



Patologia das Reações de Hipersensibilidade

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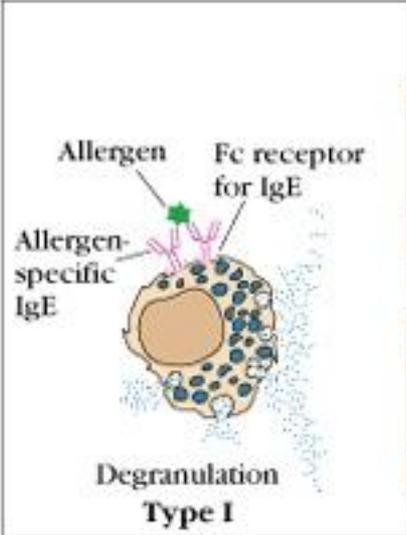
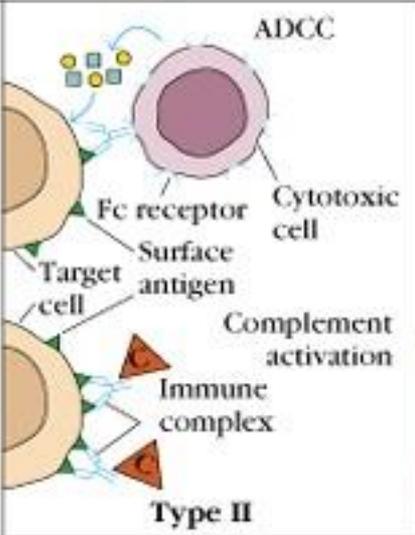
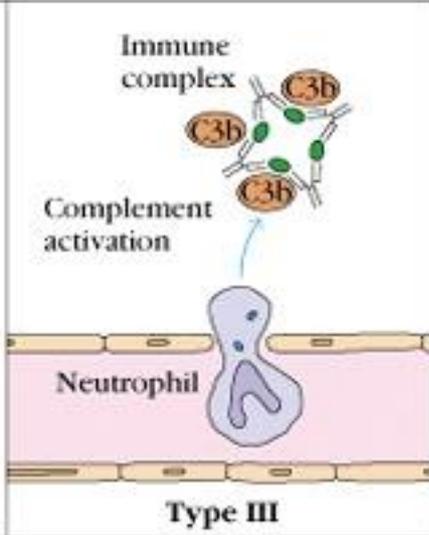
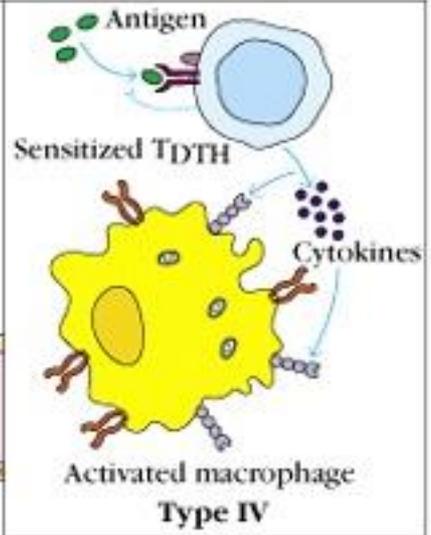


burns@usp.br

Reações de Hipersensibilidade

- Tipo I – Alergia Clássica
- Tipo II – Lesão Direta Induzida por Anticorpos
- Tipo III – Complexos Antígeno – Anticorpo
- Tipo IV – Hipersensibilidade Tardia - Granuloma

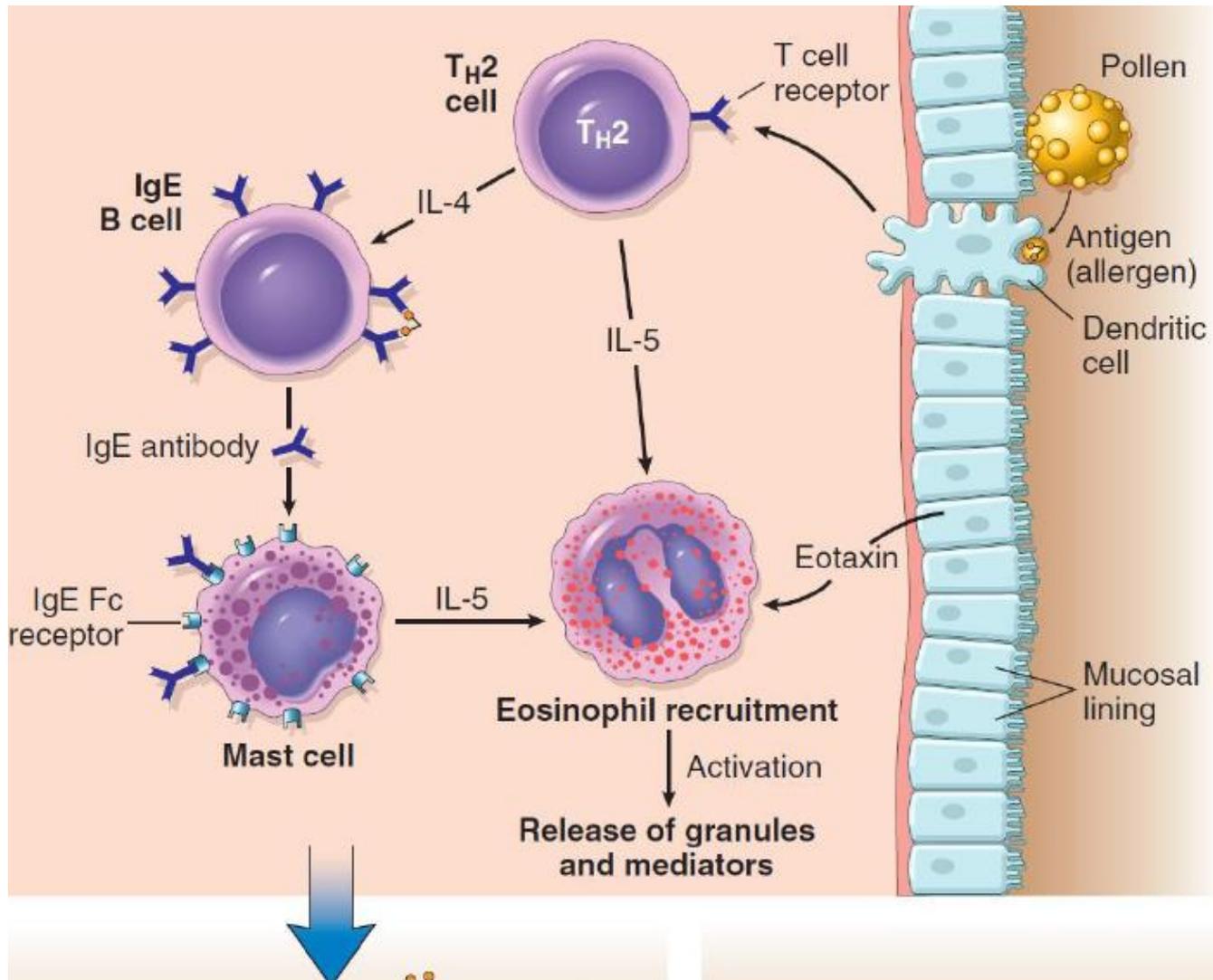
Reações de Hipersensibilidade

 <p>Type I</p>	 <p>Type II</p>	 <p>Type III</p>	 <p>Type IV</p>
<p>IgE-Mediated Hypersensitivity</p>	<p>IgG-Mediated Cytotoxic Hypersensitivity</p>	<p>Immune Complex-Mediated Hypersensitivity</p>	<p>Cell-Mediated Hypersensitivity</p>
<p>Ag induces crosslinking of IgE bound to mast cells and basophils with release of vasoactive mediators</p>	<p>Ab directed against cell surface antigens mediates cell destruction via complement activation or ADCC</p>	<p>Ag-Ab complexes deposited in various tissues induce complement activation and an ensuing inflammatory response mediated by massive infiltration of neutrophils</p>	<p>Sensitized T_{DTH} cells release cytokines that activate macrophages or T_C cells which mediate direct cellular damage</p>
<p>Typical manifestations include systemic anaphylaxis and localized anaphylaxis such as hay fever, asthma, hives, food allergies, and eczema</p>	<p>Typical manifestations include blood transfusion reactions, erythroblastosis fetalis, and autoimmune hemolytic anemia</p>	<p>Typical manifestations include localized Arthus reaction and generalized reactions such as serum sickness, necrotizing vasculitis, glomerulonephritis, rheumatoid arthritis, and systemic lupus erythematosus</p>	<p>Typical manifestations include contact dermatitis, tubercular lesions and graft rejection</p>

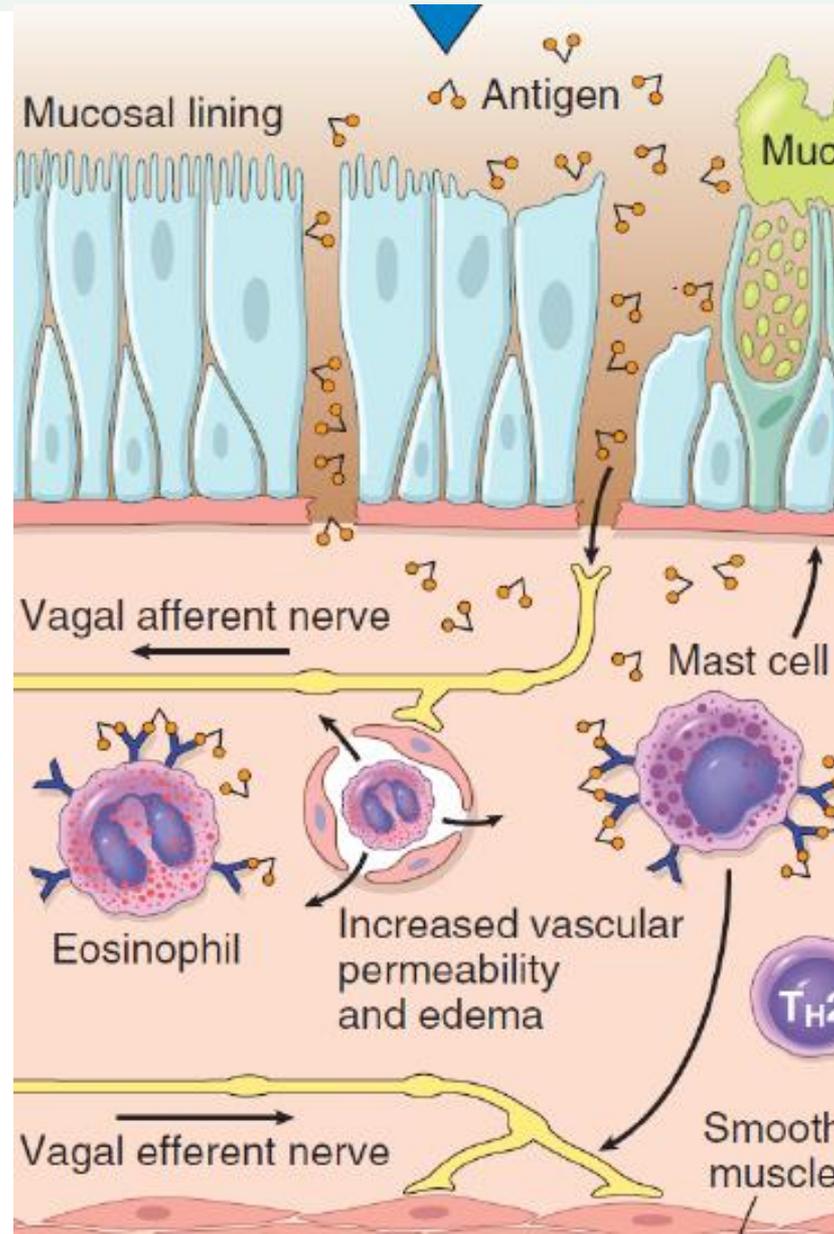
Hipersensibilidade Tipo I

- Mediada por IgE
- Anafilaxia
- Atopia → Predisposição → Mais eosinófilos e IgE
- Exemplos:
 - Asma
 - Eczema
 - Picadas
 - Alergias a alimentos
 - Dermatites alérgicas / atópicas

Hipersensibilidade Tipo I - Sensibilização



Hipersensibilidade Tipo I - Fase Efetora

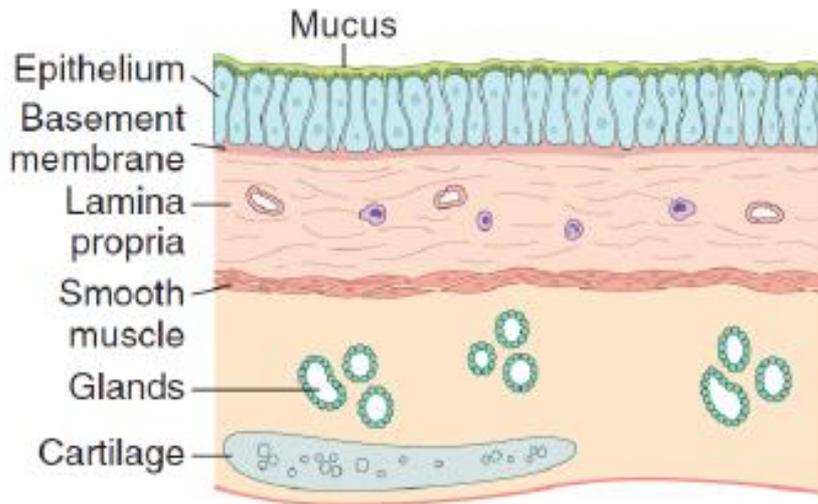


Hipersensibilidade Tipo I

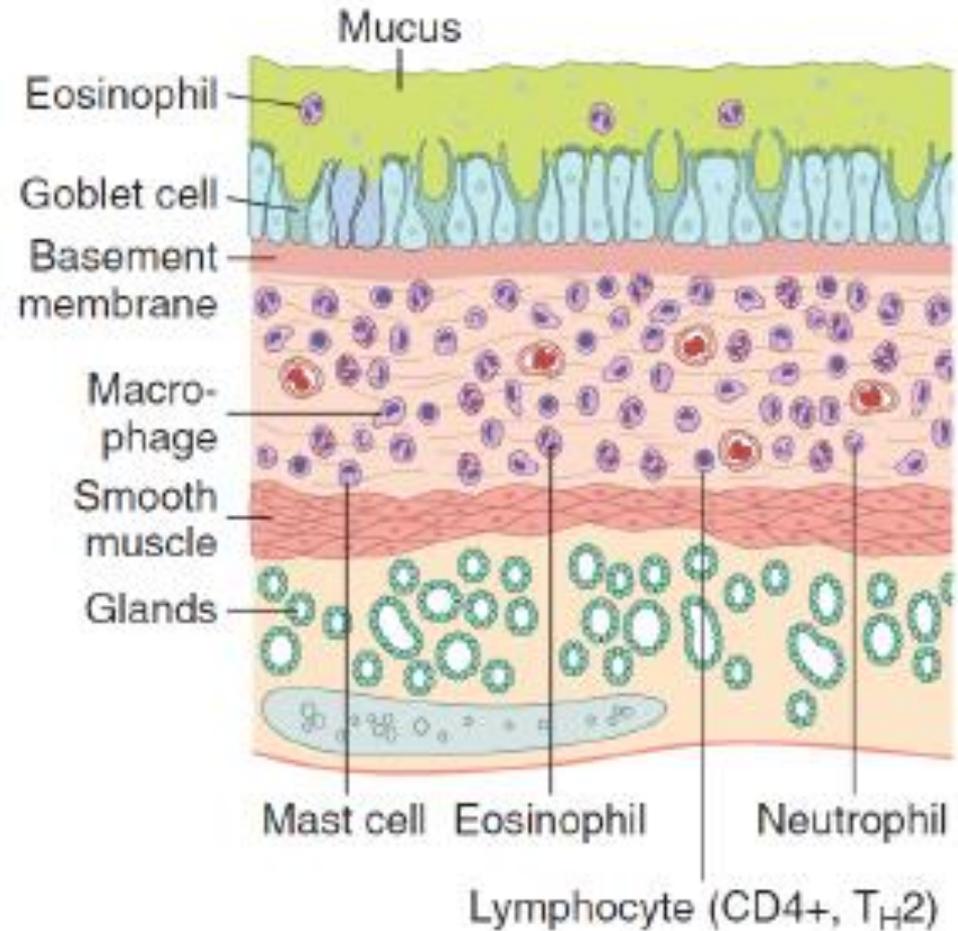
- Fase Aguda / Imediata → Mastócitos
 - Histamina
 - Leucotrienos
 - Prostaglandinas
- Fase Tardia / Manutenção → Eosinófilos e Neutrófilos
 - Enzimas
 - Citocinas – IL3, IL5
 - Mediadores lipídicos
 - Ativação de célula B → IL4 → Fecha o ciclo!

Hipersensibilidade Tipo I

A. NORMAL AIRWAY



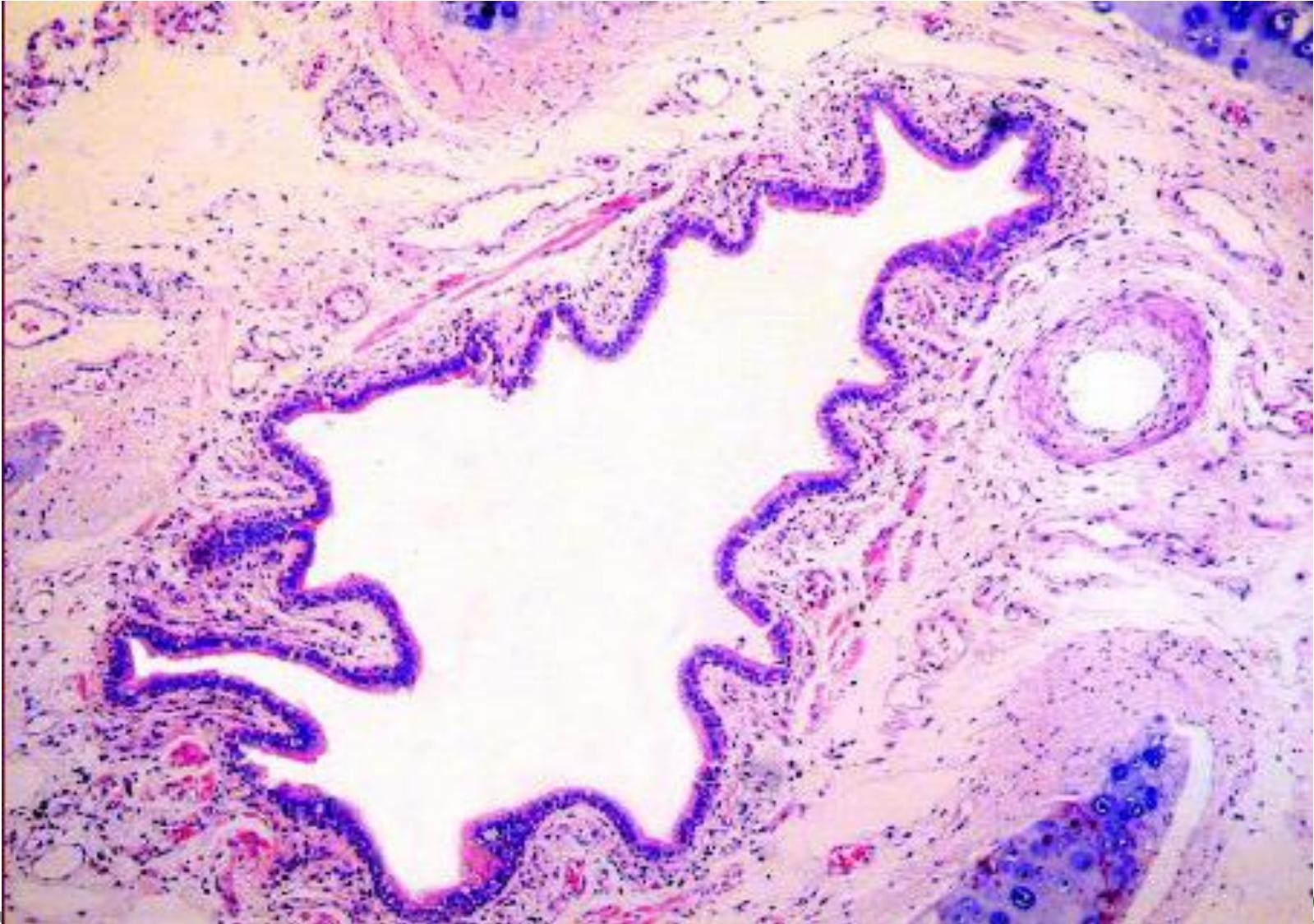
B. AIRWAY IN ASTHMA



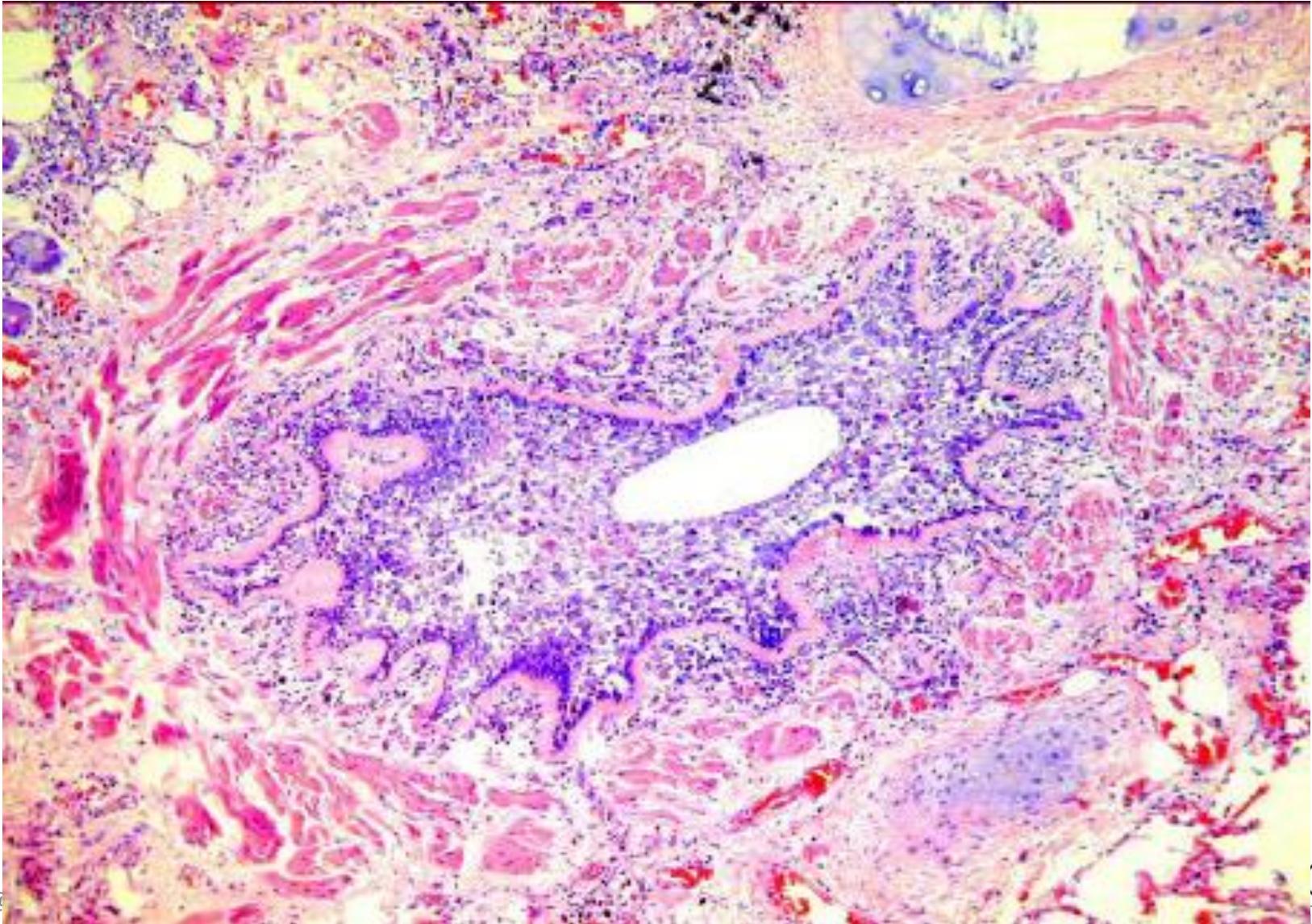
Hipersensibilidade Tipo I



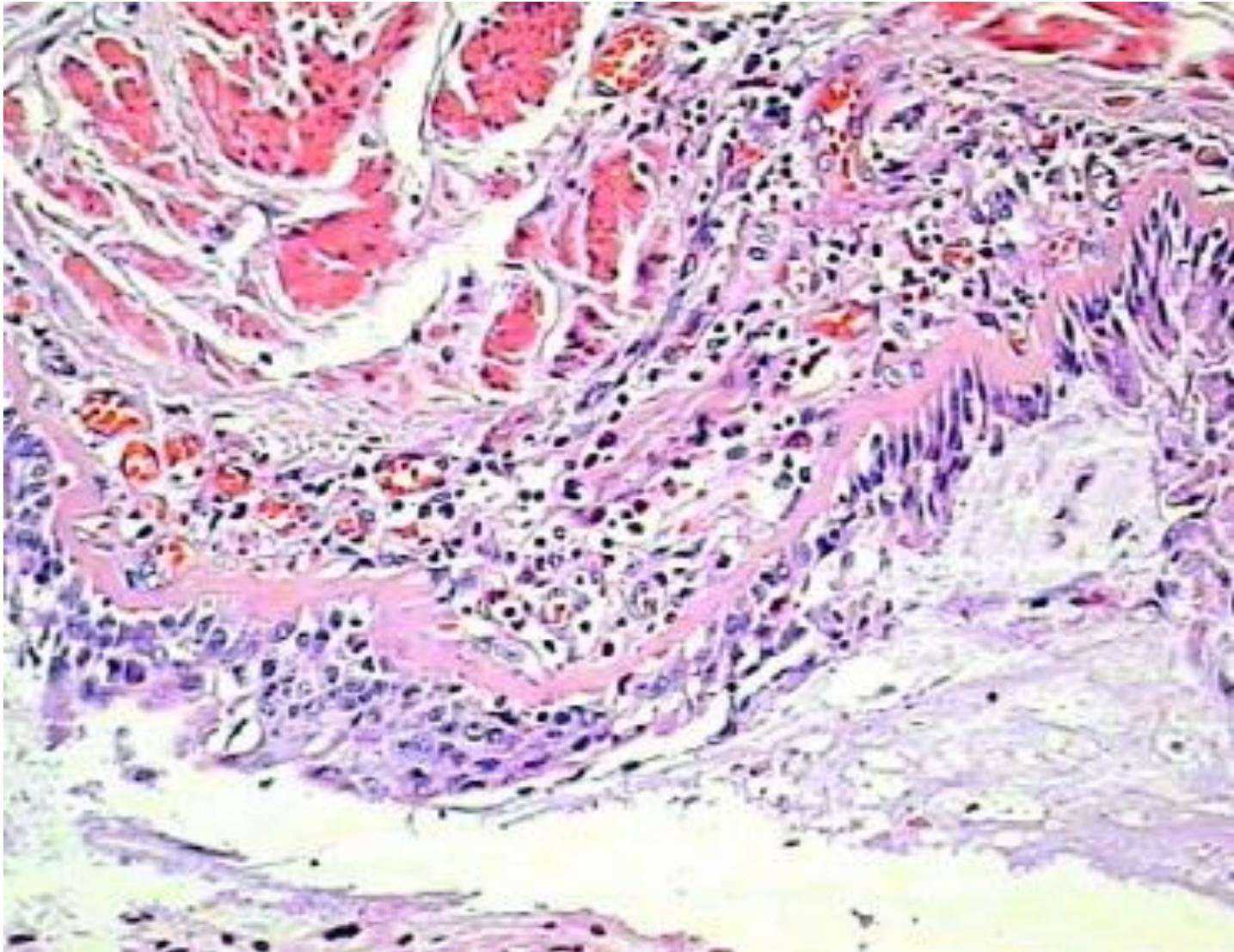
Hipersensibilidade Tipo I



Hipersensibilidade Tipo I



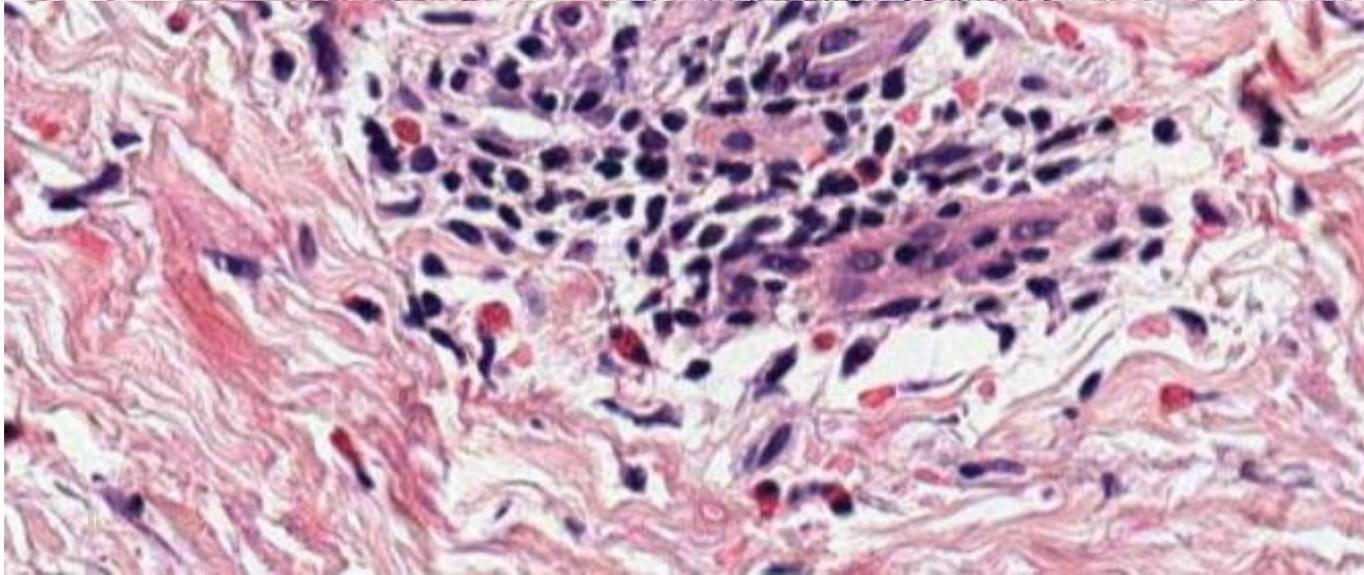
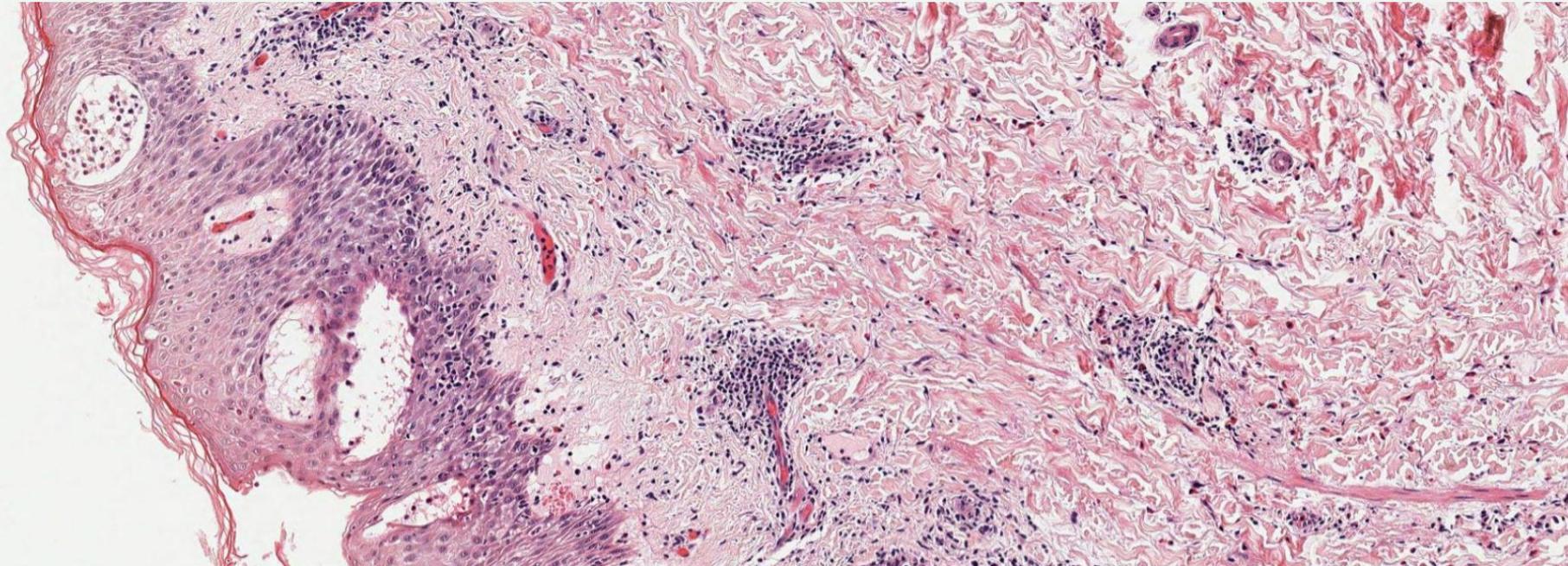
Hipersensibilidade Tipo I



Hipersensibilidade Tipo I



Hipersensibilidade Tipo I



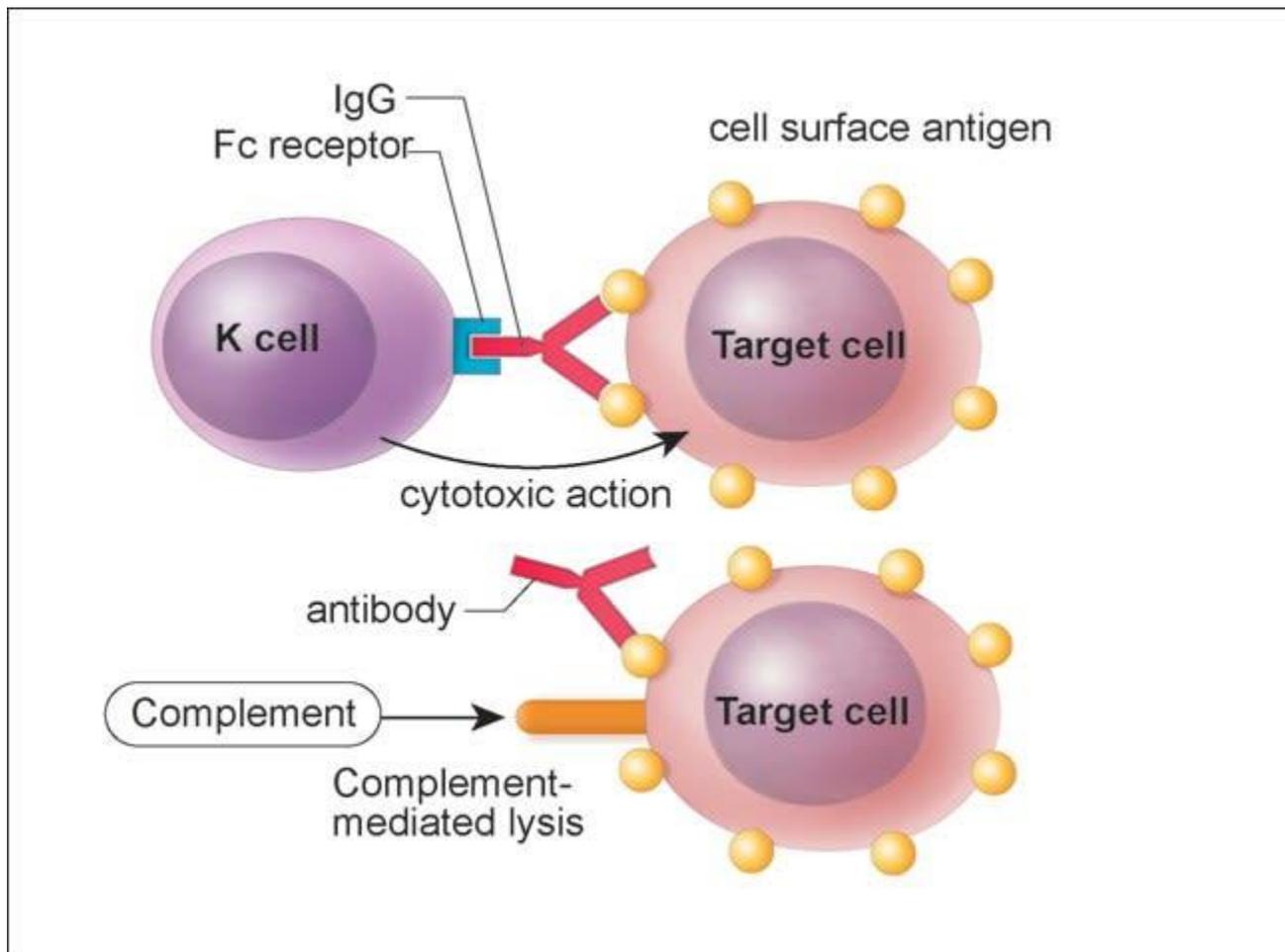
Hipersensibilidade Tipo I - Tratamento

- Antiinflamatórios
- Vasoconstritores – em casos extremos
- Dessensibilização
- Anti-IgEs

Hipersensibilidade Tipo II

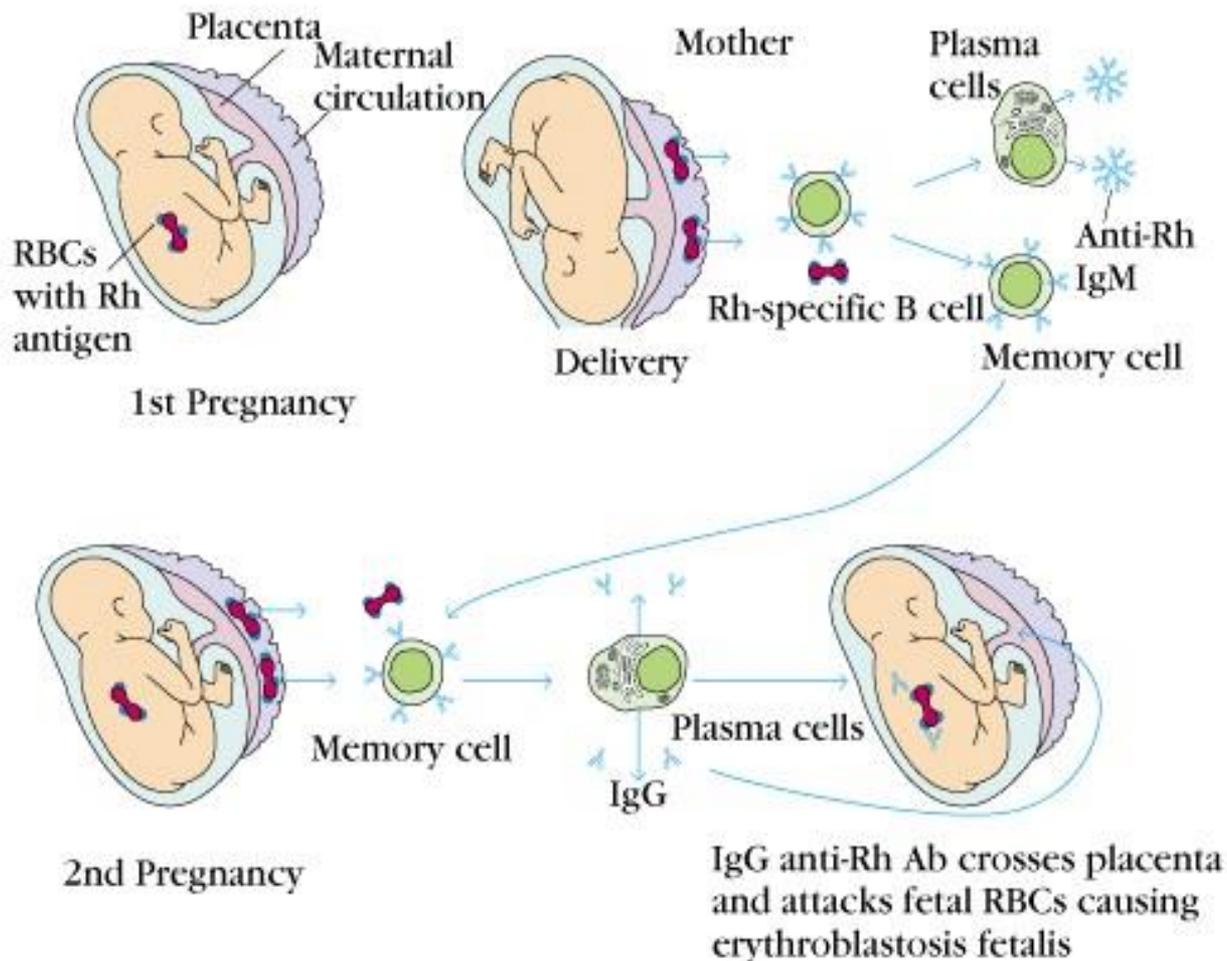
- Citotoxicidade Mediada por anticorpos – ADCC
- 2 mecanismos efetores
 - Células NK
 - Complemento
- Exemplos:
 - Incompatibilidade ABO
 - Doença Hemolítica do RN
 - Miastenia Gravis

Hipersensibilidade Tipo II

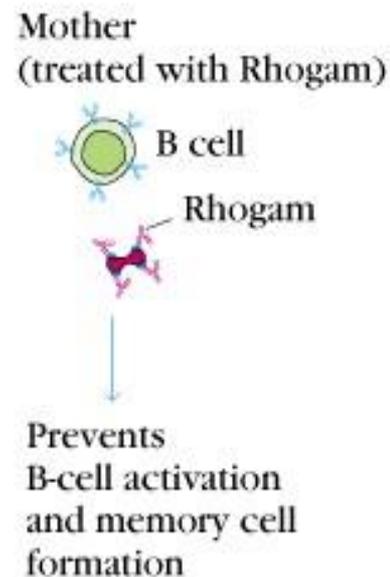


Hipersensibilidade Tipo II

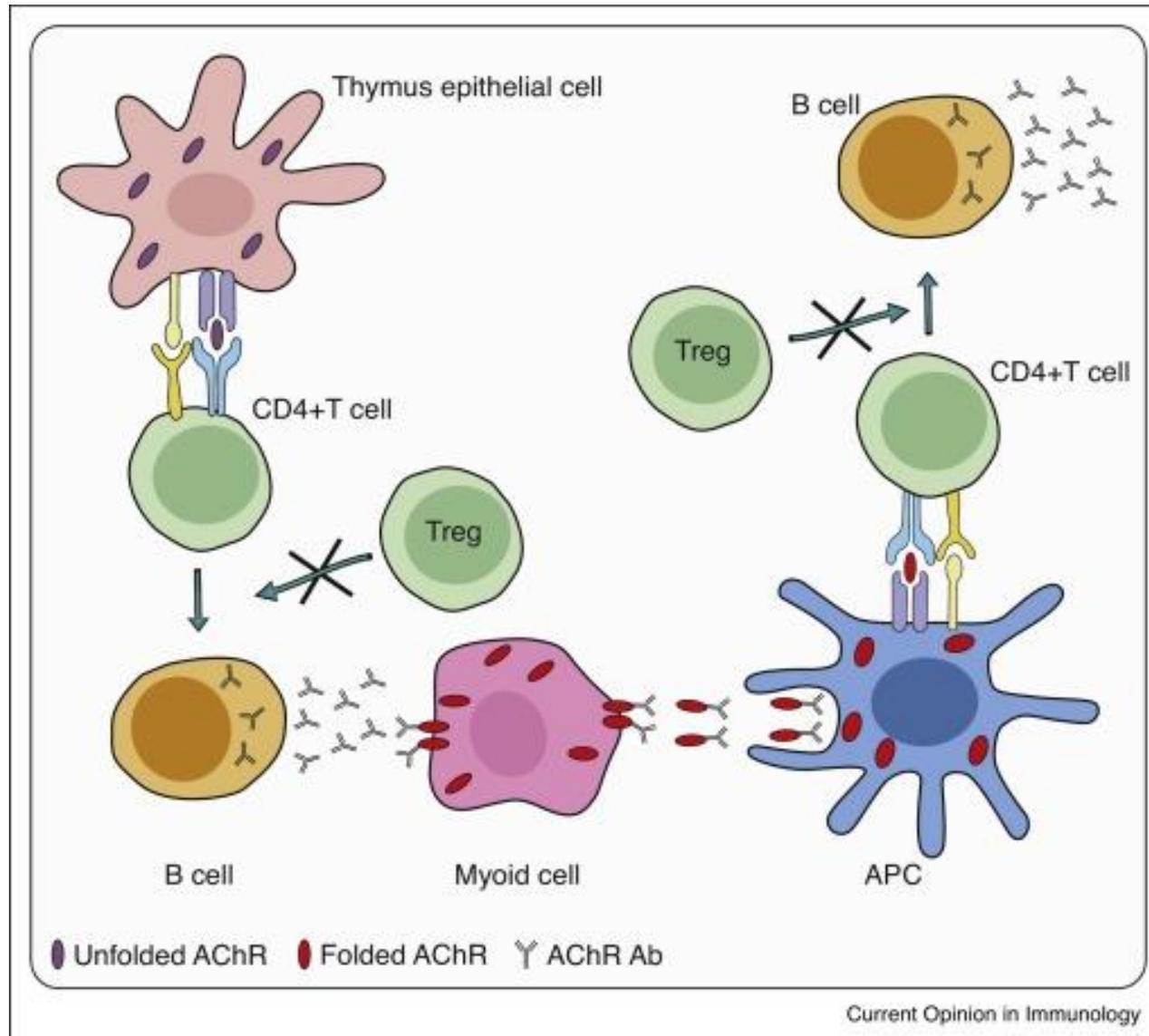
DEVELOPMENT OF ERYTHROBLASTOSIS FETALIS (WITHOUT RHOGAM)



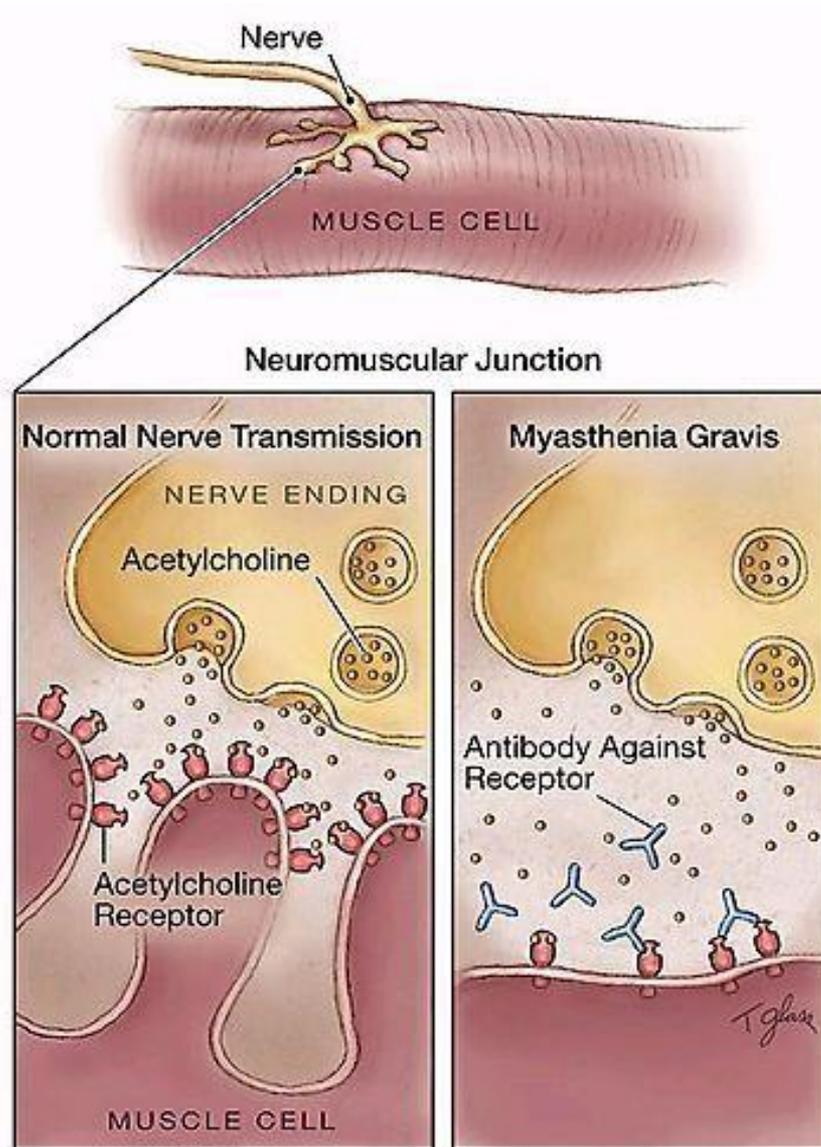
PREVENTION (WITH RHOGAM)



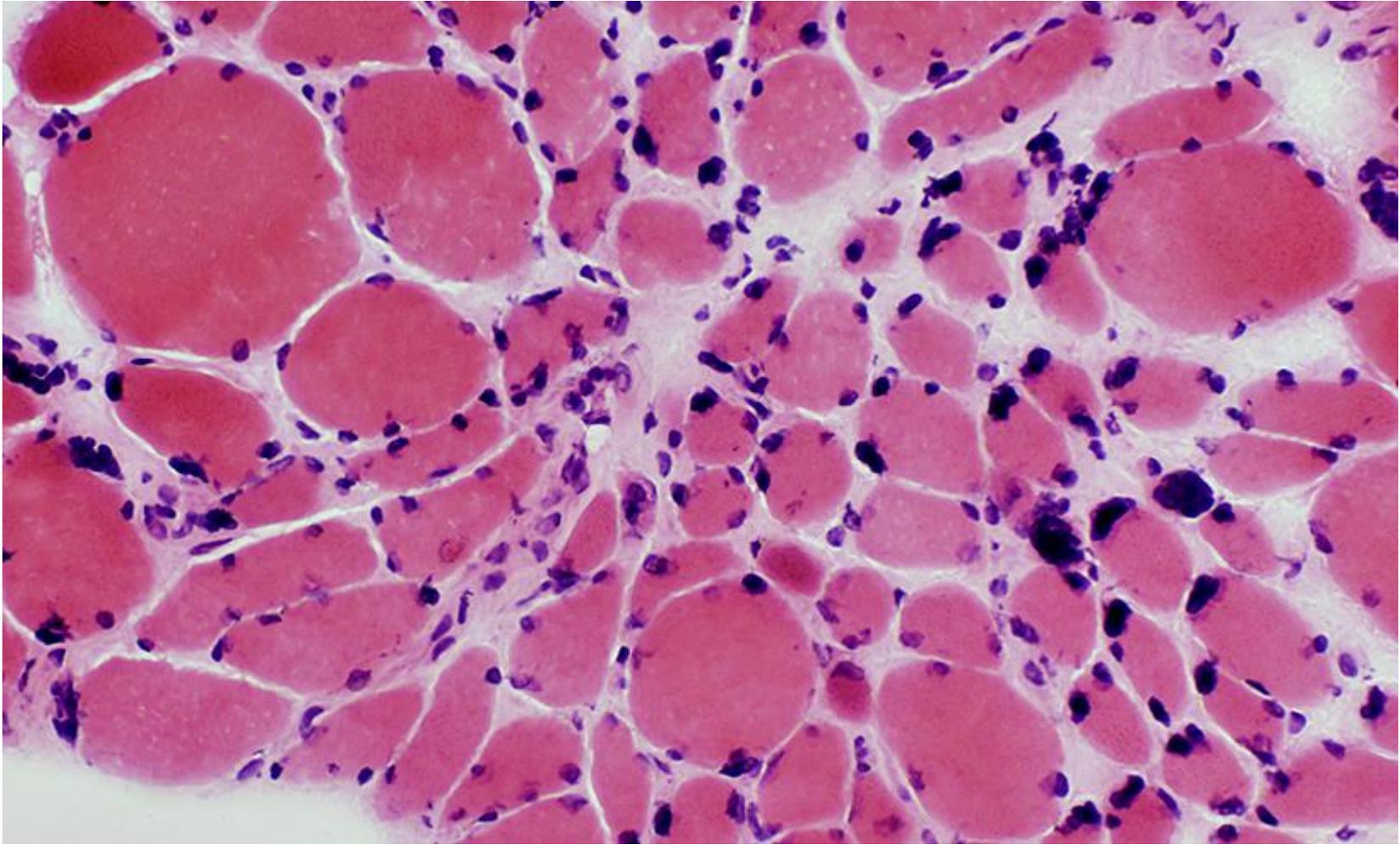
Hipersensibilidade Tipo II



Hipersensibilidade Tipo II



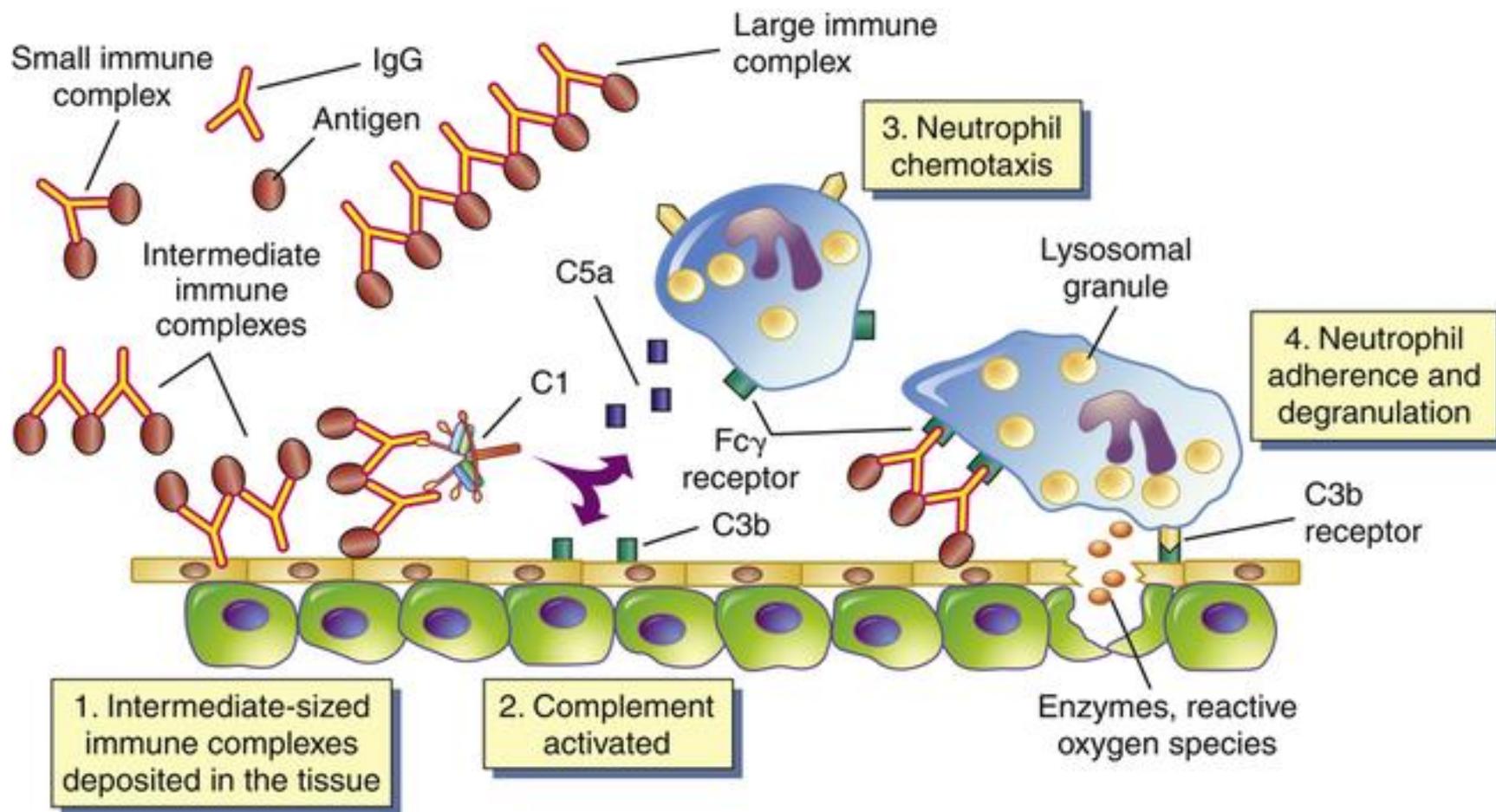
Hipersensibilidade Tipo II



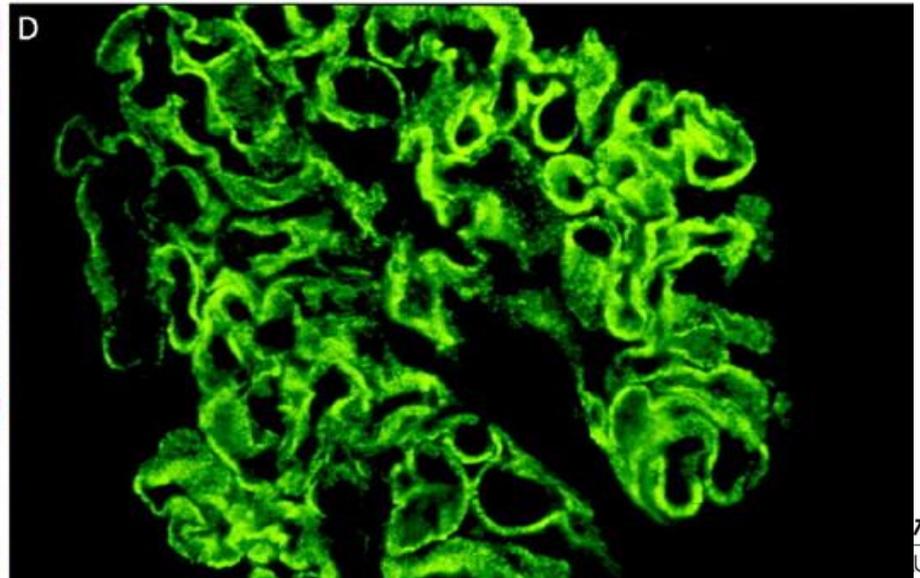
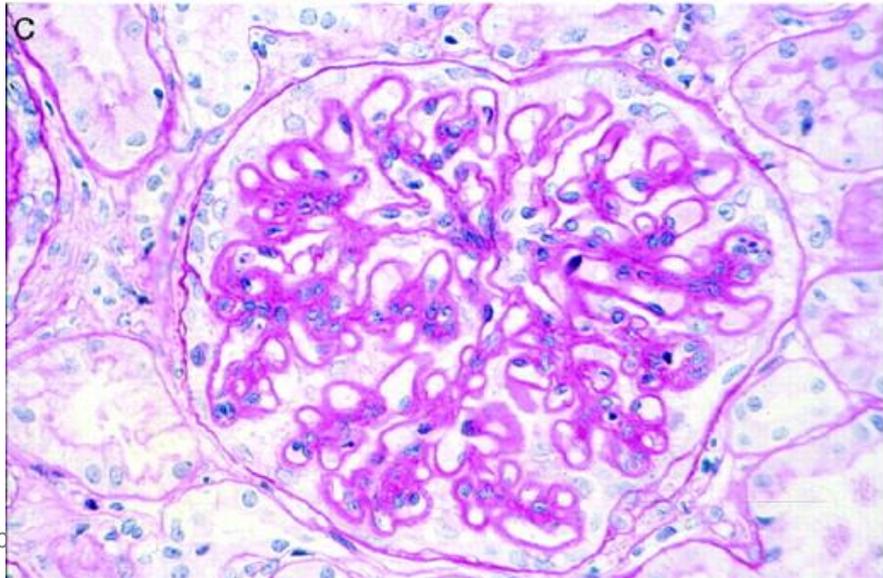
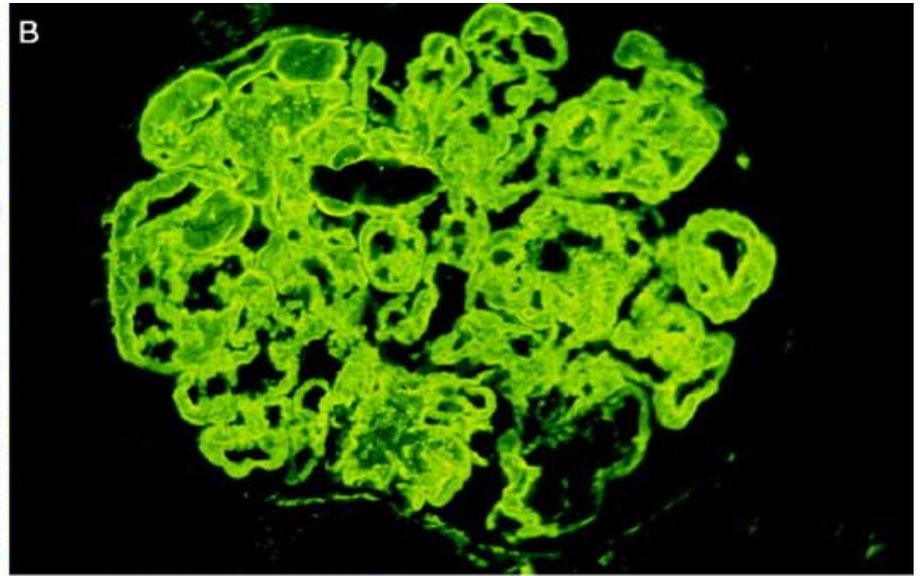
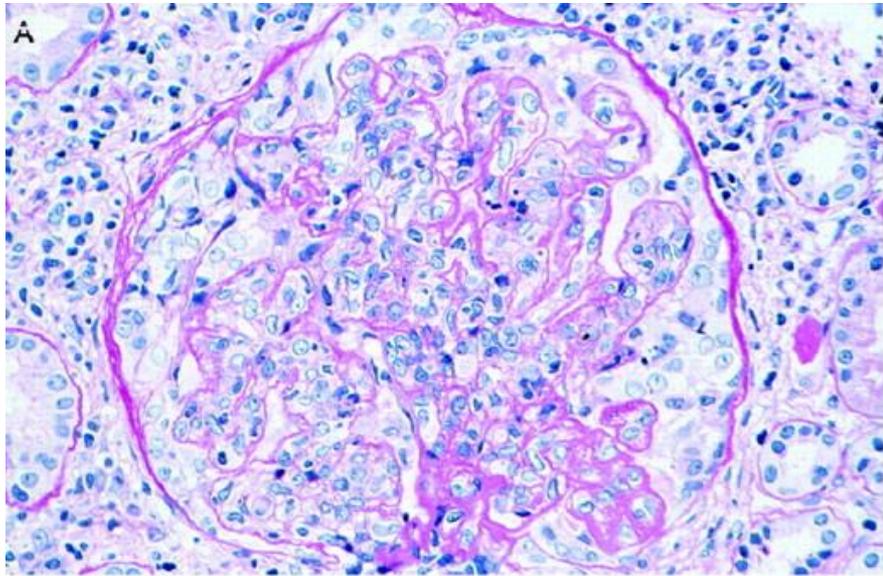
Hipersensibilidade Tipo III

- Complexos Antígeno – Anticorpo / Doenças de imunocomplexos
- IgG → Ligação ao antígeno → Imunocomplexo → Deposição
- Exemplos:
 - Incompatibilidade ABO
 - Doença Hemolítica do RN
 - Miastenia Gravis

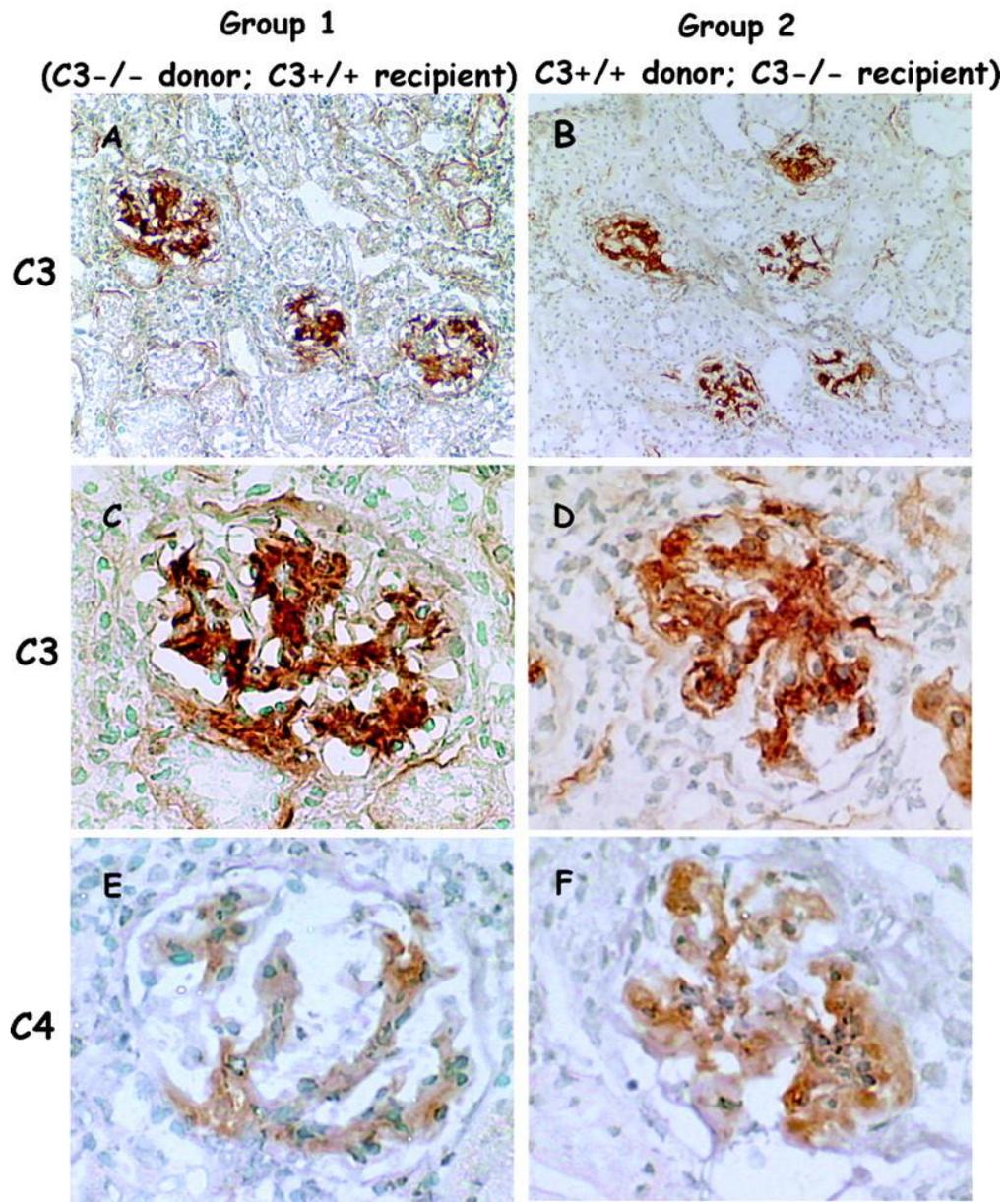
Hipersensibilidade Tipo III



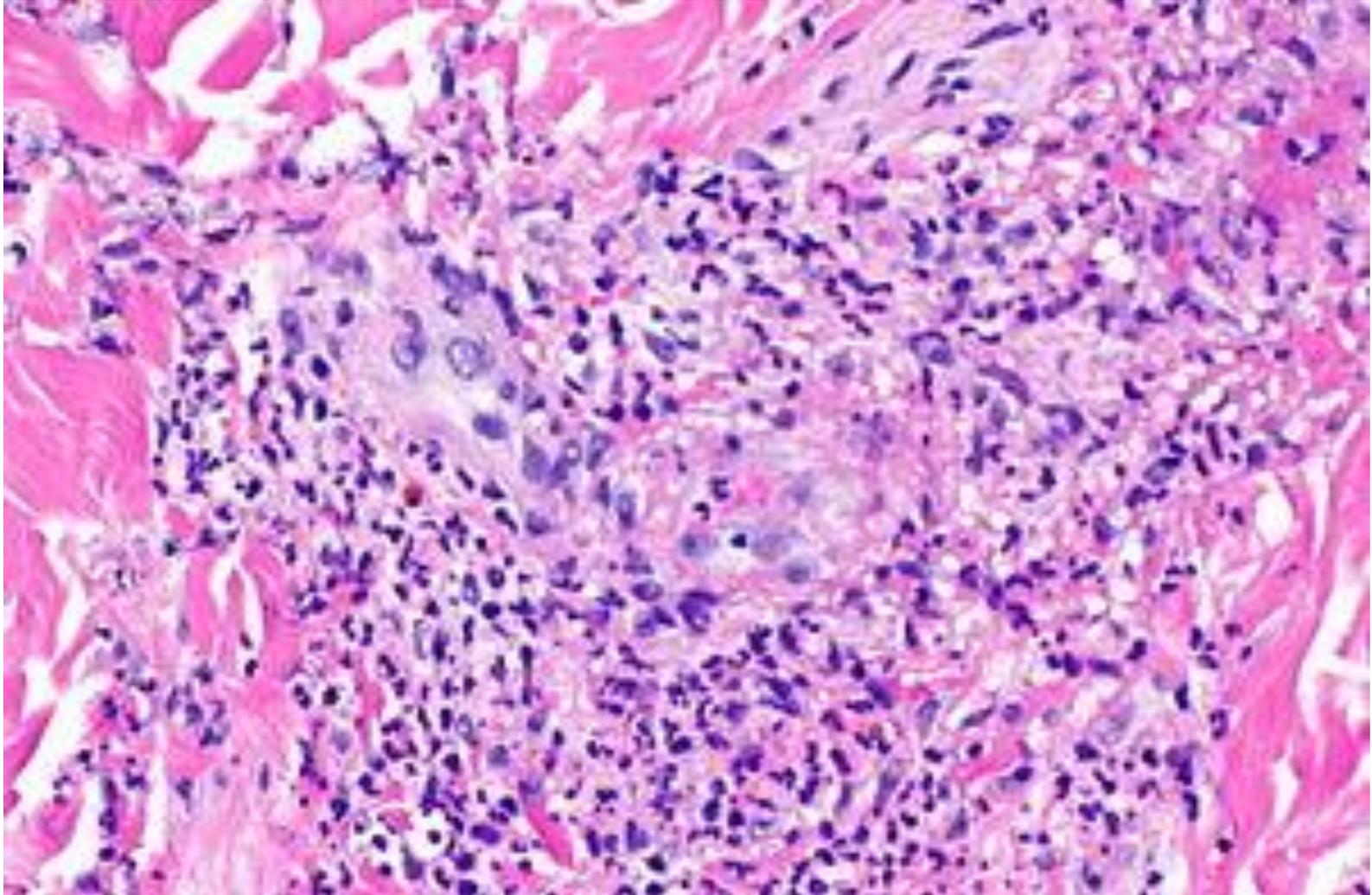
Hipersensibilidade Tipo III



Hipersensibilidade Tipo III



Hipersensibilidade Tipo III

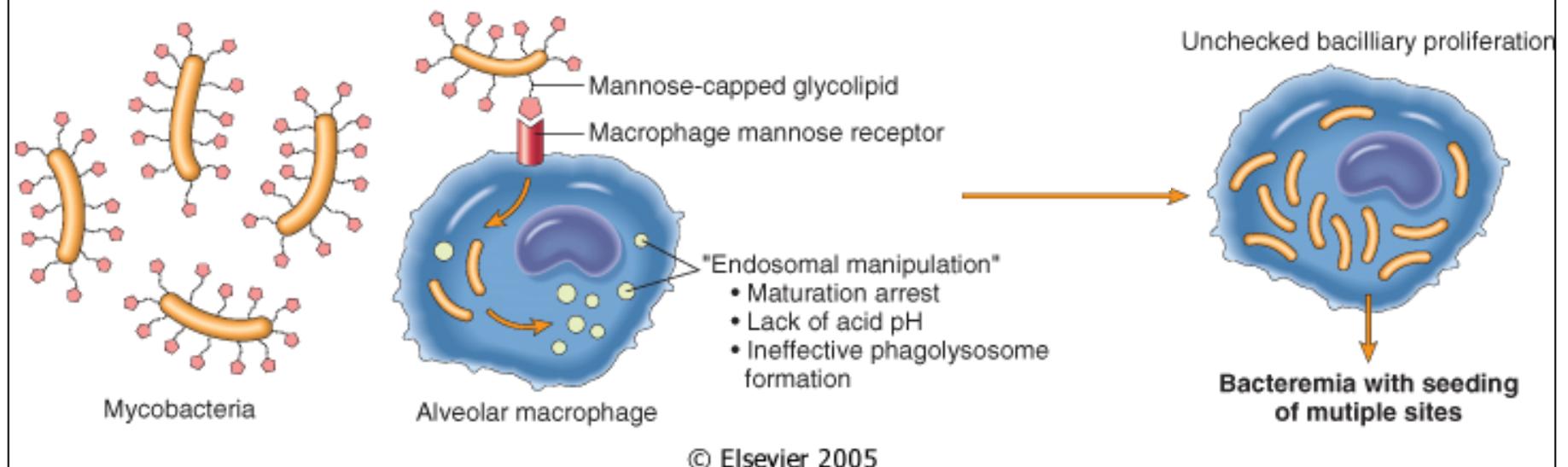


Hipersensibilidade Tipo IV

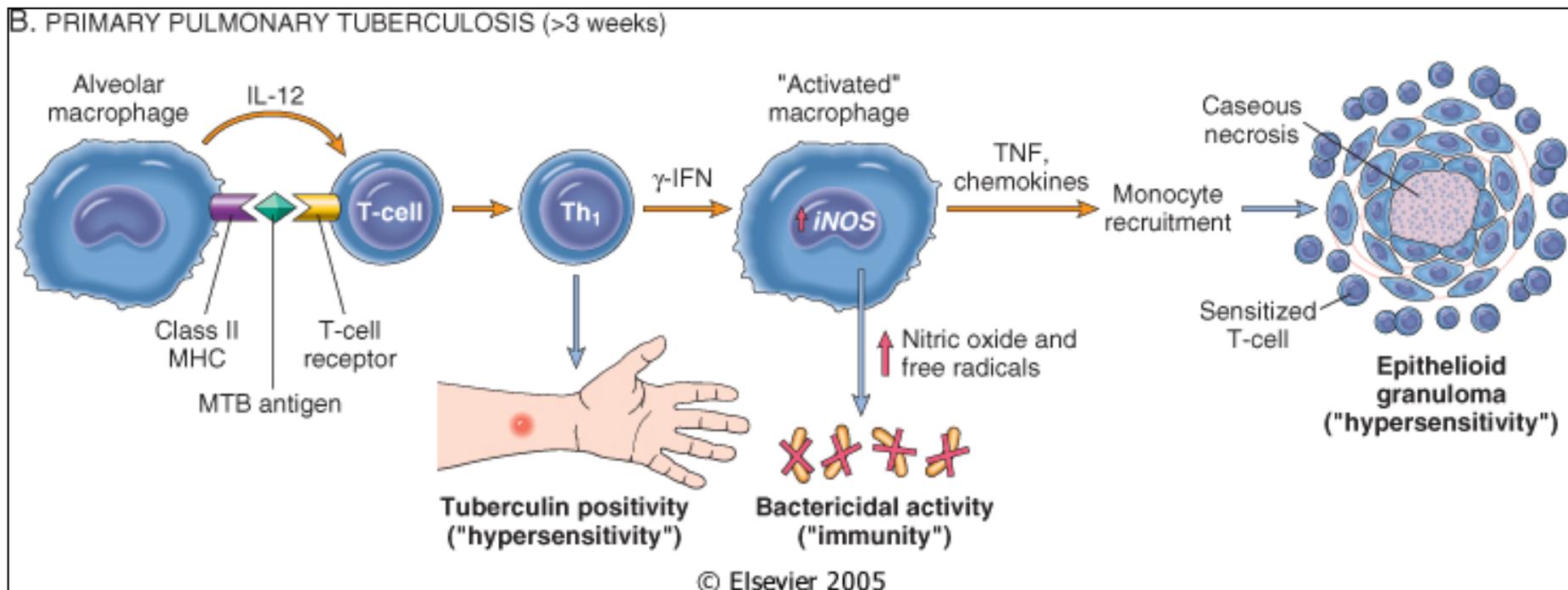
- Hipersensibilidade Tardia
- Resposta de padrão Th1
- Ativação macrofágica contínua
- Exemplos:
 - Dermatite de Contato
 - Doenças Granulomatosas
 - Diabetes tipo I
 - Tireoidite de Hashimoto

Hipersensibilidade Tipo IV

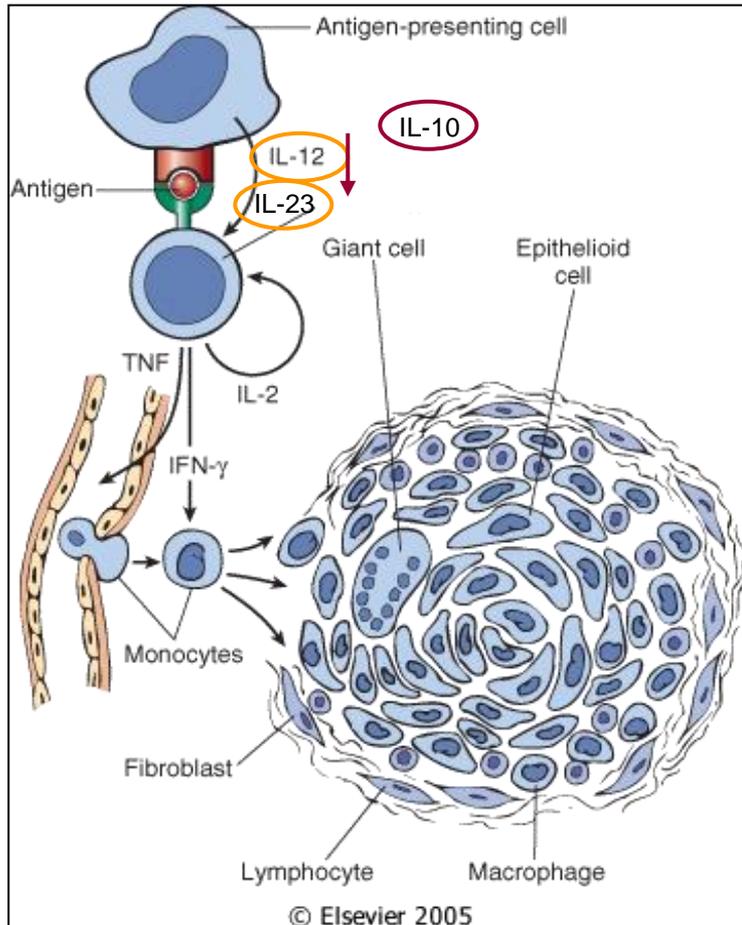
A. PRIMARY PULMONARY TUBERCULOSIS (0-3 weeks)



Hipersensibilidade Tipo IV

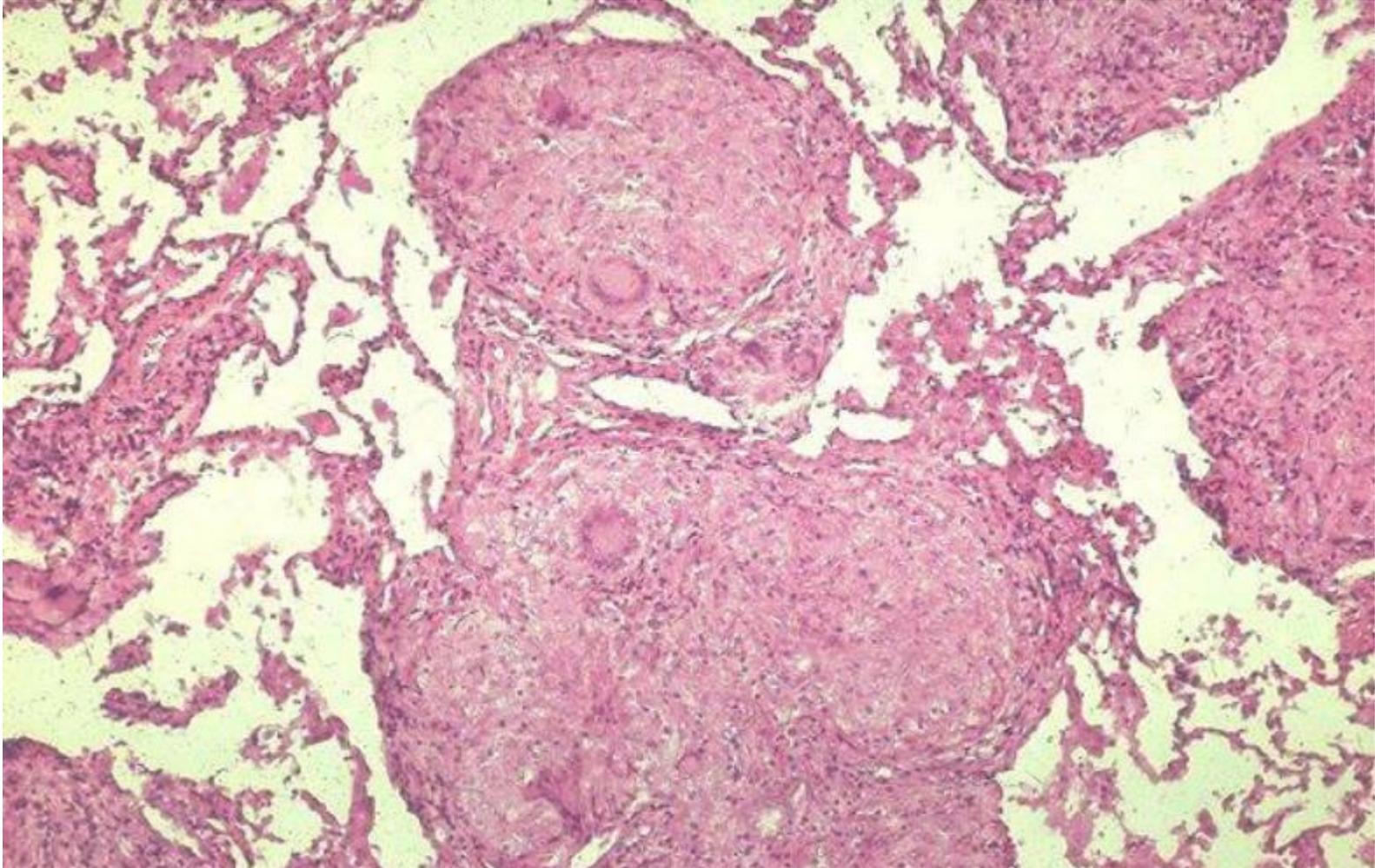


Hipersensibilidade Tipo IV

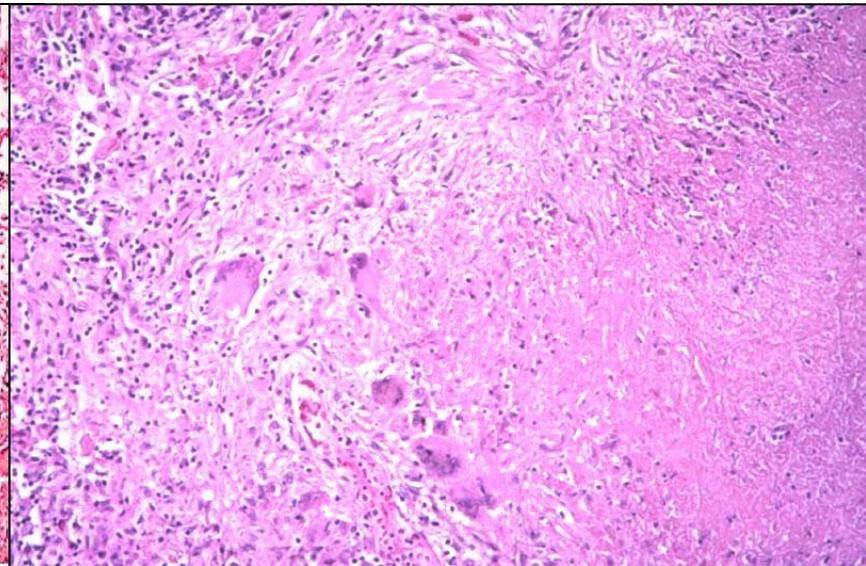
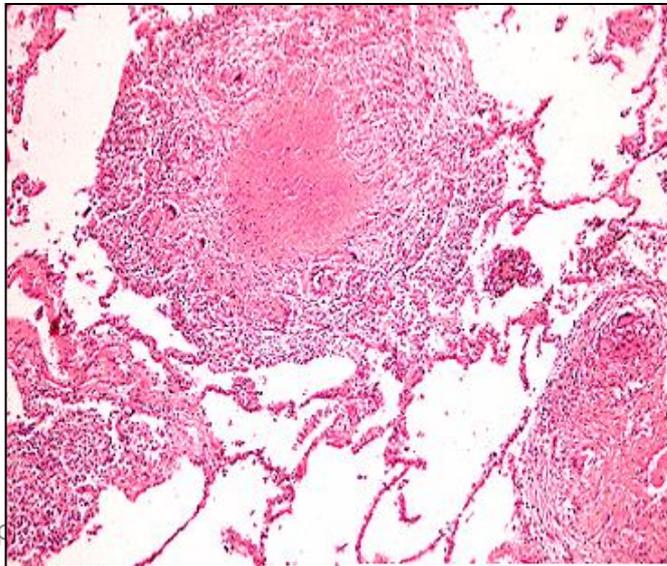


- **IFN- γ** – ativação de macrófagos
 - formação de fagolisossomos
 - produção de iNOS – NO
 - \uparrow produção IL-12
 - \uparrow capacidade apresentação de Ag
 - \uparrow capacidade fagocítica
 - \uparrow secreção fatores de crescimento (PDGF, TGF- β)
 - proliferação de fibroblastos
 - síntese de colágeno
 - produção TNF α - recrutamento de monócitos
 - células epitelióides

Hipersensibilidade Tipo IV



Hipersensibilidade Tipo IV



Hipersensibilidade Tipo IV



