

Induction of cytotoxic T lymphocytes specific for minor histocompatibility antigen through transferringTheII receptor gene

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2007 Fiscal Year Final Research Report Summary

Induction of cytotoxic T lymphocytes specific for minor histocompatibility antigen through transferringTheII receptor gene

Research Project

Project/Area Number

18591049

Research Category

Grant-in-Aid for Scientific Research (C)

Allocation Type

Single-year Grants

Section

一般

Research Field

Hematology

Research Institution

Kanazawa University

Principal Investigator

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Project Period (FY)

2006 – 2007

Keywords

minor histocompatibility antigen / leukemia / stem cell transplantation

Research Abstract

In hematopoietic SCT from HLA-matched donors, allogeneic immune reactions such as GVHD and GVL effect are induced by disparities in minor histocompatibility antigens (mHas) between donor and recipient. CD62L has been reported to act as an mHa based on analysis of the outcome of allogeneic SCT. To identify peptides derived from CD62L that may be involved in GVL effect, we prepared all possible 18 different 9-mer peptides derived from CD62L that include codon 213 in one of the 9 positions, and tested for cytotoxic T-cell precursors specific to any of these peptides in patients after CD62L-disparate SCT. PBMC obtained from 5 patients with I-ILA-A*2402 who developed GVHD following transplantation were incubated with autologous monocyte-derived DCs or HLA-A*2402-transfected T2 cells which were pulsed with the 9-mer peptides, or incubated with the peptides only, and IFN-gamma secretion from PBMC after 16 hours incubation was examined. Two to 4 different recipient-type peptides for each patient induced higher IFN-gamma secretion than the others. By stimulating PBMC with the peptide-pulsed T2-A24 cells, T-cell lines specific for 4 peptides were obtained. The cultured T cells efficiently lysed peptide-pulsed T2-A24 cells as well as HLA-A*2402-positive lymphoblastic cell line cells that were disparate with CD62L. Addition of mAbs against HLA-class I blocked this cytotoxicity. WIC stabilization assay demonstrated that the 4 peptides bound to the cell surface and HLA complex stabilized. These results suggest these peptides may serve as mHas capable of inducing GVL effect, and CTLs recognizing CD62L-derived polymorphic peptides may have therapeutic value in treating relapsed leukemia after SCT.

Research Products (40 results)

	All	2008	2007	2006
	All	Journal Article (24 results) (of which Peer Reviewed: 12 results)		Presentation (16 results)
[Journal Article] CD16(+)CD56(-)NK cells in the peripheral blood of cord blood transplant recipients: A unique subset of NK cells possibly associated with graft-versus-leukemia effect		2008		▼
[Journal Article] Mechanism of decrease of oral bioavailability of cyclosporin A during immunotherapy upon coadministration of amphotericin B		2008		▼
[Journal Article] CD16(+)CD56(-) NK cells in the peripheral blood of cord blood transplant recipients A unique subset of NK cells possibly associated with graft-versus-leukemia effect		2008		▼
[Journal Article] Mechanism of decrease of oral bioavailability of cyclosporin A during immunotherapy upon coadministration of amphotericin B		2008		▼
[Journal Article] Living-donor lobar lung transplantation for broncho-bronchiolitis obliterans after allogeneic hematopoietic stem cell transplantation: does bronchiolitis obliterans recur in transplanted lungs?		2007		▼
[Journal Article] Macrophage colony-stimulating factor enhances rituximab-dependent cellular cytotoxicity by monocytes		2007		▼
[Journal Article] Prospective phase II trial to evaluate the complications and kinetics of chimerism induction following allogeneic hematopoietic stem cell transplantation with fludarabine and busulfan		2007		▼
[Journal Article] Immature platelet fraction for prediction of platelet engraftment after allogeneic stem cell transplantation		2007		▼
[Journal Article] Roles of DRB1(*)1501 and DRB1(*)1502 in the pathogenesis of aplastic anemia.		2007		▼
[Journal Article] Safety and efficacy of foscarnet for preemptive therapy against cytomegalovirus reactivation after unrelated cord blood transplantation.		2007		▼
[Journal Article] Living-donor lobar lung transplantation for broncho-bronchiolitis obliterans after allogeneic hematopoietic stem cell transplantation : does bronchiolitis obliterans recur in transplanted lungs		2007		▼
[Journal Article] Macrophage colony-stimulating factor enhances rituximab-dependent cellular cytotoxicity by monocytes		2007		▼
[Journal Article] Prospective phase II trial to evaluate the complications and kinetics of chimerism induction following allogeneic hematopoietic stem cell transplantation with fludarabine and busulfan		2007		▼
[Journal Article] Immature platelet fraction for prediction of platelet engraftment after allogeneic stem cell transplantation		2007		▼
[Journal Article] Roles of DRB1(*)1501 and DRB1(*)1502 in the pathogenesis of aplastic anemia		2007		▼
[Journal Article] Safety and efficacy of foscarnet for preemptive therapy against cytomegalovirus reactivation after unrelated cord blood transplantation		2007		▼

[Journal Article] Immunoglobulin preparations attenuate organ dysfunction and hemostatic abnormality by suppressing the production of cytokines in lipopolysaccharide-induced disseminated intravascular coagulation in rats.	2006	▼
[Journal Article] Graft rejection and hyperacute graft-versus-host disease in stem cell transplantation from non-inherited maternal antigen complementary HLA-mismatched siblings.	2006	▼
[Journal Article] Reduced-intensity unrelated cord blood transplantation for treatment of metastatic renal cell carcinoma: first evidence of cord-blood-versus-solid-tumor effect.	2006	▼
[Journal Article] Successful treatment of minimal residual disease-positive Philadelphia chromosome-positive acute lymphoblastic leukemia with imatinib followed by reduced-intensity unrelated cord blood transplantation after allogeneic peripheral blood stem cell transplantation.	2006	▼
[Journal Article] Immunoglobulin preparations attenuate organ dysfunction and hemostatic abnormality by suppressing the production of cytokines in lipopolysaccharide-induced disseminated intravascular coagulation in rats	2006	▼
[Journal Article] Graft rejection and hyperacute graft-versus-host disease in stem cell transplantation from non-inherited maternal antigen complementary HLA-mismatched siblings	2006	▼
[Journal Article] Reduced-intensity unrelated cord blood transplantation for treatment of metastatic renal cell carcinoma : first evidence of cord-blood-versus-solid-tumor effect	2006	▼
[Journal Article] Successful treatment of minimal residual disease-positive Philadelphia chromosome-positive acute lymphoblastic leukemia with imatinib followed by reduced-intensity unrelated cord blood transplantation after allogeneic peripheral blood stem cell transplantation	2006	▼
[Presentation] A novel strategy for the treatment of acute GVHD: removal of excessive inflammatory cytokines using the absorbent	2008	▼
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[Presentation] 過剰炎症性サイトカイン吸着除去による急性GVHD治療開発	2008	▼
[Presentation] A new approach for treatment of acute graft-versus-host disease by removal of excessive inflammatory cytokines using the absorbent	2008	▼
[Presentation] ドナーリンパ球輸注の有用性と限界	2007	▼
[Presentation] Usefulness and limitation of donor lymphocyte infusions	2007	▼
[Presentation] What does failure of allogeneic stem cell transplantation tell us	2007	▼
[Presentation] 同種造血幹細胞移植不成功例から何を学ぶか	2007	▼
[Presentation] 免疫機序を利用した骨髄不全の診断と治療	2007	▼
[Presentation] Diagnosis and management of bone marrow failure based on immune mechanisms	2007	▼
[Presentation] 同種造血幹細胞移植後幼若血小板比率測定の意味	2007	▼
[Presentation] Significance of immature platelet fraction measurements after allogeneic stem cell transplantation	2007	▼
[Presentation] 緩和的前処置臍帯血移植後血球貧食症候群におけるサイトカインプロファイルの検討	2006	▼
[Presentation] Analysis of cytokine profile in patients with hemophagocytic syndrome after reduced-intensity stem cell transplantation	2006	▼
[Presentation] 同種造血幹細胞移植後幼若血小板比率測定の意味	2006	▼
[Presentation] Immature platelet fraction predicts platelet engraftment after allogeneic stem cell transplantation	2006	▼

