common in multiple types of cancer, including HPV-negative head and neck cancers. We sought to identify synthetic lethal genes within this pathway to target treatment of FA-mutant tumors through siRNA- and chemical-compound-based screens. METHODS/STUDY POPULATION: First, we completed siRNA-based and chemical compound-based screening assays to identify gene targets that reduce patient derived Fanconi pathway mutant cell (FA-D2) viability compared to Fanconi pathway proficient cells (FA-D2 + FANCD2). Five aurora kinase (AURK) inhibitors from the compound screen were chosen for further evaluation. Cell lines were treated with AURK inhibitors or siRNA-based AURK knockdown to assess viability, proliferation, DNA repair, and cell cycle progression differences. Patient mutational, mRNA expression, and outcome data were accessed through The Cancer Genome Atlas (TCGA) portal and the Caris CODEai portal. We stratified patients by tumor AURKA and AURKB mRNA levels and assessed differences in patient survival, tumor grade, and DNA repair proficiency. RESULTS/ANTICIPATED RESULTS: In both screens, AURKA came up as a target to selectively reduce the growth of FA-D2 cells compared to FA-D2 + FANCD2 cells. All five AURK inhibitors identified showed selective growth inhibition (~50–75%) in FA-D2 cells at low nanomolar doses. We narrowed our selection to hesperadin, an AURKB-specific inhibitor, which showed the highest selectivity. siRNA knockdown of AURKA and AURKB decreased cell viability by 50% and 20%, respectively. Patients with FA-mutated tumors from the TCGA pan-cancer dataset had high AURKA (twofold) and AURKB (threefold) mRNA expression. AURKA and AURKB tumor mRNA expression was significantly associated with poor patient survival. Homologous recombination deficiency scores were increased ~5-fold (p DISCUSSION/SIGNIFICANCE OF IMPACT: We hypothesize that in FA-deficient backgrounds, loss of AURKA or AURKB leads to heightened genomic instability due to cell cycle dysregulation and accumulated DNA damage. Our findings warrant investigation of the therapeutic potential for AURK inhibitors, specifically hesperadin, in FA-mutant head and neck cancers.

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Exploring data scraping on ClinicalTrials.gov to identify key variables to include in an EHR-based recruitment tool

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OBJECTIVES/GOALS: Failure to achieve recruitment goals results in termination of ~20% of clinical trials and delays >85% of trial timelines. We aim to develop an electronic heath record (EHR)-based recruitment tool to ease identification of participants. We sought to determine whether criteria listed on clinicaltrials.gov could support selection of tool variables. METHODS/STUDY POPULATION: To inform the variables to include in the EHR-based recruitment tool, we data scraped clinicaltrials.gov to identify key inclusion and exclusion criteria common across a variety of diabetes clinical trials. We included actively recruiting or recently active phase 2 and 3 clinical trials of adults aged >18 years of age in the USA. We classified identified variables as clinically relevant or not and compared clinically relevant terms with inclusion and exclusion criteria (~20 variables) that were individually identified by three diabetes clinical trialists and two clinical research coordinators (CRCs). RESULTS/ANTICIPATED RESULTS: We reviewed 203 clinical trials listed on clinicaltrials.gov. We identified 115 terms, 91 of which were clinically relevant. Three of 3 clinical trialists, 1 of 2 CRCs, and all trials listed age as a key variable. Consistent with data scraping, all trialists and CRCs identified glucose-lowering medications and kidney function as important criteria. Gender, ethnicity, and race were less commonly noted on clinicaltrials.gov and listed by 2 of 3 trialists and one CRC. Cardiovascular conditions (e.g., history of myocardial infarction), thyroid function tests, and contraceptive requirements were common criteria on clinicaltrials.gov, but only one trialist and one CRC identified these variables. Active infections (e.g., HIV) and c-peptide were not highlighted by trialists or CRCs but common on clinicaltrials.gov. DISCUSSION/SIGNIFICANCE OF IMPACT: An EHR-based recruitment tool may facilitate identification of trial participants, but identifying key variables to include is essential. We found that data scraping for variables on clinicaltrials.gov mostly aligned with expert opinion, suggesting that automating variable selection via extraction from clinicaltrials.gov may be acceptable.

Education, Career Development and Workforce Development

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The UCLA Clinical and Translational Science Institute (CTSI) Inspired Workforce Development Pathway Programs

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OBJECTIVES/GOALS: The UCLA Clinical and Translational Science Institute (CTSI) training programs have been optimized by clinical research experts since 2013. They inculcate an interest in clinical and translational research careers. The acquisition of new skillsets and early exposure to potential career opportunities often influence lifetime decision-making. METHODS/STUDY POPULATION: The first program, in 2013, was the CTSI Research Associates Program (CTSI-RAP), which exposes undergraduate students to clinical research opportunities. RAP students are now mentoring high school students in the Mentoring and Advocacy in Teaching Clinical and Health-Related Research (MATCH) program. The Fiat Lux seminar is a research course designed to allow freshman students to explore diverse interests. The Leveraging Amazing Undergraduates in Clinical Research at UCLA Health (LAUNCH) program continues the workforce development pipeline by recruiting and training recent graduates to enter clinical research study coordinator careers. Each of these programs has their own stellar track records in terms of high interest and satisfaction and are assessed by annual evaluations from stakeholders. RESULTS/ANTICIPATED RESULTS: CTSI-RAP is in its 11th year and a recent 10-year impact survey demonstrated the value of the program to students and their career decision-making especially those who are underserved and/or disadvantaged. The MATCH program arose from the interest of RAP students to mentor STEM high school students from local disadvantaged schools and is now in its 4th year across the state. The Fiat Lux freshman seminar began with a clinical research essentials emphasis, followed by an

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