Background

Grape seed extract ingredient "iGS4000"

- Extract from grape seeds
- Contains many kinds of polyphenols
  Polymerized polyphenols

Effectiveness of iGS4000

- Mitochondrial activation
- Collagen production
- Degranulation inhibition
- Inhibition of tumor cell growth
- Reduction of side effects of anticancer drugs (Clinical trials)
- Anti-inflammatory
- UV resistance
- Anti-aging effect
- Immunoreactivation

Reduction of side effects of anticancer drugs (Clinical trials)

○Order number: 7004
(Academic Council of Grant Kazakh National Medical University)

○Target: Hormone-insensitive breast cancer patients n=23

○Anticancer agent : AC (Docetaxel + Cyclophosphamidum) (+Herceptin)

○Schedule

IGS4000 12capsules/day

AC 3~8course
Herceptin, Surgical oper.
Radio therapy etc.

Placebo Group

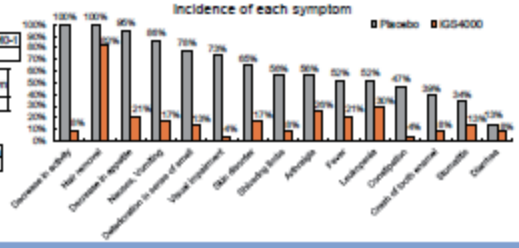
TNM Classification	T1 No-1 M0	T2 No-1 M0	T3 N0-1 M0	T4 No-3 M0-1
	4	12	2	4

Health condition after treatment	Satisfactory condition	condition below satisfactory	died	unknown
	14	3	4	2

IGS4000 Group

TNM Classification	T1 No-3 M0	T2 No-1 M0-1	T4 N1 M0	unknown
	8	10	3	2

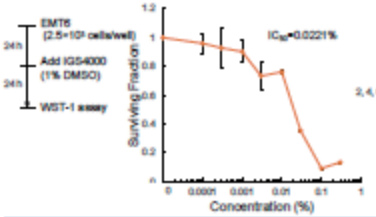
Health condition after treatment	Satisfactory condition	condition below satisfactory	died
	21	1	1



Results

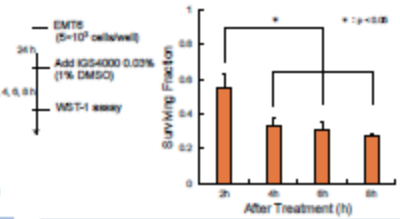
◇Antitumor activity of iGS4000 against EMT6 cells and its mechanism

Antitumor activity



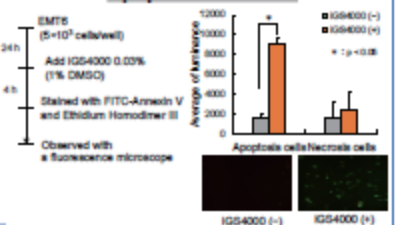
High anti-tumor effect was observed at concentrations of 0.03% or higher

Time course of antitumor activity



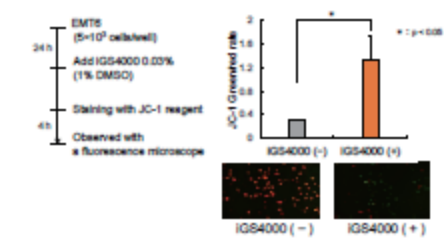
Cell death was induced by 4 h after addition

Apoptosis/Necrosis



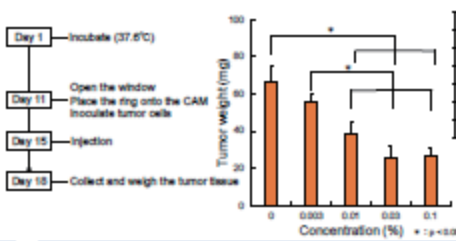
Apoptosis has been induced

Mitochondrial membrane potential



The mitochondrial membrane potential has disappeared

Antitumor activity against EMT6 tumor transplanted chicken eggs

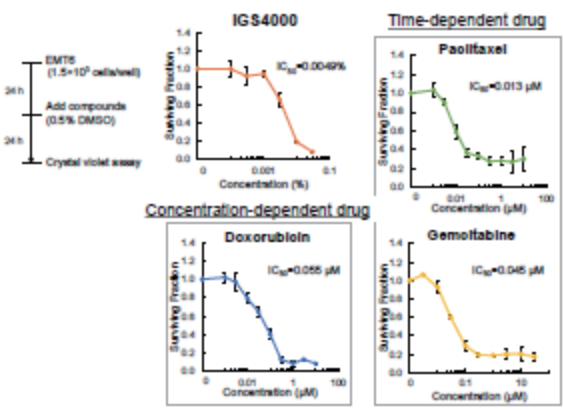


IGS4000 (%)	Surviving Fraction (%) Day16	Day17	Day18
0	100	100	100
0.003	66.7	66.7	66.7
0.01	77.8	77.8	77.8
0.03	66.7	66.7	66.7
0.1	33.3	33.3	22.2

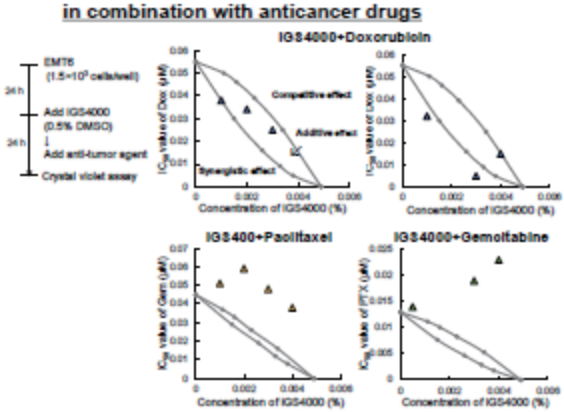
iGS4000 showed anti-tumor activity *in vivo*

◇Interactions between iGS4000 and anticancer drugs in combination

Antitumor activity



Antitumor activity of iGS4000 in combination with anticancer drugs



Concentration-dependent drug : The cell killing activity was enhanced additively or synergistically.
Time-dependent drug : Antagonism was observed.

Conclusion

- The iGS4000 induced mitochondria-mediated apoptosis and showed anti-tumor activity.
- It was confirmed that iGS4000 shows an anti-aging effect on normal cells such as fibroblasts, while showing a synergistic antitumor activity with an anticancer drug on EMT6 tumor cells.

COI Disclosure Information

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We have no financial relationships to disclose.