Supplementary Figure S5

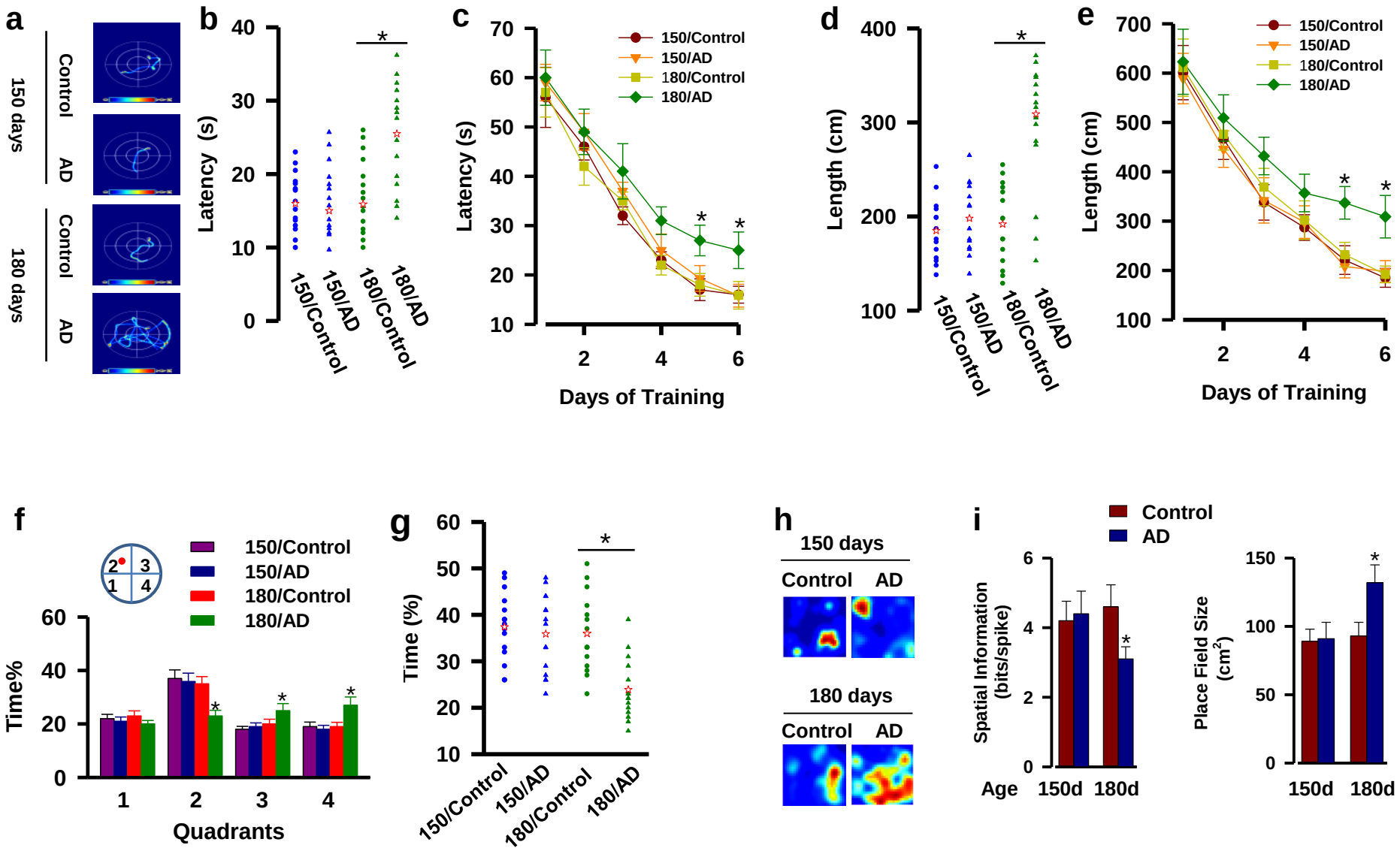

Figure S5. Impairments of spatial learning and memory in AD mice. (**a** and **b**) Representative path tracings (**a**) and a plot (**b**) of the latencies for individual control/ECII$_{PN}^{ChR2+}$ (control) and AD/ECII$_{PN}^{ChR2+}$ (AD) mice at the training tests of day 6 to reach a hidden platform (n = 15 mice per group, $p < 0.001$, *t*-tests). (**c**) A plot of the averaged latencies throughout the training tests to reach a hidden platform. Data are mean ± SEM (n = 15 mice per group, $F_{(3,51)} = 6.73$, $p < 0.001$, two-ways ANOVA). (**d**) A plot of the swim length for individual control/ECII$_{PN}^{ChR2+}$ (control) and AD/ECII$_{PN}^{ChR2+}$ (AD) mice at the training tests of day 6 to reach a hidden platform (n = 15 mice per group, $p < 0.001$, *t*-tests). (**e**) A plot of the averaged swim length throughout the training tests to reach a hidden platform. Data are mean ± SEM (n = 15 mice per group, $F_{(3,51)} = 6.73$, $p < 0.001$, two-ways ANOVA). (**f**) A bar graph shows the averaged percentage of time spent in searching of a hidden platform in each quadrant during the probe trial. Data are mean ± SEM (n = 15 mice per group, $F_{(3,51)} = 5.87$, $p < 0.001$, two-ways ANOVA). (**g**) A plot of the percentage of time spent for individual control/ECII$_{PN}^{ChR2+}$ (control) and AD/ECII$_{PN}^{ChR2+}$ (AD) mice in searching of a hidden platform in a targeting quadrant during the probe trial (n = 15 mice per group, $p < 0.001$, *t*-tests). **(h** and **i)** Impaired spatial representations of CA1$_{PN}$ in AD/ECII$_{PN}^{ChR2+}$ (AD) mice. Representatives rate maps (**h**) of CA1$_{PN}$ in freely moving control/ECII$_{PN}^{ChR2+}$ (control) and AD/ECII$_{PN}^{ChR2+}$ (AD) mice. Dark red corresponds to the maximum firing rate and dark blue to no firing. Bar graphs (**i**) show the information density expressed as bits/spike and place field size. Data are mean ± SEM (n = 11 mice per group; $F_{(3,41)} = 3.36$, $p < 0.01$, two-ways ANOVA).