matters arising

Blocking one-way maternal-foetal MLR

SIR,—The results of animal experiments[1,2] show that enhancing or blocking antibodies may be at least partly responsible for the apparent lack of maternal immunological response to the paternally derived histocompatability factors of the foetus. Youtananukorn and Matangkasombut[3] used peripheral blood from normal *post partum* women to demonstrate that migration inhibition of maternal leukocytes occurred in the presence of pooled placental antigens. This response was completely blocked in the presence of autologous plasma but was unaffected by plasma from unrelated *post partum* women. We have used the one-way mixed lymphocyte reaction (MLR) between maternal (responding) and mitomycin-treated (stimulating) foetal cells obtained from cord blood to investigate the possible blocking effect of autologous maternal plasma.

Peripheral venous blood samples were collected at the end of labour from 12 women who had normal pregnancies and labours. Samples of cord blood were obtained at the same time, taking care to avoid contamination with maternal blood. Lymphocytes were separated from the heparinised blood samples by erythrocyte sedimentation in Plasmagel (Roger Bellon Laboratories). Cord blood lymphocytes were incubated at a concentration of 10×10^6 ml^{-1} in mitomycin C (25 μg ml^{-1}) for 20 min at 37° C and then washed three times in Eagle's MEM medium[4]. MLR was then performed using the method previously described[5]. Results are summarised in the Table (figures in parentheses are standard deviations).

Autologous maternal plasma produced a significant inhibition of maternal lymphocyte transformation to stimulation by foetal lymphocytes in 3 out of 12 cases, while no significant effect was produced in control cultures containing homologous maternal plasma. In the presence of pooled male serum, a mixed lymphocyte reactivity of more than two occurred in only four out of twelve cases. This suggests the possibility that previous exposure of maternal lymphocytes to blocking factors *in vivo* might be partly responsible for their low responsivess to foetal lymphocytes *in vitro*.

This might explain why autologous maternal plasma only produced a significant inhibition of response in those cases with a high mixed lymphocyte reactivity. It would also account for the apparent discrepancy between our findings and those of Youtananukorn and Matangkasombut[3], since there might be different mechanisms whereby blocking factors produce their effects on lymphocyte transformation and leukocyte migration inhibition.

Yours faithfully,

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A reply will be published in a forthcoming issue.

On the origins of molecular biology

SIR,—We wish to respond to the *Nature* supplement of April 26 entitled, "Molecular Biology Comes of Age". This gives the misleading impression that a specific date[1] can be placed on the birth of molecular biology. We suggest there are earlier origins for a true molecular biology.

In 1867 Spencer wrote in *Principles of Biology:*

> "We have seen it to be a necessary inference from various orders of facts, that organisms are built up of certain highly-complex molecules which we distinguish as physiological units—each kind of organism being built up of physiological units peculiar to itself[2]."

Forerunners of present concepts of molecular biology were proposed in the period 1860–1910 by Karl Nageli

Table 1 Results of the one-way MLR

One way MLR in pooled male serum	Mean 10 min count in pooled male serum	Mean 10 min count in autologous maternal plasma	Effect of autologous maternal plasma (%)	Probability	Mean 10 min count in homologous maternal plasma	Effect of homologous maternal plasma (%)	Probability
2.2	1,200 (249)	459 (74)	38	0.01–0.02	773 (198)	64	NS
0.8	387 (70)	550 (173)	142	NS	526 (24)	136	NS
0.7	520 (72)	627 (72)	121	NS	909 (495)	175	NS
9.8	3,089 (719)	3,193 (1,058)	103	NS	2,530 (91)	81	NS
1.1	361 (89)	421 (36)	117	NS	379 (108)	104	NS
2.0	502 (125)	548 (170)	109	NS	252 (72)	50	NS
1.0	478 (57)	491 (72)	103	NS	398 (51)	83	NS
1.1	338 (75)	316 (29)	94	NS	421 (109)	124	NS
0.8	283 (54)	294 (37)	104	NS	272 (79)	96	NS
1.4	703 (121)	344 (63)	49	0.02–0.05	619 (272)	88	NS
0.8	524 (147)	346 (46)	66	NS	536 (148)	102	NS
3.8	2,007 (601)	572 (227)	29	0.02–0.05	1,242 (1,194)	62	NS

3.25×10^6 maternal (responding) and 3.25×10^6 foetal (stimulating) cells were cultured in 3 ml of Eagle's MEM medium (*p*H 7.2) enriched with 1 ml of 2 mM L-glutamine per 100 ml, for 7 d. Test cultures (in triplicate) contained 15% complement-inactivated autologous maternal plasma. Two sets of control cultures (each in triplicate) contained 15% complement-inactivated homologous maternal plasma, and 15% pooled male serum respectively. Maternal and cord blood lymphocytes were cultured separately in triplicate, to assess spontaneous transformation. Mixed lymphocyte reactivity is expressed as the ratio of the mean of the triplicate counts of the mixed cultures to the mean of the triplicate counts of the separate maternal and foetal cell cultures. The effects of autologous and homologous maternal plasma are expressed as percentages of the ratio of the mean triplicate counts of the mixed cell cultures in autologous and homologous plasma respectively, to the mean of the triplicate counts of the mixed cell cultures in pooled male serum. NS, Not significant.