

molecule during plastic adaptations of the central nervous system. (Supported by Deutsche Forschungsgemeinschaft)

- 1) Schmidt, R. and Shashoua, V.E. (1981) *J. Neurochem.* **36**, 1368-1377.
- 2) Schmidt, R. (1986) In: Matthies, H. (Ed.) *Learning and Memory: Mechanisms of Information Storage in the Nervous System, Adv. Biosci.* **59**, Pergamon, Oxford, pp. 213-222.
- 3) Shashoua, V.E. (1988) *Neurochem. Res.* **13**, 649-655.
- 4) Schmidt, R., Rother, S., Schlingensiefen, K.-H. and Brysch, W. (1991) In: Elsner, N. and Penzlin, H. (Eds.) *Synapse, Transmission, Modulation*, Thieme, Stuttgart, p. 30.

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Zinc binding properties of a rapidly inducible, CNS specific cell adhesion protein

Ependymin, a secretory mono- (31 kDa) and bi-N-glycosylated (37 kDa) cell adhesion protein specific of the central nervous system, is known to form dimeric molecules⁽¹⁾, to bind ⁴⁵Ca⁽²⁾, and to polymerize in the absence of calcium⁽³⁾. Because ependymin mRNA is rapidly induced during behavioural adaptations of the goldfish CNS⁽⁴⁾, calcium and zinc binding properties of isolated ependymin transferred to nitrocellulose membranes were qualitatively compared by autoradiography. For quantitative analysis isolated ependymin was incubated with ⁴⁵Ca or ⁶⁵Zn and separated from unbound radioligands by vacuum filtration on nitrocellulose filters. Ion specificity was tested by addition of other metal cations. Both, calcium and zinc, displayed specific, saturable, reversible, high affinity binding to ependymin. Neither displaced zinc bound calcium ions, nor did calcium displace bound zinc. Binding capacity amounted to approximately one zinc ion to two ependymin subunits, but only one calcium ion to 43 ependymin molecules. Results are in accordance with the interpretation, that only dimeric ependymin conformations bind zinc, whereas monomers, that provide approximately 3% of ependymin under physiological conditions, are stabilized by calcium. Both metal cations are supposed to modulate steric properties of this cell adhesion