



Appearance of legs (A) before and (B) 11 days after first CD4 antibody infusion.

role in this disorder. Not only the generalised exacerbation of psoriasis but also the chronic psoriatic plaques responded. The nature of the putative, epidermis-derived, stimulus-inducing T-cell activation and infiltration remains unknown.

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CD4 antibody treatment of severe psoriasis

SIR,—Dr Poizot-Martin and his colleagues (June 15, p 1477) suggest that CD4 monoclonal antibodies and peptide T could be helpful in the treatment of resistant psoriasis. We have initiated a phase II clinical trial of a CD4 monoclonal antibody in generalised severe psoriasis and we report this treatment in three patients.

The first patient, a 61-year-old man who had psoriasis vulgaris for 23 years, had a severe psoriatic erythroderma with a psoriasis area sensitivity index (PASI) of 35 a few days before entering the study. He received daily 2 h infusions of CD4 antibody (clone BB14, murine IgG₁, 0.2 mg/kg per day) for 8 days. Clinical tolerance was very good, apart from chills during the first infusion. Improvement started on the fourth day of treatment and was greatest at day 30 (PASI, 12). He deteriorated progressively within a 2-month follow-up (PASI, 20).

The two other patients (aged 40 and 32), with disease duration of 10 and 13 years, respectively, had chronic psoriasis (PASI, 15 and 16). Previous treatments, including retinoids and methotrexate, had

been withdrawn because of lack of efficacy and/or toxic side-effects. These patients received CD4 antibody (0.8 mg/kg per day for 3 days, then 0.4 mg/kg per day for 5 days). Clinical improvement was observed on day 8 (PASI, 10 and 8, respectively) and was greatest after 3-4 weeks (PASI, 0 and 4, respectively). In all three patients histological examination of healed skin lesions taken at day 30 showed an almost normal appearance of the skin architecture, with some signs of fibrosis but without any epidermal or dermal signs of psoriasis.

The pathogenesis of psoriasis is still unclear but recent studies have emphasised the role of activated CD4 cells infiltrating the lesional skin.^{1,2} The therapeutic activity of cyclosporin² and our results with CD4 monoclonal antibodies support this hypothesis and suggest that CD4 cells may be relevant targets for immunointervention in the most severe forms of this disease.

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Detection of *Chlamydia pneumoniae*

SIR,—We were surprised by the information put forward by Dr Hahn and Ms Dodge (April 6, p 849) to indicate the sensitivity and specificity of enzyme immunoassay (EIA) and direct fluorescent antibody (DFA) techniques for detecting *Chlamydia pneumoniae*. They diluted a suspension of *C pneumoniae* and inoculated each dilution onto McCoy cell monolayers (in triplicate). After incubation, the number of inclusions in one set of monolayers was assessed; the second set of monolayers was swabbed and the swabs tested by EIA; and the third set was swabbed and the swabs tested by DFA. However, since the number of elementary bodies on the swab available for testing by EIA or DFA after swabbing a monolayer may bear no relation to the number of inclusions counted in the monolayer, and certainly have no relation to the number of elementary bodies expected at a particular dilution of the

original suspension, it is impossible to conclude anything about the relative sensitivities of the tests. Furthermore, the conclusion that "there was good specificity for both EIA and DFA tests" when non-specificity from other microorganisms can be assessed only by testing clinical specimens is also misplaced. What Hahn and Dodge should have done, as we previously have for *C trachomatis*,¹ is simple. After diluting a suspension of *C pneumoniae* (in triplicate) and inoculating the first series of dilutions onto McCoy cell monolayers to determine inclusion numbers, they should have tested the second series directly by the EIA and the third directly by DFA. We have done the second and third of the comparisons mentioned above, excluding assessment in cell culture. Three EIAs ('Wellcozyme', IDEIA, and 'MicroTrak') detected *C pneumoniae* at a dilution of 10^{-5} or 10^{-6} of the original suspension, while at least 30 elementary bodies were detected at a dilution of 10^{-8} by DFA ('Chlamydia-Cel TWAR'). Clearly, the DFA test is likely to be superior for clinical specimens containing small numbers of elementary bodies.

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1. Taylor-Robinson D, Thomas BJ, Osborn MF. Evaluation of enzyme immunoassay (Chlamydiazyme) for detecting *Chlamydia trachomatis* in genital tract specimens. *J Clin Pathol* 1987; 40: 194-99.

** This letter has been shown to Dr Hahn and Ms Dodge, whose reply follows.—ED. L.

SIR,—Professor Taylor-Robinson and Dr Thomas present interesting data indicating that a direct fluorescence antibody (DFA) test is more sensitive, by several orders of magnitude, than several enzyme immunoassay (EIA) tests in the detection of *C pneumoniae* elementary bodies in suspension. We readily accept this result because it seems reasonable to expect that small numbers of suspended elementary bodies, detectable by DFA, would not provide sufficient material to ensure a positive reaction on EIA.

We were asking a different question, and used monolayer cell cultures (not suspensions of elementary bodies) to answer it. In the early stages of our work, we did discuss testing suspensions of elementary bodies in a manner similar to that reported by Taylor-Robinson and Thomas. However, we decided to study intact cell layers because we wanted to answer a basic clinical question—namely, "Given a patient with X number of *C pneumoniae* inclusions per area of infected pharynx (or nasopharynx, or whatever), what is the likelihood of detecting the infection by use of currently available rapid tests?" We used the McCoy cell monolayer as a proxy (a poor one but all that was available to us) for the infected epithelium, and compared direct inclusion counting with the rapid tests. In this system, the DFA results are influenced by such factors as absorption of material into the swab, and incomplete transfer of elementary bodies onto the glass slide, which may account for the apparent loss of "sensitivity" of the DFA. Sampling problems such as these may account for the finding that EIA is more sensitive than DFA for the detection of *C trachomatis* cervical infection in a clinical setting.¹ Our system, therefore, might actually be a realistic test of the results to be found in clinical practice. We emphasise that we do not know the variability of inclusion counts among monolayers inoculated with the same dilution of elementary bodies, and suggest that this factor should be studied by anyone wishing to pursue our approach further.

Your correspondents criticise us for using the word "specificity". We merely wished to point out that the EIA and the DFA were negative whenever the inclusion count was zero; in the context of our data, the specificity was 100%. We did not discuss sensitivity.

Taylor-Robinson and Thomas' criticism is based, at least in part, on the fact that we seem to have come at the problem from opposite viewpoints—ours being that of the "end-user" (clinician) and theirs, we assume, that of the "developer". These viewpoints are complementary rather than mutually exclusive—and so, we believe,

are our data. We apologise for not stating our research premise in more detail, but in a letter we tried, perhaps mistakenly, to be as brief as possible.

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Spermaturia and sex chromosome abnormalities

SIR,—The examination of urine for spermatozoa was first recorded in 1928 for the assessment of sexual maturation.¹ In a prospective study the mean age of onset of spermaturia was found to be 13.3 years.² A recent analysis of 1160 first morning urine specimens from 129 healthy German schoolboys revealed an increase in positive results from 6% prepubertally to 92% at pubic hair stage 5 (Tanner), with a median age of first positive spermaturia of 14.1 years.³ With the same technique in 21 boys with sex-chromosome abnormalities, identified by cytogenetic screening of livebirths,⁴ sperm were found in the early-morning urine of 2 boys with mosaic karyotypes and in 2 with an additional Y chromosome, all at stage 5 genital maturity (G5) with testicular volumes of 15–25 ml (table).

SPERMATURIA RESULTS BY KARYOTYPE

Karyotype	No	Age range	Pubertal stage*	Spermaturia
47,XXY	10	10.8–20.7	G2–G5	0/10
47,YYY	6	12.0–21.0	G1–G5	2/6
46,XY/47,XXY	3	13.5–18.2	G5	2/3
48,XXXY	1	14.4	G4	0/1
45,X/46,XY/47,YYY	1	19.1	G5	0/1

*G1–G5 correspond to Tanner's genital stages 1–5.

While sperm counts in seminal fluid have not yet been attempted in view of the boys' ages, the examination of urine for the presence of sperm provides a simple non-invasive technique for assessing testicular function and, combined with salivary testosterone estimation,⁵ contributes to the description of the natural history of these conditions as a baseline for prognosis and clinical management.

Although most men with a 47,XXY karyotype would be expected to be azoospermic, proven paternity has been described⁶ and may be comparable to the short-lived fertility of a minority of women with Turner's syndrome.⁷ In such areas the possibility of storing and combining sperm samples at an early stage in the reproductive phase may be a successful strategy for those 47,XXY men who desire a child, although the percentage of abnormal sperm would need to be assessed.

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