

'Prion' diseases

Sir—Professor Prusiner is not the first to moot the heretical idea that the unique organism(s) which transmits these sinister spongiform encephalopathies might replicate without the benefit of nucleic acid: Iain Pattison and his colleagues, put forward this hypothesis in 1967 [1]. This notion is by no means universally accepted, however, and to label these afflictions 'prion' (a cryptogram of 'infectious protein') disease, implying that the agent is a self-replicating protein [2], is therefore to obstruct research. There is good evidence that the infectious agent does contain virus but that it is locked up inside a tough proteinaceous capsule [3]; furthermore, in a recent contribution to the debate [4], very convincing virus-like particles are revealed in scrapie hamster brain.

The presence of a capsule would explain the agent's extraordinary resistance to all the manoeuvres which inactivate viruses including ionising radiation; formalin fixation for 10 years and [5], 'exposure to huge doses of ultra-violet light'. Researchers should concentrate on cracking its tough capsule. About a hundred years ago Robert Koch was confronted by a similar situation, albeit at the microscopic rather than the ultra-microscopic level. His efforts to make progress with the tubercle bacillus came to a standstill until he tackled its tough (lipid) capsule.

References

- 1 Pattison IH, Jones KM. The possible nature of the transmissible agent of scrapie. *Vet Rec* 1967;80:2-9.
- 2 Prusiner SB. Novel proteinaceous particles cause scrapie. *Science* 1982;216:136-44.
- 3 Narang HK, Asher DM, Gajdusek DC. Evidence that DNA is present in abnormal tubulo-filamentous structures found in scrapie. *Proc Natl Acad Sci USA* 1988;85:3575-9.
- 4 Özel M, Diringier H. Small virus-like structure in fractions from scrapie hamster brain. *Lancet* 1994;343:894-5.
- 5 Alper T, Cramp WA, Haig DA, Clarke MC. Does the agent of scrapie replicate without nucleic acid? *Nature* 1967;214:764-6.

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and, in a subsequent communication, also in human CJD brain

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There are several virologists I know who agree with these views. In fact ALL the virologists I know! Including John Pattison.

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