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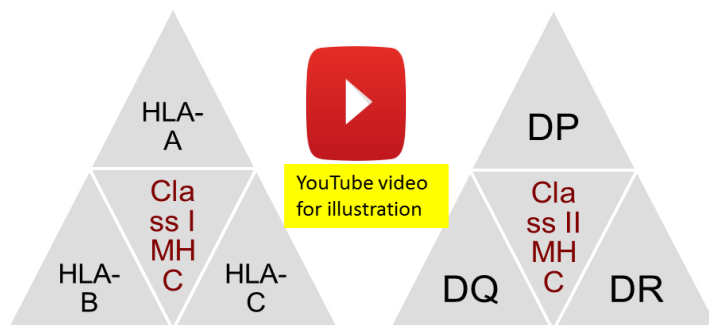
Thank you for checking our work, Good luck! If you have any suggestions or alterations contact us!

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Major Histocompatibility Complex and Transplantation

- **Human Leukocyte Antigens (HLA):** Are genes that encode for the MHC protein, and are found on the short arm of chromosome 6.
- For a transplantation procedure to be successful, there has to Be an MHC Matching between the donor and the acceptor.
- Each individual has two “**haplotypes**” i.e, two sets of these genes one paternal and one maternal
- **MHC Class II Has a stronger effect on tissue rejection than class I.**

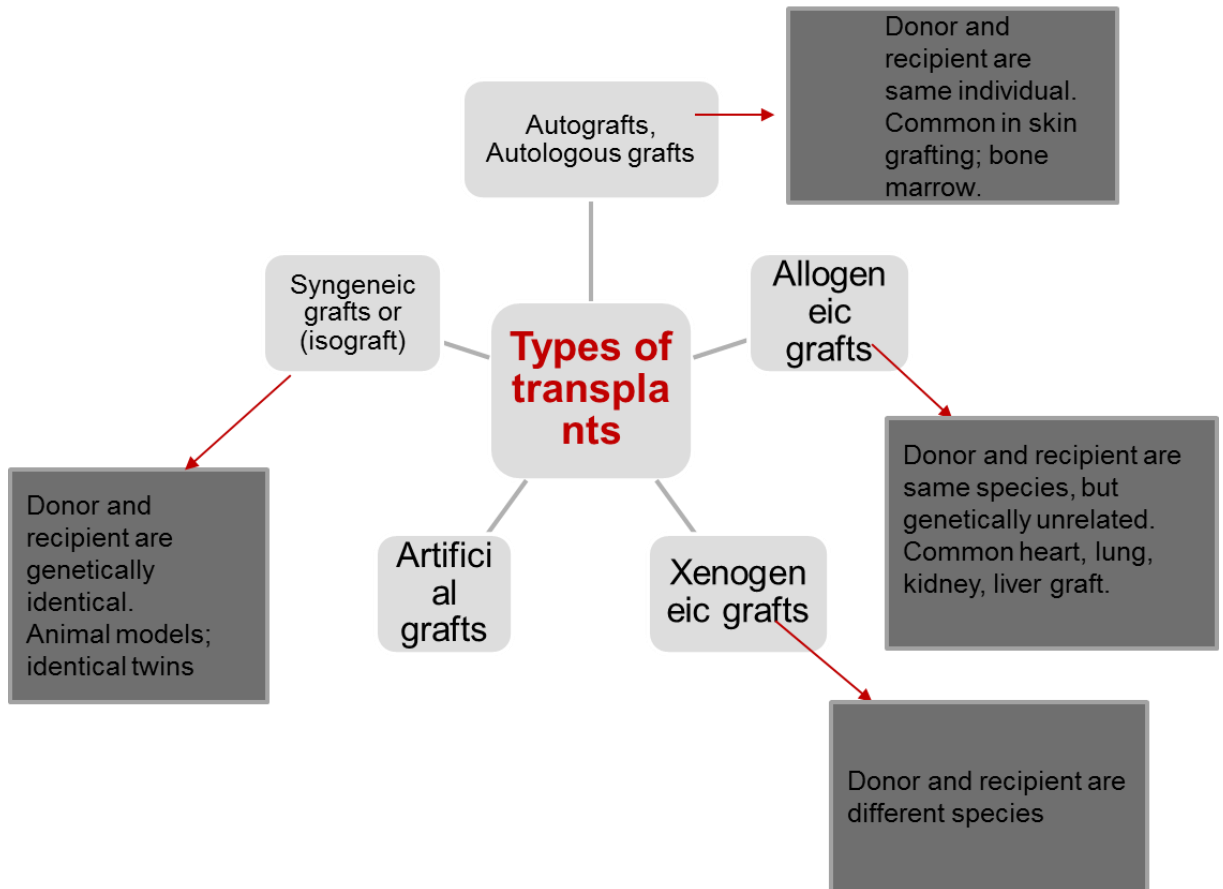
	MHC Class 1	MHC Class II
Gen Products	HLA-A,-B,&-C	HLA-DP,DQ
Cells Distribution	all nucleated cells	antigen presenting cells (macrophages, B cells, dendritic cells and Langerhans cells)
Recognized By	Cytotoxic T cell (CD8+)	Helper T cell (CD4+)



Minor HLA genes and Transplantation

- Minor HLA genes – unknown
 - They mount a weak immune response
 - Play role in chronic rejection of a graft
 - There are no laboratory tests to detect minor antigens

Types of Transplantation

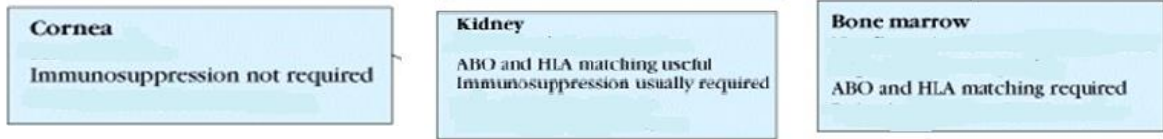


Immune responses to transplantation (Rejection):

- Major Barrier to transplantation is the immune response
 - T Cells: Has a major role (1st & 2nd set reactions). **CD4 cells are more effective than CD8 cells.**
 - B cells: May play a role (Antibodies)
 - Classic adaptive/acquired immune response
 - **Memory:** Activated as a type of a secondary response if the same graft is transplanted again (2nd set reaction).
 - Specificity

Type of rejection	Onset	Features
Hyperacute rejection:	very quick	<p><i>caused by</i> preexisting host serum antibodies</p> <p>specific for antigens of the graft</p>
Acute rejection:	about 10 days (cell mediated)	
Chronic rejection:	months-years (both) (cell mediated & Ab mediated)	<p>-Main pathologic finding :is atherosclerosis of the vascular endothelium</p> <p>-Main cause :is not known. <u>Could be due to:</u></p> <ul style="list-style-type: none"> ○ Minor histo-compatibility antigen miss match
Graft-versus-Host (GVH) Reaction		<p><u>Definition:</u></p> <p>Donor's Tc cells play a major role in destroying the recipient's cells</p> <p><u>Cause:</u></p> <p>grafted immunocompetent T cells proliferate in the irradiated immunocompromised host and reject cells with foreign proteins resulting in sever organ dysfunction</p> <p><u>Occurs in:</u></p> <p>about two thirds of bone marrow transplants</p> <p><u>Symptoms are:</u></p> <p>maculopapular rash, jaundice, hepatosplenomegaly and diarrhea</p> <p><u>Prognosis:</u></p> <p>GVH reactions usually end in infections and death</p>

Tissue Matching:



Laboratory testing for HLA matching:

HLA\Tissue typing: To determine if donor and recipient's HLA match or not before transplantation

Methods:

- 1) DNA sequencing by PCR.
- 2) Serologic Assay.
- 3) Mixed Lymphocyte Reaction (MLR).
- 4) Cross-matching.

Immunosuppression therapy:

Divided into:

- 1) General immunosuppression.
 - A. Mitotic inhibitor: azathioprine (pre & post)
 - B. Corticosteroids
 - C. Cyclosporine
 - D. Total lymphoid irradiation
- 2) Specific Immuno-suppression.
 - i) Monoclonal antibodies against T cell components or cytokines
 - ii) Agents blocking co-stimulatory signal (Anergy)

Downsides

- Must be maintained for life
- Toxicity
- Susceptibility to infections
- Susceptibility to tumors



1-genes for HLA protein are clustered in (MHC complex) located on the short arm of which of the following:

- A-chromosome 6.
- B-chromosome 17.
- C-chromosome 8.

2-which of the following play a primary role in rejection reaction:

- A-B cells.
- B-adaptive response.
- C-T cells.

3-in Graft Versus host (GVH) reaction which of the following play a primary role:

- A-donor B cells.
- B-recipient Tc cells.
- C-donor Tc cells.

4-which of the following is general immunosuppressive therapy:

- A-antibody against T cell component.
- B-total lymphoid irradiation.
- C-blocking co stimulatory signals

5-which of the following is a symptom in Graft Versus Host reaction:

- A- maculopapular rash.
- B- hepatosplenomegaly.
- C- all above.

6- Xenogeneic grafting means donor and recipient are different species ?

- A- True.
- B-False.

7- Chronic rejection occurs with in ?

- A- hours.
- B- months to years.
- C- days.

8- GVH reactions occur in :

- A- two thirds of bone marrow transplants.
- B- one fifth of bone marrow transplants.
- C- does not occur in bone marrow transplants.

9- Syngeneic grafting means that:

- A- donor and recipient are the same.
- B- donor and recipient are genetically identical.
- C- donor and recipient are same species.

10- The success of tissue and organ transplantation depends upon the donor's and recipient's ?

- A- HLA.
- B- Blood type.
- C- age.

1-A. 2-C. 3-C. 4-B. 5-C.
6-A. 7-B. 8-A. 9-B. 10-A.