

Immunology Notes

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Chapter 3

for previous lab data- find concentration for precipitate and supernatant.

Figure 4.12 on Page 51

page 51 figure 4.12 second most figure we need to know y-axis is titer, which essentially means concentration. this could be person immunized with tetanus or come down with chickenpox. IgG has half-life of about 25 days IgG response after booster considerably greater. some will get tertiary boost which will raise IgG even further. person will not get sick. 2ndary response also called anamnestic response. figure intimately related to clonal selection theory. in figure 1.1 7 is not only making antibody; it is also making more 7. 2ndary response.

CDR

CDR - Complementarity Determining Region CDR regions referred to as *Hypervariable Regions*. B-cell epitopes tend to be exposed. T-cell epitopes tend to be buried. T-cells only recognize digested antigens. need both B-cell and T-cell recognition as B-cell will not act without OK from T-cell. B-cell antibody production against polysaccharides does not require T-cell help.

Toxins and Toxoids

toxins can be irreversibly denatured via boiling or chemicals, thus making it a toxoid. it can no longer bind to receptors in the body (toxoid). regardless of denaturation epitopes still exist, so it can still be recognized (and digested). epitopes can stimulate and cause an immune response which will be effective against the real thing whenever it shows up. B-cells can digest antigen by themselves.

miscellaneous

heterophile antibodies are made against one antigen and cross-reacts with another. heterophile antigens are antigens that provoke heterophile antibodies.

there are bacterial polysaccharides that resemble blood antigens, causing antibodies to form against non-self blood.

polysaccharides - T-independent.

horse-red-blood cell antigenically similar to epstein-barr virus, so to test for mono (from epstein-barr) involves using horse-red-blood cells to test for reaction with patient's blood.

campylobacter has lipid antigens that resemble human gangliosides, which are especially rich on nerve cells. Guillaine-Barre syndrome - ascending paralysis.

adjuvants are substances that are used to boost the potency of a vaccine.

Depot effect - holds antigen in an area. provokes inflammatory cytokines.

some adjuvants increase antigen processing.

Chapter 4 - Antibody

Structure and Function

figure 7.2 ITAM - immuno-receptor tyrosine activation motif one B-cell will make only one specificity of antibody. one clone of B-cell. Effector Functions - Biologic Activity. the class of antibody is called the isotype of antibody electroendoosmosis - where flow current actually pushes weak molecules backwards from origin. multiple myeloma - a tumor of β -cells where one clone becomes cancerous and overwhelms the body. under this condition you see a very big spike in the γ region. also called gammopathy.

antibody class is determined by what kind of heavy chain the antibody has. class of antibody does not determine which light chains it has. IgA gets secreted into mucosal secretions. when IgA goes outside thru membrane a receptor binds to it to drag it across and once outside it keeps part of

that receptor, called a secretory component. FcR is receptor that binds to Fc region. Brambell receptor is used to recycle antibody. used to transfer antibody across placenta check table 4.3 natural isohemagglutinins (anti-A, anti-B) are IgM's don't worry about isotype, allotype, idiotype check out 80, 82, 83, figure 4.14