

Mathematical modeling of the formation of clots in blood vessels

Khramchenkov E., Khramchenkov M.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

A mathematical model of the formation of a clot (thrombosis) has been constructed in which the fibrin of the clot is considered as an elastically deformable solid phase of variable mass and the prothrombin, thrombin, fibrinogen, and fibrin monomers as components of the liquid phase. As a result of numerical solution of the model, data on the influence of various parameters of the process of thrombosis on the rate of clot formation have been obtained. © 2012 Springer Science+Business Media, Inc.

<http://dx.doi.org/10.1007/s10891-012-0700-3>

Keywords

Blood vessels, Clot, Fibrin network, Fibrinogen, Prothrombin, Thrombin, Thrombosis, Vessel wall