

Human Monoclonal Antibodies Specific to Phospholipids

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BACKGROUND

Antiphospholipid antibodies (aPL) are associated with thrombosis, spontaneous abortion, and antiphospholipid syndrome (APS). aPL antibodies recognize various phospholipids, phospholipid-binding plasma proteins and/or phospholipid-protein complexes. The plasma protein 2-glycoprotein I (2GPI) is recognized as one of the major autoantigens in APS. Other important autoantigens associated with APS include cardiolipin (CL) and the serine proteases thrombin, activated protein C, and plasmin.

INNOVATION

UCLA researchers have developed 12 human IgG monoclonal anti-phospholipid antibodies from 4 APS patients in order to determine the existence of shared epitopes among several APS associated autoantigens. 7 mAbs were initially screened against cardiolipin, 2 mAbs were initially screened against 2GPI, and the last 3 mAbs were screened against thrombin, prothrombin and protein C, respectively. As hypothesized, many of the mAbs had cross reactivity to the various autoantigens. Both of the anti 2GPI mAbs bound to thrombin, activated protein C and plasmin. In addition, the thrombin mAb and the protein C mAb also bound to 2GPI. Further information on the specificities and activities of the mAbs are available in the published papers listed below. Some activities of the aPL mAbs include: inhibiting anticoagulant activity of protein C inhibiting the fibrinolytic activity of plasmin blocking the inactivation of thrombin by antithrombin blocking the inactivation of activated factor X by antithrombin

APPLICATIONS

- ▶ Use mAbs as reference standard in a diagnostic test for the presence of aPL antibodies in patients
- ▶ mAbs can be used to study immunopathogenesis in APS and the symptoms of thrombosis and spontaneous abortion.

RELATED MATERIALS

- ▶ [Characterization of IgG monoclonal anti-cardiolipin/anti-beta2GPI antibodies from two patients with antiphospholipid syndrome reveals three species of antibodies. Br J Haematol. 1999](#)
- ▶ [Antibodies against the activated coagulation factor X \(FXa\) in the antiphospholipid syndrome that interfere with the FXa inactivation by antithrombin. J Immunol. 2006](#)

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OTHER INFORMATION

KEYWORDS

research tool

CATEGORIZED AS

- ▶ **Biotechnology**
 - ▶ Health
- ▶ **Medical**
 - ▶ Diagnostics
 - ▶ Disease: Autoimmune and Inflammation
- ▶ **Research Tools**
 - ▶ Antibodies

RELATED CASES

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