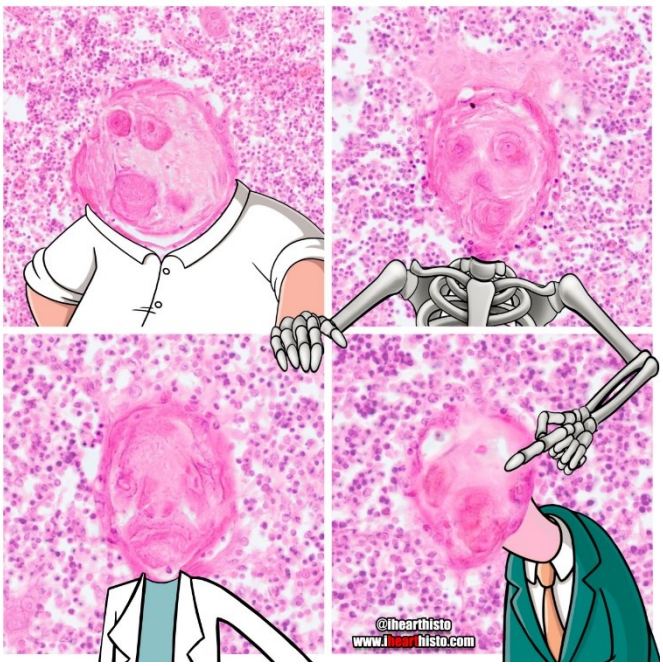

The thymus is a primary lymphoid organ: a site where immature T-cells (a type of lymphocyte) are ‘educated’.

Thymic education is a process that ensures naive, newborn T-cells only recognize MHC (major histocompatability complex) and non-self (foreign) antigen. Cells that do not pass a series of 'educational tests’ in the thymus are destroyed. This makes sure that all mature T-cells that enter the circulation will not recognize our own cells and proteins as foreign - thus avoiding the triggering of an autoimmune response.

Epithelioreticular cells (ERCs) are important cells in this education process There are six different types given roman numeral names I-VI.

Type I ERCs form the thymus-blood barrier between our blood that is filled with self/non-self antigen and the naive T-cells in the thymus awaiting education.

Type II ERCs are the level 1 educators. They present MHC-I/II proteins to naive T-cells to see if they can identify them. The T-cells that identify them pass this first test (**positive selection**) and those that don’t are eliminated. Most T-cells fail this test and are eliminated.

Type III and Type IV ERCs lie most likely allow passage of selected T-cells to the next ERCs.

Type V ERCs are the level 2 educators.They have long spindly legs covered with fragments of self antigen. If a T-cell binds one of these proteins it is eliminated from circulation and only those that do not bind reach maturity (**negative selection**).

Type VI ERCs (Hassall’s corpuscles) are a key histological feature of the thymus, however, their function (if any) is not well understood.