 mg

	Size (nm)	PI	ZP (mV)	E.E. % Gemcitabine	E.E. % Baicalein
SLNs	75.67±1.81	0.40±0.04	52.60±3.06	65.91±1.88	64.92±1.80
SLNs with PEG25E.O.	38.61±1.41	0.48±0.04	39.00±2.97	85.23±1.35	84.51±0.12
SLNs with PEG40E.O.	41.82±0.71	0.55±0.03	38.80±1.84		
SLNs with PEG45E.O.	41.83±0.69	0.53±0.01	37.40±0.42		
SLNs with PEG55E.O.	47.55±1.11	0.48±0.02	43.45±1.34		

Table 3. Size, polydispersity index (PI), zeta potential (ZP) and entrapment efficiency (E.E.) of drugs-loaded SLNs with different molecule weight of PEG.

	Size (nm)	PI	ZP (mV)	E.E. % Gemcitabine	E.E. % Baicalein
A1	74.72±0.64	0.45±0.01	38.12±2.31	64.21±1.38	62.37±3.10
A2	79.63±0.57	0.42±0.01	42.33±0.03	79.17±1.55	84.29±1.89
A3	36.75±1.76	0.58±0.08	40.23±1.43	84.52±1.14	89.32±2.31
A4	37.45±2.33	0.53±0.07	40.86±2.11	83.76±2.81	88.25±1.22
A5	33.61±1.13	0.56±0.01	37.92±0.85	85.35±1.76	89.47±2.30

A1: positively charged SLNs
A2: positively charged SLNs containing vitamin E (8 mg)
A3: positively charged SLNs containing vitamin E (8 mg) and PEG25E.O. (37.5 mg)
A4: positively charged SLNs containing vitamin E (8 mg), PEG25E.O. (37.5 mg) and folic aicd (1.5 mg)
A5: used DPPC substitutes for HSPC of A4

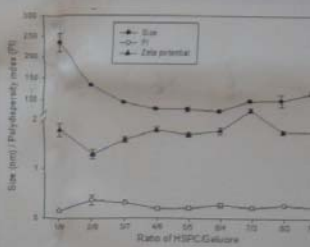

Fig. 1. The Size, Polydispersity index (PI) and zeta pot
of drugs-loaded SLNs with different ratio of HSPC
from 1/9 to 9/1.

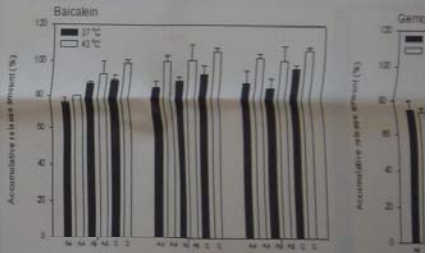

Fig. 2. In vitro release-time profiles of baicalein and gemcitab
lipid nanoparticles and solution control

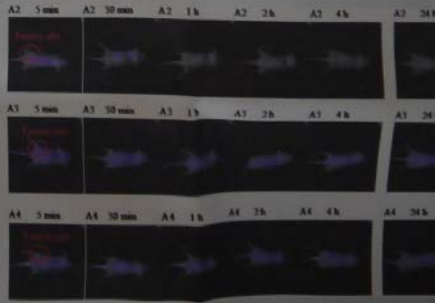

Fig. 3. In vivo optical imagine of IR-780-loaded multifunctional
Formulation A2 containing vitamin E. **B:** Formulation A3 conta
Formulation A4 containing vitamin E, PEG and folic acid.

5. References

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