Identifying CD44v6 as a Target for Atypical Teratoid Rhabdoid Tumors

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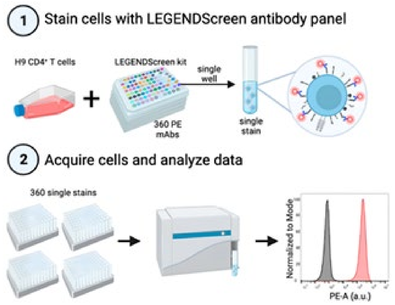
BACKGROUND

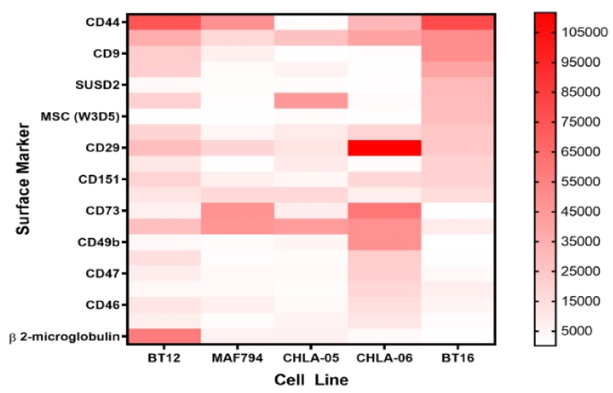
- **Atypical Teratoid Rhabdoid Tumors** (ATRT) are highly malignant embryonal tumors of the central nervous system (CNS)
- ATRTs are characterized by loss of **SMARCB1** or **SMARCA4**—core units of the chromatin remodeling complex
  - Located on 22q11.2
- Despite multimodal therapy, **prognosis is poor** with median survival < 2 years from diagnosis
- CD44v6 is a variant isoform of CD44 promotes tumor invasion, epithelial-mesenchymal transition (EMT), and metastasis
  - Located on 11p13

METHODOLOGY

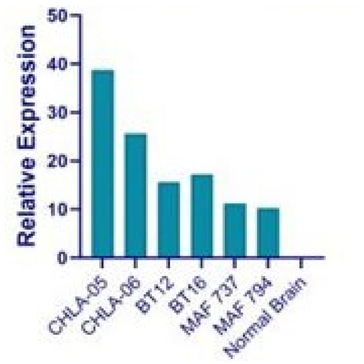


1. 371 Ab LegendScreen panel of 5 ATRT lines
2. RT-PCR and Flow Cytometry quantification of target CD44v6
3. IGV Sashimi plots to assess alternative splicing in 13 ATRT patient samples

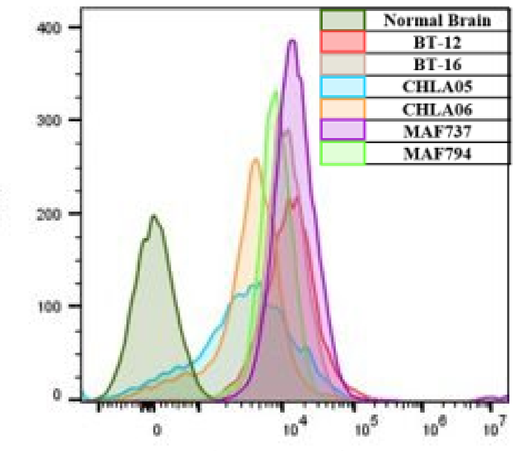
RESULTS



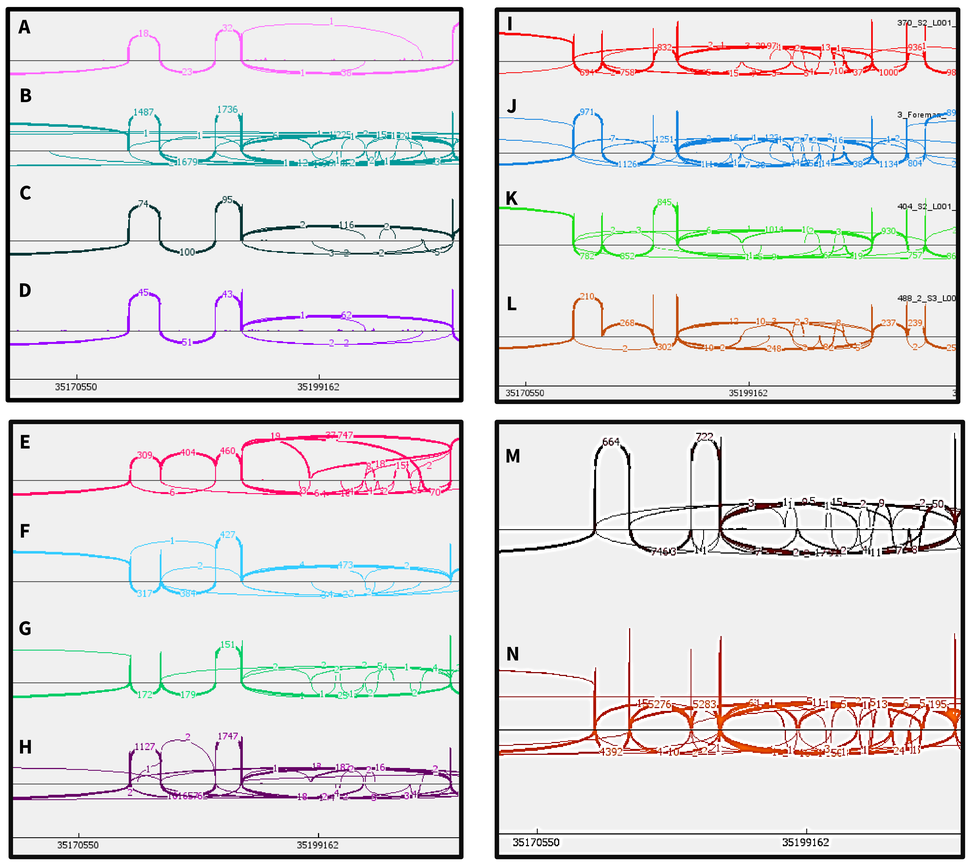
Heat map of highest MFI values from Legend Screen



Exon CD44v6 Expression by RT-PCR



CD44v6 Cell Surface Expression by Flow Cytometry



Sashimi Plots of CD44v6 Alternative Splicing patterns in ATRT patient samples

CONCLUSIONS

- CD147, CD59, CD73, and CD44 are the most common surface cell antigens expressed on ATRT cell lines
- CD44v6, the variant isoform of exon 10 in CD44, is over-expressed in ATRT patient samples
- CD44v6 exhibits alternative splicing patterns on chr:11p13

FUTURE DIRECTIONS

- Perform Replicate Multivariate Analysis of Transcript Splicing (rMATS) analysis of ATRT patient samples
- Engineer a specific CD44v6 CAR-Macrophage to target ATRTs

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