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# THE COMPLEMENT SYSTEM

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# interdiction

**Complement system: the first-line of defense**



# OBJECTIVES

- ❑ **Discuss the biological effects of complements.**
- ❑ **Discuss the complements deficiencies and associated diseases.**

# Discuss the biological effects of complements

## *1) Bacteriolysis and cytolysis:*

Complement mediates immunological membrane damage. This results in bacteriolysis and cytolysis.

## *2) Virus neutralization:*

Neutralization of certain viruses requires the participation of Complements.

# Discuss the biological effects of complements

*3) Anaphylotoxins*

*4) Immune adherence and opsonization*

*5) Chemotaxis*

*6) Hypersensitivity reactions*

- i. Type II hypersensitivity (cytotoxic) reactions
- ii. Type III (immune complex) hypersensitivity reactions

*7) Autoimmune diseases*

# Discuss the complements deficiencies and associated diseases

- Complement deficiencies have been associated with recurrent bacterial and fungal infections as well as with collagen-vascular inflammatory diseases. Human genetic deficiencies of complement components and associated diseases are listed in the following table (next slide):

Complement deficiencies	Association with disease
<b>C1 inhibitor</b>	Hereditary angioneurotic edema
<b>C1r</b>	Systemic lupus erythematosuslike disease, frequently fatal from overwhelming infection
<b>C2</b>	Increased susceptibility to infections
<b>C3</b>	Recurrent bacterial infections
<b>C4</b>	Systemic lupus erythematosus-like disease
<b>C5</b>	Recurrent infections—lupus like disease
<b>C6, C7, C8</b>	Recurrent infections—Disseminated gonococcal infections
<b>C9</b>	Not more susceptible to disease than other individuals in the general population`
<b>Factor 1</b>	Low C3 levels with recurrent bacterial infections

**Thank you**