

(사)한국독성학회/한국환경성돌연변이발암원학회
2019년 제35차 정기학술대회


The 35th Annual Meeting of KSOT/KEMS

Bridging Modern Toxicology to Disease Prevention

Nov. 4 (Mon) ~ 5 (Tue), 2019

International Convention Center Jeju(ICC JEJU),
Seogwipo-si, Jeju-do, Korea

주최  (사)한국독성학회/한국환경성돌연변이발암원학회

 식품의약품안전처 · 식품의약품안전평가원

후원  KOSHA



C · O · N · T · E · N · T · S

포스터발표

- P-001** SECOND-PHASE VALIDATION STUDY OF DEVELOPMENTAL TOXICITY TEST USING EMBRYOID BODIES 117
Jae-Hwan Lee, Dinh Nam Tran, Bo-Hui Jeon, Seon Myeong Go, Seon Mi Park, Yeong-Min Yoo, Eui-Man Jung and Eui-Bae Jeung
Laboratory of Veterinary Biochemistry and Molecular Biology, College of Veterinary Medicine, Chungbuk National University, Republic of Korea
- P-002** TRICLOSAN-EXPOSURE DURING PREGNANCY INDUCES THE ABNORMAL BEHAVIOR IN OFFSPRING MICE 118
Jae-Hwan Lee, Dinh Nam Tran, Bo-Hui Jeon, Seon Myeong Go, Seon Mi Park, Yeong-Min Yoo, Eui-Man Jung and Eui-Bae Jeung
Laboratory of Veterinary Biochemistry and Molecular Biology, College of Veterinary Medicine, Chungbuk National University, Republic of Korea
- P-003** 25I-NBOH AND 25C-NBOH INDUCE ADVERSE CARDIAC EFFECTS: AN *IN VITRO* AND *IN VIVO* STUDY 119
Kyung Sik Yoon, Sohee Jeong, Young-Hoon Kim, Ja Young Jeong and Jin-Moo Lee
Pharmacological Research Division, Toxicological Evaluation and Research Department, National Institute of Food and Drug Safety Evaluation, Ministry of Food and Drug Safety, Republic of Korea
- P-004** ACUTE TOXICITY EVALUATION OF POLYPROPYLENE AND POLYSTYRENE MICROPLATICS IN SPRAGUE DAWLEY (SD) RATS AFTER ORAL ADMINISTRATION 120
Somin Lee, Kyu Sup Ahn, Sangcheol Kim, Kyung Seuk Song and Jin Sik Kim
GLP & Research Center, Bio Technology Division, Korea Conformity Laboratories (KCL), Republic of Korea
- P-005** SCREENING OF WORKERS WITH PRESUMED OCCUPATIONAL METHYL ALCOHOL POISONING USING NATIONWIDE DATA: THE APPLICABILITY OF A NATIONAL ACTIVE OCCUPATIONAL DISEASE SURVEILLANCE SYSTEM IN KOREA 121
Jihye Lee and Eun-A Kim
Occupational Safety and Health Research Institute, Korea Occupational Safety and Health Agency, Republic of Korea

P-006	OUTCOMES AFTER SURGICAL REMOVING OF TELEMETRY SYSTEM IN CYNOMOLGUS MONKEY	122
	Young-Su Yang, Doo-Wan Cho, Goo-Hwa Kang, Kyung-Tai Kim, Mi-Jin Yang, Pill-Soo Lee and Su-Cheol Han Jeonbuk Department of Inhalation Research, Korea Institute of Toxicology, Republic of Korea	
P-007	GALLIC ACID INHIBITED THE PROLIFERATION OF HUMAN LUNG CANCER A549 CELLS VIA INDUCING APOPTOSIS AND REGULATING CELL CYCLE AND APOPTOTIC PROTEINS	123
	Eul-Bee Ko and Kyung-Chul Choi Laboratory of Biochemistry and Immunology, College of Veterinary Medicine, Chungbuk National University, Republic of Korea	
P-008	CIGARETTE SMOKE COMPONENTS, INCLUDING NICOTINE, MAY AFFECT ABNORMAL MYOCARDIAL DIFFERENTIATION AND DEVELOPMENT OF MOUSE EMBRYONIC STEM CELLS	124
	Cho-Won Kim and Kyung-Chul Choi Laboratory of Biochemistry and Immunology, College of Veterinary Medicine, Chungbuk National University, Republic of Korea	
P-009	FENHEXAMID INDUCED THE CELL MIGRATION AND ANGIOGENESIS OF BREAST CANCER CELLS VIA AN ESTROGEN RECEPTOR- DEPENDENT AND PI3K/AKT PATHWAY	125
	Ryeo-Eun Go and Kyung-Chul Choi Laboratory of Biochemistry and Immunology, College of Veterinary Medicine, Chungbuk National University, Republic of Korea	
P-010	CIGARETTE SMOKING EXACERBATES THE SEVERITY OF ALCOHOLIC LIVER DISEASE IN MICE	126
	Hyuneui Jeong ¹ , Jong-Won Kim ¹ , Myeon-Sik Yang ¹ , Seong-Jin Choi ² , Sang-Hyub Lee ² , Chae Woong Lim ¹ , Kyuhong Lee ² and Bumseok Kim ¹ ¹ Biosafety of Institute and Laboratory of Pathology (BK21 Plus Program), College of Veterinary Medicine, Chonbuk National University, Republic of Korea, ² Inhalation Toxicology Center, Jeonbuk Department of Inhalation Research, Korea Institute of Toxicology, Republic of Korea	

C · O · N · T · E · N · T · S

P-011	<i>OROSTACHYS JAPONICA</i> ETHANOL EXTRACT PROTECTS AGAINST ACETAMINOPHEN-INDUCED HEPATOTOXICITY THROUGH INACTIVATING PREGNANE X RECEPTOR AND INHIBITING JNK/ERK MAPK PATHWAY	127
	Jing Qi ¹ , Jong-Won Kim ¹ , Hyuneui Jeong ¹ , Tea-Won Jeong ¹ , Daram Yang ¹ , Seok-Chan Park ¹ , Jeong Hun Seo ² , Dong Gue Shin ² , Jeong-Dan Cha ² and Bumseok Kim ¹ ¹ Biosafety of Institute and Laboratory of Pathology (BK21 Plus Program), College of Veterinary Medicine, Chonbuk National University, Republic of Korea, ² Research & Development Center of GENERAL BIO Co., Ltd, Republic of Korea	
P-012	DEVELOPMENT OF INSECT GLYCOSAMINOGLYCAN FOR MEDICINE AND BIOMATERIAL	128
	Mi-Young Ahn and You Young Jo Department Agricultural Biology, National Academy of Agricultural Science, RDA, Republic of Korea	
P-013	AVOBENZONE ACTS AS A METABOLIC DISRUPTING OBESOGEN IN HUMAN BONE MARROW MESENCHYMAL STEM CELLS AND HUMAN KERATINOCYTES	129
	Sungjin Ahn, Seungchan An, Eunyoung Lee, Jeong Joo Pyo, Min Won Ki, Sun Hee Jin, Jeayoung Shin, Yujia Han, Hyejin Ko and Minsoo Noh College of Pharmacy and Natural Products Research Institute, Seoul National University, Republic of Korea	
P-014	FORMALDEHYDE EXPOSURE AND LEUKEMIA RISK: A COMPREHENSIVE REVIEW AND NETWORK-BASED TOXICOGENOMIC APPROACH	130
	Doo Seok Kang ¹ , Cheol Min Lee ² and Young Rok Seo ¹ ¹ Department of Life Science, Dongguk University Biomed Campus, Republic of Korea, ² Department of Chemical and Biological Engineering, College of Natural Science and Engineering, Seokyeong University, Republic of Korea	
P-015	ZINC OXIDE NANOPARTICLES INDUCE AUTOPHAGY AND APOPTOSIS VIA OXIDATIVE INJURY AND PRO-INFLAMMATORY CYTOKINES IN PRIMARY ASTROCYTE CULTURES	131
	Woo-Ju Song ^{1,†} , Myung-Seon Jeong ^{2,3,†} , Dong-Min Choi ^{1,†} , Kil-Nam Kim ² and Myung-Bok Wie ¹ ¹ Department of Veterinary Toxicology, College of Veterinary Medicine and Institute of Veterinary Science, Kangwon National University, Republic of Korea, ² Chuncheon Center, Korean Basic Science Institute, Republic of Korea ³ Department of Biochemistry, Kangwon National University, Republic of Korea	

P-016	ACUTE ALUMINUM EXPOSURE INCREASES METASTASIS AND ANGIOGENICITY OF COLORECTAL CANCER CELLS THROUGH SMAD2/3 SIGNALING PATHWAY	132
	Chang Hee Jeong, Hyuk Cheol Kwon and Sung Gu Han Toxicology Laboratory, Department of Food Science and Biotechnology of Animal Resources, Konkuk University, Republic of Korea	
P-017	INVOLVEMENT OF ENDOPLASMIC RETICULUM STRESS IN POLYHEXAMETHYLENEGUANIDINE PHOSPHATE-INDUCED CYTOTOXICITY	133
	Sou Hyun Kim, Hun Ji Choi and Young-Suk Jung Lab. of Molecular Toxicology, College of Pharmacy, Pusan National University, Republic of Korea	
P-018	NEPHROTOXICITY AND HEPATOTOXICITY OF <i>CORDYCEPS MILITARIS</i> EXTRACT POWDER IN SD RATS	134
	Heejin Park ¹ , Eun-Young Gu ¹ , Mun Hyoung Bae ² , Younghan Seo ² , Nam Ki Kim ² , Mina Kim ¹ , Myunghwa Yang ¹ , Hye-Won Moon ¹ and Byoung-Seok Lee ¹ ¹ Toxicopathological Research Group, Korea Institute of Toxicology, Republic of Korea, ² RPbio Co. LTD, Republic of Korea	
P-019	DOWNREGULATION OF LPAR3 CONTRIBUTES TO MALIGNANT CELL TRANSFORMATION	135
	Sung-Hee Hwang ¹ and Michael Lee ^{1,2} ¹ Division of Life Sciences, College of Life Sciences and Bioengineering, Incheon National University, Republic of Korea, ² INU Human Genome Center, Incheon National University, Republic of Korea	
P-020	ATG5 KNOCKOUT RE-SENSITIZES DRUG-RESISTANT RAS-NIH 3T3 CELLS TO PACLITAXEL-INDUCED NECROSIS	136
	Hojin Yeom ¹ , Sung-Hee Hwang ¹ , Byeal-I Han ² and Michael Lee ^{1,2,3} ¹ Division of Life Sciences, College of Life Sciences and Bioengineering, Incheon National University, Republic of Korea, ² Institute for New Drug Development, Incheon National University, Republic of Korea, ³ INU Human Genome Center, Incheon National University, Republic of Korea	
P-021	SYNERGISTIC EFFECTS OF ACY-241 AND PACLITAXEL ON OVARIAN CANCER CELLS	137
	Jung Yoo ¹ and So Hee Kwon ^{1,2} ¹ College of Pharmacy, Yonsei Institute of Pharmaceutical Sciences, Yonsei University, Republic of Korea, ² Department of Integrated OMICS for Biomedical Science, Yonsei University, Republic of Korea	

C · O · N · T · E · N · T · S

P-022	GPR40 LIGANDS INHIBIT NLRP3 INFLAMMASOME IN BONE-MARROW-DERIVED-MACROPHAGE	138
	Jeongwoo Park ¹ , Yoon-Seok Seo ² , Moo-Yeol Lee ² and Keon Wook Kang ¹ ¹ College of Pharmacy, Seoul National University, Republic of Korea, ² College of Pharmacy, Dongguk University, Republic of Korea	
P-023	ANTI-INFLAMMATORY AND ANTI-OXIDATIVE EFFECTS OF L7G IN LPS-STIMULATED MURINE MACROPHAGES THROUGH TAK1 INHIBITION AND Nrf2 ACTIVATION	139
	Seongtae Kim, Jibin Seo, Seoyoung Lee, Soeun Kim and Young-Chang Cho College of Pharmacy, Chonnam National University, Republic of Korea	
P-024	INHIBITORY EFFECT OF TYE47 FROM <i>OPUNTIA HUMIFUSA</i> ON THE PRODUCTION OF INFLAMMATORY CYTOKINES THROUGH p38 MAPK INHIBITION IN MURINE MACROPHAGES	140
	Seoyoung Lee ¹ , Jibin Seo ¹ , Soeun Kim ¹ , Ki Hyun Kim ² and Young-Chang Cho ¹ ¹ College of Pharmacy, Chonnam National University, Republic of Korea, ² School of Pharmacy, Sungkyunkwan University, Republic of Korea	
P-025	CANCER-ASSOCIATED FIBROBLAST-DERIVED LIPID TRANSITION INTO CANCER CELLS INDUCES THE CANCER STEMNESS UNDER GLUCOSE STARVED CONDITION	141
	Sung-Hyun Hwang ^{1,2} , Yeseul Yang ^{1,2} , Yeji Jeong ^{1,2} and Yongbaek Kim ^{1,3} ¹ Laboratory of Veterinary Clinical Pathology, College of Veterinary Medicine, Seoul National University, Republic of Korea, ² BK21 PLUS Program for Creative Veterinary Science Research, College of Veterinary Medicine, Seoul National University, Republic of Korea, ³ Research Institute for Veterinary Science, College of Veterinary Medicine, Seoul National University, Republic of Korea	
P-026	ERα36 PROMOTES BREAST CANCER PROGRESSION VIA HIPPO-DEPENDENT ACTIVATION OF YAP1	142
	Seung Hyun Lee, Bui T Quyen and Keon Wook Kang College of Pharmacy, Seoul National University, Republic of Korea	
P-027	POTENTIAL FUNCTION OF MSC1 IN ADIPOGENESIS AND ITS RELATIONSHIP TO FAS	143
	Hyunji Lee ^{1,2} , Gyeyeong Kong ^{1,2} , Quangdon Tran ^{1,2} , Chaeyeong Kim ^{1,2} and Jongsun Park ^{1,2} ¹ Department of Pharmacology, Metabolic Syndrome and Cell Signaling Laboratory, Institute for Cancer Research, College of Medicine, Chungnam National University, Republic of Korea, ² Department of Medical Science, College of Medicine, Chungnam National University, Republic of Korea	

P-028	UNDERSTANDING OF ROS-INDUCING STRATEGY IN ANTICANCER THERAPY	144
	Su Ji Kim, Hyun Soo Kim and Young Rok Seo Institute of Environmental Medicine for Green Chemistry, Department of Life Science, Dongguk University Biomed Campus, Republic of Korea	
P-029	TOOTHPASTE INDUCED TRPV1 ACTIVATION IN YD-38 ORAL MUCOSAL CELL LINE-POSSIBILITY AS A NEW <i>IN VITRO</i> MODEL FOR ORAL CHEMESTHESIS AND SENSORY IRRITATION	145
	Eun-mi Sun, Dong-Won Shin, Byung-Ho Lee and Woo-Hyuck Choi R&D Center, LG Household & Healthcare Ltd., Republic of Korea	
P-030	SUGGESTIONS FOR PUTATIVE ADVERSE OUTCOME PATHWAY OF 2,4-DINITROTOLUENE USING TOXICOGENOMIC APPROACHES	146
	Hyun Soo Kim ¹ , Jun Hyuek Yang ¹ , Doo Seok Kang ¹ , Nam Gook Kee ¹ , Cheol Min Lee ² , Jong-Hyeon Jung ³ , Yeon-Soon Ahn ⁴ and Young Rok Seo ¹ ¹ Institute of Environmental Medicine for Green Chemistry, Department of Life Science, Dongguk University Biomed Campus, Republic of Korea, ² Department of Chemical and Biological Engineering, Seokyeong University, Republic of Korea, ³ Faculty of Health Science, Daegu Haany University, Republic of Korea ⁴ Department of Preventive Medicine and Institute of Occupational and Environmental Medicine, Yonsei Wonju College of Medicine, Yonsei University, Republic of Korea	
P-031	IDENTIFICATION OF MSC1 AS NEW TARGET OF SARCOPENIA WHICH WAS CONFIRMED IN MSC1 TG MICE	147
	Gyeyeong Kong ^{1,2} , Hyunji Lee ^{1,2} , Quangdon Tran ^{1,2} , Chaeyeong Kim ^{1,2} and Jongsun Park ^{1,2} ¹ Department of Pharmacology, Metabolic Syndrome and Cell Signaling Laboratory, Institute for Cancer Research, College of Medicine, Chungnam National University, Republic of Korea, ² Department of Medical Science, College of Medicine, Chungnam National University, Republic of Korea	
P-032	THE KERATINIZATION OF HUMAN STEROID SULFATASE IS MEDIATED BY REGULATION OF E-CADHERIN	148
	Tae-Uk Kwon, Dong-Jin Ye, Hong-Gyu Ann and Young-Jin Chun College of Pharmacy and Center of Metareceptome Research, Chung-Ang University, Republic of Korea	

C · O · N · T · E · N · T · S

P-033	A POTENTIAL ROLE OF MSCP1 FOR TUMOR SURVIVAL VIA MITOCHONDRIA DYNAMICS AND LIPID METABOLISM IN HEPATOCELLULAR CARCINOMA	149
	Chaeyeong Kim ^{1,2} , Hyunji Lee ^{1,2} , Gyeyeong Kong ^{1,2} , Quangdon Tran ^{1,2} and Jongsun Park ^{1,2}	
	¹ Department of Pharmacology, Metabolic Syndrome and Cell Signaling Laboratory, Institute for Cancer Research, College of Medicine, Chungnam National University, Republic of Korea, ² Department of Medical Science, College of Medicine, Chungnam National University, Republic of Korea	
P-034	INHIBITORY EFFECT OF ASTRAGALUS EXTRACT MIXTURE HT042 ON THE METABOLIC ACTIVITY OF CYTOCHROME P450 2B6	150
	Harim Kim, Vitchan Kim, Rowoon Lee and Donghak Kim	
	Department of Biological Sciences, Konkuk University, Republic of Korea	
P-035	TOXICITY PROFILING AND RISK ASSESSMENT OF DROMETRIZOLE USED AS AN INGREDIENT OF SUNSCREEN AGENTS	151
	Jae Kwon Lee ¹ , Kyu-Bong Kim ² , Jung Dae Lee ² , Seung Jun Kwack ³ and Joo Young Lee ¹	
	¹ BK21 Plus Team, College of Pharmacy, The Catholic University of Korea, Republic of Korea, ² College of Pharmacy, Dankook University, Republic of Korea, ³ Department of Bio Health Science, Changwon National University, Republic of Korea	
P-036	SHP01 IMPROVES BLOOD CIRCULATION AND LIPID METABOLISM IN HYPERLIPIDEMIC RATS	152
	Bo Yoon Chang ¹ , Dae Sung Kim ² , Hyung Kwon Cho ² and Sung Yeon Kim ¹	
	¹ Institute of Pharmaceutical Research and Development, College of Pharmacy, Wonkwang University, Republic of Korea, ² HanpoongPharm.CO., Ltd., Republic of Korea	
P-037	DICLOFENAC-INDUCED OXIDATIVE STRESS AND IMPAIRED AUTOPHAGIC FLUX AGGRAVATE MITOCHONDRIAL DYSFUNCTION AND HEPATOTOXICITY	153
	Seung-Hwan Jung, Won-Seok Lee, Kang-Yo Lee and Byung-Hoon Lee	
	College of Pharmacy and Research Institute of Pharmaceutical Sciences, Seoul National University, Republic of Korea	
P-038	THE EXPERIMENTAL DESIGN FOR THE EVALUATION OF RADON INHALATION TOXICITY	154
	Jae-Hoon Kim, Sang-Hyun Park, Dae-Seong Choi and Beom-Su Jang	
	Radiation Utilization and Facilities Management Division, Korea Atomic Energy Research Institute, Republic of Korea	

- P-039** COMPARISON OF NEUROTOXICITY OF GAMMA- DIKETONE COMPOUNDS: 2,5-HEXANEDIONE AND 1,2-DIACETYL BENZENE 155
Min-Sun Kim
College of Pharmacy, Sunchon National University, Republic of Korea
- P-040** *LINDERA OBTUSILOBA* ATTENUATES AIRWAY INFLAMMATION AND MUCUS HYPERSECRETION IN A MURINE MODEL OF OVALBUMIN-INDUCED ASTHMA 156
Ba-Wool Lee, Han-Gyo Shin, Seong-Hun Jeong, Da-Bin Jeon, Ju-Hong Kim, Ji-Young Park, Hyung-Jun Kwon, Young-Bae Ryu and In-Chul Lee
Functional Biomaterial Research Center, Korea Research Institute of Bioscience and Biotechnology, Republic of Korea
- P-041** POLYHEXAMETHYLENE GUANIDINE PHOSPHATE ACTIVATES MONOCYTE DERIVED M2 MACROPHAGE DIFFERENTIATION VIA INDUCTION OF ENDOPLASMIC RETICULUM STRESS 157
Ki Cheon Kim¹, Hyeon-Young Kim^{1,2}, In-Hyeon Kim^{1,3}, Sung-Hwan Kim^{1,3} and Kyuhong Lee^{1,3}
¹National Center for Efficacy Evaluation of Respiratory Disease Product, Korea Institute of Toxicology, Republic of Korea, ²College of Veterinary Medicine, Chungbuk National University, Republic of Korea, ³Department of Human and Environmental Toxicology, University of Science & Technology, Republic of Korea
- P-042** INCENSE SMOKE CONDENSATE SUPPRESSES CLARA CELL SECRETORY PROTEIN (CC16) IN THE AIRWAY AND INDUCES THE INFILTRATION OF CC16 INTO BLOOD VESSEL 158
Hyeon-Young Kim^{1,2}, In-Hyeon Kim^{1,3}, Ki Cheon Kim¹, Sung-Hwan Kim^{1,3} and Kyuhong Lee^{1,3}
¹National Center for Efficacy Evaluation of Respiratory Disease Product, Korea Institute of Toxicology, Republic of Korea, ²College of Veterinary Medicine, Chonnam National University, Republic of Korea, ³Department of Human and Environmental Toxicology, University of Science & Technology, Republic of Korea
- P-043** 2-WEEK REPEATED INTRATRACHEAL INSTILLATION TOXICITY STUDY OF INCENSE SMOKE CONDENSATE IN MALE MICE 159
In-Hyeon Kim^{1,2}, Sung-Hwan Kim^{1,2}, Hyeon-Young Kim^{1,3}, Ki Cheon Kim¹ and Kyuhong Lee^{1,2}
¹National Center for Efficacy Evaluation of Respiratory Disease Product, Korea Institute of Toxicology, Republic of Korea, ²Department of Human and Environmental Toxicology, University of Science & Technology, Republic of Korea, ³College of Veterinary Medicine, Chonnam National University, Republic of Korea

C · O · N · T · E · N · T · S

P-044	ESTIMATING DISTRIBUTION WITH NON-DETECTED DATA BY USING STATISTICAL METHODS	160
	Seung Chan Lee, Woo-Jin Jeon, Myungsil Hwang and Yong-Eui Koo Food Safety Risk Assessment Division, National Institute of Food and Drug Safety Evaluation, Ministry of Food and Drug and Safety, Republic of Korea	
P-045	EFFECTS OF PHARMACOLOGICAL INHIBITION OF AUTOPHAGY IN LIPID METABOLISM AND LIPOTOXICITY	161
	Yeonho Son and Yun-Hee Lee College of Pharmacy and Research Institute of Pharmaceutical Sciences, Seoul National University, Republic of Korea	
P-046	NADPH OXIDASE 2 DELETION IN MICE ATTENUATES POLYHEXAMETHYLENE GUANIDINE-INDUCED LUNG INJURY	162
	Min-Seok Kim, Su-Hyun Choi, Sung-Hwan Kim, Young-Hyun Kim, Young-Ji An, Hyeon-Young Kim, In-Hyun Kim and Kyuhong Lee Jeonbuk Department of Inhalation Research, Korea Institute of Toxicology, Republic of Korea	
P-047	AEROSOL CHARACTERIZATION OF NANO- AND/OR MICRO-SIZED SiO₂ AND Al₂O₃ GENERATED BY DUST GENERATOR AND MIST GENERATOR IN A NOSE ONLY INHALATION CHAMBER	163
	Cheol-Hong Lim and Dong-Seok Seo Center for Chemical Safety and Health, Occupational Safety & Health Research Institute, KOSHA, Republic of Korea	
P-048	BIOANALYTICAL METHOD FOR OLIGONUCLEOTIDE QUANTIFICATION IN MONKEY PLASMA	164
	Youjin Seo Jeonbuk Analytical Research Group, Korea Institute of Toxicology, Republic of Korea	
P-049	MUTAGENICITY OF 4 CHEMICALS IN THE BACTERIAL REVERSE MUTATION ASSAY	165
	Soo-Jin Kim, Hyun-ock Kim, Gwang-Ho Ham and In Seop Lee Chemicals Research Bureau, Occupational Safety and Health Research Institute, Korea Occupational Safety and Health Agency, Republic of Korea	
P-050	EVALUATION OF SUBCHRONIC ORAL DOSE TOXICITY OF ALUMINIUM IONS IN RATS	166
	Kwang Hyun Hwang ¹ , Jungil Choi ¹ , Yeon Gyu Moon ¹ , Jeheon Kim ¹ , Na Hyun Kim ¹ , Woong Soo Kim ¹ , Ju Hong Lee ¹ , Tae Kil Tak ¹ , Jeong Doo Heo ¹ and Jong-Choon Kim ² ¹ Biological Resource Research Group, Korea Institute of Toxicology, Republic of Korea, ² College of Veterinary Medicine (BK21 Plus Project Team), Chonnam National University, Republic of Korea	

P-051	IDENTIFICATION OF POTENTIAL BIOMARKERS AND MOLECULAR SIGNALING PATHWAYS RELATED DIESEL EXHAUST PARTICLES-MEDIATED OTITIS MEDIA	167
<p>Nam Gook Kee^{1,2}, Dong Yeop Shin^{1,2}, Yeo Jin Kim^{1,2}, Hyo Jeong Kim^{1,2}, Hyun Soo Kim^{1,2}, Jun Hyuek Yang^{1,2}, Moo Kyun Park³ and Young Rok Seo^{1,2} ¹Department of Life Science, Dongguk University Biomed Campus, Republic of Korea, ²Institute of Environmental Medicine, Dongguk University, Seoul, Republic of Korea, ³Department of Otorhinolaryngology-Head and Neck Surgery, Seoul National University College of Medicine, Republic of Korea</p>		
P-052	EFFECT OF DOSE AND DOSING RATE ON THE MUTAGENESIS OF NITRIC OXIDE IN <i>supF</i> SHUTTLE VECTOR	168
<p>Min Young Kim Toxicology Laboratory, Major in Biomaterials, Jeju National University, Republic of Korea</p>		
P-053	INTRACELLULAR AND EXTRACELLULAR FACTORS INFLUENCING THE GENOTOXICITY OF NITRIC OXIDE AND REACTIVE OXYGEN SPECIES	169
<p>Min Young Kim Toxicology Laboratory, Major in Biomaterials, Jeju National University, Republic of Korea</p>		
P-054	GENOTOXICITY OF STEREOISOMERS OF 1,2,3,4-DIEPOXYBUTANE IN THE <i>gpt</i> GENE OF CHINESE HAMSTER OVARY AS52 CELLS	170
<p>Min Young Kim Toxicology Laboratory, Major in Biomaterials, Jeju National University, Republic of Korea</p>		
P-055	A PRELIMINARY PASSIVE CUTANEOUS ANAPHYLAXIS STUDY OF HUMAN MESENCHYMAL STEM CELL-DERIVED EXTRACELLULAR VESICLES IN GUINEA PIGS	171
<p>Geon Yoo¹, Aram Lee¹, Sang-Jin Park¹, Songhee Han¹, Ji-Young Kim¹, Soyeon Lee¹, Saegyool Na¹, Min-Hui Yoo¹, Dong-oh Kim¹, Hyunju Kim¹, Jung-Hui Jang¹, Hwang-Jin Jeon¹, Eue-Chun Jung¹, Sun-Mi Park¹, Woojin Kim¹, Yong Woo Cho¹ and Kyoung-Sik Moon¹ ¹Korea Institute of Toxicology, Republic of Korea, ²Department of Chemical Engineering, Hanyang University ERICA, Republic of Korea</p>		
P-056	CORRELATION OF BLOOD CADMIUM AND LEAD LEVELS WITH MULTI-ROUTE EXPOSURE ESTIMATION	172
<p>Changwoo Yu¹ and Hoonjeong Kwon^{1,2} ¹Department of Food and Nutrition, Seoul National University, Republic of Korea, ²Department of Food and Nutrition, and Research Institute of Human Ecology, Seoul National University, Republic of Korea</p>		

C · O · N · T · E · N · T · S

P-057	CYP1B1 PREVENTS PROTEASOME-MEDIATED XIAP DEGRADATION BY INDUCING PKCϵ ACTIVATION AND PHOSPHORYLATION OF XIAP	173
	Hyoung-Seok Baek, Yeo-Jung Kwon, Tae-Uk Kwon and Young-Jin Chun College of Pharmacy and Center for Metareceptome Research, Chung-Ang University, Republic of Korea	
P-058	FUNCTIONAL ANALYSIS OF FIVE CYP2A13 ALLELIC VARIATIONS	174
	Vitchan Kim, Sora Yeom, Harim Kim and Donghak Kim Department of Biological Sciences, Konkuk University, Republic of Korea	
P-059	PHMG DOES NOT INDUCE PRE-NEOPLASTIC LESION IN 13-WEEK INHALATION TOXICITY STUDY	175
	Yong-Hoon Lee Pathology Department, Inhalation Toxicity Research Center, Occupational Safety and Health Research Institute, Republic of Korea	
P-060	PHARMACOLOGICAL CONTROL OF AUTOPHAGY RESTRICTS ENTEROVIRUS REPLICATION	176
	Yun-Ji Ga, Seul-Ki Park, Hye-Won Lee and Jeong-Yong Yeh Division of Life Sciences, College of Life Sciences and Bioengineering, Incheon National University, Republic of Korea	
P-061	INCREASED SENSITIVITY TO CARBON TETRACHLORIDE IN THE FATTY LIVER PROMOTES THE PROGRESSION OF STEATOSIS RELATED LIVER FIBROSIS	177
	Jeong-Su Park ¹ , Su-Yeon Choi ¹ , Bi Zhang ³ , Shuang Liang ³ , Ekihiro Seki ^{2,3} , Hwan-Soo Yoo ¹ and Yoon-Seok Roh ¹ ¹ College of Pharmacy, Chungbuk National University, Republic of Korea, ² Department of Medicine, Cedars-Sinai Medical Center, USA, ³ Department of Medicine, University of California San Diego, USA	
P-062	PACLITAXEL 6α-HYDROXYLATION ANALYSIS OF RECONSTITUTED CYTOCHROME P450 2C8 USING UPLC-TANDEM MASS SPECTROMETRY	178
	Rowoon Lee, Harim Kim, Vitchan Kim and Donghak Kim Department of Biological Sciences, Konkuk University, Republic of Korea	

- P-063** CYP1B1 INDUCES CANCER PROGRESSION THROUGH SUPPRESSION OF CANCER CELL APOPTOSIS VIA INHIBITING TRAIL PATHWAY SIMULTANEOUSLY WITH PROMOTION OF CANCER CELL METASTASIS VIA ACTIVATING uPA-uPAR SIGNALING 179
 Yeo-Jung Kwon, Hyoung-Seok Baek, Tae-Uk Kwon and Young-Jin Chun
 Department of Pharmaceutical Biochemistry, School of Pharmacy, Chung-Ang University, Republic of Korea
- P-064** REPEATED DOSE 90-DAY ORAL TOXICITY STUDY OF *MYCOLEPTODONOIDES AITCHISONII* (AGARICOMYCETES) IN SPRAGUE-DAWLEY RATS 180
 Young-Ju Lee¹, Da Hee Kim², Dae-Hun Park³, Deuk-Sil Oh⁴ and Joung-Wook Seo¹
¹Research Center for Convergence Toxicology, Korea Institute of Toxicology, Republic of Korea,
²Jeonbuk Department of Inhalation Research, Korea Institute of Toxicology, Republic of Korea,
³College of Oriental Medicine, Dongshin University, Republic of Korea, ⁴Jeollanam-do Forest Resource Research Institute, Republic of Korea
- P-065** EFFECT OF BETULINIC ACID ON eNOS EXPRESSION VIA THE CaMKII α /AMPK/HDAC5 AND ERK5/MEF2 PATHWAY IN HUMAN ENDOTHELIAL CELLS 181
 Jin Song Park, Gi Ho Lee, Thi Hoa Pham and Hye Gwang Jeong
 Department of Toxicology, College of Pharmacy, Chungnam National University, Republic of Korea
- P-066** POLYHEXAMETHYLENE GUANIDINE PHOSPHATE IMPAIRS TIGHT JUNCTION PROTEIN AND F-ACTIN ARCHITECTURES IN HUMAN BRONCHIAL EPITHELIAL CELLS VIA CALPAIN1 ACTIVATION 182
 Sun Woo Jin, Gi Ho Lee and Hye Gwang Jeong
 Department of Toxicology, College of Pharmacy, Chungnam National University, Republic of Korea
- P-067** INHIBITORY EFFECT OF *OROSTACHYS JAPONICUS* ETHANOL EXTRACT ON DNCB-INDUCED ATOPIC DERMATITIS-LIKE SKIN LESIONS IN NC/Nga MICE AND TNF- α /IFN- γ -INDUCED TARC EXPRESSION IN HaCaT CELLS 183
 Jae Ho Choi¹, Sun Woo Jin¹, Gi Ho Lee¹, Song Mi Cho² and Hye Gwang Jeong¹
¹Department of Toxicology, College of Pharmacy, Chungnam National University, Republic of Korea, ²Department of Horticulture, Chonnam Techno University, Republic of Korea

C · O · N · T · E · N · T · S

P-068	ROLE OF ERα36 ON AROMATASE UP-REGULATION BY 17β-ESTRADIOL IN HUMAN BREAST CANCER CELLS	184
	Gi Ho Lee, Jin Song Park, Ji Yeon Kim and Hye Gwang Jeong Department of Toxicology, College of Pharmacy, Chungnam National University, Republic of Korea	
P-069	ANTI-INFLAMMATORY EFFECTS OF IMPRESSIC ACID FROM <i>ACANTHOPANAX KOREANUM</i> ON TARC EXPRESSION THROUGH SUPPRESSION OF ERK1/2-MEDIATED NF-κB AND STAT1 AND ENHANCING OF Nrf2-MEDIATED ANTI-OXIDATIVE ENZYMES IN HUMAN KERATINOCYTE	185
	Jae Ho Choi, Young Ho Kim and Hye Gwang Jeong Department of Toxicology, College of Pharmacy, Chungnam National University, Republic of Korea	
P-070	TOXICOLOGIC EVALUATION THROUGH INTRAVAGINAL AND VULVA-BASED 2-WEEK REPEAT EXPOSURE USING FIVE VOLATILE ORGANIC COMPOUNDS (VOCs) MIXTURES IN FEMALE CYNOMOLGUS MONKEYS	186
	Han Na Suh, Bo-Kyung Kim, Mi Jin Yang, A Reum Yang, Doo-Wan Cho and Hong Soo Lee Jeonbuk Department of Inhalation Research, Korea Institute of Toxicology, Republic of Korea	
P-071	DIFFERENT CYTOTOXICITY OF BISPHENOL A AND ITS DERIVATIVE IN CULTURED LIVER, KIDNEY AND LUNG CELL LINES	187
	Min Heui Yoo, Hyunju Kim, Dong-Oh Kim, Geon Yoo, Sang-Jin Park, Ji-Young Kim, A-Ram Lee, Saegyeol Na, Soyeon Lee and Kyoung-Sik Moon Korea Institute of Toxicology, Republic of Korea	
P-072	CHAPERONE-MEDIATED AUTOPHAGY (CMA) INHIBITION FACILITATES INFLAMMATORY AND EPITHELIAL- MESENCHYMAL TRANSITION (EMT) PROCESS IN MCD DIET MODEL	188
	Ji Hyun Park, Wonseok Lee and Byung-Hoon Lee College of Pharmacy and Research Institute of Pharmaceutical Sciences, Seoul National University, Republic of Korea	
P-073	SINGLE AND 28-DAY REPEATED ORAL DOSE TOXICITY STUDIES OF <i>ASIASAUM RADIX</i> IN SPRAGUE-DAWLEY RATS	189
	Min Seong Jang, Eun-Young Gu, Kwang-Hyun Lim, Kang-Hyun Han, Woojin Kim, Byoung-Seok Lee and Young-Bum Kim Department of Toxicological Evaluation and Research, Korea Institute of Toxicology, Republic of Korea	

- P-074** SHMT2 IS NECESSARY FOR MAINTAINING REDOX HOMEOSTASIS AND CELL SURVIVAL IN THE LACK OF GLYCINE 190
 Geunhye Lee, Hyungtai Sim and Byung-Hoon Lee
 College of Pharmacy and Research Institute of Pharmaceutical Sciences, Seoul National University, Republic of Korea
- P-075** DIESEL EXHAUST PARTICULATES ENHANCES SUSCEPTIBILITY OF LPS-INDUCED ACUTE LUNG INJURY THROUGH UPREGULATION OF TGF- β_1 EXPRESSION IN MICE 191
 Dong Im Kim¹, Mi-Kyung Song^{1,2}, Hyein Kim¹, Sung-Hwan Kim^{1,2} and Kyuhong Lee^{1,2}
¹National Center for Efficacy Evaluation of Respiratory Disease Products, Jeonbuk Department of Inhalation Research, Korea Institute of Toxicology, Republic of Korea, ²Department of Human and Environmental Toxicology, University of Science & Technology, Republic of Korea
- P-076** *IN VITRO* ASSESSMENT OF DRUG-INDUCED LIVER INJURY USING MULTICELLULAR CO-SPHEROIDS OF HUMAN CHEMICALLY DERIVED HEPATIC PROGENITORS 192
 Saegyeol Na^{1,2,†}, Ji-Young Kim¹, Soyeon Lee¹, Seokheon Hong³, Sang-Heon Kim³, A-Ram Lee¹, Sang-Jin Park¹, Geon Yoo¹, Min Heui Yoo¹, Dong-Oh Kim¹, Hyunju Kim¹ and Kyoung-Sik Moon^{1,2,†}
¹Korea Institute of Toxicology, Republic of Korea, ²University of Science and Technology, Republic of Korea, ³Korea Institute of Science and Technology, Republic of Korea
- P-077** PROTECTIVE EFFECTS OF *DENDROPANAX MORBIFERA* AGAINST CISPLATIN-INDUCED RENAL TOXICITY WITHOUT ALTERING ANTICANCER EFFICACY 193
 Jae-Hyeon Park, Kyeong-Seok Kim, Ji-Yeon Son, Su-Hyun Lee and Hyung-Sik Kim
 College of Pharmacy, Sungkyunkwan University, Republic of Korea
- P-078** ASSESSMENT OF ESTROGENIC EFFECTS BY INCORPORATING OF METABOLIC ENZYMES ON BISPHENOL A AND ITS ALTERNATIVE MATERIALS USING VM7Luc4E2 CELL LINE 194
 Hee-Seok Lee, Gyeong-yong Oh, Eunhye Lee, Hyun-Suk Oh, In-Gyun Hwang and Yong Eui Koo
 Food Safety Risk Assessment Division, National Institute of Food and Drug Safety Evaluation, Ministry of Food and Drug Safety, Republic of Korea

C · O · N · T · E · N · T · S

P-079	TOXICITY PROFILING OF BENZOPHENONE-3(OXYBENZONE) USED AS AN INGREDIENT OF SUNSCREEN AGENTS IN COSMETICS	195
	Nu Ri Choi ¹ , Kyu-Bong Kim ² , Jung Dae Lee ² , Seung Jun Kwack ³ and Joo Young Lee ¹ ¹ BK21 Plus Team, College of Pharmacy, The Catholic University of Korea, Republic of Korea, ² College of Pharmacy, Dankook University, Republic of Korea, ³ Department of Bio Health Science, Changwon National University, Republic of Korea	
P-080	EFFECT OF GINSENOSE F2 ENRICHED EXTRACT ON ACUTE HEPATITIS INDUCED LPS	196
	Da-Eun Kim, Bo-Yoon Chang, Jin-Hye Bae and Sung-Yeon Kim Institute of Pharmaceutical Research and Development, College of Pharmacy, Wonkwang University, Republic of Korea	
P-081	STUDY OF CELLULAR METABOLIC CHANGES IN THE GLUCOTOXICITY INDUCED BY GLUCOSE SATURATION USING RIN-m5F CELLS	197
	Hyun-A Oh ¹ , Jun-Ho Ahn ¹ , Heeyoung Yang ¹ , Byung Hwa Jung ² , Jung-Hwa Oh ¹ and Seokjoo Yoon ¹ ¹ Department of Predictive Toxicology, Korea Institute of Toxicology, Republic of Korea, ² Molecular Recognition Research Center, Korea Institute of Science and Technology, Republic of Korea	
P-082	A PRELIMINARY STUDY OF CNS SAFETY PHARMACOLOGY ASSESSMENT OF hMSC-DERIVED EXTRACELLULAR VESICLES IN IMMUNOCOMPETENT AND IMMUNODEFICIENT MICE	198
	Young-Ju Lee ¹ , Tae-Wan Kim ¹ , Li-Na Lim ¹ , Ji-Young Kim ¹ , Yong Woo Cho ² , Joung-Wook Seo ¹ and Kyoung-Sik Moon ¹ ¹ Korea Institute of Toxicology, KRICT, Republic of Korea, ² Department of Chemical Engineering, Hanyang University, Republic of Korea	
P-083	INTRODUCTION OF THE <i>IN VITRO</i> MEMBRANE BARRIER TEST METHOD FOR SKIN CORROSION (OECD TG 435) EVALUATION	199
	In-suk Joe, Mi Hye Hong, Seo Young Bang, Jung-Sun Yi, Ji Young Kim, Hak Kim, Tae Sung Kim and Hye Sung Yoon Toxicological Screening & Testing Division, National Institute of Food and Drug Safety Evaluation, Ministry of Food and Drug Safety, Republic of Korea	
P-084	EVALUATION OF LIVER ENZYME ACTIVITY DEPENDENT CYTOTOXICITY IN HUMAN HEPATOMA CELL (HepG2) FOLLOWING HEPATOTOXICANTS	200
	Seong-Yun Hwang, So-Ryeon Hwang, Ji-Hyun Bang, Hee Yi, Hyun-Ok Ku, Yong-Sang Kim and Byung-Suk Jeon Toxicological Evaluation Laboratory, Animal and Plant Quarantine Agency, Republic of Korea	

P-085	SURVEY OF ACRYLAMIDE IN BEVERAGES IN KOREA	201
	Hyojin Jeong ¹ , Soomee Hwang ¹ and Hoonjeong Kwon ^{1,2}	
	¹ Department of Food and Nutrition, Seoul National University, Republic of Korea,	
	² Research Institute of Human Ecology, Seoul National University, Republic of Korea	
P-086	STUDY ON ANTI-ANDROGENIC EFFECTS OF ATEC AND ATBC	202
	Byeong Jun Kim, Chi Rim Sung, Hyeon Gyu Kang, Jiyoung Hong, Seunga Lee and Seung Jun Kwack	
	Department of Bio Health Science, College of Natural Sciences, Changwon National University, Republic of Korea	
P-087	MANUFACTURING, CHARACTERIZATION AND QUALITY CONTROL OF SMALL EXTRACELLULAR VESICLES DERIVED FROM STEM CELLS	203
	Ye Eun Yun ¹ , Min Kang Kim ¹ , Yong Woo Cho ¹ and Kyoung-Sik Moon ²	
	¹ Department of Materials Science and Chemical Engineering, Hanyang University, Republic of Korea, ² Korea Institute of Toxicology, KRICT, Republic of Korea	
P-088	EVALUATION OF SKIN PHOTOTOXICITY USING SD RATS FOR SYSTEMICALLY ADMINISTERED DRUGS	204
	Eun Ji Kim, Nam Hee Youn, Jung-Sun Yi, Joo Hwan Kim, Jong Kwon Lee and Ki-Sook Park	
	Toxicological Screening & Testing Division, National Institute of Food and Drug Safety Evaluation, Ministry of Food and Drug Safety, Republic of Korea	
P-089	PHOTOTOXICITY ASSESSMENT OF TRANSDERMAL ADMINISTERED DRUGS IN SD RATS	205
	Nam Hee Youn, Eun Ji Kim, Jung-Sun Yi, Joo Hwan Kim, Jong Kwon Lee and Ki Sook Park	
	Toxicological Screening & Testing Division, National Institute of Food and Drug Safety Evaluation, Ministry of Food and Drug Safety, Republic of Korea	
P-090	ACUTE NEUROBEHAVIORAL TOXICITY INDUCED BY SINGLE ORAL EXPOSURE TO BENFURACARB IN SD RATS	206
	Seon-Kyeom Kim ^{1,3} , Su-Hyeon Kim ¹ , Ki-Hun Kim ^{1,3} , Yeon-Ki Park ⁴ , Are-Sun You ⁴ and Sang-Hee Jeong ^{1,2,3}	
	¹ Department of Bio-applied Toxicology, College of Life & Health Science, Hoseo Graduate School, Republic of Korea, ² Department of Biomedical Laboratory Science, College of Life and Health Science, Republic of Korea, ³ Hoseo Biomedical Science Research Center, Hoseo University, Republic of Korea, ⁴ Chemical Safety Division, Department of Agro-Food Safety & Crop Protection, National Institute of Agricultural Sciences, RDA, Republic of Korea	

C · O · N · T · E · N · T · S

P-091	PROTECTIVE EFFECTS OF <i>CROTON HOOKER</i> ION STREPTOZOTOCIN-INDUCED DIABETIC NEPHROPATHY	207
	Kyeong Seok Kim, Amit Kundu and Hyung Sik Kim School of Pharmacy, Sungkyunkwan University, Republic of Korea	
P-092	BIOANALYSIS OF VOLATILE ORGANIC COMPOUNDS IN FEMALE MONKEY BLOOD AND BIOLOGICAL SAMPLES WITH GC-MS	208
	Ki-Yong Yoo, Kyung-Hwa Hwang, Misuk Lee, Hong-Soo Lee, Bo-Kyung Kim, Jong-Cheol Heo, Sang-Hwa Choi and Seung-Hyuk Shin Jeonbuk Department of Inhalation Research, KIT, KRICT, Republic of Korea	
P-093	LUTEOLIN INDUCES p53-DEPENDENT APOPTOSIS AND AUTOPHAGY IN COLON CANCER CELLS	209
	Ho Soo Yoo ¹ , Sae Bom Won ² and Young Hye Kwon ¹ ¹ Department of Food and Nutrition, Seoul National University, Republic of Korea, ² Department of Human Nutrition and Food Science, Chungwoon University, Republic of Korea	
P-094	THE EFFECT OF MICROBIAL AGENT FOR REDUCING LIVESTOCK ODOR ON THE IMMUNE SYSTEM OF SWINE	210
	Ji-Hun Jo, Ravi Gautam, Su-Jeong Yang, Manju Acharya, Anju Maharjan, Yoon-Seo Heo, Da-Eun Lee, Beom-Jin Kim, Chang-Yul Kim and Yong Heo Department of Occupational Health, College of Bio-Medical Sciences, Daegu Catholic University, Republic of Korea	
P-095	ASSESSMENT OF OCCUPATIONAL AND ENVIRONMENTAL FINE DUST EXPOSURE MEDIATED IMMUNE SYSTEM RESPONSE IN AGRICULTURAL WORKERS	211
	Anju Maharjan, Manju Acharya, Su-Jeong Yang, Ji-Hun Jo, Ravi Gautam, Hyeon-Bin Jang, Yoon-Ju Kim, Hyun-Ji Park, Yu-Bin Kim, Chang-Yul Kim and Yong Heo Department of Occupational Health, College of Bio-Medical Sciences, Daegu Catholic University, Republic of Korea	
P-096	EVALUATION OF THE CYTOTOXICITY OF CHEMICAL COMPOUNDS USING <i>IN VITRO</i> ASSAYS IN MOUSE EMBRYONIC FIBROBLAST CELLS (3T3) AND HUMAN HEPATOMA CELLS (HepG2)	212
	So-Ryeon Hwang, Seong-Yun Hwang, Hee Yi, Ji-Hyun Bang, Yong-Sang Kim, Hyun-Ok Ku and Byung-Suk Jeon Toxicological Evaluation Laboratory, Animal and Plant Quarantine Agency, Republic of Korea	

P-097	TERATOGENESIS OF PROCHLORAZ IN ZEBRAFISH EMBRYO DEVELOPMENTAL STUDY	213
	Are-Sun You, Kyongmi Chon, Yeon-Ki Park, Namseok Kim and Minsug Kim Division of Chemical Safety, National Institute of Agricultural Science, Republic of Korea	
P-098	DETERMINATION OF RODENTICIDES IN DOG LIVER BY LIQUID CHROMATOGRAPHY COUPLED TO MASS SPECTROMETRY	214
	Hyobi Kim, Sunjin Park, Chung-Oui Hong, Seon-Young Lee, Yong-Sang Kim and Kwang-jick Lee Veterinary Drugs & Biologics Division, Animal and Plant Quarantine Agency (APQA), Republic of Korea	
P-099	METHOD DEVELOPMENT OF RISK ASSESSMENT FOR ACUTE ACCEPTABLE OPERATOR EXPOSURE LEVEL (aAOEL) BASED ON ACUTE TOXICITY OF DITHIANON IN RATS	215
	Ki-Hun Kim ^{1,3} , Seon-Kyeom Kim ^{1,3} , Yeon-Ki Park ⁴ , Are-Sun You ⁴ and Sang-Hee Jeong ^{1,2,3} ¹ Department of Bio-applied Toxicology, College of Life and Health Science, Hoseo Graduate School, Republic of Korea, ² Department of Biomedical Laboratory Science, College of Life and Health Science, Republic of Korea, ³ Hoseo Biomedical Science Research Center, Hoseo University, Republic of Korea, ⁴ Chemical Safety Division, Department of Agro-Food Safety & Crop Protection, National Institute of Agricultural Sciences, RDA, Republic of Korea	
P-100	STUDY OF LUNG AND LIVER DAMAGE MECHANISM OF POLYHEXAMETHYLENE GUANIDINE-PHOSPHATE (PHMG-P)	216
	Ji-Young Park, Ji-Won Choe and Yhun-Yhong Sheen College of Pharmacy, Ewha Womans University, Republic of Korea	
P-101	EFFECT OF PHMG-p ON TGF-β MEDIATED SIGNALING PATHWAYS IN ANIMAL MODELS	217
	Ji-Won Choe, Ji-Young Park and Yhun-Yhong Sheen College of Pharmacy, Ewha Womans University, Republic of Korea	
P-102	ESTROGEN DEFICIENCY AGGRAVATES THIOACETAMIDE-INDUCED LIVER FIBROSIS IN SPRAGUE-DAWLEY RATS	218
	Su Hyun Lee, Ji Yeon Son, Kyeong Seok Kim, Jae Hyeon Park and Hyung Sik Kim School of Pharmacy, Sungkyunkwan University, Republic of Korea	

C · O · N · T · E · N · T · S

P-103	STUDY ON ESTABLISHMENT OF GOOD LABORATORY PRACTICE HANDBOOK	219
	Eun Ji Lee ¹ , Chun-Chul Shin ¹ , Hwang Jin Ah ² and Dong Hwan Kim ² ¹ Department of Quality Assurance, Korea Institute of Toxicology, Korea Research Institute of Chemical Technology, Republic of Korea, ² Department of Medicinal Bioscience, Konyang University, Republic of Korea	
P-104	PP2A INDUCES APOPTOSIS IN LYMPHOMA BY GLUTAMINE DEFICIENCY	220
	Yun Kyu Kim, Hun Ji Yang and Kyung Jin Lee Department of Convergence Medicine, Asan Institute for Life Sciences, University of Ulsan College of Medicine, Asan Medical Center, Republic of Korea	
P-105	<i>IN VIVO</i> AND <i>IN VITRO</i> DERMAL ABSORPTION RATE OF SPINOSAD	221
	Hee Yi, Ji-Hyun Bang, Byung-Suk Jeon, Hyobi Kim, Kwang-Jick Lee, Yong-Sang Kim and Hyun-Ok Ku Veterinary Drugs and Biologics Division, Animal and Plant Quarantine Agency (APQA), Republic of Korea	
P-106	NEUROCHEMICAL AND BEHAVIORAL ANALYSIS ANALYSIS BY ACUTE EXPOSURE TO BISPHENOL A IN ZEBRAFISH LARVAE LARVAE MODEL	222
	Seong Soon Kim ^{1,3,†} , Kyu-Seok Hwang ^{1,†} , Jung Yoon Yang ¹ , Jin Sil Chae ¹ , Geum Ran Kim ¹ , Hyemin Kan ¹ , Myeong Hun Jung ¹ , Ha-Yeon Lee ^{1,3} , Jin Sook Song ^{1,2} , Sunjoo Ahn ^{1,2} , Dae-Seop Shin ¹ , JaeChun Woo ¹ , Byung Hoi Lee ¹ , Kyeong-Ryoon Lee ⁴ , Sang Kyum Kim ³ and Myung Ae Bae ^{1,2} ¹ Bio & Drug Discovery Division, Korea Research Institute of Chemical Technology, Republic of Korea, ² Department of Medicinal Chemistry and Pharmacology, University of Science & Technology, Republic of Korea, ³ College of Pharmacy, Chungnam National University, Republic of Korea, ⁴ Laboratory Animal Resource Center, Korea Research Institute of Bioscience and Biotechnology, Republic of Korea	
P-107	GENOME-WIDE DNA METHYLATION ANALYSIS REVEALS THE POTENTIAL MECHANISM INDUCING BHAS 42 CELL TRANSFORMATION IN RESPONSE TO NON-GENOTOXIC CARCINOGEN EXPOSURE	223
	Sung-Hee Hwang ¹ , Hojin Yeom ¹ , Byeal-I Han ² , Yong-Moon Lee ³ and Michael Lee ^{1,2,4} ¹ Division of Life Sciences, College of Life Sciences and Bioengineering, Incheon National University, Republic of Korea, ² Institute for New Drug Development, Incheon National University, Republic of Korea, ³ College of Pharmacy and Medical Research Center, Chungbuk National University, Republic of Korea, ⁴ INU Human Genome Center, Incheon National University, Republic of Korea	

P-108	FUNCTIONAL IMPAIRMENT OF BRAIN ENDOTHELIAL CELLS BY ENDOGENOUS DIABETIC METABOLITE OF METHYLGLYOXAL	224
	Donghyun Kim, Kyeong-A Kim, Eun-Hye Kim, Donggeun Shin, Eujin Oh and Ok-Nam Bae College of Pharmacy and Institute of Pharmaceutical Science and Technology, Hanyang University, Republic of Korea	
P-109	SELECTING BIOCIDES FOR PBPK-BASED RISK ASSESSMENT APPROACH AND TESTING BARRIER FUNCTION IN BRAIN ENDOTHELIAL CELLS AFTER BIOCIDES EXPOSURE	225
	Donghyun Kim ¹ , Younsik Shin ¹ , Jin-Ki Kim ¹ , Kyung-Min Lim ² and Ok-Nam Bae ¹ ¹ College of Pharmacy and Institute of Pharmaceutical Science and Technology, Hanyang University, Republic of Korea, ² College of Pharmacy, Ewha Womans University, Republic of Korea	
P-110	A COMPARISON STUDY OF MEASURING THYROID HORMONE BY REVISED OECD TG408: ENZYME-LINKED IMMUNOSORBENT ASSAY (ELISA), IMMUNOASSAY ANALYZER AND LIQUID CHROMATOGRAPHY-MASS SPECTROMETRY (LC-MS)	226
	Boyun Choi, So-Hye Hong, Seung Hee Lee, Jun-young Yang, Jin Hee Lee, Kikyung Jung, Ji Hyun Seok and Jong Kwon Lee Toxicological Research Division, National Institute of Food and Drug Safety Evaluation, Ministry of Food and Drug Safety, Republic of Korea	
P-111	EMPLOYMENT OF CYTOLOGICAL EVALUATION OF SKIN IRRITANCY FOR KERASKIN™, 3D RECONSTRUCTED HUMAN EPIDERMIS MODEL	227
	Jee-hyun Hwang ¹ , Haengdueng Jeong ² , Yejin Cho ² , Ki Taek Nam ² and Kyung-Min Lim ¹ ¹ College of Pharmacy, Ewha Womans University, Republic of Korea, ² College of Medicine, Yonsei University, Republic of Korea	
P-112	EVALUATION OF METAL NANOPARTICLES ON SKIN SENSITIZATION USING OECD TG442B	228
	Dong Han Lee, Seonghyun Kim, Jin Hee Lee, Jun-Young Yang, Ji-Hyun Seok, Kikyung Jung and Jong Kwon Lee Toxicological Research Division, National Institute of Food and Drug Safety Evaluation, Republic of Korea	
P-113	CADMIUM INDUCES CYTOTOXICITY IN MOUSE NORMAL RENAL MM55.K CELLS	229
	Ho Jeong Lee, Yeon Seop Jung, Kang Hyun Hwang and Jeong Doo Heo Biological Resources Research Group, Gyeongnam Department of Environment Toxicology and Chemistry, Korea Institute of Toxicology, Republic of Korea	

C · O · N · T · E · N · T · S

P-114	miR-127-3p AND miR-1277-3p ARE ASSOCIATED WITH ALZHEIMER'S DISEASE: USING A TRANSGENIC PIG WITH MULTI-CISTRONIC VECTOR SYSTEM	230
	Yoon Hee Cho ¹ , Elizabeth Cole ¹ , Seung-Eun Lee ^{2,3} , Min Jee Park ^{2,3} , Su Young Kim ⁴ , Eun-Young Kim ⁵ and Se-Pill Park ^{2,3,5} ¹ Department of Biomedical and Pharmaceutical Sciences, University of Montana, Missoula, MT, USA, ² Stem Cell Research Center, Jeju National University, Republic of Korea, ³ Faculty of Biotechnology, College of Applied Life Sciences, Jeju National University, Republic of Korea, ⁴ Department of Preventive Medicine, Jeju National University, Republic of Korea, ⁵ Mirae Cell Bio, Republic of Korea	
P-115	COMPARISON OF HEPATOTOXICANT-INDUCED CYTOTOXICITY ASSAYS IN HUMAN HEPATOMA CELLS (HepG2)	231
	So-Ryeon Hwang, Seong-Yun Hwang, Ji-Hyun Bang, Hee Yi, Yong-Sang Kim, Hyun-Ok Ku and Byung-Suk Jeon Toxicological Evaluation Laboratory, Animal and Plant Quarantine Agency, Republic of Korea	
P-116	CIGARETTE SMOKE EXTRACT PRODUCES SUPEROXIDE IN AQUEOUS MEDIA BY REACTING WITH BICARBONATE	232
	Haerin Jeong ¹ , Jung-Min Park ¹ , Seong-Jin Choi ² and Moo-Yeol Lee ¹ ¹ College of Pharmacy, Dongguk University, Republic of Korea, ² Inhalation Toxicology Research Center, Korea Institute of Toxicology, Republic of Korea	
P-117	FERMENTED BLACK RADISH AMELIORATED THE FIBROSIS IN THE LIVER WITH CCL₄ INJURY	233
	Jeongtae Kim ¹ , Meejung Ahn ¹ , Yuna Choi ¹ , Gi-Ok Kim ² and Taekyun Shin ¹ ¹ Department of Veterinary Anatomy, College of Veterinary Medicine and Veterinary Medical Research Institute, Jeju National University, Republic of Korea, ² Jeju Biodiversity Research Institute, Jeju Technopark, Republic of Korea	
P-118	ALPHA-LINOLENIC ACID AMELIORATES THE DEXTRAN SULFATE SODIUM-INDUCED ACUTE COLITIS	234
	Yuna Choi ¹ , Jeongtae Kim ¹ , Meejung Ahn ¹ , Gi-Ok Kim ² and Taekyun Shin ¹ ¹ Department of Veterinary Anatomy, College of Veterinary Medicine and Veterinary Medical Research Institute, Jeju National University, Republic of Korea, ² Jeju Biodiversity Research Institute, Jeju Technopark, Republic of Korea	

- P-119** ACUTE AND REPEATED DOSE 28-DAY ORAL TOXICITY STUDY OF
MDM-HYDANTOIN IN SPRAGUE-DAWLEY RATS 235
Yu Rim Park, Hansol Won, Jin Hee Lee, Jun-Young Yang, Ji-Hyun Seok,
Kikyung Jung and Jong Kwon Lee
Toxicological Research Division, National Institute of Food and Drug Safety Evaluation,
Republic of Korea
- P-120** ULTRASENSITIVE DETECTION OF α -TOXIN FROM *STAPHYLOCOCCUS*
AUREUS USING PEGylated ERYTHROCYTE MEMBRANE 236
Insu Kim¹, Gyudo Lee² and Dae Sung Yoon¹
¹School of Bio-Convergence Engineering, Korea University, Republic of Korea, ²Department
of Biotechnology and Bioinformatics, Korea University, Republic of Korea
- P-121** TOXICOMULTI-OMICS PROFILING OF POLYHEXAMETHYLENE
GUANIDINE PHOSPHATE (PHMG-p)-INDUCED PULMONARY
DAMAGE IN MICE 237
Jung Dae Lee¹, Jueng Eun Im¹, Hyang Yeon Kim¹, Handule Lee², Juyoung Park²,
Kwangsik Park², Hye Gwang Jeong³, Hak Rim Kim⁴, Sukmann Kim⁵,
Dae Hee Hwang⁶, Hyung Sik Kim⁷, Byung-Mu Lee⁷ and Kyu-Bong Kim¹
¹Toxicology, College of Pharmacy, Dankook University, Republic of Korea, ²College of
Pharmacy, Dongduk Women's University, Republic of Korea, ³College of Pharmacy,
Chungnam National University, Republic of Korea, ⁴Department of Pharmacology, College of
Medicine, Dankook University, Republic of Korea, ⁵Department of Chemistry and Chemistry
Institute of Functional Materials, Pusan National University, Republic of Korea, ⁶Department
of New Biology, DGIST, Republic of Korea, ⁷Toxicology, College of Pharmacy,
Sungkyunkwan University, Republic of Korea
- P-122** DERMAL ABSORPTION OF HOMOSALATE, A UV FILTERING AGENT,
IN RAT, MINIPIG, AND HUMAN SKINS 238
Jung Dae Lee, Jueng Eun Im, Jin Ju Park, Hyang Yeon Kim and Kyu-Bong Kim
Toxicology, College of Pharmacy, Dankook University, Republic of Korea
- P-123** RAT SINGLE ORAL DOSE TOXICITY TEST OF DEGREASED
POWDER FROM FREEZE-DRIED *ZOPHOBAS ATRATUS* LARVAE 239
Sun Young Kim¹, Sun-Don Kim², Hyun-Kul Lee², Mi-Ae Kim¹, In-Woo Kim¹,
Minchul Seo¹, Joon Ha Lee¹, Hwa Jeong Lee¹, Minhee Baek¹ and Jae-Sam Hwang¹
¹Industrial Insect Division, Dept. of Agricultural Biology, National Institute of Agricultural
Sciences, RDA, Republic of Korea, ²Nonclinical Research Institute, Chemon Inc.,
Republic of Korea

C · O · N · T · E · N · T · S

P-124	RELATIONSHIP BETWEEN CADMIUM AND ESSENTIAL METALS IN CADMIUM CONTAMINATED AREA INHABITANTS IN KOREA	240
	Da-Som Na ¹ , Joo-Young Mun ¹ , Sang-Yong Eom ² , Dong-Hyuk Yim ² , Byung-Sun Choi ¹ , Yong-Dae Kim ² , Heon Kim ² and Jung-Duck Park ¹ ¹ Department Preventive Medicine, College of Medicine, Chung-Ang University, Republic of Korea, ² College of Medicine, Chungbuk National University, Republic of Korea	
P-125	HEALTH EFFECTS WITH LEAD AND CADMIUM EXPOSURE IN THE ABANDONED METAL MINE AREA	241
	Joo-Young Mun ¹ , Da-Som Na ¹ , Sang-Yong Eom ² , Jeoung-Wook Seo ³ , Byung-Sun Choi ¹ , Heon Kim ² , Young-Seoub Hong ³ , Jeong-Jin Kim ⁴ , Yeong-Hun Kim ⁴ , Man-Joong Jeon ⁵ , Joon Sakong ⁵ and Jung-Duck Park ¹ ¹ College of Medicine, Chung-Ang University, Republic of Korea, ² College of Medicine, Chungbuk National University, Republic of Korea, ³ College of Medicine, Dong-A University, Republic of Korea, ⁴ College of Environmental Engineering, Andong National University, Republic of Korea, ⁵ College of Medicine, Yeungnam University, Republic of Korea	
P-126	ASSESSING THE SAFETY OF ZINC OXIDE NANOPARTICLE IN RATS: SINGLE DOSE ACUTE TOXICITY STUDY	242
	Hyoung-Yun Han ¹ , Doo-Wan Cho ² , Sujin Kim ¹ , Se-Myo Park ¹ , Jaehwan Ahn ¹ , Jun-Ho Ahn ¹ , Hyun-A Oh ¹ , Heeyoung Yang ¹ , Jung-Hwa Oh ¹ , Min Beom Heo ³ , Tae Geol Lee ³ and Seokjoo Yoon ¹ ¹ Department of Predictive Toxicology, Korea Institute of Toxicology, Republic of Korea, ² Jeonbuk Department of Inhalation Research, Korea Institute of Toxicology, Republic of Korea, ³ Center for Nano-bio Measurement, Korea Research Institute of Standards and Science, Republic of Korea	
P-127	EFFECTS OF LSD1 ON CSE AND LPS-INDUCED LUNG INJURY IN A MURINE MODEL OF COPD	243
	Jiyeong Jeong and Keun-Il Kim Department of Biological Science, Sookmyung Woman's University, Republic of Korea	
P-128	EVALUATION OF THE EFFECTS OF QUINIDINE ON CARDIAC ELECTROPHYSIOLOGY IN HUMAN iPSC-DERIVED CARDIOMYOCYTES AND BEAGLE DOG	244
	Sung-Ae Hyun, Chang Youn Lee, Gyu-Kap Choi, Ri-Na Lim, Tae-Wan Kim, Chang Hoon Choi and Joung-Wook Seo Pharmacology and Drug Abuse Research Group, Korea Institute of Toxicology, KRICT, Republic of Korea	

P-129	ELECTROPHYSIOLOGICAL EVALUATION OF CARDIAC DYSFUNCTION BY CLOPIDOGREL	245
	Chang Youn Lee, Sung-Ae Hyun, Sun-Hwa Chon and Joung-Wook Seo Pharmacology & Drug Abuse Research Group, Research Center of Convergence Toxicology, Korea Institute of Toxicology, Republic of Korea	
P-130	NON-ANIMAL TESTING FOR SKIN SENSITIZATION HAZARD ASSESSMENT OF PLANT EXTRACTS	246
	Eun-Mi Koh, Chi Hun Song, Yu Na Kim and Kyung Jin Jung Bioanalytical and Immunoanalytical Research Group, Korea Institute of Toxicology, Republic of Korea	
P-131	MODULATORY EFFECTS OF BIOSULFA ON TH1/TH2 RESPONSE	247
	Eun Kyeong Lee ¹ , Eun Mi Koh ¹ and Kyung Jin Jung ^{1,2} ¹ Korea Institute of Toxicology, Republic of Korea, ² Department of Human and Environmental Toxicology, Korea University of Science & Technology (UST), Republic of Korea	
P-132	APPLICATION AMOUNTS AND DERMAL ABSORPTION OF CAFFEINE IN ANIMAL SKINS	248
	Hyang Yeon Kim ¹ , Jung Dae Lee ² , Jueng Eun Im ¹ , Kyung Soo Kang ² and Kyu-Bong Kim ¹ ¹ College of Pharmacy, Dankook University, Republic of Korea, ² APURES Co., Ltd., Republic of Korea	
P-133	APPLICATION AMOUNTS AND DERMAL ABSORPTION OF TESTOSTERONE IN ANIMAL SKINS	249
	Jueng Eun Im ¹ , Hyang Yeon Kim ¹ , Jung Dae Lee ² , Kyung Soo Kang ² and Kyu-Bong Kim ¹ ¹ College of Pharmacy, Dankook University, Republic of Korea, ² APURES Co., Ltd., Republic of Korea	
P-134	A STUDY ON THE ESTABLISHMENT OF A METHOD OF ANALYSIS OF IPBC IN HYGIENE PRODUCTS	250
	Hee Seon Shin and Dal Woong Choi Department of Health and Safety Convergence Science, Graduate School, Korea University, Republic of Korea	
P-135	DEVELOPMENT OF A METHOD TO ANALYZE BENZOIC ACID IN HYGIENE PRODUCTS	251
	Hogeon Lee and Dal Woong Choi Department of Health and Safety Convergence Science, Graduate School, Korea University, Republic of Korea	

C · O · N · T · E · N · T · S

P-136	METHOD DEVELOPMENT: A GUIDE FOR BRAIN TISSUE IMPLANTATION STUDY OF MEDICAL DEVICE APPLIED TO REVISION ISO 10993-6 (Annex D)	252
	Woo-jin Cho, Jun-sub Kim, Yeon-yup Bae and Seok-kyung Kong Medical Supplies Evaluation Center, Medical & Health Device Division, Korea Testing Laboratory, Republic of Korea	
P-137	CHARACTERIZATION OF RADIATION-INDUCED ALOPECIA AND SKIN DAMAGE IN C57BL/6 MICE	253
	Jae-Hee Lee, Mijeong Park, Seungwoo Park, Mun-Sik Choi and Youn Kyoung Jeong Research Center for Radiation, Korea Institute of Radiological and Medical Sciences, Republic of Korea	
P-138	THE STUDY OF ELECTROMAGNETIC FIELDS (EMFs) ON SKIN HEALTH USING 3D HUMAN SKIN MODEL	254
	Kyuri Kim and Kyung-Min Lim College of Pharmacy, Ewha Womans University, Republic of Korea	
P-139	KERATINOCYTE-DERIVED IL-36 γ PLAYS A ROLE IN HYDROQUINONE- INDUCED CHEMICAL LEUKODERMA THROUGH INHIBITION OF MELANOGENESIS IN HUMAN EPIDERMAL MELANOCYTES	255
	Jeong Joo Pyo, Hyejin Ko, Jeayoung Shin, Yujia Han, Seungchan An, Sungjin Ahn and Minsoo Noh College of Pharmacy, Natural Products Research Institute, Seoul National University, Republic of Korea	