expression and response to a hERG blocker E4031. MEA recordings showed a significantly higher response to Sotalol in iPSC-CMs from high-S compared with low-S subjects. Transcriptomic profiling identified upregulation or down-regulation of genes (DLG2, KCNE4, PTRF, HTR2C, CAMKV) involved in downstream regulation of cardiac repolarization and calcium handling machinery as underlying high sensitivity to Sotalol. In silico parameter sensitivity analysis corroborated transcriptomic profiling of select genes; upregulated KCNE4 and downregulated CAMKV were predicted to positively and negatively correlate with iPSC-CM action potential duration when exposed to Sotalol, respectively. DISCUSSION/SIGNIFICANCE OF IMPACT: Our findings suggest subject-specific iPSCs can be used to model functional abnormalities observed in diLQTS and offer novel insights into iPSC-based screening assays for toxic drug reactions. Success of this study may help identify key components underlying diLQT susceptibility to ultimately develop novel therapeutic agents.

2028

Discovery and evaluation of FOXP3 dimerization inhibitors

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OBJECTIVES/SPECIFIC AIMS: Immuno-oncology (IO) strategies are promising new approaches for the treatment of a variety of malignancies, including multiple myeloma (MM). Regulatory T cells (Tregs), which suppress effector T cell function, are a limitation to durable IO responses. The transcription factor FOXP3 is critical for the mature Treg phenotype. FOXP3 homodimerization is required for DNA binding and transcriptional activity, and mutations mapping to the dimerization region are associated with IPEX syndrome, resulting in dysfunctional Tregs in humans. We therefore hypothesize that inhibitors of FOXP3 dimerization will repress Treg suppression and enhance the anti-MM activity of IO. METHODS/STUDY POPULATION: To discover FOXP3 dimerization inhibitors, we are modeling FOXP3 homodimerization in vitro. Currently, we are optimizing an ALPHA screen and an ELISA-based dimerization assay using recombinant full length and truncated versions of FOXP3 to discover peptidomimetics that inhibit homodimerization. Induced Tregs expanded from human PBMCs will be treated with lead biologics and functional assays will be performed. RESULTS/ANTICIPATED RESULTS: Here we demonstrate Treg suppression of T cell proliferation and IFN-γ secretion after 5 days of co-culture under basal conditions. Additionally, we developed a MM/T cell co-culture system to measure anti-MM T cell responses and show decreased anti-MM T cell activity in the presence of Tregs. We expect to exploit the assays outlined here to demonstrate defective Treg suppression when FOXP3 dimerization is inhibited. DISCUSSION/SIGNIFICANCE OF IMPACT: These studies support drug discovery efforts that will ultimately improve IO therapies for patients with MM.

2510

Disparities in navigation to health research among Floridians

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OBJECTIVES/SPECIFIC AIMS: The analyses explore socio-demographic characteristics of community members who are navigated and enrolled in health research through HealthStreet—the CTSA community engagement initiative at University of Florida. METHODS/STUDY POPULATION: HealthStreet utilizes the Community Health Worker model to reach the community, conduct health assessments, provide referrals to medical/social services and link people to health research. We compared never navigated, navigated and not enrolled, navigated and enrolled on demographics, access to care, common health conditions and drug use among this community dwelling population. RESULTS/ANTICIPATED RESULTS: Among the 9581 community members, 51% were navigated to a study; 41% were screened eligible and enrolled (n = 2024) for an overall enrollment yield of 21%. Disparities were found for all variables; never navigated Versus the others were more likely to be African American, never married, reporting less education and less access to care. The navigated and enrolled Versus others were older females who reported more education, food insecurity, more access to care, and higher rates of hypertension, depression, and prescription opioid and marijuana use. DISCUSSION/SIGNIFICANCE OF IMPACT: Our unique and comprehensive data can assist investigators to tailor recruitment efforts that reduce disparities in health research.

2160

Does maternal schistosomiasis affect the humoral and cellular vaccine responses of infants?

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OBJECTIVES/SPECIFIC AIMS: The aims of this study are 2-fold: (1) to determine if maternal schistosomiasis affects maternal immunity to tetanus and/or transplacental transfer of antitetanus toxoid (TT) immunoglobulin G (IgG) from mother to infant and (2) determine the influence of maternal schistosomiasis on infant BCG vaccine immunogenicity. METHODS/STUDY POPULATION: The study will utilize blood samples from a historic cohort of 100 mother-infant pairs from Kisumu, Kenya, a schistosomiasis-endemic area. For the first aim, we will evaluate maternal schistosomal circulating anodic antigen, which has improved sensitivity and specificity to detect active schistosomiasis from serum, and antisoluble egg antigen IgG positivity compared with quantitative maternal anti-TT IgG at delivery and anti-TT IgG cord blood to maternal blood ratio (cord:maternal ratio). For the second aim, we will evaluate association between maternal schistosomiasis as detected by circulating anodic antigen and antisoluble egg antigen IgG at delivery and infant BCG-specific Th1-cytokine positive CD4+ cells at 10 weeks following BCG vaccination at birth. RESULTS/ANTICIPATED RESULTS: We hypothesize that active maternal schistosomiasis will be associated with decreased maternal anti-TT IgG and reduced efficiency of transplacental transfer, as measured by infant cord blood to maternal blood ratio of anti-TT IgG. We also expect that maternal schistosomiasis will be associated with decreased infant immunogenicity to BCG vaccine. DISCUSSION/SIGNIFICANCE OF IMPACT: This is a formative study on infant vaccine immunity using laboratory methodology not previously applied. Understanding infant immunity in the setting of maternal schistosomiasis will inform vaccination strategies and tailor vaccine development in schistosome-endemic areas such as Kenya, where neither TB nor neonatal tetanus have been eradicated. Additionally, our results will inform public health policies to consider integration of antischistosomal agents in antenatal care.

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Drug development core facilitates institutional collaboration and translational science innovation

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OBJECTIVES/SPECIFIC AIMS: Drug development is a common research pursuit for basic and clinical scientists that interfaces diagnostic/therapeutic challenges with funding agencies, pharmaceutical industry, regulatory systems, and education. The University at Buffalo Clinical and Translational Science Institute (CTSI) has implemented a Drug Development Core (DDC) with goals that foster team science and collaboration, optimize laboratory use, and networks investigators. Our goals are to foster collaborations within the region and with other CTSAs. METHODS/STUDY POPULATION: The DDC met with 300 potential investigators from 14 departments and several local companies. There were 35 portal requests from 15 departments and 7 companies; 8 were from training programs. For 28 requests, a reviewer provided consultation, while 7 required discussions and review of data. DDC assisted with 15 grant applications (outcomes pending), 10 industry-related new drug development requests and 1 regulatory review. Curriculum reviews noted overlap and gaps. Cross-institute opportunities for M.D.-Ph.D. research mentoring were identified. RESULTS/ANTICIPATED RESULTS: The DDC met with 300 potential investigators from 14 departments and several local companies. There were 35 portal requests from 15 departments and 7 companies; 8 were from training programs. For 28 requests, a reviewer provided consultation, while 7 required discussions and review of data. DDC assisted with 15 grant applications (outcomes pending), 10 industry-related new drug development requests and 1 regulatory review. Curriculum reviews noted overlap and gaps. Cross-institute opportunities

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