T-cell engager bispecific formats of an AML patient-derived antibody targeting a unique sialylated CD43 epitope induce kill of melanoma cells in vitro and in vivo

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Background

- Antibody AT1413 was isolated from a high-risk AML patient who successfully cleared the leukemia after allogeneic stem cell transplantation
- AT1413 targets CD43s, a unique sialylated form of CD43 expressed by all of >70 primary AML and MDS isolates tested
- AT1413 constructed into a bispecific T-cell engaging format (AT1413 bTCE) was effective against primary AML cells
- Here we show that CD43s is also present and can be targeted on non-hematopoietic tumors

1. CD43s expression is not restricted to hematologic malignancies

2. Confirmation of sialylated CD43 (CD43s) as the target of AT1413 on melanoma cells

3. AT1413 T-cell engagers induce T cell-mediated lysis of melanoma cells in vitro

4. AT1413 T-cell engagers inhibit melanoma tumor growth and increase tumor infiltration in vivo

Conclusion

- AT1413 recognizes a sialylated epitope on CD43 (CD43s) shared by melanoma, AML and MDS
- Two bispecific AT1413 T-cell engagers targeting CD43s x CD3 redirected T-cell cytotoxicity against melanoma cells with different potencies in vitro
- AT1413 TCEs induced strong anti-tumor cytotoxic activities in melanoma cells and T-cell infiltration into the tumor
- These data indicate a broad therapeutic potential of AT1413.

Conflicts of interest disclosure:
MK, SL, MC, SAH, CS, DB, ES, YC, AS, RS, IV and PVH are employees of AIMM Therapeutics.
MK, MC, SAH, CS, DB, ES, YC, AS, RS, IV and PVH have equity ownership in AIMM Therapeutics.
MK, MC, AS, WS, MLK and PVH are inventors on a patent relevant to this subject.

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