

POSTER PRESENTATION

Open Access

# ONO-AE3-208 inhibits myeloid derived suppressor cells and glioma growth

Gary Kohanbash<sup>1\*</sup>, Erin Straw<sup>2</sup>, Brian Ahn<sup>2</sup>, Hideho Okada<sup>1</sup>

From Society for Immunotherapy of Cancer 29th Annual Meeting  
National Harbor, MD, USA. 6-9 November 2014

Myeloid Derived Suppressor Cells (MDSCs) heavily infiltrate in a variety of solid tumors and suppress anti-tumor T-cell activity. Our recent studies have demonstrated the ability of monocytic, Ly6C<sup>+</sup> MDSCs to promote glioma growth through the activation of cyclooxygenase (COX)-2 pathway, which is responsible for prostaglandin-synthesis. ONO-AE3-208 is an antagonist of the prostaglandin E (EP)-4 receptor, which is an important positive feedback regulator of the COX-2 pathway. We thus examined the ability of ONO-AE3-208 to suppress MDSC activity in gliomas. ONO-AE3-208 treatment in mice bearing established GL261-quad glioma in the brain resulted in complete and persistent rejection of the tumors. Flow cytometric analysis revealed that gliomas in the ONO-AE3-208-treated mice were infiltrated by fewer numbers of Ly6C<sup>+</sup> MDSCs compared with non-treated animals. We subsequently isolated glioma-infiltrating Ly6C<sup>+</sup> MDSCs by flow-sorting to address their functions. RT-PCR analysis revealed that the Ly6C<sup>+</sup> MDSCs derived from ONO-AE3-208 treated mice expressed lower levels of the Arg1 and Cox2 expression compared to control animals. Consistently, brain infiltrating leukocytes in ONO-AE3-208 treated tumor-bearing mice demonstrated enhanced IFN-g expression compared with control mice, suggestive of enhanced T-cell activity. Importantly, ONO-AE3-208 inhibited glioma growth and promoted immune activity in 2 additional murine glioma models: the Sleeping Beauty de novo glioma model and the SB28 glioma cell line model. Our data demonstrate that ONO-AE3-208 may be useful in the treatment of glioma patients to suppress Ly6C<sup>+</sup> MDSCs and promote anti-tumor immunity.

#### Authors' details

<sup>1</sup>University of California San Francisco, San Francisco, CA, USA. <sup>2</sup>University of Pittsburgh, Pittsburgh, PA, USA.

Published: 6 November 2014

doi:10.1186/2051-1426-2-S3-P217

Cite this article as: Kohanbash et al.: ONO-AE3-208 inhibits myeloid derived suppressor cells and glioma growth. *Journal for ImmunoTherapy of Cancer* 2014 **2**(Suppl 3):P217.

Submit your next manuscript to BioMed Central  
and take full advantage of:

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at  
[www.biomedcentral.com/submit](http://www.biomedcentral.com/submit)



<sup>1</sup>University of California San Francisco, San Francisco, CA, USA  
Full list of author information is available at the end of the article