
Letter to the Editor

To the Editor

A recent publication by Zobeley et al. (1) describes innovative experiments in which segments of scrapie-contaminated stainless steel wire were assayed for infectivity by implanting them in the brains of mice. The amount of infectivity on such samples cannot be titrated by injecting serial tenfold dilutions, as one can do with homogenates of infected tissue. Therefore, the amount of infectivity on the wire segments could only be quantified by matching the mean incubation periods of the different groups of recipient mice with a standard dose-response/incubation period curve for the scrapie agent used. One of these segments was immersed in 10% formaldehyde for an hour before implantation, from which it was calculated that $10^{3.1}$ LD₅₀ could be recovered. However, this is likely to be an underestimation because dose-response curves for scrapie-like agents are shifted, and become significantly extended after exposure to partially-inactivating procedures (2–7). This results in underestimates of infectivity levels when these are calculated on the basis of incubation periods.

David M. Taylor
Karen Fernie
Philip J. Steele

Neuropathogenesis Unit
Institute for Animal Health
Ogston Building, West Mains Road
Edinburgh, EH9 3JF

References

1. Zobeley E, Flechsig E, Cozzio A, Enari M, Weissman C. (1999) Infectivity of scrapie prions bound to a stainless steel surface. *Mol. Med.* **5**: 240–243.
2. Dickinson AG, Fraser H. (1969) Modification of the pathogenesis of scrapie in mice by treatment of the agent. *Nature, London* **222**: 892–893.
3. Kimberlin RH. (1977) Biochemical approaches to scrapie research. *Trends Biochem. Sci.* **2**: 220–223.
4. Lax AJ, Millson GC, Manning EJ. (1983) Can scrapie titres be calculated accurately from incubation periods? *J. Gen. Virol.* **64**: 971–973.
5. Somerville RA, Carp RI. (1983) Altered scrapie infectivity estimates by titration and incubation period in the presence of detergents. *J. Gen. Virol.* **64**: 2045–2050.
6. Prusiner SB, Groth D, Serban A, Stahl N, Gabizon R. (1993) Attempts to restore scrapie prion infectivity after exposure to protein denaturants. *Proc. Natl. Acad. Sci. U.S.A.* **90**: 2793–2797.
7. Taylor DM, Fernie K. (1996) Exposure to autoclaving or sodium hydroxide extends the dose-response curve of the 263K strain of scrapie agent in hamsters. *J. Gen. Virol.* **77**: 811–813.