



DEVELOPMENTAL STUDIES HYBRIDOMA BANK
dshb.biology.uiowa.edu | 319-335-3826 | dshb@uiowa.edu

6D1

(Only cell products will be distributed)

INVESTIGATOR

Name Barry S. Coller, M.D.
Address Laboratory of Blood and Vascular Biology, Rockefeller University, 1230 York Ave, New York, NY 10065
Email collerb@rockefeller.edu

IMMUNOGEN

Substance
Name human platelets
Species
Chemical Composition
Developmental Stage (if applicable)

IMMUNIZATION PROTOCOL

Donor Animal
Species mouse
Strain BALB/c
Organ and tissue spleen

FUSION

Date 1981
Myeloma cell line
Species
Clone name X63-Ag8.653
Growth Medium

MONOCLONAL ANTIBODY

Isotype IgG1
Species Specificity human and primate

ANTIGEN

Molecular weight GPIb; reacts with GPIb/IX complex
 α Ib 140 kDa + β 3 90 kDa

Characterization

Immunoprecipitation +
ELISA +
Immunostaining
 Fixation not tested
 Paraffin not tested
 Special protocols
Immunoblotting -
Flow cytometry +
Epitope mapped? GPIba
Function inhibition inhibits binding of von Willebrand factor to GPIb in the presence of ristocetin, botrocetin, or high shear force

PUBLICATIONS :

- Coller, B.S., Peerschke, E.I., Scudder, L.E., and Sullivan, C.A. (1983). A murine monoclonal antibody that completely blocks the binding of fibrinogen to platelets produces a thrombasthenic-like state in normal platelets and binds to glycoproteins IIb and/or IIIa. *J. Clin. Invest.* 72, 325-338.
- Adelman, B., Michelson, A.D., Handin, R.I., and Ault, K.A. (1985). Evaluation of platelet glycoprotein Ib fluorescence flow cytometry. *Blood* 66, 423-427.
- Michelson, A.D., Loscalzo, J., Melnick, B., Coller, B.S., and Handin, R.I. (1986). Partial characterization of a binding site for von Willebrand factor on glycoalbumin. *Blood* 67, 19-26.
- Gruel, Y., Boizard, B., Daffos, F., Forestier, F., Caen, J., and Wautier, J.L. (1986). Determination of platelet antigens and glycoproteins in the human fetus. *Blood* 68, 488-492.
- Parker, R.I., and Gralnick, H.R. (1986). Identification of platelet glycoprotein IIb/IIIa as the major binding site for released platelet-von Willebrand Factor. *Blood* 68, 732-736.

(Continued)

**6D1** (continued)

(Only cell products will be distributed)

- Peerschke, E.I. (1986). Platelet membrane alterations induced by the local anesthetic dibucaine. *Blood* 68, 463-471.
- Takamatsu, J., Horne, M.K., III, and Gralnick, H.R. (1986). Identification of the thrombin receptor on human platelets by chemical crosslinking. *J. Clin. Invest.* 77, 362-368.
- Adelman, B., Carlson, P., and Powers, P. (1987). Von Willebrand factor is present on the surface of platelets stimulated in plasma by ADP. *Blood* 70, 1362-1366.
- Lawrence, J.B., and Gralnick, H.R. (1987). Monoclonal antibodies to the glycoprotein IIb-IIIa epitopes involved in adhesive protein binding: effects on platelet spreading and ultrastructure on human arterial subendothelium. *J. Lab. Clin. Med.* 109, 495-503.
- Adelman, B., Rizk, A., and Hanners, E. (1988). Plasminogen interactions with platelets in plasma. *Blood* 72, 1530-1535.
- Karpatkin, S., Pearlstein, E., Ambrogio, C., and Collier, B.S. (1988). Role of adhesive proteins in platelet tumor interaction in vitro and metastasis formation in vivo. *J. Clin. Invest.* 81, 1012-1019.
- Marti, G.E., Magruder, L., Schuette, W.E., and Gralnick, H.R. (1988). Flow cytometric analysis of platelet surface antigens. *Cytometry* 9, 448-455.
- Parker, R.I., and Gralnick, H.R. (1989). Effect of aspirin on platelet-von Willebrand factor surface expression on thrombin and ADP-stimulated platelets. *Blood* 74, 2016-2021.
- Bode, A.P., Knupp, C.L., and Miller, D.T. (1990). Effect of platelet activation inhibitors on the loss of glycoprotein Ib during storage of platelet concentrates. *J. Lab. Clin. Med.* 115, 669-679.
- Johnson, P.C., Shepeck, R.A., Hribar, S.R., Bentz, M.L., Janosky, J., and Dickson, C.S. (1991). Inhibition of platelet retention on artificial microvascular grafts with monoclonal antibodies and high-affinity peptide directed against platelet membrane glycoproteins. *Arterioscler. Thromb.* 11, 552-560.
- Shepeck, R.A., Bentz, M., Dickson, C., Hribar, S., White, J., Janosky, J., Berceci, S.A., Borovetz, H.S., and Johnson, P.C. (1991). Examination of the roles of glycoprotein Ib and glycoprotein IIb/IIIa in platelet deposition on an artificial surface using clinical antiplatelet agents and monoclonal antibody blockade. *Blood* 78, 673-680.
- Chen, J., and Sylven, C. (1992). Heparin potentiation of collagen-induced platelet aggregation is related to the GPIIb/GPIIIa receptor and not to the GPIb receptor, as tested by whole blood aggregometry. *Thromb. Res.* 66, 111-120.
- Chow, T.W., Hellums, J.D., Moake, J.L., and Kroll, M.H. (1992). Shear stress-induced von Willebrand factor binding to platelet glycoprotein Ib initiates calcium influx associated with aggregation. *Blood* 80, 113-120.
- Kang, J., Cabral, C., Kushner, L., and Salzman, E.W. (1993). Membrane glycoproteins and platelet cytoskeleton in immune complex-induced platelet activation. *Blood* 81, 1505-1512.
- Kestin, A.S., Ellis, P.A., Barnard, M.R., Errichetti, A., Rosner, B.A., and Michelson, A.D. (1993). Effect of strenuous exercise on platelet activation state and reactivity. *Circulation* 88, 1502-1511.
- Danton, M.C., Zaleski, A., Nichols, W.L., and Olson, J.D. (1994). Monoclonal antibodies to platelet glycoproteins Ib and IIb/IIIa inhibit adhesion of platelets to purified solid-phase von Willebrand factor. *J. Lab. Clin. Med.* 124, 274-282.
- LaRosa, C.A., Rohrer, M.J., Benoit, S.E., Barnard, M.R., and Michelson, A.D. (1994). Neutrophil cathepsin G modulates the platelet surface expression of the glycoprotein (GP) Ib-IX complex by proteolysis of the von Willebrand factor binding site on GPIb alpha and by a cytoskeletal-mediated redistribution of the remainder of the complex. *Blood* 84, 158-168.
- Rajasekhar, D., Kestin, A.S., Bednarek, F.J., Ellis, P.A., Barnard, M.R., and Michelson, A.D. (1994). Neonatal platelets are less reactive than adult platelets to physiological agonists in whole blood. *Thromb. Haemost.* 72, 957-963.
- Akiyama, M., Takami, H., and Yoshida, T. (1995). The mechanism of cold-induced platelet aggregation in the presence of heparin. *Tohoku J. Exp. Med.* 177, 365-374.
- Konstantopoulos, K., Wu, K.K., Udden, M.M., Banez, E.I., Shattil, S.J., and Hellums, J.D. (1995). Flow cytometric studies of platelet responses to shear stress in whole blood. *Biorheology* 32, 73-93.
- Li, J.M., Podolsky, R.S., Rohrer, M.J., Cutler, B.S., Massie, M.T., Barnard, M.R., and Michelson, A.D. (1996). Adhesion of activated platelets to venous endothelial cells is mediated via GPIIb/IIIa. *J. Surg. Res.* 61, 543-548.
- Reverter, J.C., Beguin, S., Kessels, H., Kumar, R., Hemker, H.C., and Collier, B.S. (1996). Inhibition of platelet-mediated, tissue factor-induced thrombin generation by the mouse/human chimeric 7E3 antibody. Potential implications for the effect of c7E3 Fab treatment on acute thrombosis and "clinical restenosis". *J. Clin. Invest.* 98, 863-874.
- Wagner, C.T., Kroll, M.H., Chow, T.W., Hellums, J.D., and Schafer, A.I. (1996). Epinephrine and shear stress synergistically induce platelet aggregation via a mechanism that partially bypasses VWF-GP Ib interactions. *Bioreheology* 33, 209-229.
- White, J.G., Krumwiede, M.D., Cocking-Johnson, D., and Escolar, G. (1996). Pre-labeled glycoprotein Ib/IX receptors are not cleared from exposed surfaces of thrombin-activated platelets. *Am. J. Path.* 149, 629-638.
- Frojmovic, M.M., Kasirer-Friede, A., Goldsmith, H.L., and Brown, E.A. (1997). Surface-secreted von Willebrand factor mediates aggregation of ADP-activated platelets at moderate shear stress: facilitated by GPIb but controlled by GPIIb-IIIa. *Thromb. Haemost.* 77, 568-576.
- Konstantopoulos, K., Chow, T.W., Turner, N.A., Hellums, J.D., and Moake, J.L. (1997). Shear stress-induced binding of von Willebrand factor to platelets. *Biorheology* 34, 57-71.

(Continued)



DEVELOPMENTAL STUDIES HYBRIDOMA BANK

dshb.biology.uiowa.edu | 319-335-3826 | dshb@uiowa.edu

6D1 (continued)

(Only cell products will be distributed)

- Rajasekhar, D, Barnard, M.R., Bednarek, F.J., and Michelson, A.D. (1997). Platelet hyporeactivity in very low birth weight neonates. *Thromb. Haemost.* 77, 1002-1007.
- Star, J., Rosene, K., Ferland, J., DiLeone, G., Hogan, J., and Kestin, A. (1997). Flow cytometric analysis of platelet activation throughout normal gestation. *Obstet. Gynecol.* 90, 562-568.
- Depraetere, H., Ajzenberg, N., Girma, J.P., Lacombe, C., Meyer, D., Deckmyn, H., and Baruch, D. (1998). Platelet aggregation induced by a monoclonal antibody to the A1 domain of von Willebrand factor. *Blood* 91, 3792-3799.
- van Zanten, G.H., Heijnen, H.F., Wu, Y., Schut-Hese, K.M., Slootweg, P.J., de Groot, P.G., Sixma, J.J., and Nieuwland, R. (1998). A fifty percent reduction of platelet surface glycoprotein Ib does not affect platelet adhesion under flow conditions. *Blood*, 91, 2353-2359.
- Obert, B., Houllier, A., Meyer, D., and Girma, J.P. (1999). Conformational changes in the A3 domain of von Willebrand factor modulate the interaction of the A1 domain with platelet glycoprotein Ib. *Blood* 93, 1959-1968.
- White J.G., Krumwiede, M.D., and Escolar, G. (1999). Glycoprotein Ib is homogeneously distributed on external and internal membranes of resting platelets. *Am. J. Path.* 155, 2127-2134.
- Ajzenberg, N., Ribba, A.S., Rastegar-Lari, G., Meyer, D., and Baruch, D. (2000). Effect of recombinant von Willebrand factor reproducing type 2B or type 2M mutations on shear-induced platelet aggregation. *Blood* 95, 3796-3803.
- Furman, M.I., Nurden, P., Berndt, M.C., Nurden, A.T., Benoit, S.E., Barnard, M.R., Oforu, F.A., and Michelson, A.D. (2000). The cleaved peptide of PAR1 results in a redistribution of the platelet surface GPIb-IX-V complex to the surface-connected canalicular system. *Thromb. Haemost.* 84, 897-903.
- Kasirer-Friede, A., Legrand, C., and Frojmovic, M.M. (2001). Complementary roles for fibrin(ogen), thrombospondin and vWF in mediating shear-dependent aggregation of platelets stimulated at threshold thrombin concentrations. *Thromb. Haemost.* 86, 653-659.
- Yeh, C.H., Chang, M.C., Peng, H.C., and Huang, T.F. (2001). Pharmacological characterization and antithrombotic effect of agkistin, a platelet glycoprotein Ib antagonist. *Br. J. Pharmacol.* 132, 843-850.
- Ajzenberg, N., Denis, C.V., Veyradier, A., Girma, J.P., Meyer, D., and Baruch, D. (2002). Complete defect in vWF-cleaving protease activity associated with increased shear-induced platelet aggregation in thrombotic microangiopathy. *Thromb. Haemost.* 87, 808-811.
- Mekrache, M., Bachelot-Loza, C., Ajzenberg, N., Saci, A., Legendre, P., and Baruch, D. (2003). Activation of pp125FAK by type 2B recombinant von Willebrand factor binding to platelet GPIb at a high shear rate occurs independently of alpha IIb beta 3 engagement. *Blood* 101, 4363-4371.
- Beguín, S., Keularts, I., Al Dieri, R., Bellucci, S., Caen, J., and Hemker, H.C. (2004). Fibrin polymerization is crucial for thrombin generation in platelet-rich plasma in a VWF-GPIb-dependent process, defective in Bernard-Soulier syndrome. *J. Thromb. Haemost.* 2, 170-176.
- Shimizu, A., Matsushita, T., Kondo, T., Inden, Y., Kojima, T., Saito, H., and Hirai, M. (2004). Identification of the amino acid residues of the platelet glycoprotein Ib (GPIb) essential for the von Willebrand factor binding by clustered charged-to-alanine scanning mutagenesis. *J. Biol. Chem.* 279, 16285-16294.
- Ulrichs, H., Harsfalvi, J., Bene, L., Matko, J., Vermynen, J., Ajzenberg, N., Baruch, D., Deckmyn, H., and Tornai, I. (2004). A monoclonal antibody directed against human von Willebrand factor induces type 2B-like alterations. *J. Thromb. Haemost.* 2, 1622-1628.
- Hereczenik, E., Bouma, B., Korporaal, S.J., Strangi, R., Zeng, Q., Gros, P., Van Eck, M., Van Berkel, T.J., Gebbink, M.F., and Akkerman, J.W. (2007). Activation of human platelets by misfolded proteins. *Arterioscler. Thromb. Vasc. Biol.* 27, 1657-1665.

ACKNOWLEDGMENTS STATEMENT

We have been asked by NICHD to ensure that all investigators include an acknowledgment in publications that benefit from the use of the DSHB's products. We suggest that the following statement be used:

“The (select: hybridoma, monoclonal antibody, or protein capture reagent,) developed by [Investigator(s) or Institution] was obtained from the Developmental Studies Hybridoma Bank, created by the NICHD of the NIH and maintained at The University of Iowa, Department of Biology, Iowa City, IA 52242.”

Please send copies of all publications resulting from the use of Bank products to:

Developmental Studies Hybridoma Bank
Department of Biology
The University of Iowa
028 Biology Building East
Iowa City, IA 52242