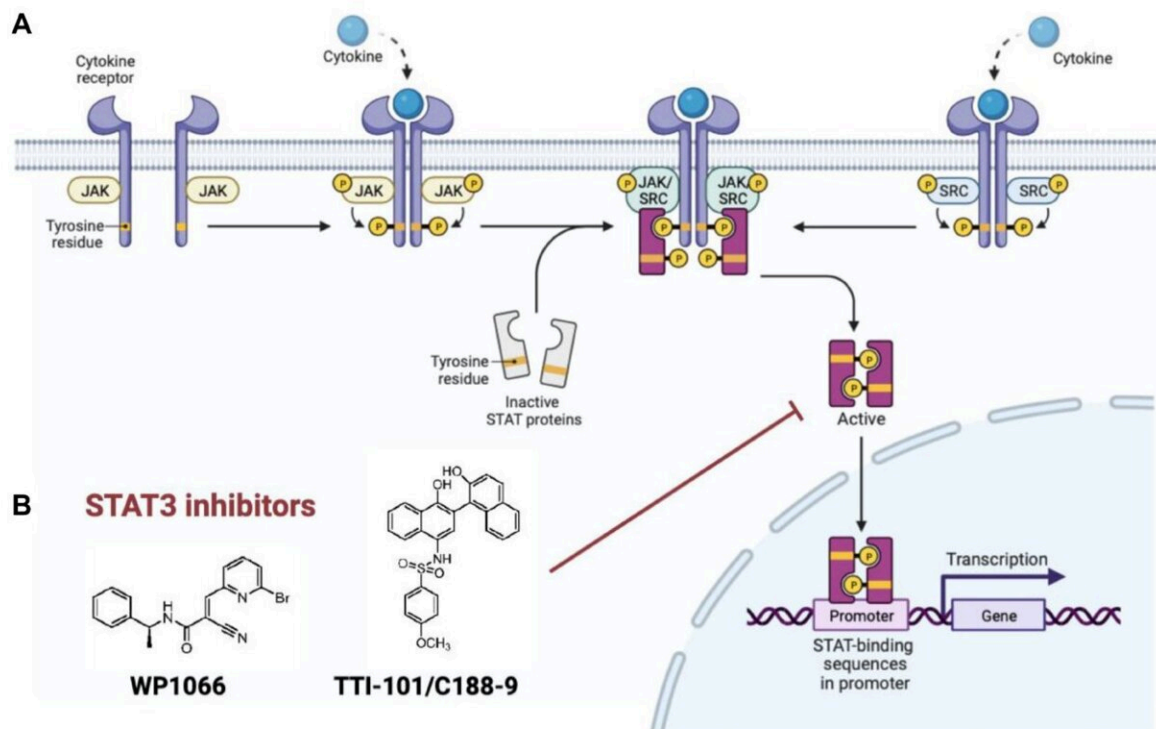


STAT3 as a target in H3K27M-mutant diffuse midline gliomas

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(A) Canonical STAT3 activation pathway. (B) WP1066 and TTI-101, examples of small molecule STAT3 inhibitors that are cell penetrant. Credit: *Oncotarget* (2023). DOI: 10.18632/oncotarget.28516

A new editorial perspective was published in *Oncotarget*, titled "[STAT3 as a biologically relevant target in H3K27M-mutant diffuse midline](#)

[glioma](#)."

Pediatric H3K27M-mutant diffuse midline gliomas (DMGs), including those formerly classified as diffuse intrinsic pontine gliomas (DIPG), are uniformly lethal central nervous system malignancies. Children diagnosed with these tumors have an extremely poor prognosis, with a median survival of approximately 12 months.

The current standard of care for DMG includes possible biopsy for diagnostic confirmation and a 6-week course of palliative radiation. Despite enormous effort toward the development of novel therapeutics in DMG, chemotherapy remains ineffective in this disease.

"Indeed, over 100 [clinical trials](#) for chemotherapeutics in DMG have failed to show therapeutic benefit," write the authors.

In their new editorial perspective, researchers Jacob B. Anderson, Samantha M. Bouchal, Liang Zhang, and David J. Daniels from the Mayo Clinic discussed the currently available literature and their [recent study](#) on the Signal Transducer and Activator of Transcription (STAT) as a biologically relevant therapeutic target in H3K27M-mutant DMGs.

In their recently published manuscript, the lab performed a screen of drugs currently in clinical use or clinical trials for efficacy against a library of H3K27Mmutant and H3-wildtype patient-derived cell lines. The results of this drug screen identified the STAT3 signaling pathway as a novel target in DMG.

"Until recently, however, STAT3 was not a druggable target," the authors explain.

More information: Jacob B. Anderson et al, STAT3 as a biologically relevant target in H3K27M-mutant diffuse midline glioma, *Oncotarget*

(2023). [DOI: 10.18632/oncotarget.28516](https://doi.org/10.18632/oncotarget.28516)

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