Multimodal Flow Cytometry highlights B7-H3 as a novel diagnostic/therapeutic target in GD2neg/low Neuroblastoma variants

Total BM aspirates analyzed: 49
Total number of patients: 33

24 BM aspirates
Right Iliac Crest and/or Left Iliac Crest

10 Patients at diagnosis

6 GD2\textsuperscript{high} B7-H3\textsuperscript{high}
0 GD2\textsuperscript{low/med} B7-H3\textsuperscript{high}
1 undetectable

7 infiltrated at CA
7 non-infiltrated at CA

5 Patients at relapse

0 GD2\textsuperscript{high} B7-H3\textsuperscript{high}
1 GD2\textsuperscript{low/med} B7-H3\textsuperscript{high}
4 GD2\textsuperscript{low/med} B7-H3\textsuperscript{med} MSC-lin\textsuperscript{neg}
1 patient: non-MYCN ampl
Th\textsuperscript{neg} P10X2/3\textsuperscript{neg}
already treated with anti-GD2

5 infiltrated at CA
5 undetectable

KAPLAN MEYER ANALYSIS
498 primary tumors at diagnosis
GEO accession: GSE62516
R2: genomics analysis and visualization platform
MML5, ULBP2, ULBP3 and CD47 high mRNA expression \(\rightarrow\) \textbf{GOOD} OS and EFS
PVR or B7-H6 high mRNA expression \(\rightarrow\) \textbf{POOR} OS and EFS

CLINICAL IMPACT
- Better diagnosis and follow-up
- Correlation among GD2 and B7-H3 surface density, response to immunotherapy and clinical outcome
- Assessment of patients' eligibility to anti-GD2 treatment or recruitment into trials with innovative immunotherapeutics

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In brief
A novel fast, specific and sensitive MFC method, identifies, quantifies and characterizes metastasic neuroblastoma infiltrating the bone marrow, showing that GD2\textsuperscript{neg/low} NB variants are characterized by high expression of B7-H3. The study also highlights other prognostic and/or immunotherapeutic targets such as PVR or B7-H6 to be considered, together with B7-H3, for orienting novel personalized treatments in patients with GD2\textsuperscript{neg/low} NB, who might have more benefit from novel immunotherapeutic approaches.