Molecular Oncology

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EACR 2023 Congress Abstracts

Contents

Proffered Papers

10-minute talks awarded for the highest scored abstracts, embedded in the scientific symposia sessions. These presentations are not accompanied by a poster.

Posters in the Spotlight

Tuesday 13 June, 17:30 - 18:30, Poster and Exhibition Hall
Wednesday 14 June, 17:15 - 18:15, Poster and Exhibition Hall

Dedicated sessions taking place in the spotlight area within the Poster and Exhibition Hall. Poster presenters with high scoring abstracts will give short presentations of up to 10 minutes. Their posters will also be available to view during the Poster Discussion Sessions.

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ache to find current research and treatment options that can extend living with cancer.
January 2020, KRAS Kickers was formed by Terri Conneran, a KRAS Lung cancer patient frustrated by the limited amount of "patient friendly" information available. Her goal is to ensure that all KRAS cancer patients have access to resources and tools to better understand the science and medical options available for all KRAS cancer types.
Material and Methods
Terri's approach is to breakdown the medical and scientific jargon for KRAS cancer patients so they can make informed decisions working side by side with their medical team to advocate for their own survivorship. By breaking down the medical and scientific jargon for people, cancer patients are empowered to make informed decisions along side their medical team, The KRAS Kickers mission is to connect people to current research, resources, and community to kick cancer's KRAS! KRAS Kickers members engage with leading doctors, researchers, and advocates to learn about new developments and clinical trials, connect to resources, build community, and share their stories to give hope to all with a KRAS biomarker. Believing that KRAS Knowledge + Research + Advocacy = Survivorship
Results and Discussions
KRAS Kickers in was formed just over 3 years ago and has experienced substantial growth year over year not only in its membership numbers but in the programs they provide. The KRAS Kickers currently have close to 2,000 survivors in its Facebook groups, and members on its website, 3000 plus twitter followers and 6,400 LinkedIn connections with an international presence in over 65 countries.
The regular educational series with leading experts continues to provide unparalleled knowledge to the community by bridging the healthcare literacy gap. Surveys and participation establish it.
Conclusion
Formed three years ago, KRAS Kickers are worldwide tumor as a agnostic RAS oncogene advocacy group. Known across the research and clinical areas as an empowerment of patients and caregivers. Being included as an informed decision partner makes the difference one person, at a time with worldwide impact.

EACR23-0669

A silver jubilee for synthetic lethality in cancer treatment: Where do we stand?

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Introduction
Synthetic lethality (SL) denotes a genetic interaction between two genes whose co-inactivation is detrimental to cells. Since the seminal work of Hartwell and colleagues has raised the possibility that SL can be used to devise highly selective cancer treatments, it has been one of the promising approaches for precision oncology and drug discovery. Many different avenues have so far been explored to bring this idea to the clinic. As 25 years have passed by now, we take stock and systematically and comprehensively chart the landscape of SL-based preclinical research and clinical trials.
Material and Methods
We have systematically mined both public and commercial databases to curate the preclinical and clinical landscape of the SL-based oncology studies. We have used PubMed to find preclinical synthetic lethality studies. We focused on those studies where synthetic interactions in cancer were investigated and validated for preclinical evidence in animal models. We have analyzed a comprehensive proprietary database, Trialtrove, to survey synthetic lethality-based oncology clinical trials.
Results and Discussions
Our analysis shows that the number of SL oncology studies is rapidly growing. Importantly, we find that the success rate of SL oncology trials is significantly higher than non-SL-based trials. While more than 70% of SL-oncology trials involve genes in the most-studied DNA damage response (DDR) pathways, the fraction of SL trials involving non-DDR pathways keeps growing since 2009. We further charted the landscape of SL triplets, which is a promising future higher-order extension of the conventional pairwise SL interactions. We find that only about 8% of preclinically validated SL triplets were clinically tested in trials, providing new opportunities for more refined clinical trial design. Our analysis further points that emerging opportunities in SL oncology arise from metabolic and paralogous interactions, disease-agnostic biomarkers, context-specific combinations against treatment resistance, artificial intelligence and data science approaches, and multi-omics patient stratification signatures.
Conclusion
We performed a large-scale systematic survey of the current landscape of the efforts to bring synthetic lethality to the clinic, from preclinical in vivo studies to clinical trials. Our study reinforces the hope that the synthetic lethality approach may serve as a key driver of precision oncology going forward.

EACR23-0685

The Road from Human Sample Collections to the First Rectal Cancer Biobank at the Institute for Oncology and Radiology of Serbia

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Introduction

Cancer patient samples have been collected and stored at the Institute for Oncology and Radiology of Serbia (IORS) for over 50 years for the purpose of specific studies. As the number of patients grew, it became necessary to collect, store and disseminate samples and related data in accordance with good biobanking practices. The aim of this study was to establish a proper procedural workflow for setting up a first Rectal Cancer Biobank (RCB) at IORS within the framework of the Horizon Europe project STEPUPIORS (101079217).

Material and Methods

Procedures were developed according to recommendations of the International Society of Biological and Environmental Repositories (ISBER), the Biobanking and BioMolecular resource Research Infrastructure (BBMRI), European Research Infrastructure Consortium (ERIC), and EU regulations followed by partner institutions. Ethical and legal regulations, respecting national and European legislation were followed. Biobank equipment and software were procured to ensure maximum accordance with infrastructural, storage and data protection requirements. Human capacities were developed through intensive online and in person trainings and expert visits to partner institutions' biobanks. Consensus consortium decisions were reached on all aspects during regular meetings.

Results and Discussions

A procedural basis for the establishment of the RCB with a planned cohort of around 100 locally advanced rectal cancer (LARC) patients was successfully introduced. Fifteen starting RCB standard operating procedures (SOPs) were developed to comply with good biobanking practices in terms of processing, storage, and sample dissemination. Scientific and management oversight committees comprised of members of all participating institutions were formed to assure high-quality biobank-related research and innovation that will advance the treatment of LARC patients. Fourteen IORS researchers (5 physicians, 3 biochemists, 4 molecular biologists, 2 pharmacists) were trained for various roles in the new biobank. Although primarily established for the purposes of the STEPUPIORS project, the LARC cohort might be further used for a large spectrum of future research approaches. The developed procedures and IT tools are expected to be reusable for future biobanks at IORS and potentially for other tumor biobanks in Serbia.

Conclusion

The establishment of the first RCB at the IORS was successful, although accompanied by various scientific, legal, infrastructural, procedural and human resource-related challenges.

EACR23-0733
FUT5 overexpression as a possible prognostic marker in ovarian cancer patients

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Introduction

Ovarian cancer is the most lethal gynecological malignancy in the world, with 80% of the cases being detected at an advanced stage. The lack of an accurate and predictable prognostic factor has been a major hindrance towards improving this statistic. We recently demonstrated that fucosyltrasferase 5 (FUT5), a rate-limiting enzyme that catalyzes addition of fucose in the synthesis of sialyl Lewis^x is critical for ovarian cancer metastasis. Despite the well-established role of fucosylation in cancer progression, the role of FUT5 in ovarian cancer prognosis remains elusive.

Material and Methods

We investigated the correlation between FUT5 expression and several clinicopathological features in 94 ovarian cancer patient samples of high-grade serous carcinoma (HGSC) (N=45), endometrioid carcinoma (N=3), and clear cell carcinoma (N=49) subtype by qPCR. Median expression of FUT5 was used as cut-off value to divide samples into high and low expression groups. Clinicopathological features of FUT5 high vs low groups were analyzed in all samples.

Results and Discussions

While there was no difference in FUT5 expression between the different histological subtypes, FUT5 expression was significantly higher among HSGC patients with advanced stage (Stage IIB-IV) tumor. Moreover, patients with higher FUT5 expression appeared to correlate with decreased overall and progression-free survival.

Conclusion

The data suggests that FUT5 may serve as a predictive marker for ovarian cancer progression, and highlights the potential utility of its expression level in clinical diagnosis (This research is supported by HMRF 08192286**)**.

EACR23-0736
Evaluation of exhausted T-cell biomimetic nanoparticles for cancer therapy

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