

Pathophysiology of adhesion molecules for induction of antiphospholipid antibodies and occurrence of thrombosis in antiphospholipid syndrome: Analysis of those mechanisms using adhesion-molecules knock out mice.

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Pathophysiology of adhesion molecules for induction of antiphospholipid antibodies and occurrence of thrombosis in antiphospholipid syndrome: Analysis of those mechanisms using adhesion-molecules knock out mice.

Research Project

Project/Area Number

17590985

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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2005 – 2006

Keywords

antiphospholipid syndrome / experimental animal model / adhesion molecules KO mouse / E-selectin / β 2-glycoproteinI

Research Abstract

Antiphospholipid syndrome (APS) is an autoimmune disorder clinically characterized by recurrent thromboses and pregnant morbidity as well as positive for antiphospholipid antibodies (aPL) including anticardiolipin antibody (aCL) and lupus anticoagulant (LA). To determine which adhesion molecules are essential in the induction of aPL, we attempted to induce APS in the mice deficient of several kinds of adhesion molecules including L-selectin, P-selectin, E-selectin, ICAM-1, and L-selectin/ICAM-1, and evaluated aPL production and thrombogenesis in the mice. C57BL/6 mice were injected with purified 20 µg of β2-glycoprotein I (β2-GPI) to pedal pad twice at a 3 week interval with Freund's adjuvant. Six weeks after the first injection of β2-GPI, wild-type mice developed thrombocytopenia, prolongation of APTT, and elevation of aCL titer, while the mice injected only with Freund's adjuvant did not show these changes ($p < 0.005$, < 0.005 , and < 0.01 , respectively). The percentage of glomerular fibrin deposit (%GFD) induced by the injection of 5 mg/kg of lipopolysaccharide (LPS) increased significantly in the APS mice compared to the control mice ($p < 0.01$). All adhesion-molecule KO mice except for E-selectin KO mice developed thrombocytopenia, APTT prolongation, high aCL titers, and positivity for aPL after repeated injection of β2-GPI, though %GFD did not increase significantly in these mice compared to control mice. In contrast, E-selectin-KO mice did not develop any changes in platelet counts, APTT, aCL titer, and %GFD after injection of β2-GPI. These findings indicated that, although several adhesion molecules may be involved in the development of thrombosis in APS-model mice, E-selectin has a key role in the induction of aPL.

Research Products (32 results)

	All	2007	2006	2005
All	Journal Article (28 results)	Book (4 results)		
[Journal Article] 抗リン脂質抗体症候群の検査と診断		2007		▼
[Journal Article] Diagnosis and laboratory findings for antiphospholipid syndrome		2007		▼
[Journal Article] 劇症型抗リン脂質抗体症候群		2006		▼
[Journal Article] Antiphosphatidylserine-prothrombin complex antibodies in patients with localized scleroderma		2006		▼
[Journal Article] Mycophenolate Mofetil is effective and well tolerated in the treatment of refractory acute and chronic graft-versus-host-disease.		2006		▼
[Journal Article] Effects of sapogrelate Hydrochloride in a patients with chronic graft-versus-host disease : A case report		2006		▼
[Journal Article] No interplay between the pathways mediating coagulation and inflammation in tissue factor-induced disseminated intravascular coagulation in rats		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] 血管内皮細胞における凝固線溶制御因子の発現に与えるHMG-CoA還元酵素阻害剤の影響		2006		▼
[Journal Article] 基礎疾患別にみたループスアンチコアグラント陽性率の検討-当院における依頼検体の現状-		2006		▼
[Journal Article] クリオグロブリン血症と皮膚に血管炎がみられたシェーグレン症候群の1例		2006		▼
[Journal Article] Mycophenolate Mofetil is effective and well tolerated in the treatment of refractory acute and chronic graft-versus-host-disease		2006		▼
[Journal Article] Effects of sapogrelate Hydrochloride in a patients with chronic graft-versus-host disease : A case report		2006		▼
[Journal Article] No interplay between the pathways mediating coagulation and inflammation in tissue factor-induced disseminated intravascular coagulation in rats		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] 異なる疾患群におけるIgG型抗プロトロンビン抗体測定キット2社間の測定値の乖離		2005		▼
[Journal Article] 肺梗塞を合併したループス抗凝固因子陽性全身性強皮症の1例		2005		▼

- [Journal Article] SLEに合併した血球貪食症候群(HPS) 2005 ▾
- [Journal Article] LPS誘発DICモデルに対するPGI2誘導体の効果-凝血学的マーカー、血中サイトカイン濃度に対する影響- 2005 ▾
- [Journal Article] Beneficial effects of urokinase on lipopolysaccharide-induced disseminated intravascular coagulation in rats : focus on organ function and endothelin levels. 2005 ▾
- [Journal Article] Selective inducible nitric oxide synthase inhibition attenuates organ dysfunction and elevated endothelin levels in LPS-induced DIC model rats. 2005 ▾
- [Journal Article] Effect of combined therapy of danaparoid sodium and tranexamic acid on chronic disseminated intravascular coagulation associated with abdominal aneurysm. 2005 ▾
- [Journal Article] Primary Alveolar Hypoventilation Syndrome Complicated with Antiphospholipid Syndrome 2005 ▾
- [Journal Article] Beneficial effects of urokinase on lipopolysaccharide-induced disseminated intravascular coagulation in rats : focus on organ function and endothelin levels. 2005 ▾
- [Journal Article] Selective inducible nitric oxide synthase inhibition attenuates organ dysfunction and elevated endothelin levels in LPS-induced DIC model rats. 2005 ▾
- [Journal Article] Effect of combined therapy of danaparoid sodium and tranexamic acid on chronic disseminated intravascular coagulation associated with abdominal aneurysm. 2005 ▾
- [Journal Article] Primary Alveolar Hypoventilation Syndrome Complicated with Antiphospholipid Syndrome 2005 ▾
- [Journal Article] Catastrophic antiphospholipid syndrome 2005 ▾
- [Book] 新感染症学(上) 2007 ▾
- [Book] 図説 血栓・止血・血管学 2005 ▾
- [Book] リウマチ・膠原病最新トピックス 2005 ▾
- [Book] 酸化ストレスナビゲーター 2005 ▾

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