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GRANULE CELLS WITH BASAL DENDRITES FOLLOWING
STATUS EPILEPTICUS ARE NEWLY GENERATED
GRANULE CELLS
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Rationale: Granule cells with hilar basal dendrites are found after
status epilepticus (SE) in three models of temporal lobe epilepsy. These
granule cells are commonly located at or very near the hilar border.
This region is the same general location where precursor cells give rise
to newly born granule cells after SE. The aim of this study was to
determine whether some of the granule cells with basal dendrites fol-
lowing SE are newly generated. Methods: Sections of the hippocampal
dentate gyrus from rats with kainate- or pilocarpine-induced SE were
immunolabeled with antibodies to TOAD-64. This protein is an early
postmitotic, cytoplasmic marker transiently expressed in neurons fol-
lowing their birth. Results: TOAD-64 immunolabeling was found
within the perikaryal cytoplasm and throughout the dendritic and axo-
nal arbors of granule cells at the hilar border as previously described
(Parent et al., J. Neurosci., 1997). The mossy fibers in stratum lucidum
of CA3 were labeled as well as the proximal apical dendrites of granule
cells that extend into the molecular layer. Granule cells with hilar basal
dendrites were commonly observed in these preparations. In addition,
granule cells with recurrent and split basal dendrites were found. Con-
clusion: These data show that a marker for immature neurons, TOAD-
64, is found in many granule cells that have hilar basal dendrites. Due
to technical limitations, it was not possible to determine whether all of
the immunolabeled granule cells have basal dendrites. Nonetheless,
these results support the hypothesis that at least some of the granule
cells with basal dendrites are newly born. [Support by NIH Grants NS
02006 and 35628, UC Irvine, and the March of Dimes.]

*Epilepsia, Vol. 40, Suppl. 7, 1999*