Quantitative RT-PCR
from Rat Brain
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Procedure:
Flash frozen mouse spinal cord was cut into 30 µm sections. 10 motor neurons in mouse spinal cord were collected using laser microdissection system. mRNA was isolated and subjected to qRT-PCR. This allowed confirmation of the increase of gene expression level in transgenic mouse.

Fig. 1. In situ hybridization of ChAT (choline acetyltransferase). Motor neurons were visualized by expression of ChAT. Due to very small areas of motor neurons within the brain tissue, laser microdissection technique is very important to quantify the gene expressions with minimum of background coming from abundant mRNAs.

Bar = 450 µm
Fig 2. Quantitative real-time PCR of GAPDH and SOD1 (Sequence Detection System from Applied Biosystems). mRNA from 10 microdissected cells were purified with RNeasy Micro Kit (QIAGEN) and subjected to qRT-PCR.

<table>
<thead>
<tr>
<th>Mouse</th>
<th>GluR2</th>
<th>GluR3</th>
<th>GluR4</th>
<th>ChAT</th>
<th>SOD1</th>
</tr>
</thead>
<tbody>
<tr>
<td>C57BL/6J (n=3)</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>GluR2-transgenic mice (n=3)</td>
<td>4.78 ± 0.85</td>
<td>1.02 ± 0.54</td>
<td>1.21 ± 0.26</td>
<td>1.17 ± 0.38</td>
<td>1.09 ± 0.31</td>
</tr>
</tbody>
</table>

Table 1. GluR2 expression in motor neurons of GluR2 transgenic mice. Data were normalized with GAPDH expression levels. Relative expression levels were compared with expression levels in C57BL/6J non-transgenic control mouse. Result: GluR2 expression level is particularly increased in GluR2 transgenic mice.

Acknowledgements: We would like to thank Dr. Hisako Sugimoto, Dr. Minako Kanno and Dr. Ryosuke Takahashi from Department of Neurology Tokyo Metropolitan Institute for Neurosciences, Japan for providing images and results.