SUMMARY AND CONCLUSION

The "in vitro system" of leukocytic culture has been used during the course of this study in an effort to investigate the effect of female sex hormones (oestrogen and progesterone) on the proliferative response of blood lymphocytes. In this study, blood samples were obtained from twenty three adult male normal volunteers aging 20-40 years. The leukocytes were separated after settling of RBCs, and the initial cell density was adjusted to fit 200 x 10^3 lymphocytes per millilitre of culture. The lymphocytes were enhanced to undergo proliferation by phytohaemagglutinin (PHA). Oestrogen and progesterone were added to tween-distilled water emulsifying solution, and the concentration was adjusted to the required level in question.

The donors were classified into 2 groups; the 1st group comprising 12 individuals, and the second group comprising 11 individuals. The blood sample of each donor was divided into 3 equal parts (aliquots), the 1st served as a control culture and the other two aliquots were used as experimental cultures. The tested drug was added in three different concentrations at

the beginning of the culturing procedure.

In experiment I, progesterone was added to cultures so as to make a final concentration of 18 ng/mL; a concentration that equals the maximum physiological plasma level in menstruating non-pregnant females during the luteal phase (control cultures). In the experimental cultures, however, the concentrations were raised to 27 and 36 ng/mL which were described to equate with the hormone levels during the first and second trimesters of gestation respectively.

In experiment II, oestrogen was added to cultures so as to make a final concentration of 1 ug/mL which equals the plasma level of oestrogen during the late pregnancy weeks. This concentration was considered as control. In the experimental cultures, however, the concentration was raised to 1.5 and 2 ug/mL of culture; i.e., 150% and 200% of the control cultures.

The results of the present study showed the following:

1) Control cultures of progesterone group (18 ug/mL) showed a mean transformation score of 63.94%.
2) At concentration 27 ng/mL progesterone; i.e., 150%

of the control, the mean transformation score was 56.21%.

3) At concentration 36 ng/mL progesterone; i.e., 200% of the control, the mean transformation score was 55.33%.
4) Control cultures of oestrogen (1 ug/mL) showed that the mean value of transformed cell percentage was 65.81%.
5) At concentration of 1.5 ug/mL oestrogen; i.e., 150% of the control, the mean value of transformed cell percentage was 59.8%.
6) At concentration of 2 ug/mL oestrogen; i.e., 200% of the control, the mean value of transformed cell percentage was 56.45%.

Obviously, the mean transformation percentage was noted to decrease with increasing the level of progesterone and oestrogen per mL of culture.

In conclusion, the results recorded in control cultures of this study were consistent with the results mentioned by previous studies performed by many investigators. In experimental cultures, however, the transformation score was shown to decrease with increasing the dose of hormones; a result

which denotes that progesterone and oestrogen, at relatively high levels, inhibit blastogenic transformation of peripheral blood lymphocytes. In addition, increasing the dose of progesterone from 27 to 36 ng/mL of culture resulted in an insignificant suppression of lymphocyte proliferation; a result which denotes that the effect of progesterone on lymphocyte proliferation during the 1st and 2nd trimesters of gestation was nearly the same. Again, oestrogen at relatively high levels (1.5 and 2 ug/mL) caused suppression of lymphocyte proliferation. These two concentrations, in analogy to what has been observed in progesterone cultures, caused significant suppression of lymphocyte blastogenesis. In addition, no significant difference was noted between the two high concentrations of oestrogen, indicating that elevation of oestrogen level to 150% is sufficient to manifest its inhibitory effects on lymphocyte proliferation.