Multiscale Model of Platelet Aggregation

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Abstract: A multiscale computational model of thrombus (blood clot) development will be described which incorporates a submodel describing formation of fibrin network through fibrin elements representing regions occupied by polymerized fibrin. Simulations demonstrate that fibrin accumulates on the surface of the thrombus and that fibrin network limits growth by reducing thrombin concentrations on the thrombus surface and decreasing adhesivity of resting platelets in blood near thrombus surface. These results suggest that fibrin accumulation may not only increase the structural integrity of the thrombus but also considerably contribute toward limiting its growth.