in T91-10 but absent from T91 co-migrates with a band from the purified particles. These data strongly suggest, therefore, that the Ty-VLPs contain p2. The nature of the 70 K protein, however, is unclear.

The discovery of reverse transcriptase associated with a VLP that contains Ty RNA provides the first protein components in a mechanistic model of Ty transposition. Presumably, as is the case for retroviruses, the enzyme catalyses the production of the dsDNA form of the element from the full-length particle-bound RNA template and $tRNA^{Met}$ primer, and then integration could be mediated by an endonuclease. In retroviruses this endonuclease derives from a post-translational cleavage of the primary *pol* product[26-31]; it remains to be seen whether the same is true for Ty. Irrespective of the enzymological details, it must be established whether the Ty-VLPs act as units of transposition or are simply the result of an obsolete viral packaging pathway that is perhaps conserved to sequester the potentially chaotic reverse transcriptase away from cellular RNAs.

Recent observations[3-6,32], and the data presented here, appear to establish a close relationship between Ty and retroviruses. However, a comparison of the genomic organization of Ty with that of a generalized retrovirus reveals a major difference. Most retroviruses contain three major protein-coding regions: *gag*, which codes for the viral core components; *pol*, which encodes the reverse transcriptase and integrative endonuclease; and *env*, which codes for viral surface components[2]. *TYA* and *TYB* correspond, in position, to *gag* and *pol* respectively, but Ty appears to lack an *env* region. Thus, Ty may be considered a 'defective retrovirus' and its lack of *env* may explain its relatively small particle size (60 nm as opposed to 80–120 nm for retroviruses[33]), *env* may have been lost because it was not needed after some ancestral retrovirus found itself trapped within the walled yeast cell. Alternatively, it may not have evolved because selection for such a structure would not have occurred in a particle without an extracellular stage.

Intracellular retrovirus-like particles have been identified in other systems. The most notable are the A-type particles seen in mouse cells[34] and the VLPs that contain *copia* RNA and reverse transcriptase activity in *Drosophila*[15]. It seems feasible, therefore, that the distribution of this class of genetic elements may be as broad as that of authentic retroviruses. These elements may be responsible for a wide range of genomic rearrangements, gene activation phenomena and the generation of various reverse-transcribed products such as intronless pseudogenes[35-37] and the human *Alu* repeats[38].

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Following submission of this paper, similar results were published by Garfinkel *et al.*[39].

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Errata

Electrostatics revindicated classically

R. Nityananda

Nature **316**, 301 (1985).

IN line 16 of this item the word 'contribution' should read 'contradiction'.

Labelling the axes of graphs...

L. Wilson

Nature **316**, 489 (1985).

IN this Scientific Correspondence contribution, the third paragraph should begin: 'The example quoted above requires the observation that if "Radioactivity $= 5 \times 10^3$ c.p.m." then "$5 =$ (Radioactivity $\times 10^{-3}$)/c.p.m." or "$5 = 10^{-3}$ (Radioactivity/c.p.m.)" or "$5 =$ Radioactivity/(c.p.m. $\times 10^3$)". Thus the right-hand sides of any of these last three equations...'

Corrigenda

Hepatitis B virus contains pre-S gene-encoded domains

A. R. Neurath, S. B. H. Kent, N. Strick, P. Taylor & C. E. Stephens

Nature **315**, 154-156 (1985).

IN Fig. 1 legend there is an error in the one-letter-code sequence of peptide pre-S(12-145) in the text to panels *A*/*B*. Position 136 should be a valine residue (V) instead of a tyrosine residue (Y).

A crucial epileptogenic site in the deep prepiriform cortex

S. Piredda & K. Gale

Nature **317**, 623-625 (1985).

THE authors' address was incomplete and should read: Department of Pharmacology, Schools of Medicine and Dentistry, Georgetown University, Washington, DC 20007, USA.

Hypervariable telomeric sequences from the human sex chromosome are pseudoautosomal

H. J. Cooke, W. R. A. Brown & G. A. Rappold

Nature **317**, 687-692 (1985).

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