In recent studies on cefodizime, it may potentially have the capability of stimulating chemotactic activity of neutrophils and monocytes as well as the strong immuno-modulator. In turn, infection can result in a drastic change of mediators, which lead to initiate an immune response in an indirect way. With this backgrounds, we have studied to see if cefodizime can be a potential substance to induce an immunological function in dendritic cells and peritoneal macrophages.
In experimental process, dendritic cell and peritoneal macrophages were taken and mixed with 10㎍/㎖, 50㎍/㎖, 100㎍/㎖ cefodizime and 1㎍/㎖ IFN-γ10U/㎖+LPS. These mixtures were then incubated for 4, 8, 12, 24 hours to see if cytokines would be released in an analytical amount by assessing RT-PCR for IL-6 mRNA.
As a result, we have found that both may represent that both cells when treated with cefodizime can show an increase of cytokine. Accordingly, we can expect that cefodizime may induce the activation increase for macrophage, NK cell, CTL, B cell due to the increase of pro-inflammatory cytokine noted above.
From these results, we will be able to say that cefodizime may be a potential immuno-modulator rather than an antibiotics itself.

[PB4-2] [10/17/2002 (Thr) 13:30 - 16:30 / Hall C]

IL-12 Expression by Cefodizime As an Immuno-modulator

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Cefodizime has originally been developed for treating infections as antibiotics. However, according to some of recent studies, cefodizime, a third generation cephalosporin, may potentially have the capability of stimulating chemotactic activity of neutrophils and monocytes as well as the strong immuno-modulator. In this study, we studied to learn about the expressive effect of dentritic cells and macrophage. With this background, We have studied to see if cefodizime can be a potential substance inducing an immunological function in dendritic cells and peritoneal macrophages.
IL-12 activates NK cell and macrophage, and shows antiviral effect by excreting INF-γ. In vitro, total RNAs were extracted from murine dentritic cell at 4, 8, 12, 24hr after the application of 10, 50, 100㎍/㎖ of cefodizime without other stimulators. And we analyzed IL-12 mRNA using RT-PCR method. In conclusion, IL-12 mRNA was increased, and the results suggest that cefodizime activate TH1 cell induction, CTL differentiation as well as accelerating the increase of NK, LAK cell.

[PB4-3] [10/17/2002 (Thr) 13:30 - 16:30 / Hall C]

Tacrolimus and cyclosporine A inhibit both class I-restricted presentation pathway and class II-restricted presentation pathway of exogenous antigen.

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The main targets for the immunosuppressive calcineurin inhibitors, tacrolimus (FK-506) and cyclosporine A (CsA), have been considered to be activated T cells, but not antigen presenting cells (APCs). In the present study, we examined the effects of these drugs on the MHC-restricted presentation of exogenously added antigen, ovalbumin (OVA), in dendritic cells (DCs). Particulate form of OVA was efficiently captured, processed and presented on class I MHC molecules (cross-presentation) as well as on class II MHC molecules. Addition of tacrolimus and CsA, but not rafamycin, to cultures of DCs inhibited both the class I MHC-restricted presentation as well as the class II MHC-restricted presentation of exogenous OVA. Tacrolimus was much more effective in inhibiting both of the antigen presentation pathways than CsA. Inhibition of the exogenous OVA presentation by tacrolimus and CsA was not due to suppression of the expression of class I or class II MHC molecules on DCs. These results show that the immunosuppressive activity of tacrolimus and CsA is at least in part due to inhibition of antigen presenting function of professional APCs.

[PB4-4] [10/17/2002 (Thr) 13:30 - 16:30 / Hall C]

IL-1β Expression of Cefodizime on Dendritic cell and Macrophage

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According to recent studies, cefodizime, a third generation cephalosporin antibiotic agent, may potentially have the capability of stimulating chemotactic activity of neutrophils and monocytes as well as the strong immunomodulator. We have studied to see if cefodizime can be a potential substance inducing an Immunological activities on immune cells, such as dendritic cells and macrophages.
In experimental process, dendritic cell and macrophage were taken from mice and mixed with 10㎍/㎖, 50㎍/㎖, 100㎍/㎖ cefodizime and 1㎍/㎖ IFN-γ10U/㎖ + LPS. These mixtures were then incubated for 4, 8, 12, 24 hours to see if cytokines would be released to an analytical extent by assessing RT-PCR for IL-1β mRNAs.
As a result, we have found that both dendritic cells and macrophage released cytokines, IL-1β, even though the amounts were not that significantly enough. This result may suggest that both cells when treated with cefodizime can show an increase of IL-1β. From these results, we have learned that cefodizime may be a potential immunomodulator as well as an antibiotic activity. Importantly, this study is considered to be a basic knowledge for elucidating the properties of dendritic cells and macrophage when taking cefodizime for immunological application in future study.

[PB4-5] [10/17/2002 (Thu) 13:30 - 16:30 / Hall C]

Allicin reduces expression of Intercellular Adhesion Molecule-1 (ICAM-1) in gamma-irradiated endothelial cells: Involvement of p38 MAP kinase signalling pathway.

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Inflammation is a frequent radiation-induced following therapeutic irradiation. Since the upregulation of adhesion molecules on endothelial cell surface has been known to be associated with inflammation, interfering with the expression of adhesion molecules is an important therapeutic target. We examined the effect of allicin, a major component of garlic, on the induction of intercellular adhesion molecule-1 (ICAM-1) by gamma-irradiation and the mechanisms of its effect in gamma-irradiated human umbilical vein endothelial cells (HUVECs). In the present study, the relative inhibitory effects of allicin on ICAM-1 expression under gamma-irradiated HUVEC was assessed by ELISA and RT-PCR analysis. Our data indicated that allicin significantly inhibited the surface expression of vascular cell ICAM-1 and ICAM mRNA in a dose dependent manner. This induction of ICAM-1 may require the transcription factor such as NF-kB and AP-1. In EMSA analysis, NF-kB and AP-1 were not activated in HUVEC by gamma-irradiation. In addition, treatment with p38 inhibitor resulted in the decrease of expression of ICAM-1 mRNA by gamma-irradiation. These results suggest that allicin reduces expression of ICAM-1 via p38 dependent pathway in gamma-irradiated HUVEC.

[PB4-6] [10/17/2002 (Thr) 13:30 - 16:30 / Hall C]

Immunomodulatory activity of acharan sulfate isolated from Achatina fulica

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Acharan sulfate, a new glycosaminoglycan(GAG) isolated from the giant African snail Achatina fulica, was shown to have antitumor activity in vivo. To elucidate the mechanisms for the antitumor activity, we examined its impact on professional antigen presenting cells such as macrophages and dendritic cells (DCs). Acharan sulfate stimulated cytokine production (TNF-a and IL-1b), nitric oxide release, and morphological changes in a dose dependent manner on a macrophage cell line, Raw 264.7 cells. The differentiation-inducing activity of acharan sulfate was examined on immature DCs. Immature DCs were generated from mouse bone marrow (BM) cells by culturing with GM-CSF and IL-4, and then stimulated with acharan sulfate. The resultant DCs were then examined for functional and phenotypic properties. It was found that acharan sulfate could induce functional maturation of