In most cases of Hodgkin's disease Hodgkin and Reed-Sternberg cells showed membrane staining with monoclonal antibodies against the interleukin 2 receptor. Surprisingly, positive reactivity with the anti-Tac antibody was also shown by most tissue macrophages and a variety of monocytoic cells. Starry sky macrophages in lymphoid tissue as well as the granulomas formed in patients with sarcoidosis of the lung showed Tac positivity. Most strikingly, two leukaemic cell lines (U 937 and HL-60) that are known to show macrophage features after having differentiated under the influence of a tumour promoter became positive for Tac after induction of TPA. In the skin the anti-Tac antibody reacted consistently with sweat gland epithelium. Thus the monoclonal antibodies against the interleukin-2 receptor react with at least three different cell lineages, also including non-lymphoid cell lineages. Clinical trials with purified or recombinant interleukin 2 should take into account the broader distribution of the Tac antigen.

R SCHWARTING

J GERDES

H STEIN

Free University of Berlin,
Klinikum Steglitz,
Institute of Pathology,
Hindenburgdamm 30,
1000 Berlin 45, West Germany

References

- Korsmeyer SJ, Greene WC, Cossman J, *et al*. Rearrangement and expression of immunoglobulin genes and expression of Tac antigen in hairy cell leukemia. *Proc Natl Acad Sci USA* 1983;80:4522.
- Tsuda M, Uchiyama T, Uchino K, Uchino H. Expression of Tac antigen on activated normal human B cells. *J Exp Med* 1984;160:612.

EDTA plasma rather than serum for B₁₂, folate, and ferritin estimations?

To establish the cause of macrocytic or microcytic red cells it is sometimes necessary to undertake vitamin B₁₂ and folate assays or an estimate of iron stores. Most laboratories use serum for the estimation of B₁₂, folate, and ferritin when a peripheral blood abnormality in ethylene diamine tetra-acetic acid (EDTA) anticoagulated blood has been found. A further sample of clotted blood is then requested as the abnormality was usually unsuspected at the time of the initial venepuncture. On most of these occasions, however, excess EDTA plasma is

available, unused, and unwanted in the original sample tube. Such plasma is, we suggest, entirely suitable for radioisotopic estimation of B₁₂, folate, or ferritin.

We compared plasma and serum B₁₂, folate, and ferritin assays in blood from 56 National Blood Transfusion Service donors. A 4 ml dipotassium EDTA anticoagulated bottle and a 10 ml plain glass bottle were filled after 450 ml venesection, and the samples were sent to arrive in the laboratory within six hours. The anticoagulated blood was processed in a Model S Plus blood count analyser (Coulter), and excess plasma and separated serum were then placed in plastic tubes, frozen, and stored at -20°C to be assayed within one week.

B₁₂, folate, and ferritin assays of plasma and serum were performed in duplicate using the B₁₂/folate Combostat II radioassay kit (Micromedical Systems, Hersham, England)¹ and the Micromedical ferritin radioassay kit. A close correlation between plasma and serum B₁₂, folate, and ferritin concentrations was found ($r = 0.98, 0.96, 0.97$, respectively) across the wide range of values represented in the donors studied (B₁₂ 95-900 ng/ml, folate 1.25-10.5 µg/l, and ferritin 100-500 µg/l). Furthermore, no consistent differences in values measured in plasma or serum could be detected using the paired *t* test. We were, therefore, unable to confirm the reported finding of consistently lower B₁₂ and folate measurements in plasma as opposed to serum with the Simultrac radioassay kit (Becton and Dickinson (UK), Wembley, Middlesex).² The accuracy and precision of measuring these three variables in plasma and serum were investigated by duplicate testing of paired plasma and serum samples from 10 healthy volunteers and replicate analysis of 11 measurements on a single plasma or serum sample, and no significant differences were apparent.

We believe our results should encourage others to exploit the advantages of measuring B₁₂, folate, and ferritin in the excess plasma remaining in the original "abnormal blood count" tube, which would obviate the need to request generation of a

further serum sample. Plasma assays relate directly to the sample in which the blood count abnormality was found, which can never be the case with serum samples. Much may happen clinically and therapeutically between showing an abnormal EDTA blood count and the subsequent arrival of a clotted blood sample in the laboratory. Indeed, failure to receive a serum sample is by no means uncommon. In a study of the importance of macrocytic red cells in patients attending a university hospital serum samples for B₁₂ and folate assays were obtained from only 48% of relevant patients despite specific requests by the laboratory for generation of samples for assays.³

In practice the ready availability of plasma B₁₂, folate, and ferritin estimations in our laboratory enables us as haematologists to comment more meaningfully on the importance of abnormal blood counts without the need to seek further samples. The potential hazards associated with delays are avoided, and we hope that the chances of belated recognition and thus treatment of B₁₂ deficiency in particular should be greatly reduced. We believe that plasma estimations greatly enhance the haematology laboratory's contribution to clinical care.

LISBERT SVILAND

RSC RODGER

JB FAIR

PJ HAMILTON

Royal Victoria Infirmary
Queen Victoria Road
Newcastle upon Tyne NE1 4LP

References

- Raniolo E, Phillipon G, Paltridge G, Sage RE. Evaluation of a commercial radioassay for the simultaneous estimation of vitamin B₁₂ and folate, with subsequent derivation of the normal reference range. *J Clin Pathol* 1984;37:1327-35.
- Nash BJ, Lim-Yin YW. A discrepancy between plasma and serum values for vitamin B₁₂ and folate. *Med Lab Sci* 1979;36:297-8.
- Davidson RJL, Hamilton PJ. High mean red cell volume: its incidence and significance in routine haematology. *J Clin Pathol* 1978;31:493-8.

Duplicate assay testing and replicate analysis of B₁₂, folate, and ferritin in paired plasma and serum samples

	Duplicate testing (SD)		Replicate testing (coefficient of variation)	
	Plasma	Serum	Plasma	Serum
B ₁₂ (ng/l)	15.1	15.4	3.4%	5.3%
Folate (µg/l)	0.08	0.05	5.6%	4.3%
Ferritin (µg/l)	3.24	1.27	6.5%	5.9%