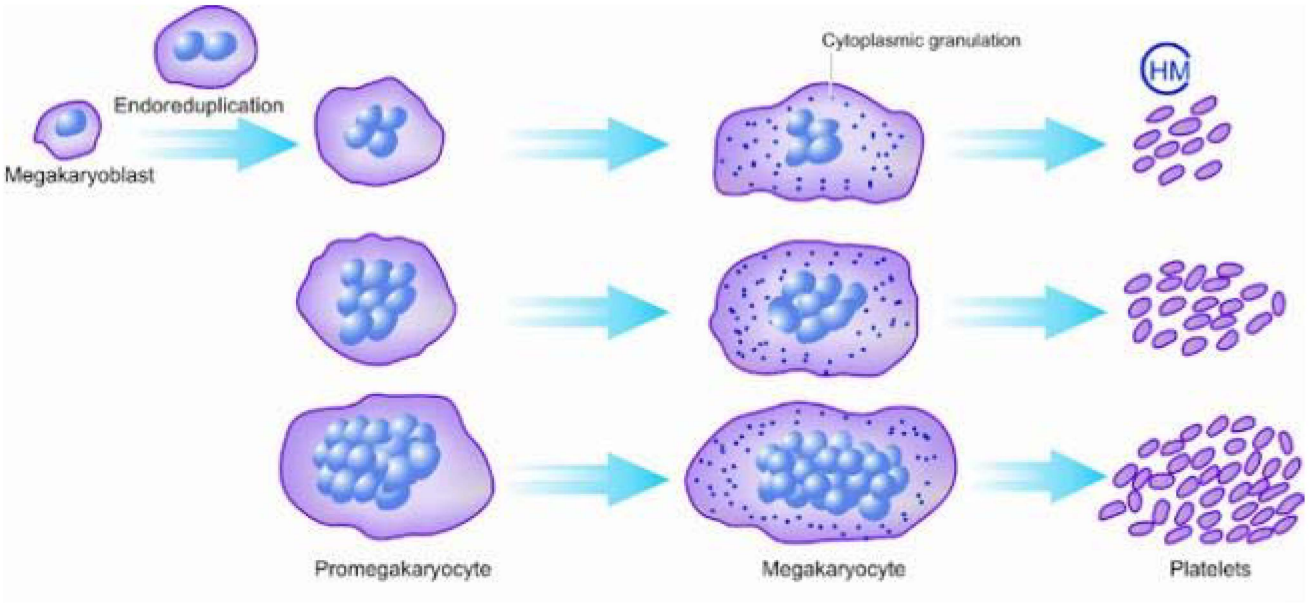
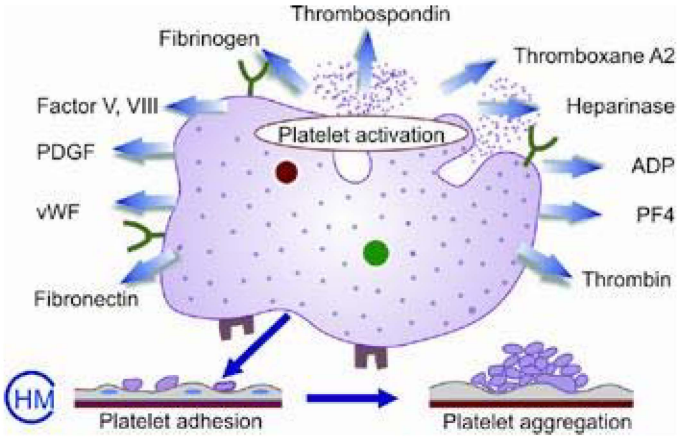
Thrombopoiesis

MEGAKARYOBLAST
PROMEGAKARYOCYTE
MEGAKARYOCYTE
PLATELETS.


Endoreduplication
Megakaryoblast
Cytoplasmic granulation
HM
Promegakaryocyte
Megakaryocyte
Platelets


Thrombospondin
Fibrinogen
Thromboxane A2
Factor V, VIII
Heparinase
Platelet activation
PDGF
ADP
vWF
PF4
Thrombin
Fibronectin
HM
Platelet adhesion
Platelet aggregation

Causes of haemorrhagic diatheses

I. Haemorrhagic diathesis due to vascular abnormalities.
II. Haemorrhagic diathesis related to platelet abnormalities.
III. Disorders of coagulation factors.
IV. Haemorrhagic diathesis due to fibrinolytic defects.
V. Combination of all these as occurs in disseminated intravascular coagulation (DIC).

INVESTIGATIONS

Disordered Vascular Haemostasis

1. BLEEDING *TIME*
2. *HESS CAPILLARY RESISTANCE TEST (TOURNIQUET TEST)*

Platelets and Platelet Function

1. SCREENING TESTS

i) Peripheral blood platelet count.

ii) Skin bleeding time.

iii) Examination of fresh blood film to see the morphologic abnormalities of platelets

Platelets and Platelet Function (Contd)

2. SPECIAL TESTS

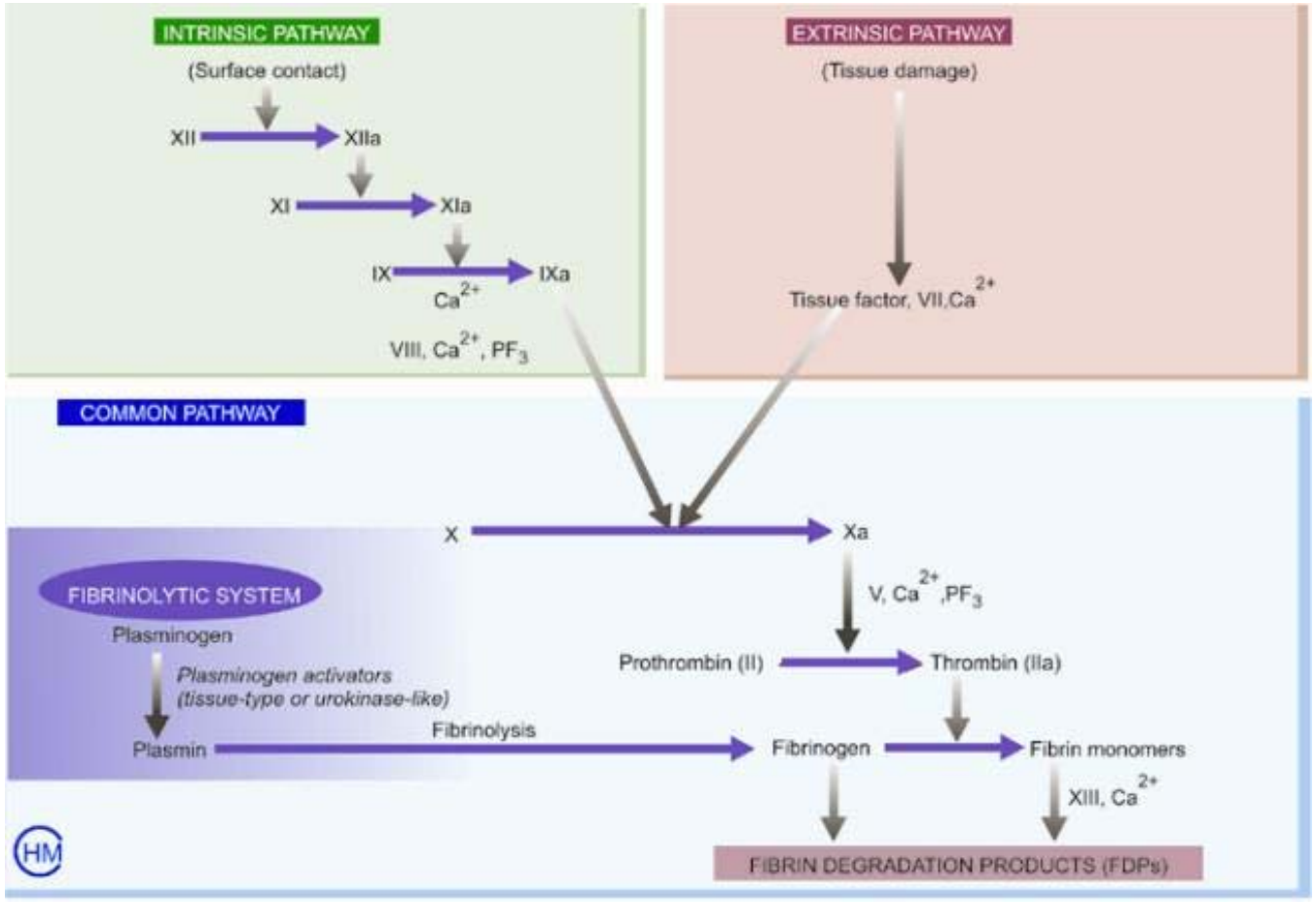
i) *Platelet adhesion tests* such as retention in a glass bead column, and other sophisticated techniques.

ii) *Aggregation tests* which are turbidometric techniques using ADP, collagen or ristocetin.

iii) *Granular content* of the platelets and their release can be assessed by electron microscopy or by measuring the substances released.

iv) *Platelet coagulant activity* is measured indirectly by prothrombin consumption index.

Normal Blood Coagulation



Blood Coagulation

1. SCREENING TESTS

i)Whole blood coagulation time

ii)Activated partial thromboplastin time (APTT) or partial thromboplastin time with kaolin (PTTK)

iii)One-stage prothrombin time (PT)

iv) Measurement of fibrinogen

2. SPECIAL TESTS

i) Coagulation factor assays

ii) Quantitative assays

Fibrinolytic System

1. Estimation of fibrinogen.
2. Fibrin degradation products (FDP) in the serum.
3. Ethanol gelation test.
4. Euglobin or whole blood lysis time.