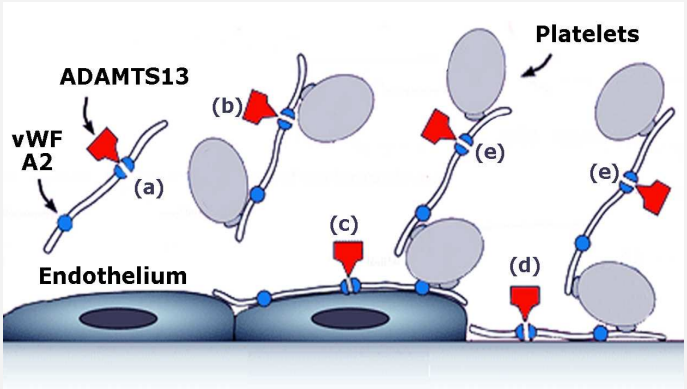
ADAMTS13 and Thrombotic Thrombocytopenic Purpura

ADAMTS13 (**A** **D**isintegrin-like **A**nd **M**etalloprotease with **T**hrombo**S**pondin-1 repeats), also called von Willebrand Factor cleaving protease, is a zinc metalloprotease that cleaves von Willebrand Factor (vWF) multimers.



VWF is released from endothelial cells as unusually large multimers that may diffuse into the circulation (a and b) or adhere to the endothelial cell surface (c). VWF also binds to connective tissue exposed at sites of vascular injury (d). Under conditions of high fluid shear stress, platelets can adhere to VWF in solution (b) or on surfaces (c and d). VWF also may recruit platelets to previously adhering platelets (e). ADAMTS13 cleaves a Tyr-Met bond in the A2 domain of the VWF subunit, severing the multimer. This reaction is slow for VWF in solution (a) but occurs rapidly when platelets adhere to VWF under high fluid shear conditions in suspension (b) or on surfaces (c-e). Failure of this mechanism appears to cause Thrombotic Thrombocytopenic Purpura (TTP).

Thrombotic Thrombocytopenic Purpura (TTP) is a life-threatening disorder characterized by formation of thrombi in microvessels, red cell fragmentation, CNS, and renal complications. The accumulation of vWF multimers seen in TTP is strongly associated with low ADAMTS13 activity which may be caused by:

1) genetic alterations in the ADAMTS13 gene leading to non-functional ADAMTS13 (congenital TTP) or
2) development of blocking auto-antibodies against ADAMTS13 (acquired TTP). The induction of ADAMTS13 auto-antibodies in some cases has been linked to drug therapy (e.g., clopidogrel, ticlopidine, quinine).

However, the biological role ADAMTS13 plays in the etiology of TTP is not fully understood, as clinical studies have shown that there is not a strict correlation between ADAMTS13 activity and the clinical expression of TTP symptoms. Many patients with TTP have normal levels of ADAMTS13 activity. Additionally, patients with low levels of ADAMTS13 activity do not exhibit clinical manifestations of TTP. Research at ADI has also found that ADAMTS13 is complexed with Factor XI in plasma. The measurement of ADAMTS13 antigen, auto-antibodies, and ADAMTS13/FXI complexes should provide a greater understanding of the role ADAMTS13 plays in TTP, vWF processing, and hemostasis.

Complete Product Portfolio on ADAMTS13 ….over

american diagnostica GmbH
Kaplaneigasse 35
D-64319 Pfungstadt

Tel: +49 (0)6157-99 08 99
Fax: +49 (0)6157-99 08 08

email: info@amdiag.de
www.americandiagnostica.de

ADAMTS13
Assays and Reagents

ASSAYS	assay type	format	product #
IMUBIND® ADAMTS13 kit	ELISA	96 tests	813
IMUBIND® ADAMTS13 Autoantibody kit	ELISA	96 tests	814
IMUBIND® ADAMTS13/FXI Complex kit	ELISA	96 tests	811
ACTIFLUOR™ ADAMTS13 Activity kit	Fluorometric assay	48 tests	812
ANTIBODIES	known applications	amount	product #
anti-human ADAMTS13 mAb	ELISA	250 µg	3305
anti-human ADAMTS13 mAb	Western blot, Immuno-precipitation, and functional inhibition	250 µg	3312

For further information please contact:

American Diagnostica GmbH
Kaplaneigasse 35
D-64319 Pfungstadt

Tel: +49 (0)6157-99 08 99
Fax: +49 (0)6157-99 08 08
email: info@amdiag.de
www.americandiagnostica.de