Anticoagulants & Antiplatelet Drugs

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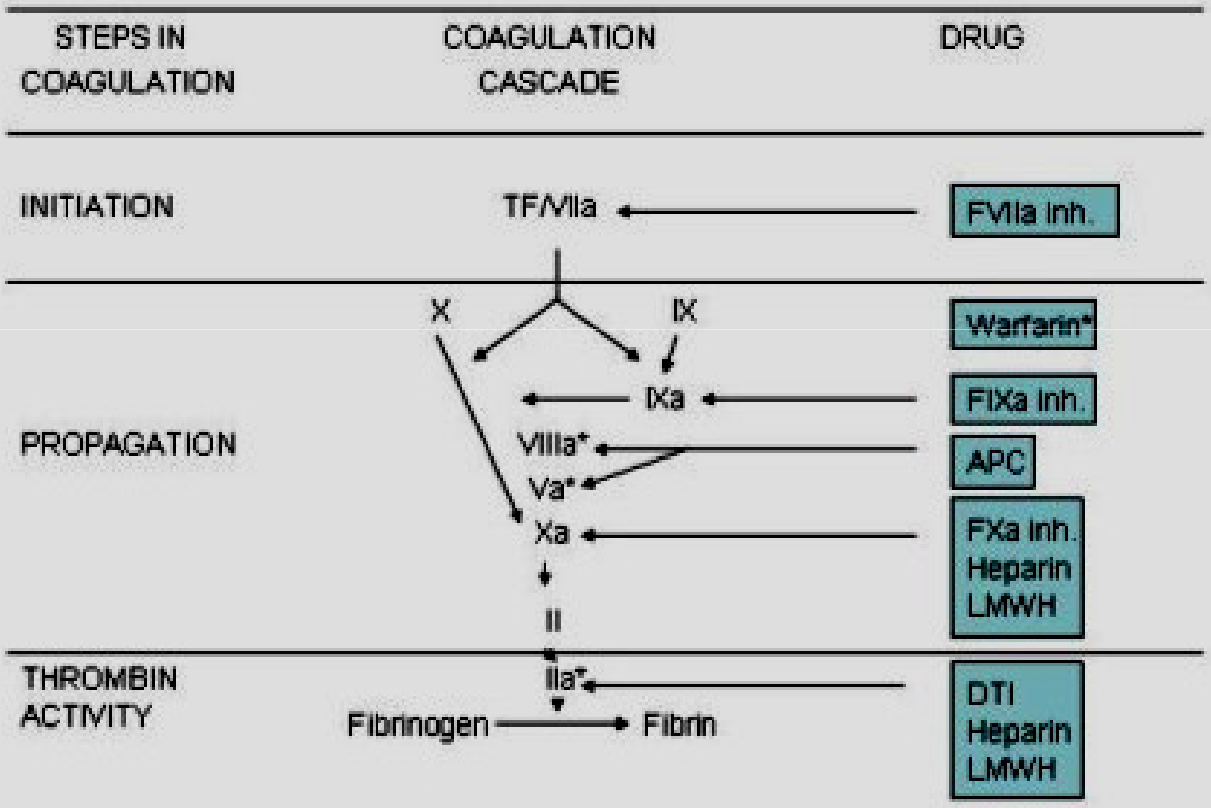
Anticoagulants

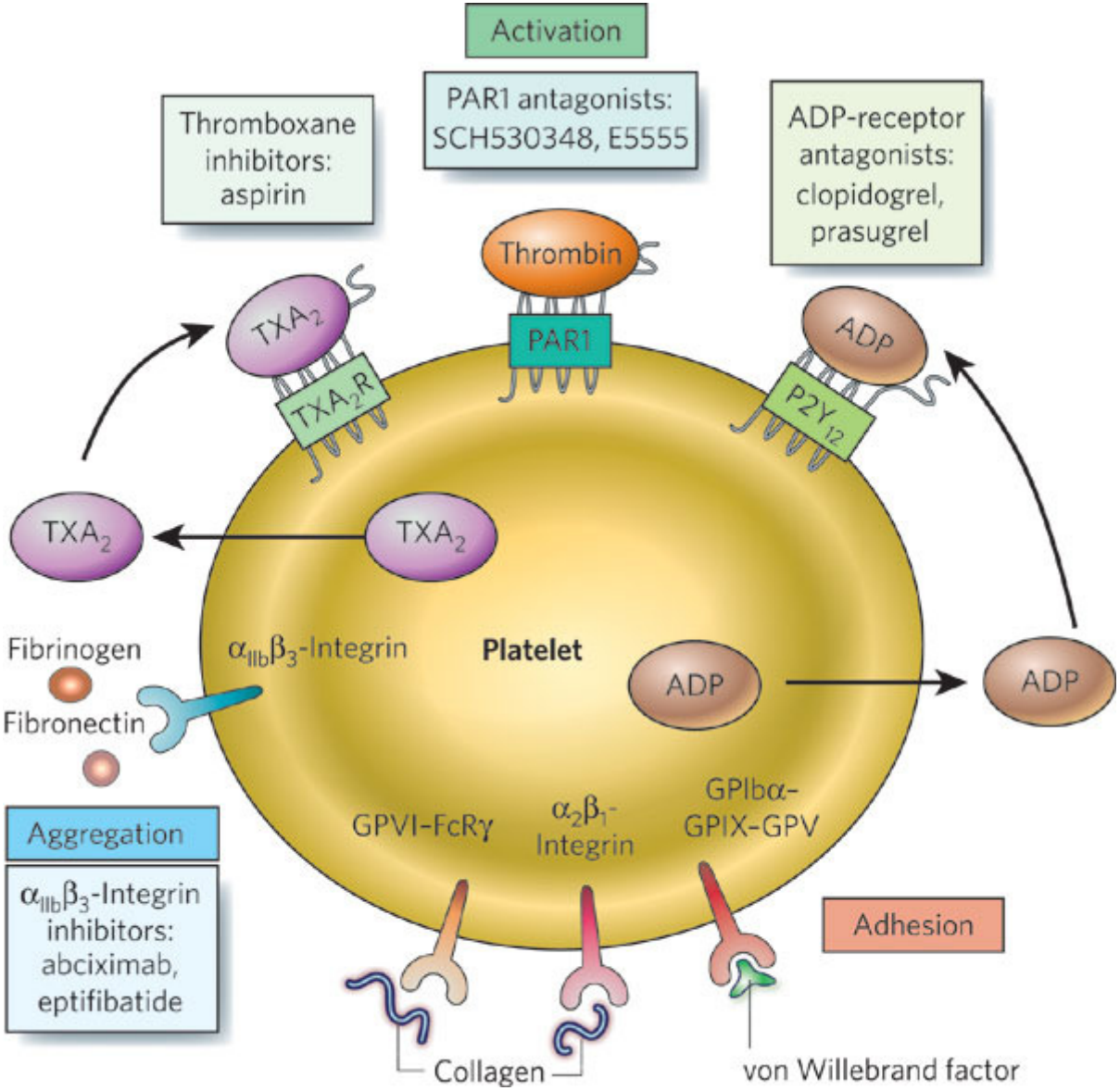
Drug	WARFARIN	HEPARIN	LMWH (Enoxaparin Dalteparin)	FONDAPARINUX	DIRECT THROMBIN INHIBITORS (lepirudin, hirudin, bevalirudin)
R.O.A	Oral	Sub cut / i.v	Sub cut	Sub cut	Oral
M.O.A	Inhibits hepatic synthesis of Vit K dependent clotting factors: II, VII, IX, X	Potentiates inhibitory effect of antithrombin III on clotting factors IIa, IXa, Xa, XIa, XIIa	Inhibition of factor Xa	Synthetic pentasaccharide; Specific inhibitor of Factor Xa	Bind to and inhibit fibrin-bound thrombin in the clot
Onset	Delayed 3-4 days (catabolism of preformed factors)	Instantaneous inactivation of thrombin (IIa)	Immediate	Immediate	
Monitor	PT → INR (2-3.5)	APTT (1.5-2.5)	Factor Xa assay (seldom required)	Factor Xa (seldom)	APTT
Antidote	Vit. K FFP	Protamine Sulphate	Protamine partially effective	None	None
Other	Teratogen Drug interactions +++	Zero order kinetics	Predictable kinetics	Used for orthopaedic ϕ	Anticoagulant of the leech!

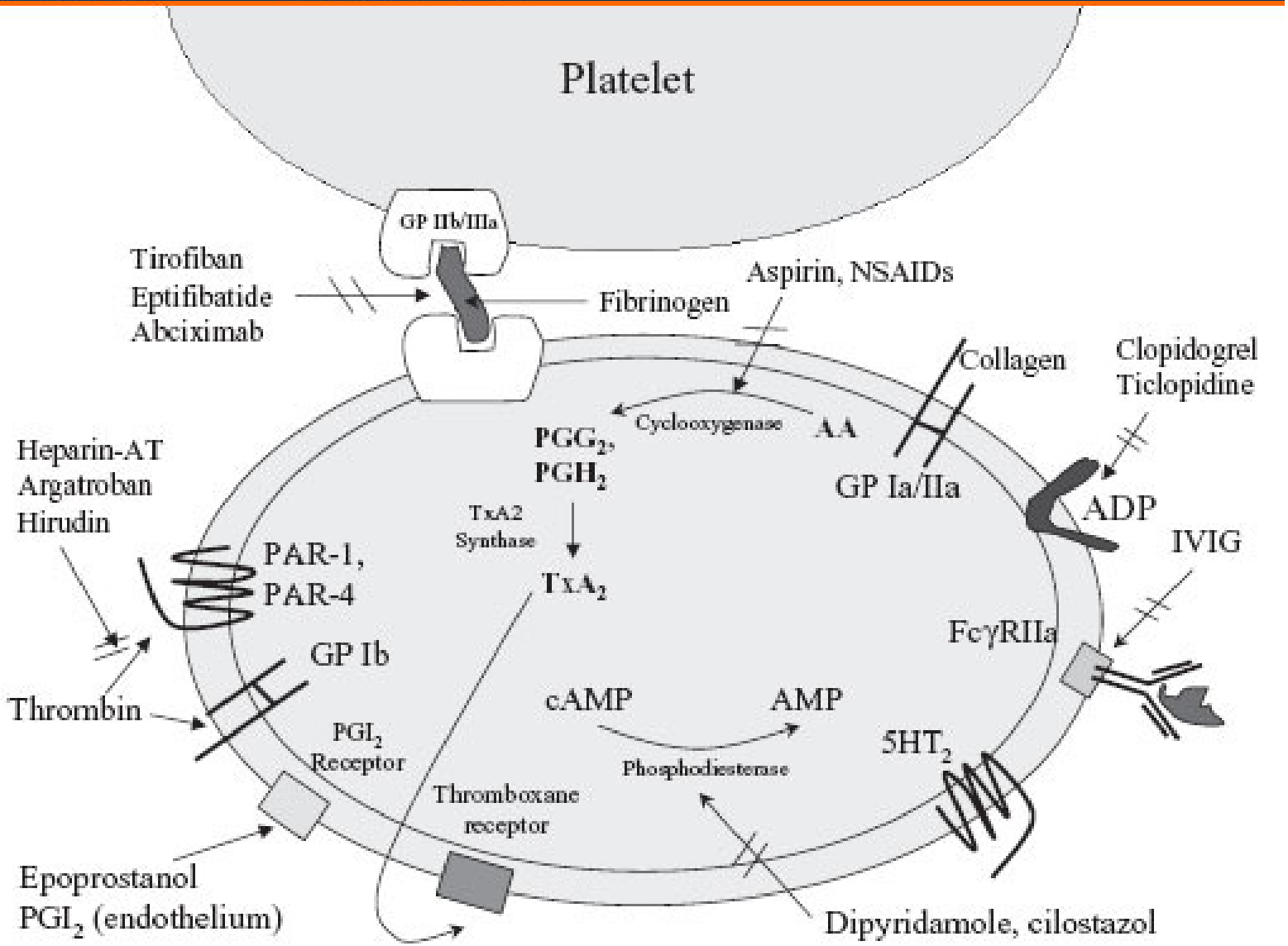
SITES OF ACTION OF ANTICOAGULANTS



Antiplatelet Drugs

Drug	Aspirin	Clopidogrel	Dipyramidole	Abciximab, Eptifibatide, Tirofiban
M.O.A	Irreversible inhibition of COX and therefore: TXA2 (pro-aggregatory) PGI2 (vasodilator)	Prodrug Binds to & irreversibly inhibits platelet adenosine receptors	Inhibition of phosphodiesterase, reduced breakdown of cAMP, increases potency and duration of action of adenosine, vasodilator	Glycoprotein IIb/IIIa inhibitors
Comments	Gastric intolerance (inhibition of gastroprotective PGE2): Ulceration Bleeding	Sometimes used instead of aspirin, Or in combination for acute coronary syndromes. Haemorrhage GIT symptoms	Provokes angina (steal mechanism)	Reduce occlusion following angioplasty. Hypersensitivity reactions can occur


Activation
PAR1 antagonists: SCH530348, E5555
Thromboxane inhibitors: aspirin
ADP-receptor antagonists: clopidogrel, prasugrel
Thrombin
PAR1
TXA2
TXA2R
ADP
P2Y12
TXA2
TXA2
Fibrinogen
Fibronectin
αIIbβ3-Integrin
Platelet
ADP
ADP
Aggregation
αIIbβ3-Integrin inhibitors: abciximab, eptifibatide
GPVI-FcRγ
α2β1-Integrin
GPIbα-GPIX-GPV
Adhesion
Collagen
von Willebrand factor



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