B-CELL MATURATION

B-lymphocyte precursor, pro B-cells, develop in fetal liver during embryonic life and in the bone marrow afterwards. Rearrangement of immunoglobin genes takes place on their bccoming pre B-cells which synthesized cytoplasmic lgM. in the next of immature B-cells, lgM is expressed on the cell face. this stage is called the vigin B-cell because immunocompetent but has not had contact with antigen. these cells migrate to the periphery and under immunoglobin isotype switching so that intested of lgM, lgG, lgA, lgE, By reassortment of lg genes, B-cells develop capacity to produce lg molecules which can react all the possible epitopes. by a process of allelic exclusion , each B-cell becomes programmed to only one class of lg, with either kappa and lambda light chain, processing specificity to a single epithelium alone , and to express it on the cell surface. by consist with self antigens during development, self tolerance is developed by clonal deletion or energy.

On contact with is appropriate antigen , the mature cell undergoes clonal proliferation. some active b cells become long lived memory cells. response for the recall phenomenon seen on subsequent , come with the same antigen . the majority of activate cells are transformed into plasma cells.

Plasma cell is the antibody secreting cells. it is an oval cell, about twice the size of a small lymphocyte with an eccentrically placed oval nucleus containing large blocks of chromatin located periphery (cartwheel appearance). the cytoplasm in large contains abundant endoplasmic reticulum and a develop golgi apparatus. it is structurally design to be an immunoglobulin producing factory. plasma cells are end cells and have a short life span of two three days, A plasma cells makes an

antibody single specificity , of a single immunoglobulin and allotype , and of a single light chain type. An exception is seen in the primary antibody response , ehwn a plasma cell producing lgM in it may later be switched on to lgM production. when plasma cell is antibody producing cell par lence, lymphocytes, lymphoblasts and transition cells may also synthesis lg to some extent.

A separate lineage of B-cells which are predominant in fetal and early neonatal life, express T-cell marker CD5 on their suface and have been named as BI-cells. their progenitor cells move from fetal liver to the peritoneal cavity where they multiply . they secrete low affinity polyreactive lgM antibodies. many of them auto antibody. they are responsible for the T-independent natural lgM antibacterial antobodies which appear in neonates seemingly without antigenic atimulus, CD5 B-cell may be relevant in the causation of autoimmune conditions.