of intermediates of SPM synthesis pathways and end-product SPMs in the plasma of patients with peripheral artery disease (PAD). METHODS/STUDY POPULATION: A cross-sectional sample of 52 patients with PAD was recruited at the San Francisco Veterans Affairs Medical Center. PAD was defined as the presence of claudication symptoms and an ankle-brachial index <0.9, or a history of revascularization for claudication. Patients were excluded if they were taking immunosuppressive medications, had a severe acute illness (infection, surgery, illness, critical limb ischemia) within the last 30 days, or had severe hepatic, renal, or nonvascular inflammatory disease. Intermediates of SPM synthesis pathways and end-product SPMs were measured in plasma samples of patients by liquid chromatography-tandem mass spectrometry. RESULTS/ANTICIPATED RESULTS: The average age of the cohort was 69 ± 6.3 and patient comorbidities reflected common comorbidities associated with PAD (hypertension 96%, hyperlipidemia 87%, diabetes mellitus 42%, coronary artery disease 34%). Rutherford categories, measurements of PAD symptom severity, ranged from 0 to III (0 10%, I 40%, II 27%, III 23%). Three EPA products were measured: 18-hydroxyeicosapentaenoic acid (18-HEPE), resolvin E1 (RvE1), and resolvin E2 (RvE2). 18-HEPE, an intermediate of SPM synthesis, was detectable in the plasma of every patient (median: 105 pg/mL, IQR: 54.9–195), whereas the SPM end-products, RvE1 and RvE2, were only detectable in 6 and 10 patients, respectively. In total, 7 DHA products were measured: 14-hydroxydocosahexaenoic acid (14-HDHA), 17-HDHA, resolvin D1 (RvD1), resolvin D2 (RvD2), protectin D1, protectin DX, and maresin 1. The intermediates 14-HDHA (median: 6546 pg/mL, IQR: 3329–12061) and 17-HDHA (median: 644 pg/mL, IQR: 340–1056) were detectable in the plasma of every patient. However, the end-products RvD1, RvD2, protectin D1, protecin DX, and maresin 1 were identified in less than half of the cohort. DISCUSSION/SIGNIFICANCE OF IMPACT: We report the presence of several intermediates of SPM synthesis pathways (18-HEPE, 14-HDHA, and 17-HDHA) in every patient but the presence of SPM end-products in only a limited portion of the cohort. These results suggest that some patients with PAD may have a deficit of SPMs. Further investigation is required to better understand the role of SPMs and mediators of resolution of inflammation in PAD.

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Characterizing the expression kinetics of HIV-1 envelope protein

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OBJECTIVES/SPECIFIC AIMS: Characterize the expression kinetics of HIV-1 Envelope and their relationship to virus production at the cellular level. METHODS/STUDY POPULATION: In vitro and ex vivo laboratory analyses. RESULTS/ANTICIPATED RESULTS: Initial studies addressing the kinetics of cell surface. Envelope (Env) expression reveal that Env expression to peaks on day 2 post infection. Next steps include a series of experiments to compare the kinetics of Env cell surface expression with broadly neutralizing antibody (bNAb)-mediated ADCC and the characterization of virus production kinetics in this same context. To be maximally effective, ADCC elimination of infected cells should occur before peak Env expression. DISCUSSION/SIGNIFICANCE OF IMPACT: Potent bNAbs to HIV-1 recognize vulnerable sites on the HIV-1 Envelope (Env) protein and are of great clinical interest due to their potential use in the prevention and treatment of HIV-1 infection. Their effectiveness depends not only on the neutralization of viral infectivity, but also on the elimination of productively infected cells via antibody-dependent cellular cytotoxicity (ADCC). On a cellular level, ADCC dynamics are determined by the timing and level of Env expression on the surface of HIV-infected cells. This study aims to delineate the expression kinetics of HIV-1 Envelope and their relationship to virus production. We expect that it will provide new insights into the utility of bNAb-mediated ADCC in treating and possibly curing HIV-1 infection; therefore results might have substantial impact on future HIV treatment strategies.

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Community forums as a channel for communicating with the public and to influence perceptions of cancer clinical trials

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OBJECTIVES/SPECIFIC AIMS: Cancer clinical trials (CCTs) are vital tools in the advancement of cancer prevention and treatment. Yet, only 3%–5% of eligible patients enroll in CCTs. Low participation can be attributed, in part, to poor communication as well as a lack of awareness and understanding about CCTs. In order to increase participation in trials, interventions should foster meaningful communication about cancer prevention and CCTs, especially between medical professionals and members of the community. Community forums provide a channel to communicate about cancer with members public and to educate prospective participants about CCTs. Thus, our goal was to evaluate the efficacy of hosting community forums about cancer in order to educate the public and influence perceptions of CCT participation. METHODS/STUDY POPULATION: During the Spring of 2016, participants (n = 51) who attended a community forum about CCTs completed a pretest and post-test survey assessing their understanding and perceptions of CCTs. RESULTS/ANTICIPATED RESULTS: Results from the pretest to post-test survey revealed a significant positive increase ($p = 0.01$) in participants' attitudes toward cancer clinical research as well as marginally significant increases in participants' perceived subjective norms ($p = 0.06$) about participating in CCTs and the perceived personal relevance ($p = 0.06$) of clinical research participation pretest and post-test. DISCUSSION/SIGNIFICANCE OF IMPACT: Findings suggest that community forums about cancer and CCTs could lead to an increased awareness and understanding of CCTs among members of the population and could be useful channels for cancer interventions.

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Creating a comprehensive municipal inventory of common ragweed (*Ambrosia artemisiifolia*) to predict allergenic pollen exposures

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OBJECTIVES/SPECIFIC AIMS: One of the key difficulties in predicting allergenic pollen exposures has been a lack of information on source plant location and abundance. However, the increasing availability of spatially explicit data from remote sensing offers new opportunities to create comprehensive inventories of allergenic pollen producing plants. METHODS/STUDY POPULATION: In this study, we use a spatially oriented field survey to map common ragweed (*Ambrosia artemisiifolia*) in Detroit, MI, USA. We then combine this with remote sensing imagery and LiDAR to predict ragweed presence and potential pollen production across 344 km^2 of Detroit. Finally, we compare this with measurements of airborne pollen concentrations collected throughout the city. RESULTS/ANTICIPATED RESULTS: Our initial results show that ragweed is present in ~2% of the city, and its presence and abundance are strongly associated with demolished building ($p < 0.001$). The uneven distribution of ragweed plants across the city leads to substantially higher pollen concentrations in neighborhoods where more buildings have been recently demolished. DISCUSSION/SIGNIFICANCE OF IMPACT: Our approach offers an effective way to quantify allergenic pollen production, airborne concentrations, and exposures across a large metropolitan area. This in turn provides insight on how to best reduce airborne pollen concentrations: in this case, by changing post-demolition land management practices.

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Cutaneous lupus erythematosus patients have increased circulating myeloid-derived suppressor cells with immunosuppressive properties

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OBJECTIVES/SPECIFIC AIMS: MDSCs are potent suppressors of T cell function, and have been recently found to be implicated in skin diseases driven by T cell dysregulation. However, the function of MDSCs in CLE is poorly understood. We sought to characterize the MDSC population in the peripheral blood of DLE patients and evaluate their ability to suppress autologous T cells. METHODS/STUDY POPULATION: All patients were recruited through the UT Southwestern Cutaneous Lupus Registry. PBMCs from 32 CLE patients and 16 age-matched and gender-matched controls were analyzed using flow cytometry. Monocytic MDSCs were identified by the phenotype of CD14+ HLA-DR neg/low. Furthermore, autologous MDSCs and T cells were purified from CLE PBMCs (n = 4) and co-cultured at different ratios of these cells. T cell function was measured by secretion of IFN-γ by ELISA. RESULTS/ANTICIPATED RESULTS: Monocytic MDSCs in CLE PBMCs (median: 2.04%, IQR: 0.67%–5.07%) were significantly higher compared with healthy control PBMCs (median: 0.5%, IQR: 0.1%–1.07%, $p = 0.002$). Although not significant on subset analysis, patients with CLE limited to the head and neck had the highest levels of MDSCs. CLE MDSCs (n = 4) were found to suppress

https://doi.org/10.1017/cts.2018.55 Published online by Cambridge University Press