Abstract# 430: Ex vivo oncolytic and immune activity of CF33-hNIS-antiPDL1 against fresh peritoneal cells from gastric cancer patients with and without peritoneal metastases

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Background:

- No effective therapy exists for peritoneal metastases (PM) from gastric cancer (GC), which remain fatal within months of diagnosis.
- We investigated a novel chimeric oncolytic virus platform, CF33-OV, for its anti-cancer potential against peritoneal cancer cells from GC patients.

Methods:

- Ascites and peritoneal washing were collected from 27 GC patients (14 males and 13 females) with a mean age of 53.5 ± 15.5 years.
- Flow Cytometric analysis of T cell subsets and ICIs in fresh ex vivo cells.
- Ex vivo cells were treated with CF33-OV (MOI=3) for 15 hours and analyzed for cancer cell killing (flow cytometry), GFP expression (immunofluorescence imaging and flow cytometry), anti-PD-L1 scFv expression (multiplex immunohistochemistry), PD-L1 blockade (flow cytometry), CD107α expression (flow cytometry), growth factor release (ELISA).

Main Takeaway

1. Oncolytic CF33-hNIS-antiPDL1 virus is effective in infecting and killing fresh human peritoneal cancer cells of GCPM with expression of functional anti-PD-L1 scFv.
2. Phase I trial investigating the safety and biologic activity of intraperitoneal CF33-hNIS-antiPDL1 for the treatment of GC patients with peritoneal metastases is planned.

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Results:

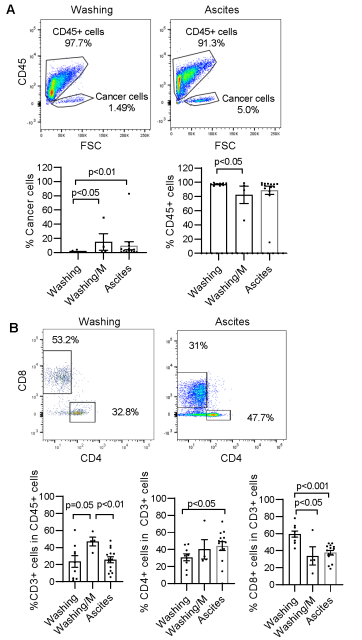

Figure 1. Cancer cell percentage and T cell subsets in ex vivo cells from GCPM.

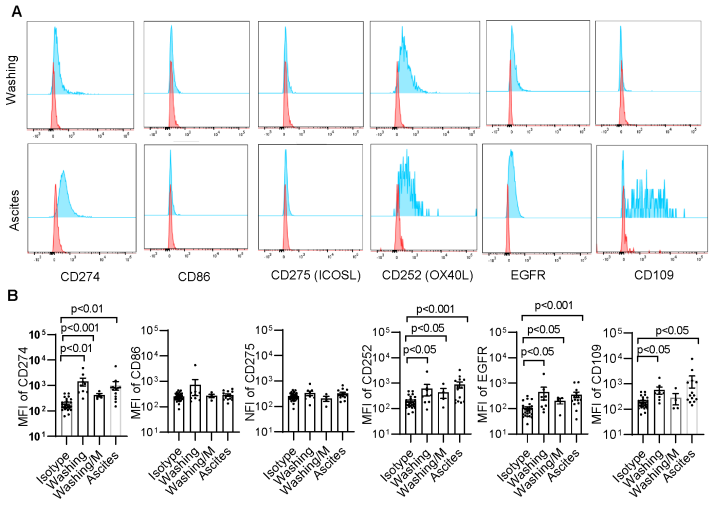

Figure 2. Surface marker expressions of ex vivo cancer cells from GCPM.

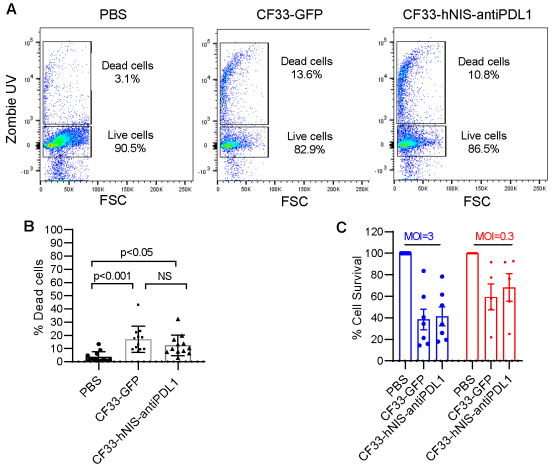

Figure 3. Cytotoxicity of ex vivo cells treated with CF33-GFP or CF33-hNIS-antiPDL1.

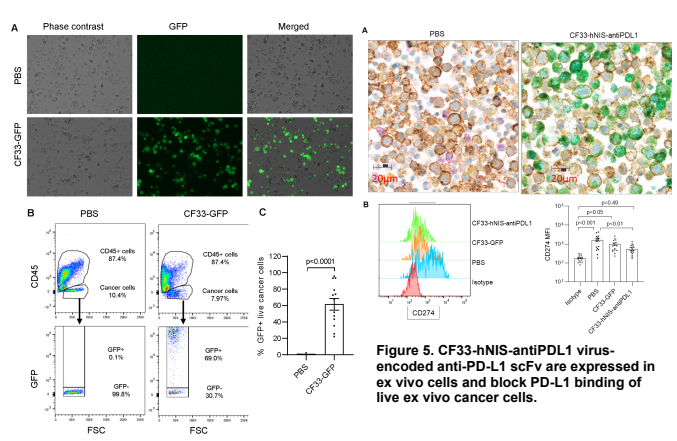

Figure 4. Infection and replication of CF33-GFP virus in live ex vivo cancer cells.

Figure 5. CF33-hNIS-antiPDL1 virus-encoded anti-PD-L1 scFv are expressed in ex vivo cells and block PD-L1 binding of live ex vivo cancer cells.

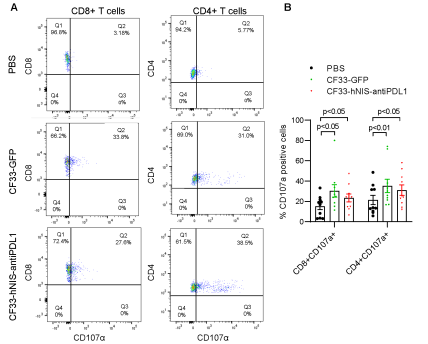

Figure 6. CF33-hNIS-antiPDL1 virus induces CD107α expression on ex vivo CD4+ and CD8+ T cells.

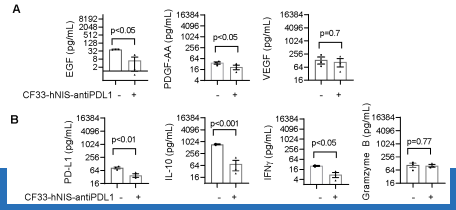

Figure 7. CF33-hNIS-antiPDL1 decreased growth factor release in ex vivo cells of GCPM.