The Metabolism of Encephalitogenic Protein from Rat Brain

By J. G. WOOD and N. L. KING (*Departments of Anatomy and Biochemistry, Emory University, Atlanta, Ga. 30322, U.S.A.*)

The antigen for inducing allergic encephalomyelitis is a basic protein that can be isolated from myelin. The metabolic properties of this protein may have significance for diseased states of myelin as well as for the fundamental problem of whether myelin is metabolically dynamic or stable. The time-course of loss of radioactive label from the basic protein has been followed from 1 week to 4 months in rats injected with four doses of [^3H]leucine every 12h beginning at age 10 days (immature) and 70 days (mature). Basic protein was obtained from whole brain by acid extraction at pH 3.0 after treatment with chloroform and methanol. The label in

basic protein fell from a maximum of several thousand c.p.m. 1 week after injection to almost background values 4 months after injection. To confirm this finding, electrophoresis of the basic-protein preparations was performed at pH 4.3 on polyacrylamide gels, and the optical absorptions of both basic-protein major bands were determined with a micro-densitometer. There was no significant difference in the absorptions of bands from rats of different ages. The bands were cut out and dissolved in 30% H_2O_2 for liquid-scintillation counting. From the results obtained by this method the label in basic protein had completely disappeared in 4 months, with a half-life of 21 days.

This work was supported by U.S. Public Health Service Grants NB08278 and NB05669 from the National Institutes of Health and by National Multiple Sclerosis Grants 464A and 464D-8.