

## 1) Presence of cryoglobulin

Circulating immunoglobulins that precipitate with cold temperature and dissolve with warming  
Variable levels not related to clinical severity  
Cryoglobulins are characterized into 3 types



	Type I	Type II	Type III
Causes	B-cell lymphoproliferative disorders	Infections (HCV+++, HBV, ...) Autoimmune diseases B-NHL Idiopathic	
Serum levels, g/L	1-30	0.5-2	0.05-0.5
Immunofixation	IgM > IgG > IgA	IgM kappa	-
Rheumatoid factor	-	+	+ or -
C4 fraction	Normal	↓ or ↓↓	Normal or ↓

## 2) Vasculitis with cryoglobulin immune deposits affecting small vessels (capillaries, venules, or arterioles)

**MONOCLONAL CRYOGLOBULINEMIA (type I)** : Vascular occlusion >> vasculitis

- Raynaud phenomenon
- Ulcers, distal necrosis
- Pain and swelling in the extremities
- Hyperviscosity syndrome

**MIXED CRYOGLOBULINEMIA (types II and III)**

- Vascular purpura +++
- Peripheral neuropathy
- Arthralgia, arthritis
- Renal involvement

