Abstracts

MPC-07 MECHANISMS OF BETTER PROGNOSIS IN IDH-MUTATED ASTROCYTOMA WITH 19q-LOSS
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We previously reported that there was a subgroup of IDH-mutated astrocytomas harboring only 19q-losing showing oligodendroglioma-like morphology and survival outcomes were worse compared with 19q-intact astrocytomas (Otani et Cancer Sci 2018). The purpose of the present study was to reveal how 19q-losss contributed to better prognosis and the morphology in the subgroup. We compared expression pattern between five 19q-loss and three 19q-intact IDH-mutated astrocytomas by microarray analysis.

136 up-regulated genes and 203 downregulated genes were extracted in 19q-loss astrocytomas compared with 19q-intact astrocytomas. Significantly changed genes distributed throughout all chromosomes, but more downregulated genes were on 19q and 4p, and more upregulated genes were on 4q.

Genes associated with apoptosis, cell adhesion, and antigen presentation were up-regulated, and genes associated with Ras signaling pathway were down-regulated. These changes could result in better prognosis. By contrast, there was few expression changed gene associated with oligodendroglioma-like morphology although up-regulation of genes associated with axon guidance and down-regulation of genes associated with cell shape might result in the morphology or neuronal differentiation. Expression pattern of 19q-loss astrocytomas indicated no tendency of oligodendroglial differentiation.

Better prognosis of 19q-loss astrocytomas was derived from expression changes associated with tumor proliferation and tumor immunity.

MPC-08 CLINICOPATHOLOGICAL ANALYSIS OF 12p GAIN IN INTRACRANIAL GERM CELL TUMORS
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BACKGROUND: Gain of short arm of chromosome 12 (12p) is commonly observed in testicular germ cell tumors (gCTs). 12p gain is frequently seen in intracranial gCTs (iGCTs). However, little is known about the clinical significance of 12p gain in iGCTs. MATERIALS AND METHODS: We have collected over 200 fresh frozen tissue samples of gCTs through the Intracranial Germ Cell Tumor Genome Analyses Consortium in Japan. Firstly, we analyzed DNA methylation status in 83 iGCTs, 3 seminomas and 6 normal control samples using Infinium Human Methylation 450K BeadChip array (Illumina, CA). Idat files were processed using R (Version 3.5.3) and minfi package (1.30.0) to generate copy number variations. Compared with average genome-wide copy number level, 12p gain was determined. Then, in iGCTs with clinicopathological information were analyzed for progression-free survival (PFS) and overall survival (OS). Those tumors that consist of only other germinoma and/or mature teratoma components were classified as Favorable Histology (FH) and all the others that contains malignant histological components were classified as Unfavorable Histology (UH). RESULTS: 12p gain was observed in 100% (3/3) of seminoma, 13.6% (3/22) of germ cell tumor (GCT), 55% (1/6) of mature teratoma, 25% (1/4) of immature teratoma, 55% (11/20) of mixed germ cell tumor, 100% (4/4) of yolk sac tumor, 100% (1/1) of embryonal carcinoma, and 100% (1/1) of choriocarcinoma. In total, 44.6% (37/83) of iGCTs showed 12p gain. Regarding histological classification, the 12p gain rate in UH (72%, 18/25) was significantly higher than that in FH (12.1%, 4/33, P<0.01). Both PFS and OS were significantly worse in iGCTs with 12p gain (PFS: P=0.027, OS: P=0.0012). DISCUSSION: 12p gain can be a molecular marker to predict prognosis and histological malignancy in iGCTs.

MPC-09 THE OPTIMIZATION OF TREATMENTS FOR SO-CALLED PRIMITIVE NEUROECTODERMAL TUMORS WITH MOLECULAR ANALYSIS
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INTRODUCTION: In the previous WHO classification of central nervous system tumors, the supratentorial tumors comprised small round blue cells with aggressive clinical features had been defined as primitive neuroectodermal tumors (PNET). Recent molecular analysis revealed that they do not belong to a single entity, but they are re-classified as the tumors of other well-defined entities and tumor subgroups. The current classification of PNETs was reclassified to the new classifications. While, there are few studies those showed the