Conclusions This HNSCC slice culturing system is a \textit{ex vivo} platform that might complement pre-clinical studies to eventually investigate cancer immune-related drugs and ease the translation to the clinics.

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**P09.16** MELARV VACCINE WITH MUTATIONS IN THE IMMUNOSUPPRESSIVE DOMAIN ELICITS INCREASED IMMUNITY AND ELIMINATION OF ESTABLISHED TUMORS IN MICE

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**Background** Endogenous retroviruses (ERVs) account for 8% of our genome and, while being silent in healthy tissues, they become reactivated under pathological conditions such as cancer. Several studies showed a functional role for ERVs in tumor development and progression, primarily mediated by the immunosuppressive domain (ISD) of the ERV envelope (Env) protein. To investigate ERV-targeting in a murine model, we have selected the murine melanoma-associated retrovirus (MelARV) as the target for our vaccine technology named ISDmut in combination with highImmunogenicity and efficacy of the vaccine by introducing a virus-like vaccine (VLV). VLVs are composed of an adenoviral (MelARV) as the target for our vaccine technology named we have selected the murine melanoma-associated retrovirus (Env) protein. To investigate ERV-targeting in a murine model, tumor development and progression, primarily mediated by cer. Several studies showed a functional role for ERVs in becoming reactivated under pathological conditions such as can-

**Materials and Methods** The MelARV adenoviral vectors used in the studies are designed in-house and manufactured and quality controlled by Sirion Biotech. Immunogenicity of the vaccine is tested in BALB/c mice at the peak of T cell responses. 17 days after vaccination, mouse splenocytes are restimulated, and CD8+ T cells are stained intracellularly for IFNγ and TNFα responses, which are detected by flow cytometry. Therapeutic efficacy is tested against established murine colorectal carcinoma (CT26) tumors in BALB/c mice. Mice are challenged subcutaneously (s.c.) with 5E+05 CT26 cells and vaccinated after 10 days when tumors are palpable (<200 mm³). In addition, 2 mg/mL of anti-PD-1 is administrated intraperitoneally (i.p.) on days 10, 14, 17 and 21. Tumor growth is measured every 2–3 days over 45 days. Mice that cleared CT26 tumors are rechallenged s.c. with a breast cancer cell line (4T1) and are followed over time to show cross-protection (tumor control) against different cancer types.

**Results** Vaccination with the ISDmut MelARV vaccine generates strong immune responses against MelARV antigen, reaching 8% circulating CD8+ IFNγ+ T cells. This modified vaccine, in combination with an anti-PD1 checkpoint inhibitor, shows high curative efficacy (80%) against established CT26 tumors, compared to the wild type (WT) (30% survival) and control (22% survival). Furthermore, ISDmut prevents growth of 4T1 cancer cells in almost 40% of the mice that cleared CT26 tumors.

**Conclusions** ISDmut increases vaccine immunogenicity by significantly enhancing MelARV-specific T cell responses when compared to the WT vaccine. Moreover, ISDmut in combination with a-PD1 treatment, can prevent growth of established colorectal carcinoma tumors and protects against rechallenge with 4T1 cancer cells. Therefore, our ISDmut vaccine can be used therapeutically and prophylactically against MelARV expressing tumors, with the prospect of translation into a human ERV-targeting vaccine.

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**P09.17** HIGH-RESOLUTION OF NEOANTIGEN-SPECIFIC T CELL RECEPTOR ACTIVATION PATTERNS – MODERATE STIMULATION PREDICTS SUSTAINED ANTI-TUMOR-RESPONSE

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**Background** Neoantigen-specific T cell receptors (neoTCRs) increasingly receive attention for anti-tumor immunotherapy. Arising from somatic mutations and aberrant posttranslational modifications, neoantigens promise safe, highly personalized targets for adoptive cell transfer. Single cell-sequencing

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