sodium, 5% hydrolyzed carrageenan, 2,4-dinitrochlorobenzene(DNCB)). These colitis mice all showed signs of diarrhea, occult blood, prominent regenerations of the colonic mucosa and shortening of large intestine.
Among these colitis mice, GAGs degrading enzymes of intestinal bacteria, chondroitinase and hyaluronidase, were potently induced in 5% hydrolyzed carrageenan and DNCB-induced mice models.
These hydrolyzed carrageenan and dextran sulfate sodium also exhibited the *in vitro* cytotoxicity against intestinal epithelial cell line. The compounds also induced bacterial GAGs degrading enzymes *in vitro* intestinal bacteria culture system.
Therefore, these results suggest that the supressions of a GAGs-degrading bacteria could improve a non-infectious inflammatory disease.

* Intestinal epithelial cell : IEC18 cell

[PC2-10] [10/20/2000 (Fri) 15:30 - 16:30 / [Hall B]]

β-Glucosidases of human intestinal bacteria transforming ginsenoside Rb1 and Rb2 to compound K

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Among herbal medicines, ginseng is frequently used as a crude taken orally in Asian countries as a traditional medicine. The major components of ginseng are ginsenosides. These ginsenosides have been reported to show various biological activities including an anti-inflammatory activity and anti-tumor effects. To explain these pharmacological actions, it is thought that ginseng saponins must be metabolized by human intestinal bacteria after orally taken them.
Therefore, we investigated the metabolism of ginsenoside R_{b1} and R_{b2} by human intestinal bacteria and their metabolism-related β-glucosidase. By human intestinal microflora, ginsenoside R_{b1} and R_{b2} were metabolized these ginsenosides to compound K and 20(S)-protopanaxadiol. *Eubacterium* sp., *Streptococcus* sp. and *Bifidobacterium* sp., which hydrolyzed more potently gentiobiose than sophorose, metabolized ginsenoside R_{b1} to compound K via ginsenoside R_d rather than gypenoside XVII. However, *Fusobacterium* K-60, which hydrolyzed more potently sophorose than gentiobiose, was metabolized to compound K via gypenoside XVII. Ginsenoside R_{b2} was also metabolized to compound K via ginsenoside R_d or compound O by human intestinal microflora. *Eubacterium*sp., *Streptococcus* sp. and *Bifidobacterium* sp. metabolized ginsenoside $R_{b2}$to compound K via ginsenoside R_d rather than compound O. *Fusobacterium* K-60 metabolized ginsenoside R_{b2} to compound K via compound O.

[PC2-11] [10/20/2000 (Fri) 15:30 - 16:30 / [Hall B]]

The Gene Cloning of a Chitinase from Cytophaga sp. HJ

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Cytophaga sp. HJ is a bacterial strain producing an extracellular chitinase, induced by chitin. The chitinase gene was cloned in Escherichia coli JM109 by using pUC18. A clone expressing chitinase activity was obtained from about 670 transformants. It had 12.7Kb plasmid DNA. When the plasmid was digested by HindIII, we found that it contained 10Kb insert DNA fragment as well

as 2.7Kb vector fragment. Finally, 3.3Kb HindIII DNA fragment could be obtained by deletion analysis.

[PC3-1] [10/20/2000 (Fri) 15:30 - 16:30 / [Hall B]]

Sphingosine Accumulation by FTY720 Induces Apoptosis in LLC-PK1 cells

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FTY720, a synthetic sphingoid base analog, was investigated as a new potent sphingosine kinase inhibitor and increases sphingosine which induces apoptosis in LLC-PK1 cells. FTY720 showed high level of fragmented DNA, induction of caspase-3 like activity and TUNEL staining cells. We have as well found that sphingosine and sphinganine were accumulated endogenously in time- and dose-dependent manner within 12 hr by FTY720 treatment. The activity of sphingosine kinase was also reduced by FTY720 like as other sphingosine kinase inhibitors, N,N-dimethylsphingosine, dl-threo sphinganine. Fragmented DNA content by 20 uM FTY720 and by 5 uM of exogenously added BSA-sphingosine complex represents typical apoptosis. In the same above conditions, accumulated sphingosine concentration in total cells is almost identical though sphingosine distribution inside cells may be somewhat different. Our results indicate that FTY720 induced apoptosis is associated with inhibition of sphingosine kinase activity and is related to successive accumilation of sphingosine.

[PC3-2] [10/20/2000 (Fri) 15:30 - 16:30 / [Hall B]]

Glycolic acid attenuated UVB-induced Activator Protein-1 activation by down regulation of c-fos gene expression in HaCaT cells

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Glycolic acid is widely used as cosmetic ingredient since it is expected to reduce the wrinkles, roughness, age spots of skin and other signs of sunburn damages. In the previous our in vivo study, we investigated that glycolic acid inhibited UVB-induced mouse parpilloma formation in two-stage carcinogenesis model. Modification of UVB-induced Activator Protein-1(AP-1) activation by glycolic acid was investigated as a possible mechanism in a cultured human keratinocyte cell line, HaCaT. Glycolic acid decreased UVB-induced AP-1 activation. UVB-induced c-fos mRNA and c-Fos protein expression were also attenuated by UVB and glycolic acid co-treatment. Taken together, the ability of glycolic acid for down regulate the expression of AP-1 DNA binding protein may be involved in the attenuation of AP-1 activation. Considering the functional role of AP-1 activation in UVB-induced epidermal carcinogenesis, the attenuation of UVB-induced AP-1 activation by glycolic acid may play in part a role in the inhibitory effect of glycolic acid on UVB-induced skin carcinogenesis.

[PC3-3] [10/20/2000 (Fri) 15:30 - 16:30 / [Hall B]]

p27kip1 promotes ceramide-induced apoptosis in HL-60 cells

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