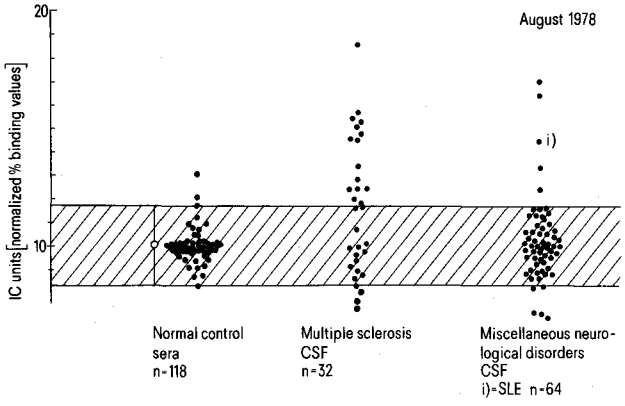
Whereas no correlations were found between the presence of CSF-IC and CSF-IgG or CSF IgG/albumin ratio, the CSF cell count was significantly higher in IC positive CSF samples (cell count in IC +ve CSF samples: 39.9±52.5; cell count in IC −ve CSF samples: 14.8±18.0; $p < 0.01$). Among 14 cases in which CSF and serum was examined on the same day, concordant results were obtained in 6 cases



Immune complexes in CSF of patients with mutiple sclerosis and in a control group from patients with miscellaneous neurological diseases.

only. No connections between presence of IC in serum or CSF and clinical data such as duration, severity, or activity of disease[6] have become apparent; follow-up studies are needed to show such relations more clearly.

While no information is yet available concerning the nature of the antigen involved[1], we consider the presence of IC in MS-CSF as evidence for long-term antigenic stimulation within the central nervous system, i.e. at the site of tissue lesion, where local immunoglobulin production has been documented[7]. Whether such IC may have pathogenic significance, possibly suggested by the demonstration of IgG deposits in MS brain[8], remains to be established.

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Conversion of glycine max seed agglutinins from nonspecific to anti-(A + B)

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Summary. The seeds of glycine max contain agglutinins which are typically nonspecific in their reactivity. Our investigations show that the phytagglutinins in GM can be converted from nonspecific to anti-(A + B) after the lectin is absorbed with horse red cells. The anti-A and anti-B fractions can be further separated by suitably absorbing the lectin with human red cells. The lectin absorbed with horse red cells or with group-0 human red cells shows an A-stressed activity.

Agglutinins in the seeds of glycine max (GM) are known to react nonspecifically with the red cells of several animal species including man and horse[1]. In this paper it has been demonstrated that the nonspecific glycine max lectin can be converted into anti-(A + B) after it is absorbed by the red cells of horse. An attempt has also been made further to isolate anti-A and anti-B fractions of the lectin by selective absorption with human red cells.

Methods. The seed extract was prepared in isotonic saline solution after Dunsford and Bowley[2]. The extract was stored in sterilized vials at −20 °C. 0.1% sodium azide was added as preservation. Absorption of the seed extract was carried out following the technique described by Moore et al.[3]. The absorbed lectin was tested soon after the final absorption was completed.

Observations. Table 1 shows the reactivity of GM lectin with 0, A, B and AB red cells. The lectin gave uniformly strong reaction with all types of red cells and behaved as a typical nonspecific phytagglutinin.

Reactivity of the GM lectin after its absorption with pooled human red cells is shown in table 2. Absorption of the GM seed agglutinins was carried out by mixing the lectin overnight with packed red cells of horse. It is interesting to note that all 6 samples of the absorbed lectin gave specifically negative reactions with pooled group-0 red cells. The absorbed lectin was further screened against 65 human red cell samples (table 3). It showed distinctly stronger reactivity (+ + to + + +) with A cells than with B cells (w+ to + + +) indicating that the absorbed lectin was probably A-stressed. All 25 group-0 samples gave consistently negative reaction with the absorbed lectin.

A confirmation of anti-(A + B) activity in the GM seed extract was sought by absorbing the lectin separately with human 0, A, B and AB red cells. 2 fractions could be

Table 1. Reactions of glycine max seed agglutinins with human pooled red cells

Lectin	Pooled red cells			
	0	A	B	AB
Glycine max	+ + +	+ + +	+ + +	+ + +

Table 2. Reactions of glycine max seed agglutinins absorbed* with human red cells (pooled)

Absorbed lectin	Human pooled red cells			
	0	A	B	AB
H_1GM	−	+ + +	+ + +	+ + +
H_2GM	−	+ + +	+ + +	+ + +
H_3GM	−	+ + +	+ + +	+ + +
H_4GM	−	+ + +	+ + +	+ + +
H_5GM	−	+ + +	+ + +	+ + +
H_6GM	−	+ + +	+ + +	+ + +

*Absorption of GM seed agglutinins was carried out separately with the packed red cells of 6 horses (H_1, H_2, H_3 ... H_6).

Table 3. Variations in the reactivity of glycine max seed agglutinins absorbed with human red cells

Red cells	Number of samples tested	H_4GM				H_5GM				H_6GM			
		+++	++	+	w+	+++	++	+	w+	+++	++	+	w+
Group A	13	9	2	2	-	13	-	-	-	12	1	-	-
Group B	22	11	3	7	1	19	2	1	-	10	5	4	3
Group AB	5	3	2	-	-	5	-	-	-	4	1	-	-
Group 0	25	-	-	-	-	-	-	-	-	-	-	-	-

separated from the lectin. 1 fraction of anti-A which was reactive with only human A and AB red cells, and other fraction of anti-B which was reactive for B and AB cells. No anti-H activity could be demonstrated in the lectin after it was absorbed with human red cells. Agglutination reactions of the absorbed lectin with human red cells (pooled) are shown in table 4. Belated appearance of agglutination with the anti-B fraction of the lectin supports our conclusion, arrived at earlier, that the absorbed lectin shows A-stressed activity.

Discussion. It is evident from the result of the present study that the agglutinatory principles in GM seed extract which bind the horse red cells are not identical with the principles that bind the receptors on the surface membrane of the human red cells, because the lectin, after it is completely absorbed with horse red cells, is still capable of agglutinating the human red cells, though selectively. The fact that the absorbed lectin gave specifically negative reaction with group-0 human red cells indicates that the absorbed fraction was anti-H. Since in all 6 samples tested, the lectin was deprived of its anti-H activity, leaving behind anti-(A+B), it appears that A-like and B-like antigen are lacking in horse. However, a more extensive screening of horse red cells is needed to establish this point beyond any doubt.

The 3 agglutinatory principles identified in the seeds of GM can be arranged in the order of their reactivity as under: anti-H > anti-A > anti-B. While anti-A and anti-B fractions can be separated by selective absorption with group-B and group-A human red cells respectively, it should be possible to secure the anti-H fraction through absorption elution technique from horse red cells or group-0 human red cells treated with the GM lectin.

Table 4. Reactions of glycine max seed agglutinins (absorbed with human red cells) against pooled red cells

Lectin	Absorbed with human red cells of group	Reactions of absorbed lectin against pooled red cells			
		A	B	AB	0
Glycine max	A	-	-(1+)	-(2+)	-
	B	2+	-	2+	-
	AB	-	-	-	-
	0	3+	1+	2+	-

Reactions shown in parenthesis appeared after 40-45 min. Other reactions were observed within 15-20 min.

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Changes in the sialic acid content of chick thymus and bursa of Fabricius during age-involution[1]

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Summary. The sialic acid content of both thymus and bursa of Fabricius during their growth and involution phases in chick has been reported in this study. It is observed that the sialic acid concentration is very high in 1-week-old chickens. The concentration subsequently decreases to a significant level and rises again prior to the onset of involution. In the post-involution period, a more or less minimal and constant level is maintained. The role of sialic acid in cellular activities of thymo-bursal system has been discussed.

The thymus and bursa of Fabricius are 2 important primary lymphoid organs of birds. These organs have been involved with cell- and/or humor-mediated immunity[2,3]. Purified glycoprotein extract of calf thymus, rich in sialic acid, has been found to contain factors enhancing lymphopoiesis[4]. Reticular epithelial cells of the thymus are supposed to synthesize such materials[5]. The migration of glycoproteins of blood and 'homing' of lymphocytes to the peripheral lymphoid organs have been found to be associated with the presence or absence of sialic acid residues. Thus, it appears that sialic acid plays an important role in the cell- and humor-mediated immunity. In birds, since both bursa and thymus undergo age-involution[6], a quantitative study on the level of sialic acid during growth and involution may throw some light on the importance of this chemical component in thymic and bursal function.

Materials and methods. Rhodes Island Red chicks of different age groups (1 week, 4 weeks, 16 weeks and 24 weeks) from Government Poultry Farm, Ranaghat, W.B., were used in this experiment. The thymus and bursa from each individual were carefully removed and weighed immediately after dissection. Sialic acid was extracted and estimated employing 'thiobarbituric acid assay method' of Warren[7]. Absorbancies were determined at 550 nm. Using

Sialic acid concentration* of the thymus and the bursa of Fabricius of chicks of different age

Age (weeks)	Amount of sialic acid in µg/100 mg of tissue	
	Thymus	Bursa of Fabricius
1	290.013 ± 9.164	183.565 ± 9.036
4	84.168 ± 3.154	196.148 ± 27.483
16	127.764 ± 4.389	118.577 ± 7.529
24	86.765 ± 2.527	114.241 ± 3.651

* Mean values from 6 determinations ± SE.