gets. Of the 40 patients with results, 23 (58%) patients went on to receive genomics guided therapy. Limited availability of tissue has accounted for 6 (13%) patients' lack of results. Many guided therapy options are oral medications, which positively impacts quality of life. This will increase their knowledge of how molecular guided therapy is now innovatively being used to treat children with cancer, and the challenges involved.

TBIO-26. NON-CANONICAL OPEN READING FRAMES ENCODE FUNCTIONAL PROTEINS ESSENTIAL FOR CANCER CELL SURVIVAL
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The brain is the foremost non-gonadal tissue for expression of non-coding RNAs of unclear function. Yet, whether such transcripts are truly non-coding or rather the source of non-canonical protein translation is unknown. Here, we used functional genomic screens to establish the cellular bioactivity of non-canonical proteins located in putative non-coding RNAs, to reveal untranslated regions of protein-coding genes. We experimentally interrogated 553 open reading frames (ORFs) identified by ribosome profiling for three major phenotypes: 257 (46%) demonstrated protein translation when ectopically expressed in HEK293T cells, 401 (75%) induced cell cycle arrest via single-cell RNA sequencing. Analysis of the secretome of GREP1-expressing cells showed increased abundance of the onco-gastric cytokine GDF15, and GDF15 supplementation mitigated the growth inhibitory effect of GREP1 knockout. Taken together, these experiments suggest that the non-canonical ORFeome is surprisingly rich in biologically active proteins and potential cancer therapeutic targets deserving of further study.

TBIO-27. RASOPATHIES AND BRAIN TUMORGENESIS: ARE SOS1 MUTATIONS OF CONCERN? Nouha Bouayed Abdelmoula1, Rim Louati1, Baltkiss Abdelmoula1, and Samir Alouliou1; UR17ES36 Genomic of Signalopathies at the service of Medicine, Medical University of Max, Stax, Tunisia.

Germ line gain-of-function mutations in several members of the RAS/MAPK pathway, including PTPN11 are associated with signalopathies named Rasopathies and known as Noonan syndrome and closely related conditions. Patients harboring Rasopathies are at increased risk of myeloproliferative diseases and solid tumors, such as neuroblastoma. Mutations of SOS1, the gene encoding a guanine nucleotide exchange factor for Ras, represent the second most frequent genetic defect in Rasopathies. However, SOS1 mutations are rare in human malignancies and patients with germline SOS1 mutations may not be at increased risk of developing cancer. Here, we report a SOS1 variant found to segregate in a Tunisian consanguineous family. Two aunts developed blindness and then died subsequently to mutation accounts for one domain with substitution of residue Arg552 to Lys: p.Arg552Lys. This sequencing. Heterozygous single nucleotide substitution of SOS1 gene: Braf and SOS1, was conducted using HRM analysis and bidirectional sequences. We report a SOS1 variant found to segregate in a Tunisian family. Two aunts developed blindness and then died subsequently to mutation accounts for one domain with substitution of residue Arg552 to Lys: p.Arg552Lys. This analysis seque

VIRAL/GENE THERAPY AND OTHER NOVEL THERAPIES

THER-01. AWAKENING THE IMMUNE SYSTEM WITH AN IMMUNO-ONCYTIC VIRUS AS A THERAPEUTIC STRATEGY FOR DIPEGs
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Diffuse intrinsic pontine glioma (DIPG) is an aggressive brain tumor, being the leading cause of paediatric death caused by cancer. Despite all the advances made regarding effective therapies, the survival is dismal. Our lab has engineered the oncolytic virus Delta-24-ATV armed with the costimulatory ligand 41BBL in order to increase the antitumoral effect of the adenovirus. 41BBL is a costimulatory ligand that promotes the expansion of activated T cells and the generation and maintenance of CD8 T memory cells. Therefore, we propose the use of Delta-24-ATV as a therapeutic approach for DIPG tumours. We observed that Delta-24-ATV is able to infect and replicate in several DIPG derived cell lines, two DIPG murine cell lines, and primary DIPG tumour biopsies. Here, we evaluate the efficacy of Delta-24-ATV in the generation of activated T cells and the generation and maintenance of CD8 T memory cells.

THER-02. EVALUATION OF THE ONCOLOGY VIRUS DELTA24-RGD AS AN ANTI-TUMOUR AGENT IN PRECLINICAL MODELS OF LOCALIZED AND DISSEMINATED AT/RT
Marc Garcia-Moure1,2, Marisol Gonzalez-Huarriz1,2, Daniel de la Nava3,2, Lucia Marrodan4,2, Candé Gomez-Manzano5, Juan Fuego6, Ana Pattiño-Garcia7, and Marta M Alonso3,2; University Clinic of Navarra, Pamplona, Spain, 3Health Research Institute of Navarra (IDISNA), Pamplona, Spain, 4University of Navarra, Pamplona, Spain, 5MD Anderson Cancer Center, Houston, Texas, USA.

Current therapies for atypical teratoid/rhabdoid tumors (AT/RTs) are suboptimal, resulting in a 2-year OS below 20% and the development of severe side effects. Therefore, we need to explore alternative therapeutic approaches for this disease. Since the virus Delta24-RGD has already demonstrated its efficacy and safety as a therapeutic agent for brain tumors, including pediatric patients, here we propose to evaluate the anti-tumor effect of Delta24-RGD in AT/RT. In vitro, Delta24-RGD infects and replicates in AT/RT cultures followed by oncolysis, obtaining IC50 values below 1 PFU/mL. In vivo, a single local injection of Delta-24-RGD in three infratentorial AT/RT models (B12-12, CHLA-06 and CHLA-266) extended significantly the median OS (50 to 78 days BT-12; 21 to 31 days CHLA-06; 64 to 110 days CHLA-266). Delta-24-RGD also increased the survival of mice bearing supratentorial CHLA-266 tumors (from 93 to 132 days). Next, we evaluated the efficacy of Delta24-RGD in a model mimicking metastatic disease through intraventricular injection of BT-12-luciferase cells. Administration of Delta24-RGD inhibited tumor growth and development of metastases, leading to an increased OS and nearly 70% of long-term survivors. The interaction between Delta24-RGD and the immune system was evaluated in humanized mice models bearing CHLA-06. In this model, Delta-24-RGD treatment extended OS (from 23 to 34 days) and we characterized the anti-tumor immune landscape in control and Delta-24-RGD treated mice using genetic and functional analyses. These results underscore the potential of Delta24-RGD as a promising therapeutic choice for patients affected by AT/RT.

THER-03. IN VITRO EVALUATION OF THE EFFECT OF CANNABIDIOL ON PEDIATRIC BRAIN TUMOR CELL LINES USING A PULSED TREATMENT REGIME
Sophie Faulkes, George Lockwood, Saeorte E O’Sullivan, Richard G Grundy, and Lisa C D Sorensen; University of Nottingham, Nottingham, Nottinghamshire, United Kingdom.

Pediatric brain tumours are the second most common cancer after haemato-oncological malignancies. Intermittent dosing regimens are typical for chemo-