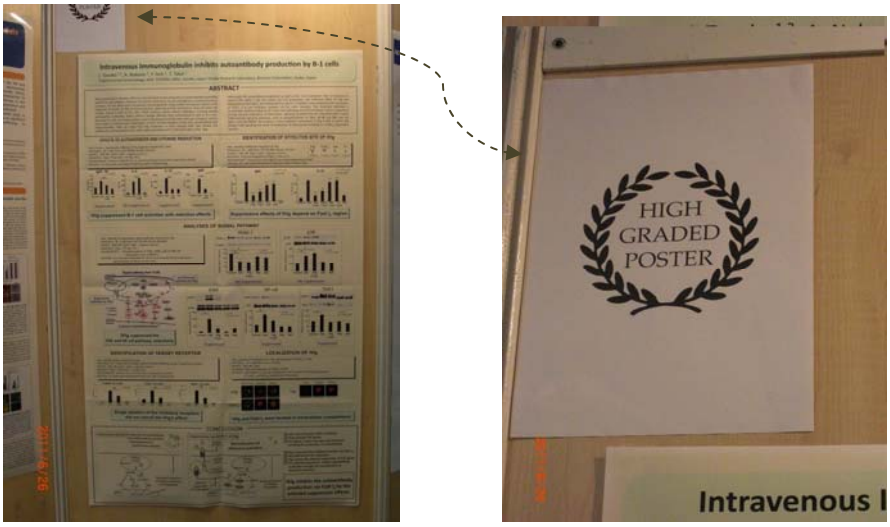
学会/受賞報告書

10th World Congress on Inflammation
High Graded Posters
受賞

加齢研 遺伝子導入研究分野　大学院生
田中　純



今回、World Congress on Inflammationより「High Graded Posters」に認定頂き、大変光栄に思います。本研究を行うに際しまして、ご指導頂きました高井教授をはじめ遺伝導入研究分野の方々に心より感謝を申し上げます。

現在、私は自己免疫疾患に対する静注用免疫グロブリン製剤の作用機序解明の研究を行っております。今回は、その研究成果の一部を2011年6月にパリにて開催された10th World Congress on Inflammationで発表致しました。本学会参加におきましては日本炎症学会よりのTravel awardのみならず、全ポスター演題が対象となる賞を頂きまして大変光栄に思っております。今後ともより気を引き締めてより良い研究を行ってまいりたいと考えております。

Abstract Submission for the 10th World Congress on Inflammation

Autoimmunity

INFLAMMATION2011-1279

INTRAVENOUS IMMUNOGLOBULIN INHIBITS AUTOANTIBODY PRODUCTION BY B-1 CELLS

J. Tanaka [1, 2], A. Nakano [2], Y. Itoh [1], T. Takai [1]

[1]Experimental immunology, IDAC TOHOKU UNIV., Sendai, [2]Osaka Research Laboratory, Benesis Corporation, Osaka, Japan

Abstract: Many autoimmune diseases (ADs) are characterized by the production of autoantibodies (autoAbs) specific for self-antigens. However, the precise mechanism for the pathogenesis of autoimmunity is unknown. On the other hand, Intravenous Immunoglobulin (IVIg) exhibits therapeutic effects in the treatment of variety of ADs in clinical practice, while the precise mechanisms have also been left unclear. Innate B cells or B-1 cells, which produce mainly natural antibodies including weakly autoreactive antibodies, have a distinct lineage different from conventional B cells or B-2 cells. Recently, B-1 cells are shown to play a role in development of ADs when they are activated, and the class-switch is induced upon stimulation of their toll-like receptor (TLR)9 with unmethylated CpG oligonucleotide. Here we show that IVIg treatment in mice injected with CpG inhibits the proliferation and activation of B-1 cells. Upon stimulation of B-1 cells with CpG *in vitro*, IVIg attenuated the autoantibody production as well as the IL-10 production that is necessary to induce CSR, while it did not reduced the IL-6 production. The inhibitory effect of IVIg was dependent on the $F(ab')_2$ but independent on the Fc. In addition, IVIg upregulated the expression of CD22, a B cell inhibitory receptor, on B-1 cells. However, IVIg treatment exhibited a comparable inhibitory effect on B-1 cells from wild-type and CD22-knockout mouse. Inspections of IVIg-induced modulation of intracellular signaling revealed that the IVIg attenuated several TLR9-initiated signaling pathways, such as phosphorylation of TAK1, NF-kB and ERK, but not IRAK-1 and p38 MAPK. We propose a novel inhibitory mechanism of IVIg in ADs, in which IVIg inhibits TLR9 signaling that leads to production of autoreactive antibody in a $F(ab')_2$-dependent manner.