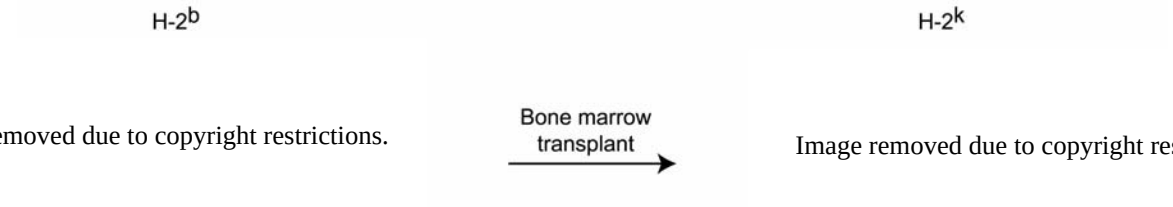
(1) Describe a possible theory as to why a mother does not reject a fetus (which is essentially an allograft with paternal

(2) Why is a co-stimulatory signal from CD28 on T cells necessary for full transcriptional activation of the IL-2 gene?

(3) Answer the questions regarding the chimeric mice described below:
A mouse denoted strain B (H-2b) is irradiated (which destroys bone marrow cells and BM derived cells) and transplanted with bone marrow from Strain A mice (H-2k).



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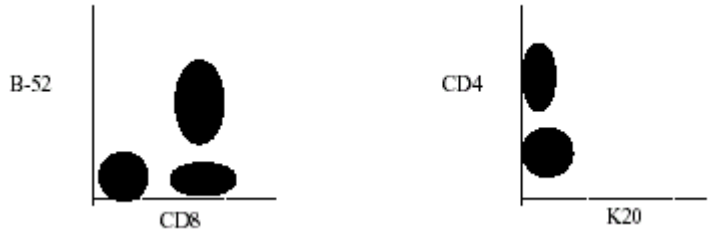
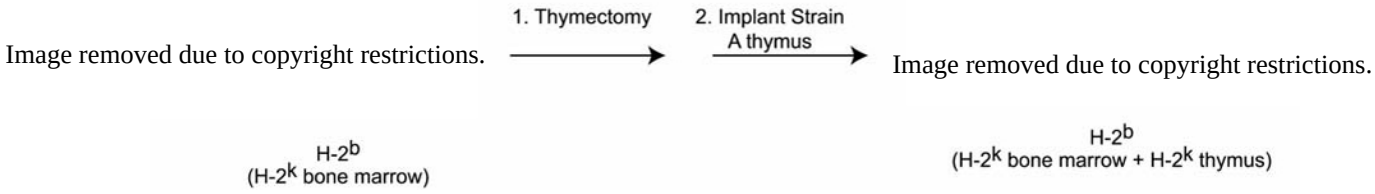
These mice are noticed to be very vulnerable to infectious illnesses of all kinds and a few of them die before they can be transferred to a germ-free environment. *Why do these mice get sick so easily?*

Peripheral blood lymphocytes are isolated from these chimeric mice and FACS analysis obtained the following results:



B-52=an antibody that binds to T-cell receptors which are restricted to D_b
K-20=an antibody that binds to T-cell receptors which are restricted to IA_k
Do these results agree with your theory? Explain.

Next, the thymii of the chimeric mice are removed and replaced with thymii from strain A mice.



These mice still exhibit a propensity to get sick, but they are now particularly susceptible to viral infections, while many bacterial infections are cleared. ***How do you explain these new findings?***