assay. Flowcytometry analysis was performed to determine apoptosis and cell cycle arrest in gastric cancer cells treated with or without Scutellarein. Induction of apoptosis was confirmed by DNA fragmentation assay and DAPI nuclear staining. Proteins expression related to apoptosis were analyzed by Western blot.

Results: We tested the cytotoxicity of various concentrations of Scutellarein for both time and dose dependent using the MTTassay in all three gastric cancer cell lines. As shown in MTT results Scutellarein inhibited cell viability in both dose and time dependently dependent manner. Flow cytometry and Western blot analysis showed that Scutellare ininduces apoptosis in both AGS and SNU-484 human gastric cancer cells and G2/Mphase cell cycle arrest in SNU-484 cells. Scutellarein induces apoptosis in both AGS and SNU-484 are regulated by activating p53 and XIAP pathway.

Conclusions: These results indicated that the anti-cancer effect of Scutellarein on AGS and SNU-484 human gastric cancer cells by inducing apoptosis and cell cycle arrestvia by activating p53 and XIAP pathway.

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Proteomic Profiling of Tangeretin-induced Cell Death in AGS Gastric Cancer Cells

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Introduction: Gastric cancer is the fourth most common cancer andthe second leading cause of cancer related deaths worldwide. Gastric cancerprognosis is very poor and it is usually diagnosed at late or advanced stage inmost patients. Even with standard chemotherapy regime and resection of gastriccancer 50-90% of patients die due to relapse of the disease. In the pastdecades many natural compounds have been used as an anti-cancer agent againstmany cancer cell lines. Tangeretin is a polymethoxyflavanoids which is richlypresent in *Citrus* fruits. Manystudies have shown that tangeretin induce cell death in breast cancer cell,human leukemic cancer cell and colon cancer cell lines. The main aim of thestudy is to identify the protein-protein interaction in tangeretin induced celldeath in AGS gastric cancer cells using comparative proteomics.

Materials and Methods: AGS gastric cancer cells were grown in RPMI mediacontaining 10% FBS and 1% penicillin streptomycin in a 5% CO_2incubator. Overnight grown AGS cells were treated with 0, 25, 50, 100 and 150μM concentration of tangeretin for 24h and MTT assay was carried. 2Delectrophoresis was carried out in AGS cells treated with/without tangeretin.

Results: Tangeretin induced cell death in a dose dependentmanner in AGS cells with an IC_{50} value at 100 μM. To analyze theunderlying molecular mechanism of anti-tumor effect of tangeretin proteomicanalysis was carried out in AGS cells treated with/without 100 μM tangeretin.Many differentially expressed proteins were identified.

Conclusions: In the study differentially expressed proteins intangeretin induced cell death in AGS cells is described. Further studies of theidentified proteins will be helpful in elucidating the anti-cancer mechanism oftangeretin.

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Fluid shear stress regulates vessel remodeling vialigand independent VEGFR-3 activation in uterus during pregnancy.

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Introduction: During early pregnancy, the uterus requires an amount of blood for embryo development. Increased blood volume increases blood pressure and blood flow in blood vessels. Hence, the uterus experience vascular remodeling to accommodate for increased blood volume during pregnancy. Increased blood flow directly affects the vascular wall by inducing fluid shear stress (FSS). FSS from blood flow induces expression of VEGF and their receptors. Additionally, vascular remodeling is regulated by FSS dependent VEGFR-3 activation. However, the mechanism of FSS related VEGFR-3 expression in the uterus during pregnancy is not fully understood. Here we show that FSS regulates VEGFR-3 activation and consequently regulates vascular remodeling in the pregnant uterus.

Materials and Methods: Specific pathogen free C57BL/6J female mice were mated with adult male mice. Identification of a

vaginal plug the following morning was interpreted as successful mating, and designated 0.5 day post coitum (dpc). As a whole, the mice were divided into 4groups: estrus non pregnancy (ENP), 4.5, 6.5 and 8.5dpc. Samples from the uterus were collected after mating at 4.5 to 8.5days. Human uterine microvascular endothelial cells (HUtMEC) were plated on gelatin coated 6 well plates in endothelial cell growth medium (EGM) with 5% fetal bovine serum(FBS). To examine the change of VEGFR-3 expression in cultured HUtMEC by fluid shear stress, the cells were seeded in a modified 100mm culture dish. The cultured dish was put through orbital rotation by an orbital shaker. And then, we determined the fluid shear stress (0-20 dyne/cm^2) induced VEGFR-3 expression level by using PCR, immunohistochemistry staining and western blot methods.

Results: *In vivo* experiments, VEGFR-3 expression by vascular endothelial cells was examined using pregnant mice. To test the vascular remodeling effects of fluid shear stress in vascular endothelial cells, we examined VEGFR-3 expression in the CD31 positive region of pregnancy uterus of4.5 dpc mice. VEGFR-3 expression was not detected in the endometrium of the 4.5dpc uterus and VEGFR-3 was detected only myometrium of the pregnant uterus. However, VEGFR-3 expression was detected in the CD31 positive region of the 6.5- 8.5 dpc uterus. To test the VEGFR-3 ligand expression in the pregnancy uterus, we detected the VEGF-C expression in the pregnant uterus. However, VEGF-C was not detected in the uterus. *In vitro* experiments, to test the relationship between FSS and VEGFR-3 expression in endothelial cells, we induced FSS in HUtMEC by using in vitro shear stress modeling. FSS induced a morphological change on HUtMEC. Moreover, VEGFR-3 expression was increased by FSS.

Conclusions: Our findings indicate that VEGFR-3 activation by fluid shear stress associates the vascular remodeling for accept the increased blood volume during pregnancy uterus.

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Inhibition of Human Gastric Cancer CellProliferation by Pectolinarigenin

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Introduction: The inclusive characteristicof the flavonoid compound pectolinarigenin, is already demonstrated its potenthepatoprotective, anti-diabetic and anticancer activities in vitro. Based onthe above evidences, the present study, is undertaken to investigate theanticancer activity and signaling regulator of pectolinarigenin effect in humancancer cell lines. We had mainly focused on the differential mechanism betweenAGS and MKN-28 gastric cancer cells due to its specific characters.

Materials and Methods: Pectolinarigenin werepurchased from AdooQ BioSience LLC (Irvine, KY, USA). AGS cells and MKN-28cells were obtained from Korea Cell Line Bank (Seoul, Korea). Cells werecultured in RPMI1640 medium supplemented with 10% FBS, and 1% penicillin-streptomycinin a humidified atmosphere of 5% CO2 at 37 ○C. AGS cells were seeded into 6-well plates and incubatedfor 24h. The cells were treated with or without flavonoids. Cell viability wasdetermined using MTT assay. Cells were incubated with 5 μg/ml of propidium iodide and Annexin V (BDBiosciences) for apoptotic analysis. A FACS Calibur flow cytometer (BDBiosciences, Franklin Lakes, NJ, USA) was used to analyze the apoptotic celldeath and cell cycle distribution.

Results: Pectolinarigenin was able toinhibit proliferation in vitro condition of seven human gastric cancer celllines (AGS and MKN-28) in a concentration dependent manner although markeddifferences in the degree of cell viability have been observed. Flow cytometrywas performed to determine the population of cell death in thepectolinarigenin- treated AGS and MKN-28 cells.

Conclusions: In conclusion, it has observedthat pectolinarigenin suppressed cell viability in the AGS and MKN-28 cells.Furher investigation is undertaken related to arrest cell cycle mechanism andsignaling regulators in the AGS and MKN-28 cells. Thus, pectolinarigenin may bea potential chemotherapeutic agent for the treatment of human gastric cancercells.

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ROS Generation, MAPKs Activation, mTOR Inhibition, Leads Autophagy and Lysosomal Degradation in Naringin Induced Cell Death in AGS Cancer Cells

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