Infectivity of scrapie prions

Molecular Medicine 5: 701, 1999

Molecular Medicine

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 $10^{3.1}$ LD_{50} 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.

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