

Wednesday, September 23, 2020
11:00am - 12:00pm PST



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“The role of multimerin 1 (MMRN1) in platelet adhesion and characterization of its interactions with fibrillar collagens”

Multimerin 1 (human: MMRN1, mouse: Mmrn1) is a very large glycoprotein stored in platelet and endothelial granules until activation-induced release that is evidenced to support platelet adhesion through shear-dependent mechanisms involving glycoprotein (GP)1b α and von Willebrand factor (VWF), β_3 integrins on platelets, and fibrillar collagens found in the vessel wall. MMRN1 shares many similarities with VWF in that it forms large disulfide-linked homopolymers that can reach up to 2 MDa in size and contributes to platelet adhesion and thrombus formation *in vitro* and *in vivo*. A few key differences between MMRN1 and VWF are that they are genetically unrelated, MMRN1 does not require shear stress to bind to platelet receptors, and MMRN1 has a highly restricted tissue distribution. MMRN1 is only known to be synthesized by cells of a megakaryocyte/platelet or endothelial cell lineage, and it is undetectable in normal plasma. Although no selective MMRN1 qualitative or quantitative defect has been identified in humans, Mmrn1-deficient mice show severely impaired thrombosis in a ferric chloride vessel injury model accompanied by mild bleeding symptoms. This presentation will discuss the characterization of murine Mmrn1 in platelet adhesion to collagen, the role of fluid shear stress on Mmrn1 adhesive functions, the identification and functional characterization of the MMRN1-binding motifs in fibrillar collagens in the vessel wall, and the significance of these findings in regard to platelet adhesion and vessel wall biology.

Zoom link: <https://tinyurl.com/CBRvirtualeminars>

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