tion in a nonlinear dose-response relationship[15]. At a higher dose, therefore, the sex ratios are balanced again, presumably due to the increased destruction.

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Follicles development in the foetal human ovary

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Summary. In the foetal human ovary, diameters of oocyte and follicle, as well as those of oocyte and nucleus, are found to be positively and linearly correlated with each other. Follicle diameter and number of granulosa cells also show a positive and linear relationship. Finally, in all ovaries examined, from 5 months after conception onwards, small antral follicles were assessed.

In the present report, the quantitative patterns of oocyte and follicular growth are described in the human ovary during the intrauterine life from 5 months post-conception (p.c.) onwards. 5 foetal (21 weeks to 7 months p.c.) and 4 prematurely born specimens were obtained from the L'Aquila Provincial Hospital. The foetuses were derived from cases of spontaneous abortion. The interval between death and fixation of the tissues varies between 12 and 15 h. The standard of preservation of ovarian tissues was carefully checked during the initial examination of each specimen, and those which showed autolytic changes were discarded. In none of selected cases was there any maternal disease nor bad there been any pharmacological treatment.

The tissues fixed in Bouin's fluid were embedded in paraffin wax. Serial sections cut at 7 µm were stained with Harris haematoxylin and eosin. The diameters of the follicle, oocyte and oocyte nucleus were obtained using the method described by Mandl and Zuckerman[1] for the ovary of the adult rat. In order to establish the pattern of oocyte growth in relation to follicle growth, oocyte and follicle diameters were compared and were found to be positively and linearly correlated until the oocyte reached a mean diameter of 37 µm at a follicle diameter of 60 µm. Thereafter, the oocyte growth versus follicle growth varies less rapidly (figure 1). In this connexion it is worth noting the similarity between regression equation here calculated for foetal ovary ($y=0.53\ x+7.56$) and corresponding equation obtained by Lintern-Moore et al.[2] for infant ovary (phase A) ($y=0.57\ x+9.89$) and for adult ovary ($y=0.55\ x+9.32$).

Regression equation was also calculated for the growth of the nucleus in relation to that of follicle, in the foetal human ovary. Oocyte and its nucleus diameters were positively and linearly correlated with each other (figure 2). The relative regression equation here calculated for foetal ovary ($y=1.46\ x+6.77$) was quite different from that for infant ovary ($y=3.20\ x-43.7$)[2]: the oocyte growth versus nucleus growth foetal ovary would seem to go on less rapidly than in infant ovary.

Finally, the relationship between follicle diameter and the number of granulosa cells in the widest cross-section of the follicle was tested and was found to be linear (figure 3): the proliferation of granulosa cells appeared to determine the

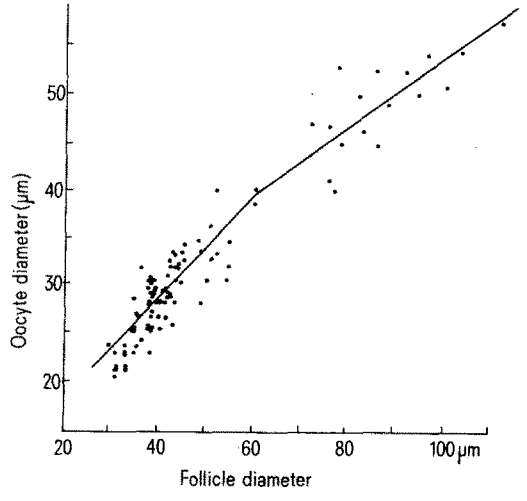

Fig. 1. The relation of the size of the oocyte to that of the follicle in the foetal human ovary. The lines shown are calculated from regressions. Line 1: $y=0.54\ x+7.56$, $r=+0.81$; $p<0.001$; line 2: $y=0.35\ x+18.0$, $r=+0.63$; $p<0.01$. Mean diameters were estimated as geometrical means between 2 measurements taken at right angles to each other.

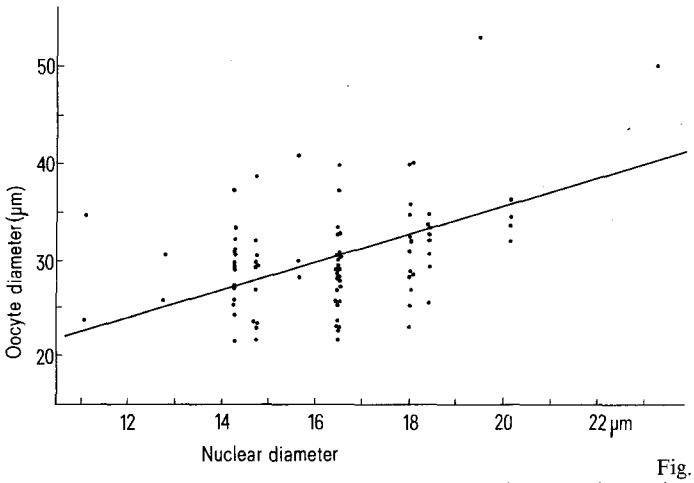

Fig. 2. The relation of the size of the oocyte to that of the respective nucleus in the foetal human ovary. The line shown is calculated from the regression: $y = 1.46\,x + 6.77$, $r = +0.51$; $p < 0.001$.

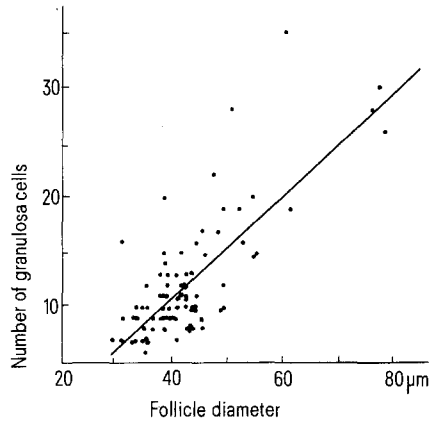

Fig. 3. The number of granulosa cells in the widest cross-section of the follicle and follicle diameter in the foetal human ovary were positively and linearly correlated: $y = 0.46\,x - 7.39$; $r = +0.51$; $p < 0.001$.

follicle size. Howewer, in all ovaries examined, regardless of age of foetus (from 5 month p.c. onwards), small antral follicles with mean diameters ranged from 0.20 to 0.40 mm and with about 100–160 granulosa cells were detected.

The occurrence of antral follicle has been reported by other authors[2-9] for newborn and foetal ovaries from 7 months p.c. onwards. In our experience, this striking characteristic of foetal human ovary is confirmed and extended until to 21 weeks of foetal life. The presence of antral follicle did not seem to be related to any patological status of parents. Particularly, none of the mothers of foetuses examined were by affected by diabetes. Therefore, we did not confirm the hypothesis of Alvin and Bauer[6] which suggested a relationship between the presence of antral follicles in the newborn ovary and diabetes in the mother. Probably, endocrine factors arising from maternal blood or from placenta are mainly responsible for antral follicle growth in the foetal human ovary.

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Inhibition or augmentation of PHA-induced lymphocyte transformation by factors of cultured lymphoblastoid cell lines[1,2]

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Summary. Stimulation of human peripheral blood lymphocytes by phytohemagglutinin (PHA) was found to be suppressed or augmented by the addition of supernatants or cell dialysates of cultured lymphoblastoid cell lines.

Human peripheral blood lymphocytes in vitro produce a variety of soluble factors upon stimulation by mitogens or antigens[3]. Established lymphoblastoid cell lines morphologically resemble these stimulated lymphocytes[4], have surface properties characteristic of bone marrow-derived (B-cells) or thymus-derived (T-cells) lymphocytes[5], and produce a variety of products[3].

In the present work, findings on soluble factor(s) derived from T- or B-lymphoblastoid cell lines capable of augmenting or suppressing the capability of human peripheral blood lymphocytes for mitogenic reactivity by PHA are reported.

Materials and methods. The following human B-cell lines were used: 1. IIBR-3: established in our laboratory, 2. Namalva[6], 3. LDV/7[7]. The T-cell lines: Molt-3 and Molt-4F[8]. The characterization of the B- and T-cell lines was done as described by Minowada et al.[8]. Cells of all lymphoblastoid cell lines were grown in agitated suspended culture at 36.5 °C.

Supernatants from lymphoblastoid cell culture (2×10^6 cells/ml) were collected. Simultaneously the cells (10^7 cells/ml) were disrupted by rapid freezing and thawing process and the dialyzable fractions collected[9]. The mixed lymphoblastoid cell line cultures were done by equal volumes of Molt-4F and Namalva, each containing 5×10^5 cells/ml. Molt-4F mixed culture with sheep red blood cells (SRBC) was prepared by equal volumes of Molt-4F (2.5×10^6 cells/ml) and SRBC (10^7 cells/ml). The cultures were propagated for 5 days. All samples were stored at −20 °C until tested for activity.

Human peripheral blood lymphocytes from 4 healthy donors were used for blastogenic transformation. The