activity in mouse models. The combination of SEA-CD40 and chemotherapeutic agents with a T cell targeted anti-PD1 antibody could deepen and extend these anti-tumor responses.

Conclusions These data support continued clinical evaluation of SEA-CD40 in combination with chemotherapeutic agents and potentially in the future MMAE based ADCs. A phase 1 clinical trial is actively enrolling (NCT02376699) and includes a cohort in pancreatic cancer assessing the combination of SEA-CD40, gemcitabine, nab-paclitaxel, and pembrolizumab.

Ethics Approval Studies with human samples were performed according to institutional ethics standards. Animals studies were approved by and conducted in accordance with Seattle Genetics Institutional Care and Use Committee protocol #SGE-029.

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439 DUAL MODES OF ACTION FOR ANTI-TIM-3 ANTIBODY MBG453 IN MYELODYSPLASTIC SYNDROMES (MDS) AND ACUTE MYELOID LEUKEMIA (AML): PRECLINICAL EVIDENCE FOR IMMUNE-MEDIATED AND ANTI-LEUKEMIC ACTIVITY

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Background TIM-3 is expressed on leukemic stem cells (LSCs) and blasts in AML,[1 2] and TIM-3 expression on MDS blasts correlates with disease progression.[3] Functional evidence for TIM-3 in AML was established with an anti-TIM-3 antibody which inhibited engraftment and development of human AML in immuno-deficient murine hosts.[1] TIM-3 promotes an autocrine stimulatory loop via the TIM-3/Galectin-9 interaction, supporting LSC self-renewal.[4] In addition to its cell-autonomous role on LSCs/blasts, TIM-3 also has a critical role in immune system regulation, in adaptive (CD4+ and CD8+ T effector cells, regulatory T cells) and innate (macrophages, dendritic cells, NK cells) immune responses.[5] MBG453 is a high-affinity, humanized anti-TIM-3 IgG4 antibody (Ab) (stabilized hinge, S228P), which blocks the binding of TIM-3 to phosphatidylserine (PtdSer). Recent results from a multi-center, open label phase Ib dose-escalation study (NCT03066648) in patients with high-risk MDS and no prior hypomethylating agent therapy evaluating MBG453 in combination with decitabine demonstrated encouraging preliminary efficacy with an overall response rate of 58%,[6] and MBG453 combined with azacitidine also showed encouraging response rates.[7] Preclinical experiments were undertaken to define the mechanism of action of the hypomethylating agent and anti-TIM-3 combination.

Methods THP-1 cells (a human monocytic AML cell line) were pre-treated with decitabine and co-cultured with anti-CD3 activated healthy human donor peripheral blood mononuclear cells (PBMCs) in an Incucyte-based assay to measure cell killing. The ability of MBG453 to mediate antibody-dependent cellular phagocytosis (ADCP) was measured by determining the phagocytic uptake of an engineered TIM-3-overexpressing Raji cell line in the presence of MBG453 by phorbol 12-myristate 13-acetate (PMA)-activated THP-1 cells. Patient-derived AML xenograft studies were undertaken in immune-deficient murine hosts to evaluate the combination of decitabine and MBG453.

Results MBG453 was determined to partially block the TIM-3/Galectin-9 interaction in a plate-based MSD (Meso Scale Discovery) assay, supported by a crystal structure of human TIM-3.[8] Pre-treatment of THP-1 cells with decitabine enhanced sensitivity to immune-mediated killing in the presence of MBG453. MBG453 was determined to mediate modest ADCP, relative to controls. MBG453 did not enhance the anti-leukemic activity of decitabine in patient-derived xenograft studies in immuno-deficient hosts.

Conclusions Taken together, these results support both direct anti-leukemic effects and immune-mediated modulation by MBG453. Further studies are ongoing to determine: (1) whether MBG453 can mediate physiologically relevant ADCP of TIM-3-expressing leukemic cells; and (2) the potential of MBG453 to impact the autocrine feedback loop of TIM-3/Galectin-9.

Ethics Approval The human tissue used in these studies was under the Novartis Institutes of BioMedical Research Ethics Board IRB, Approval Number 201252867.

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440 ACTIVITY AND SAFETY OF CAMRELIZUMAB, AN ANTI-PD-1 IMMUNE CHECKPOINT INHIBITOR, FOR PATIENTS WITH ADVANCED NON-SMALL-CELL LUNG CANCER

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Background Effective options are limited for patients with non–small-cell lung cancer (NSCLC) whose disease progresses after first-line chemotherapy. Camrelizumab is a potent anti-PD-1 monoclonal antibody and has shown promising activity in NSCLC. We assessed the activity and safety of camrelizumab for patients with previously treated, advanced NSCLC patients with negative oncogenic drivers.

Methods Patients who progressed during or following platinum-based doublet chemotherapy were enrolled. All patients received camrelizumab(200 mg)every 3 weeks or in combination with chemotherapy until loss of clinical benefit. The primary endpoint was objective response rate (ORR), other