

ME 498 / ME 599

Biological Frameworks for Engineers

ME 498 / ME 599

Immunology

Protect thy castle

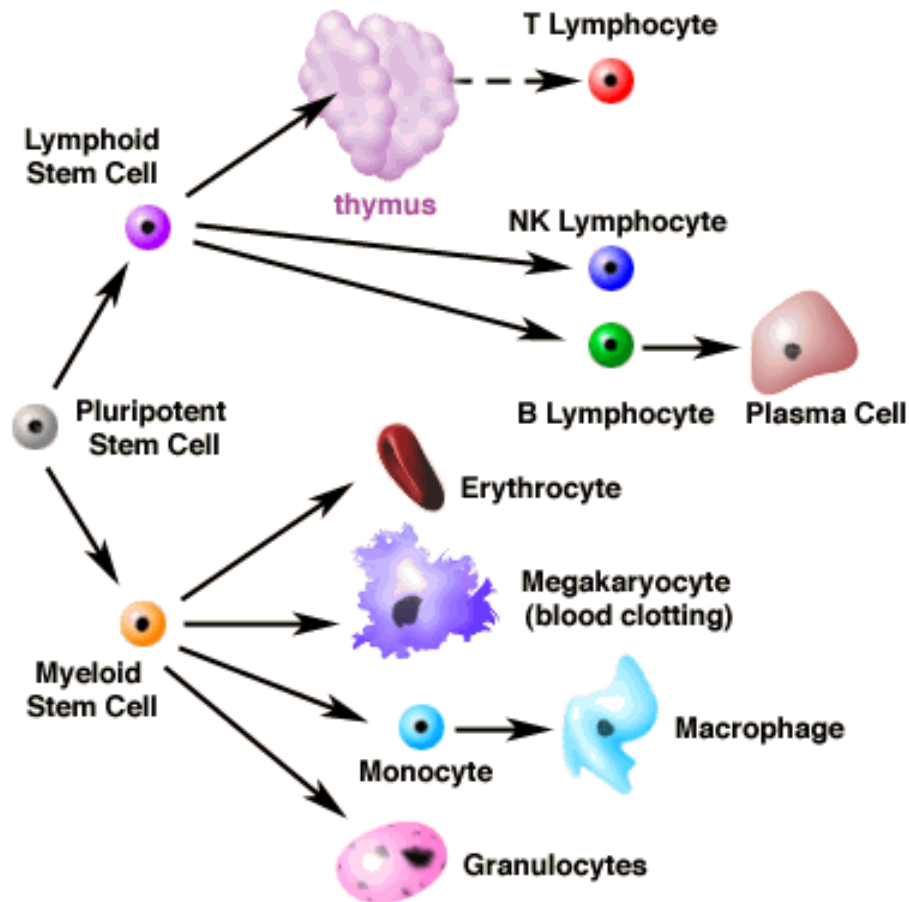
Invaders



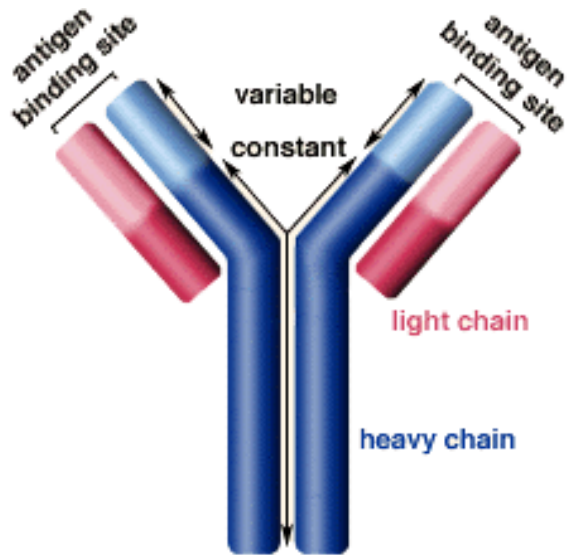
Defenses



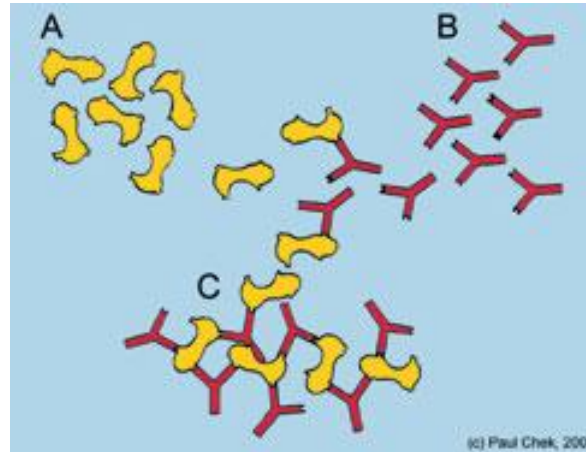
Cells of the Immune System



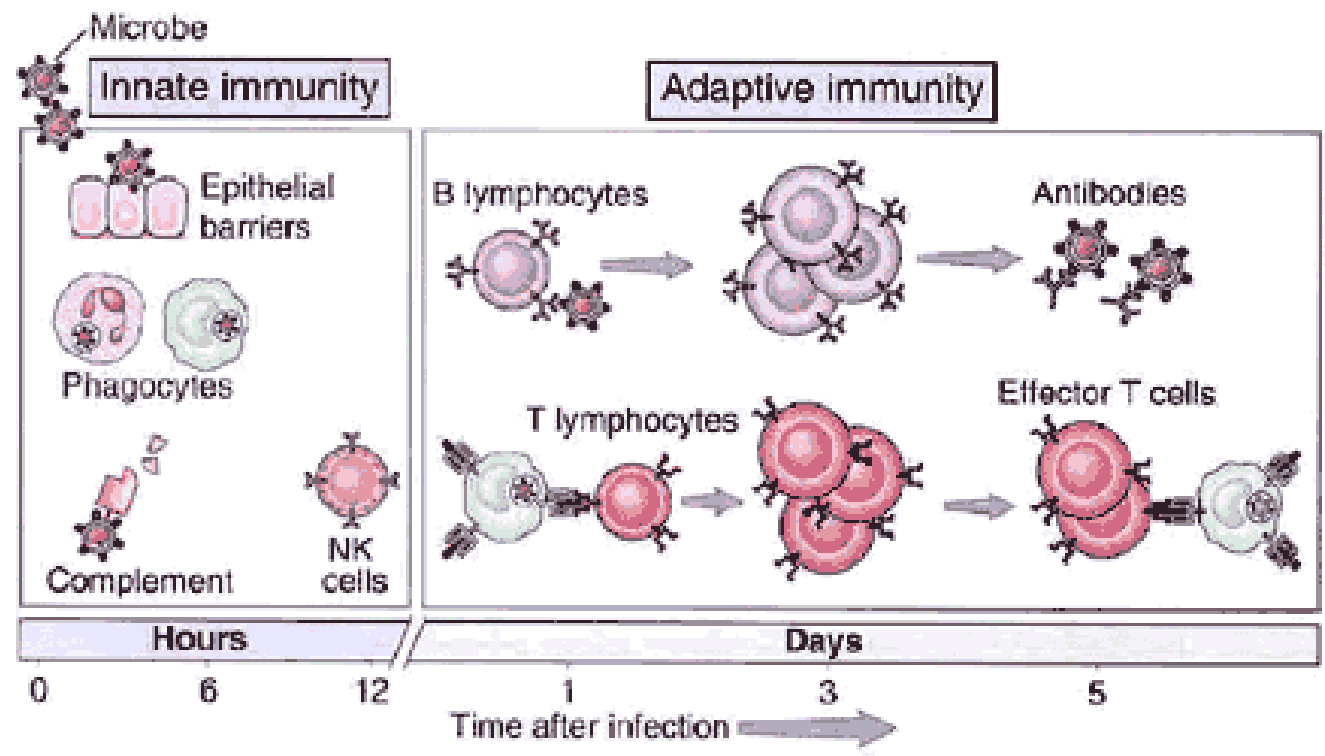
Antibodies



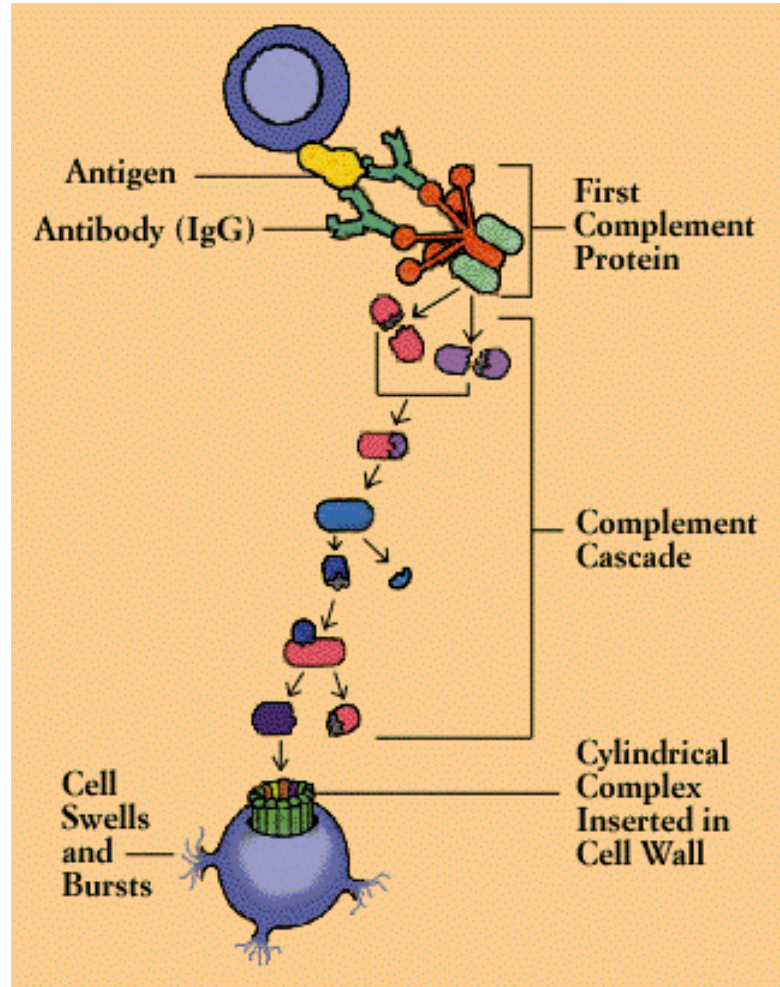
Antigens



Immune Response

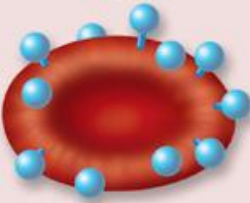
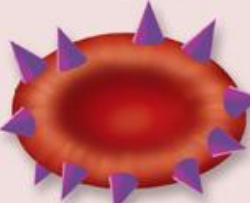
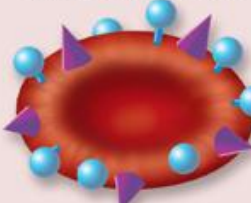
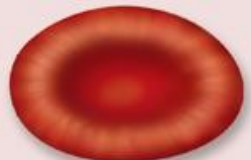





Complement System



Blood Types

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ABO Blood Types				
	Antigen A	Antigen B	Antigens A and B	Neither antigen A nor B
Erythrocytes				
Plasma	Anti-B antibodies 	Anti-A antibodies 	Neither anti-A nor anti-B antibodies	Both anti-A and anti-B antibodies 
Blood type	Type A Erythrocytes with type A surface antigens and plasma with anti-B antibodies	Type B Erythrocytes with type B surface antigens and plasma with anti-A antibodies	Type AB Erythrocytes with both type A and type B surface antigens, and plasma with neither anti-A nor anti-B antibodies	Type O Erythrocytes with neither type A nor type B surface antigens, but plasma with both anti-A and anti-B antibodies

(a)

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Jenny

Anti-A Anti-B Anti-D Control

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Jenny	

Timmy

Anti-A Anti-B Anti-D Control

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Monkey, Timmy	ThinkGeek HP

Ryan

Anti-A Anti-B Anti-D/Anti-Rh0 Control

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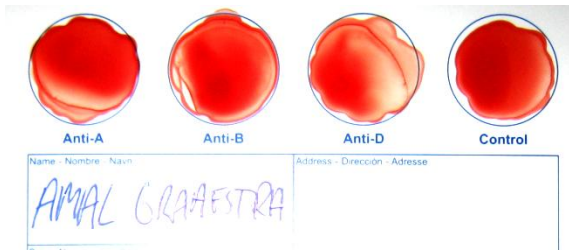
Anti-A Anti-B Anti-D/Anti-Rh0 Control

Name - Nome
RYAN P. REYES

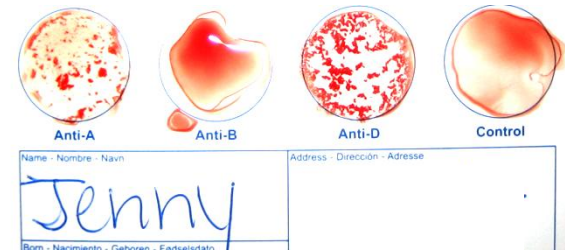
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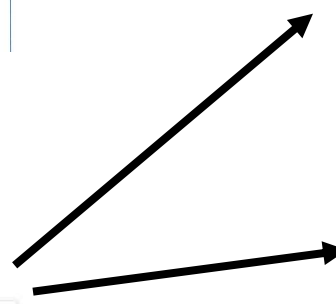
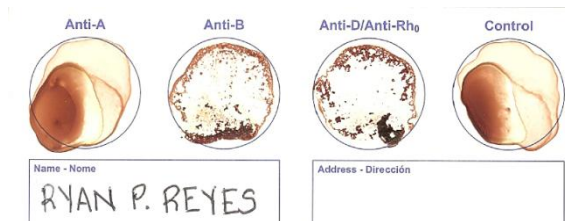
Jenny (A+)



Timmy (O+)



Ryan (B+)



Questions ?