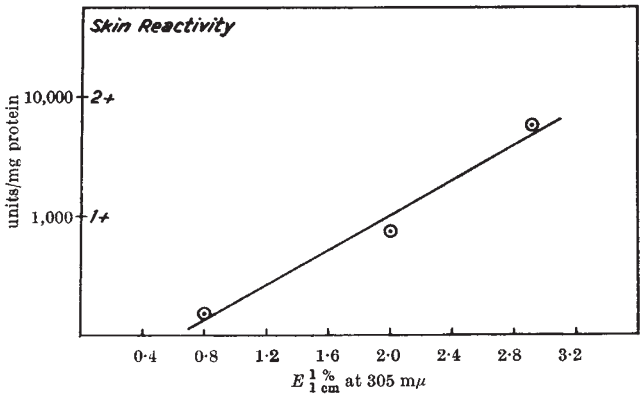

Fig. 2.

logical systems is usually diminished or lost after physical or chemical modification of the antigen.

While, therefore, satisfying another of the three requirements for proof of *N*-glycosidically bound sugar in atopic allergens stipulated earlier[2], these findings also implicate structural centres which involve *N*-glycosidic protein—sugar linkages as characteristic determinant sites in the allergen molecule.

One of us (E. B.) is working at the Central Institute for Food and Nutrition Research TNO, Zeist, the Netherlands. We thank Dr. E. Young for selecting the patients and performing the skin tests and Unilever N.V. for their financial support.

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HAEMATOLOGY

Inheritance of the Cytotoxic Factor of Human Serum

The antigenic composition of the human erythrocyte is well defined and is the basis of the established blood group systems, but little is known about individual antigenic differences in body fluids and tissue cells outside the blood groups. The cytotoxic factor of serum has been determined here with the aid of a simple method of cell culture[1–3].

When the cytotoxic effect of fresh human serum on cells was measured, only slight differences were found between sera from healthy persons; after storage for 5 days at +4° C, however, human sera could be classified by this method into one group in which the effect persisted (Cf+) and one in which it disappeared (Cf−). The distinction between Cf+ and Cf− groups offers no difficulty in normal adults.

The experiments were performed on ordinary glass plates on which HeLa cells or normal human cells had been sown together with the serum to be tested. By this means the serum can be diluted to any concentration desired and the cell density can be varied. After the cells had adhered to the glass for 6 h they were allowed to grow for 48 h and then fixed, stained and counted. The number of mitoses was then estimated.

Table 1 shows the results of the experiments with normal healthy adults. The Cf group was determined in a number of

Table 1. Frequency of Cf Groups in Healthy Adults

	Cf+	Cf−	Number	Percentage Cf+
Men	28	15	43	65
Women	19	20	39	49
Number	47	35	82	57

Table 2. Cf± Characteristics of Parents and Offspring

	Mating		Children	
	Father	Mother	Cf+	Cf−
1.	Cf+	Cf+	♂♂♀	—
2.	Cf+	Cf+	♂♀♂	—
3.	Cf+	Cf+	♀♂♀♂♀	—
4.	Cf+	Cf−	♂♂	♀♂
5.	Cf+	Cf−	♂♂♂	—
6.	Cf−	Cf+	♀♂	♀♀
7.	Cf−	Cf+	♀	♂
8.	Cf−	Cf+	♂	♀
9.	Cf−	Cf+	♂♀	—
10.	Cf−	Cf−	—	♂♀♀♂
11.	Cf−	Cf−	—	♀♂
12.	Cf−	Cf−	—	♀♀♀♀

samples of serum collected from healthy subjects on different occasions over a period of 3 years. The samples from any given individual were all of the same Cf group. There was no significant difference in the sex distribution of the two Cf groups. The family material is in Table 2 and shows that the Cf factor is hereditary. The observations are consistent with the assumption of autosomal unifactorial inheritance. No correlation was found between the Cf group and the various blood groups, age, diet and sex. Heating the sera to +56° C for half an hour had no demonstrable influence on the test results.

This investigation is supported by grants from the Swedish Cancer Society.

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Uncommon Electrophoretic Patterns of Serum Cholinesterase (Pseudocholinesterase)

Harris *et al.*[1] used two-dimensional electrophoresis on filter paper and in starch gel to show that serum cholinesterase is made up of several electrophoretically separable components. After completion of the runs, four zones of pseudocholinesterase activity were found in the gels, corresponding to at least four isozymes which are called C_1, C_2, C_3 and C_4. The last is the slowest component, in which most of the pseudocholinesterase activity is localized.

In some individuals an additional zone, C_5, has been found[1,2] which is slower than C_4. Studies of families led to the hypothesis that these subjects are carriers of a gene which, in the heterozygous state, controls the production of a pseudocholinesterase variant corresponding to this zone. C_5 has been found in the English population and also in Tristan da Cunha islanders who are mostly of English ancestry[2].

Oki *et al.*[3], using vertical starch gel electrophoresis, have found four fractions with pseudocholinesterase activity in horse sera; as in man, some of these equine sera showed an additional zone and pedigree studies demonstrated that the corresponding component might be a genetically determined variant, which was also called C_5.

The present communication deals with two "new" electrophoretic patterns of serum cholinesterase, which show some additional components distinct from C_5 which have so far been found only in unrelated African subjects.

Two dimensional electrophoresis was first performed on thick filter paper, using barbital buffer at *p*H 8·6, and then in starch gel using the discontinuous *tris*-borate buffer system of Poulik[4]. 70 μl. of fresh serum was used and the zones of enzyme activity were revealed by the