BLOODCENTER of WISCONSIN™

VON WILLEBRAND FACTOR COLLAGEN BINDING

BloodCenter of Wisconsin
Hemostasis Reference Laboratory offers
Collagen Binding as a measure of von Willebrand Factor function.

BACKGROUND:

von Willebrand disease (VWD) is a bleeding disorder characterized by either quantitative (type 1 and type 3) or qualitative (type 2) defects of von Willebrand factor (VWF).[1] Diagnostic tests for VWD include Factor VIII activity, VWF antigen levels, and VWF ristocetin cofactor activity. The table below summarizes these and other diagnostic test results indicative of the different VWD subtypes.[2] The correct classification of VWD subtype is essential for providing effective treatment and counseling.

In vivo, collagen binding by VWF facilitates platelet adhesion at sites of blood vessel injury. The collagen binding (CB) assay tests this capacity, and can identify qualitative binding issues.[3] Discrepancy between VWF:CB and VWF antigen levels is a sensitive screen for von Willebrand disease subtypes in which large molecular weight multimers are missing due to defects in multimerization (type 2A) or rapid clearance (type 2B and platelet-type VWD). In patients with quantitative deficiency of von Willebrand factor (type 1 and type 3 VWD), VWF:CB will closely match VWF antigen levels.

	VWD Type						
	1	**2A**	**2B**	**2M**	**2N**	**3**	**Platelet type**
VWF Antigen	↓	↓	↓/N	↓/N	↓/N	< 1	↓/N
VWF Ristocetin Cofactor Activity	↓	D ↓↓	D ↓/N	D ↓↓	↓/N	< 10	D ↓/N
VWF Collagen Binding Activity	↓	D ↓↓	D ↓/N	↓/N	↓/N	< 1	D ↓/N
VWF Multimers	N	Abn	Abn	N	N	None	Abn
VWF FVIII (2N) Binding Assay	N	N	N	N	Abn	n/a	N
VWF Platelet (2B) Binding Assay	N	N	Abn	N	N	n/a	N
Low Dose RIPA	N	N	Abn	N	N	N	Abn
FVIII Activity	↓/N	↓/ N	↓/N	↓/N	D ↓↓	↓↓	↓/N

N, normal; Abn, abnormal; n/a, not applicable; ↓, reduced; D, discrepancy as compared to VWF antigen (ratio); RIPA, ristocetin induced platelet aggregation.

REASONS FOR REFERRAL:

- Initial determination of VWD subtype
- Component of the BloodCenter's VWD Diagnostic Evaluation test panel

PO Box 2178
Milwaukee, WI 53201-2178
Location/Sample Deliveries:
638 N. 18th St. Milwaukee, WI 53233-2121
p800-245-3117 | f414-937-6202 | www.bcw.edu

RELATED TESTS:
von Willebrand Disease Diagnostic Menu

METHOD:
ELISA (collagen type III)

LIMITATIONS:
Defects in binding to collagen types not included in this assay will not be detected.[2]

TURNAROUND TIME:	SPECIMEN REQUIREMENTS:	CPT CODES:
7 - 10 days	0.5 ml citrated plasma aliquot, frozen in a plastic tube	83520

SHIPPING REQUIREMENTS:
Place the frozen specimen and the requisition into plastic bags, seal and place in an insulated container. Surround with at least 5 pounds of dry ice. Seal the insulated container, place into a sturdy cardboard box, and tape securely. Ship the package in compliance with your overnight carrier guidelines. Label with the following address:

Client Services/Hemostasis Reference Laboratory
BloodCenter of Wisconsin
638 N. 18th St.
Milwaukee, WI 53233
800-245-3117, ext. 6250

REFERENCES:

1. Goodeve A, James P. von Willebrand Disease. 2009 Jun 4 [Updated 2014 Jul 24]. In: Pagon RA, Adam MP, Ardinger HH, et al., editors. GeneReviews® [Internet]. Seattle (WA): University of Washington, Seattle; 1993-2016. Available from: http://www.ncbi.nlm.nih.gov/books/NBK7014/
2. De Jong A, Eikenboom J. Developments in the diagnostic procedures for von willebrand disease. J Thromb Haemost. 2016;14(3):449-460. Accessed June 9, 2016. doi: 10.1111/jth.13243.
3. Flood VH, Gill JC, Friedman KD, et al. Collagen binding provides a sensitive screen for variant von willebrand disease. Clin Chem. 2013;59(4):684-691. Accessed June 9, 2016. doi: 10.1373/clinchem.2012.199000.

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