donated blood and the use of validated viral inactivation and/or removal steps during the manufacture of blood products. Serologic screening procedures have substantially reduces the risk of transmission of blood-borne viruses. However, there are still residual risks despite these measures due to the inclusion of 'window period' donations. To reduce the durations of the window period, nucleic acid amplification technology (NAT) is being instituted in Europe, Japan and the United States. Standardization of NAT assay is necessary before the introduction of such an assay for routine screenings of blood and blood products and can be achieved by use of international standard of HBV DNA for NAT assays. Validation characteristics are described as specificity, detection limit and robustness. The specificity was established by studying conditions that might be expected to cause cross-reactivity or interference in the analysis. The conditions that cause cross-reactivity or interference by other relevant blood-borne viruses include human immunodeficiency virus(HIV), hepatitis C virus(HCV), hepatitis A virus(HAV) and parvovirus B19 and other human DNA viruses including human papilloma virus(HPV) 18 & 6b, cytomegalovirus(CMV) and human herpesvirus 1 & 2. In order to validate the specificity of the analytical procedure, at least 100 HBV DNA-negative plasma pools were tested and shown to be non-reactive. To determine the positive cut-off point, a diluted series of the WHO HBV international standard (97/746) were tested under these conditions, and the detection limit was calculated to be approximately 50 IU/mL. To demonstrate robustness, at least 20 HBV DNA negative plasma pools, and spiked with HBV DNA to a final concentration of 3 times the previously determined 95% cut-off value, were tested and found positive.

[PA1-73] [10/18/2002 (Fri) 09:30 - 12:30 / Hall C]

Temperature Regulates Melanin Synthesis in Mel-Ab Cells

Kim DongSeok°, Kim SookYoung, Lee JaiEun, Park KyoungChan

Department of Dermatology, Seoul National University College of Medicine, Seoul, Korea

Temperature change is one of the major environmental factors to influence human skin. However, the relationship between temperature and melanogenesis has received little attention. In the present study, we investigated the effects of temperature change including heat shock on melanogenesis using a mouse melanocyte cell line, Mel-Ab. Our results demonstrated that cells maintained at 37°C showed maximal melanin synthesis. Cells cultured at low temperatures produced less melanin than cells at 37°C. Heat treatment for 1 h also decreased melanin production. The melanin production is accompanied by tyrosinase activity at each temperature, indicating that the tyrosinase activity is regulated by temperature. To examine how heat shock decreases melanin synthesis, we treated cell with suramin (an inhibitor of growth factor receptors) or N-acetyl-L-cysteine (a free radical scavenger) before heat shock. However, neither suramin nor N-acetyl-L-cysteine restored heat-induced depigmentation. It has been reported that activated ERK is responsible for MITF degradation, leading to decreased melanin synthesis. Our results showed that heat shock induces sustained ERK activation, which may inhibit melanogenesis.

[PA1-74] [10/18/2002 (Fri) 09:30 - 12:30 / Hall C]

Characterization of Human Epidermal Stem Cells and Living Skin Equivalents

Kim DongSeok°, Youn SangWoong, Choi HyeRyung, Cho HyunJu, Jeon SangEun, Park KyoungChan

Department of Dermatology, Seoul National University College of Medicine, Seoul, Korea

Human epidermal keratinocytes consist of stem cells, transit amplifying cells, and postmitotic differentiating cells. Among them, stem cells play a critical role in cell renewal, wound healing, and neoplasia. However, till now, specific markers of human epidermal keratinocytes are not clearly defined. In the present study, we separated putative stem cells from other cells using fluorescence activated cell sorting (FACS), based on differences in a6-integrin and CD71 expression. We next analyzed keratinocytes obtained from young and old donors. We found that stem cell portion

increases, as the donor is younger. We further studied the stem cell portion of each keratinocyte culture in the 4th-10th passage. Our data show that low passage cells contain more stem cells than high passage cells. Recently, a homologue of the tumor suppressor p53, p63 is described as an epidermal stem cell marker. Therefore, human skin biopsies and living skin equivalents were stained with p63-specific antibody and specific markers of proliferating cells, and immunohistochemical analysis was performed. Our results revealed that cells forming the basal layer of human epidermis express both p63 and PCNA.

[PA1-75] [10/18/2002 (Fri) 09:30 - 12:30 / Hall C]

The influence of extremely low frequency magnetic field on cardiovascular response

Kim JeongSoo°, Jeong JiHoon, Sung JiHyun, Bae Ki Lyong, Kum Chan, Kang Hee Yun, Sohn UyDong

Department of Pharmacolgy, College of Pharmacy, Chung Ang University

There have been some reports showing that cardiovascular response is affected by exposure to extremely low frequency magnetic field (ELF-MF). In this experiment, we intended to observe if ELF-MF affects the basal level of cardiovascular response and effect of drugs acting on sympathetic nervous system. Rats exposed to MF (60 Hz, 20 G) for 1 or 5 days and sham were anesthetized with pentobarbital-Na. Carotid artery and jugular vein were intubated to measure blood pressure (BP) and inject drug respectively. We used the Lead II method to record the electrocardiogram (ECG) which checks heart rate (HR), PR interval, QRS interval, QT interval. In terms of the basal level, there was no difference among sham and MF-1, MF-5 in all of HR, PR interval, QRS interval, QT interval. (-) Dobutamine (b-1 receptor selective agonist) was administered to sham and MF-1, at dose of 10, 20, 50, 100 mg/kg, which didn't affect mean BP, pulse pressure, PR interval, and QRS interval. However there were some changes as the increase of HR and decrease of QT interval. Though both of HR and QT interval showed the changes, the degree of the response of sham was larger than that of MF-1, which wasn't a significant difference. In futher study, we will elucidate influence of more drugs acting on sympathetic nervous system.

[PA1-76] [10/18/2002 (Fri) 09:30 - 12:30 / Hall C]

The effects of extremely low frequency magnetic field on bicuculline, picrotoxin, NMDA-induced seizures in mice

Sung JiHyun°, Jeong JiHoon, Kim JeongSoo, Kum Chan, Park SunYoung, Sohn UyDong

Department of Pharmacolgy, College of Pharmacy, Chung Ang University

Some experiments have been reported that magnetic fields can cause the change of numerous neurotransmitters including excitatory and inhibitory transmitters, which are involved in seizures. In this study we aimed to examine the effect of extremely low frequency magnetic field (ELF-MF) on the sensitivity of seizure response to bicuculline , picrotoxin and NMDA in mice. Mouse were exposed to sham or 20 G ELF-MF for 24 hours and then convulsants were administered i.p. at various doses. Seizure induction time and duration time were measured and LD50(lethal dose) and CD50(convulsant dose) of clonic and tonic convulsion were calculated. Then analysis of glutamate, glycine, taurine, and GABA of mouse brain was accomplished by HPLC. Mice exposed to ELF-MF showed moderately decreased CD50 and LD50 on the bicuculline-induced seizure. But ELF-MF increased them on the NMDA and picrotoxin-induced seizures. These results suggest that extremely low frequency magnetic fields may change the sensitivity of seizure response to each convulsants in rodents. The further study should be taken to elucidate the mechanism of MF's effect on seizure.