
FMD 论文速览：成人弥漫性胶质瘤中EMPM分子亚型的时空一致性

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FMD 论文速览：成人弥漫性胶质瘤中EMPM分子亚型的时空一致性。 论文标题：Temporal and spatial stability of the EM/PM molecular subtypes in adult diffuse glioma

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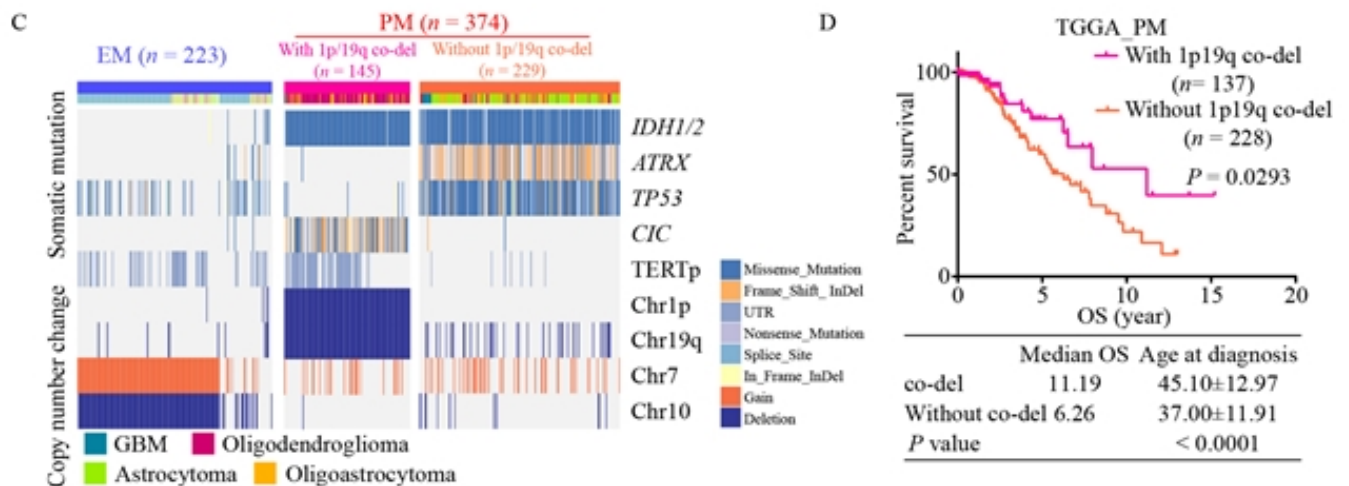
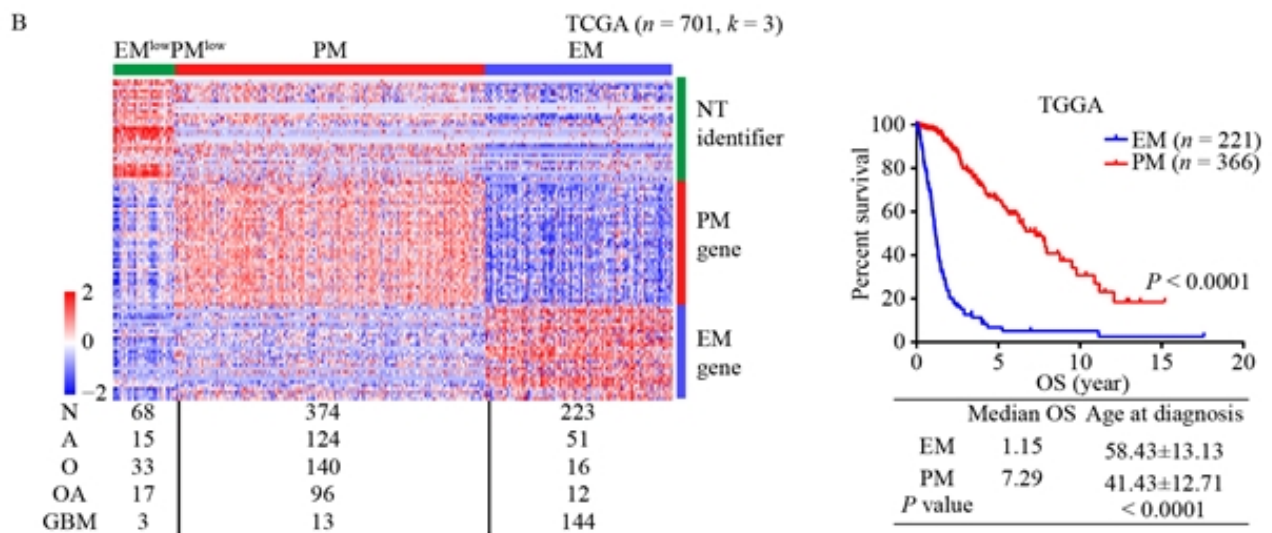
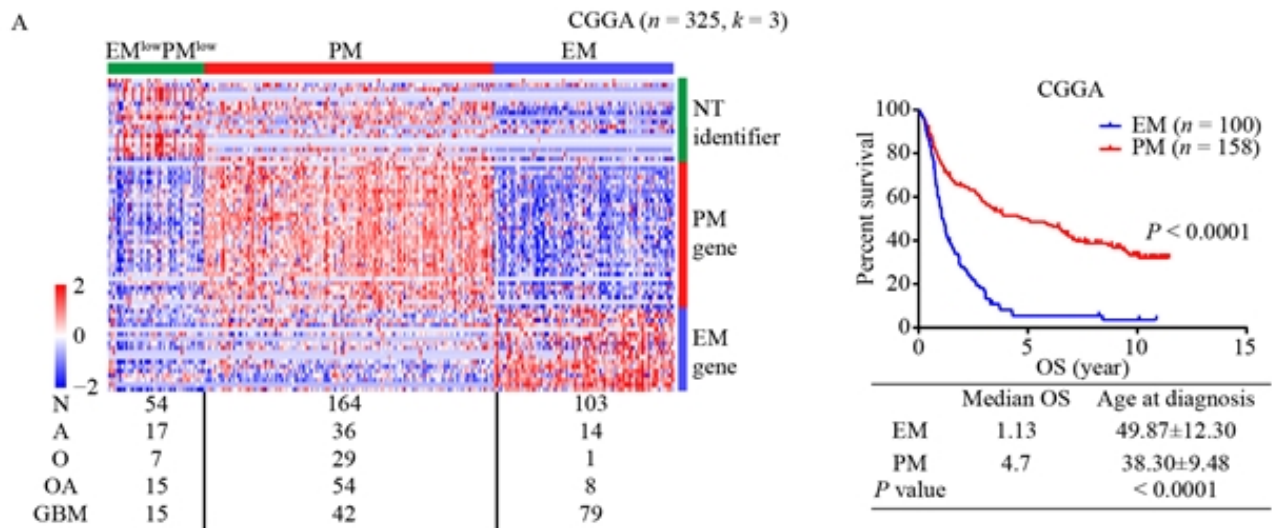
导读

北京师范大学樊小龙教授等人在Frontiers of Medicine发表研究论文《成人弥漫性胶质瘤中EM/PM分子亚型的时空一致性》（Temporal and spatial stability of the EM/PM molecular subtypes in adult diffuse glioma）。本文通过分析多种样本，证明成人弥漫性胶质瘤中EM/PM分子亚型具有时空一致性，为揭示胶质瘤新靶点及精准医疗提供了依据。

Detailed characterizations of genomic alterations have not identified subtype-specific vulnerabilities in adult gliomas. Mapping gliomas into developmental programs may uncover new vulnerabilities that are not strictly related to genomic alterations. After identifying conserved gene modules co-expressed with EGFR or PDGFRA (EM or PM), we recently proposed an EM/PM classification scheme for adult gliomas in a histological subtype- and grade-independent manner. By using cohorts of bulk samples, paired primary and recurrent samples, multi-region samples from the same glioma, single-cell RNA-seq samples, and clinical samples, we here demonstrate the temporal and spatial stability of the EM and PM subtypes. The EM and PM subtypes, which progress in a subtype-specific mode, are robustly maintained in paired longitudinal samples. Elevated activities of cell proliferation, genomic instability and microenvironment, rather than

subtype switching, mark recurrent gliomas. Within individual gliomas, the EM/PM subtype was preserved across regions and single cells. Malignant cells in the EM and PM gliomas were correlated to neural stem cell and oligodendrocyte progenitor cell compartment, respectively. Thus, while genetic makeup may change during progression and/or within different tumor areas, adult gliomas evolve within a neurodevelopmental framework of the EM and PM molecular subtypes. The dysregulated developmental pathways embedded in these molecular subtypes may contain subtype-specific vulnerabilities.

目前，针对成人胶质瘤中基因组改变的详细特征分析，尚未明确其亚型特异性的易感性。将胶质瘤映射到发育程序中进行关联分析，或许能够揭示与基因组改变并非紧密相关的新易感性。研究人员在鉴定出与EGFR或PDGFRA共表达的保守基因模块（EM或PM）后，提出了一种独立于组织学亚型和分级的成人胶质瘤EM/PM分类体系。通过对同一胶质瘤的大量样本队列、配对的原发和继发样本、多区域样本以及单细胞RNA测序样本和临床样本进行分析，该研究证明EM和PM亚型在时间和空间维度均保持一致性。EM和PM亚型具有特异性，且在配对纵向样本中能够稳定维持。研究结果显示，继发性胶质瘤以细胞增殖、基因组不稳定和微环境的活性增强为特征，而非亚型转换。在单个胶质瘤内，EM/PM亚型在不同区域和单细胞间均高度保守。此外，EM和PM胶质瘤中的恶性细胞分别与神经干细胞区室和少突胶质细胞祖细胞区室存在关联。因此，尽管在肿瘤进展过程中和/或在不同肿瘤区域内，基因组成可能发生改变，但成人胶质瘤是在EM和PM分子亚型的神经发育框架内演变的。这些分子亚型中失调的发育通路极有可能包含亚型特异性的易感性。



期刊介绍

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原文信息

标题

Temporal and spatial stability of the EM/PM molecular subtypes in adult diffuse glioma

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