a standard group of key elements from each study: (1) The study's NCATS CTSA Goal. (2) The type of data searched in the CTSA institutional website. (3) The number of CTSA institutional websites searched. (4) The number of sites that had the needed data. (6) The outcomes reported from the research. The second data collection protocol was for identified reports that referenced single CTSA Institutional websites as performing a specific translational informatics functionality either as a portal to Clinical and Translational Science Award tools and resources or as a direct information source. The organizational process for each relevant report article also included a customized data extraction process that looked to identify a standard group of key elements from each report: (1) NCATS / CTSA Goal (2) Tool or Functionality Promoted (3) Description (4) Website used as portal or direct tool. (5) Target Audience. RESULTS/ANTICIPATED RESULTS: The studies were summarized using the standard group of key elements identified for data extraction and summarized in a table. In 5 of the 6 studies, researchers relied on CTSA member individual website content to mine necessary data. One (1) of the studies employed a mixed methods approach to data acquisition and only relied on CTSA member individual website content for CTSA institutions that did not respond to a user survey. One (1) study used a survey to learn about CTSA website content rather than review the websites. In 5 of the 6 studies, researchers reviewed individual CTSA websites for the purposes of determining the number or percentages of CTSA institutions had specific data. One (1) study instead reviewed the individual websites to develop a broader picture of what the CTSA Consortium offered as a group. The percentage of CTSA websites that had the needed data of the researchers ranged from 32% to 100%. The median and mean scores for CTSA websites having the needed data was 66% and 66.5% respectively. One study did not provide specific information for assessment. All 6 studies included research that fell within at least 2 categories of the 5 NCATS CTSA Goal topics. The category most investigated was translational research processes where 5 of the 6 studies investigated how CTSA websites looked to improve the quality and efficiency of translational research. Three (3) studies investigated how CTSA's cultivated and trained the clinical and translational science workforce. Two (2) studies investigated how CTSA's engaged patients and communities in the translational research process. Two (2) studies investigated how CTSA's promoted the integration of underserved populations. One (1) study investigated ways the CTSA's used their websites to advance the use of cutting-edge informatics. The outcomes reported included (1) the percentage CTSA individual websites that provided information regarding patient recruitment. (2) A list of generic services provided across the CTSA Individual website medium. (3) The number of CTSA individual website education and training programs. (4) The number and quality of informed consent forms presented online. (5) Investigational New Drug (IND) / Investigational Device Exemption (IDE) training methods for CTSA Investigators. (6) The percentage of KL2 Awards used by Child Health Investigators at CTSA Institutions. The reports (rn=9) were also summarized using the standard group of key elements identified for data extraction and summarized in a table. All six articles reported using their Institutional CTSA website as either a portal or a tool to promote clinical and translational science as outlined through NCATS goals. A CTSA website is used as a portal when it provides links to other sites, tools, or programs. A CTSA Website is used as a tool when it provides the functionality within its web design like providing an online application or database, or interactive training pages. In 8 of the 9 articles, authors reported on CTSA institutional website as either a translational informatics portal or providing informatics functionalities. Four (4) of the articles reported the use of their website for engagement, on either the collaborator or patient level, such as advocacy, education, or subject enrollment. Two (2) articles reported the use of their CTSA website for the cultivation and training of a clinical and translational science workforce. Four (4) articles reported on the use of their CTSA website for the purposes of increasing the quality and efficiency of translational research. None of the articles reported how their sites were used to promote the integration of underserved populations. All the reports identified a CTSA institutional website as a tool to leverage or disseminate CTSA capabilities and functionality. The access point and or warehousing of these capabilities was the CTSA institutional website. The target audience for these publications included researchers, clinical research administrators, IT programmers, community collaborators, and research subjects. The articles that reported on the use of CTSA institutional websites for clinical and translational functionality included topics such as: (1) the introduction of an informatics tool that searches clinical notes to identify clinical data for research. (2) the promotion of an online research subject advocacy program. (3) the introduction of an informatics tool portal that allows researchers flexible, efficient and effective means of collaboration and interaction with data. (4) the promotion of a team development project tool. (5) the introduction of a research participant registry and study promotion and education tool. (6) the promotion of an independent informatics tool registry that could connect to all CTSA websites. DISCUSSION/SIGNIFICANCE OF IMPACT: This research shows that CTSA institutional website functionality and content contributes to the CTSA body of research and the advancement NIH translational science goals.

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TL1 Team Approach to Using a Combination of Ganglioside 2 and 3 as an Immunoaffinity Target for Circulating Osteosarcoma Cell Detection

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OBJECTIVES/SPECIFIC AIMS: The objective of our collaboration is to develop a strong trans-disciplinary team consisting of microfluidics engineers, cancer biologists, and clinicians, to identify a universal marker to detect circulating osteosarcoma cells (COC) using microfluidic devices. Our goals are 3 fold: 1) Identify cell surface markers unique to osteosarcoma (OS) for COC isolation, 2) Develop a Geometrically Enhanced Mixing (GEM) device to isolate COCs, and 3) Evaluate the efficacy of GEM device to detect COCs in patients with OS. The long term goal of this collaboration is to utilize this cell detection approach to evaluate treatment efficacy and correlate the presence of circulating osteosarcoma cells with metastatic incidence. METHODS/STUDY POPULATION: In this phase of our study, we have identified an abundant and conserved cell surface marker across a panel of OS cell lines. Flow cytometry was used to evaluate the relative expression of Epithelial Cell Adhesion Molecule (EpCAM), and Ganglioside 2 or/and 3 (GD2/3) on a panel of OS cell lines. An antibody coated GEM microfluidic device is used to affirm the efficacy of GD2/3 to capture COCs. Further capture studies will be conducted using OS cell spiked blood samples. Analysis of variance (ANOVA) will be used to determine any significant difference in capture efficiency between EpCAM, GD2/3 cell surface markers. RESULTS/ANTICIPATED RESULTS: Our results demonstrate that EpCAM is not a suitable marker for COC

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detection. Results from our flow cytometry studies demonstrate that GD2/3 expression is significantly higher than EpCAM expression, across all OS cell lines within our panel. The cell capture efficiency strongly correlates with the cell surface expression data obtained from flow cytometry analysis. DISCUSSION/SIGNIFICANCE OF IMPACT: OS is the most common primary bone tumor and the third leading cause of pediatric cancer deaths. At diagnosis, 80% of patients will present with metastasis, however only 20% of these cases are clinically detectable. Innovative strategies to identify patients at risk of metastasis would allow for stratification of intervention therapies. Liquid biopsies are a novel alternative to current diagnostic imaging systems to monitor metastatic incidence and treatment efficacy. The detection of circulating tumor cells (CTCs) through routine blood sampling has the potential to be used clinically for earlier detection, monitoring the treatment of metastatic cancers and surveying the effect of therapeutic interventions on metastasis. To date, the majority of the studies on CTCs have evaluated their presence in carcinomas. Although sarcomas are rare, they generally have a poorer prognosis. This study will address one of the unmet medical needs in the field of CTC detection; the identification of cell surface OS makers to improve binding specificity, increase purity, and maintain a high capture efficiency.

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University of Mississippi Center for Clinical and Translational Science (CCTS): A Catalyst for Clinical and Translational Sciences

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OBJECTIVES/SPECIFIC AIMS: To introduce CCTS to the clinical and translational research community. METHODS/STUDY POPULATION: Established in the summer of 2017, the Center for Clinical and Translational Science (CCTS) fosters cooperative clinical and translational sciences between the University of Mississippi School of Pharmacy (UMSOP) and the University of Mississippi Medical Center (UMMC). CCTS facilitates the translation of basic research discoveries into clinically validated therapies to improve the health of populations in Mississippi and beyond. Priority areas of investigation in CCTS include Cardiometabolic disorders, Cancer, Neuroscience, Infectious diseases, Precision Medicine, and Community-Based Research. To accomplish CCTS mission three overarching goals have been defined: I) Develop progressive and sustainable capacity for clinical and translational research in Mississippi; II) Promote interprofessional engagement in clinical and translational science; and III) Foster research collaboration among stakeholders in and outside of Mississippi. RESULTS/ANTICIPATED RESULTS: To carry its CCTS's mission three research units have been established: 1) The Pre-clinical Research Unit: Develops processes to move basic science discoveries towards translation into research in humans. This unit provides guidance in the development of Investigational New Drug (IND) applications; and identifies and pursues opportunities to develop progressive capacities for in vitro, ex vivo, in vivo, and in silico approaches for evaluating new pharmaceutical and therapeutic agents. 2) The Clinical Research Unit: Transitions projects that have received IND approval into the first phase of clinical trials. It also transitions clinical trials from Phase I to Phase II and to Phase III; develops standard operating procedures (SOPs), personnel training plans, and policies to guide clinical research; works with industry sponsors and governmental funding agencies; and assures compliance with regulatory requirements. 3) Community/population Research Unit: Develops, coordinates, and facilitates research activities and translation between clinical and community/population research stages. To do so, this unit works closely with community partners and Population Health programs on the Oxford and Jackson campuses. DISCUSSION/SIGNIFICANCE OF IMPACT: Since its inception, the CCTS has surpassed 1.5 million dollars in competitive funding. This early success positions the CCTS well to promote research collaboration between UMSOP and UMMC and to progress in becoming a national leader in clinical and translational investigation.

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Who's ready to collaborate? Evaluating new measures of collaboration readiness among early career scholars in the CTSA network

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OBJECTIVES/SPECIFIC AIMS: Many CTSA network activities aim to promote collaboration. Who should we target, and how should we evaluate short-term success? This study examined the validity of recently developed collaboration readiness indices among early career scholars, an important and understudied portion of the translational workforce. METHODS/STUDY POPULATION: Participants were 107 scholars within 10 years of completing terminal degree or residency (mean age = 38; 69% female; 29% MD) who applied to one of two week-long NCATS-funded Innovation Labs (www.buffalo.edu/innovationlabs.html). Measures included the MATRICx (Mallinson et al., 2016), which assesses 17 collaboration motivators and 31 threats; the Transdisciplinary Orientation Scale (TDO; Misra et al., 2015), an assessment of attitudes and behaviors theorized to predict effective collaboration; and a brief measure of one's perceived ability to succeed in different aspects of collaboration (i.e., self-efficacy; see teamscience.net). RESULTS/ANTICIPATED RESULTS: Factor analyses of individual measures and evaluation of cross-scale correlations suggest that collaboration readiness is multi-dimensional. Factor analysis of the MATRICx suggests 3 moderately-correlated facets of motivators (benefits to world, self, and others rs = +.50 to +.62) and threats (process concerns, external barriers, and leadership style, rs = +.29 to +.53). Most correlations between motivator and threat scales (except process concerns) were modest, suggesting they reflect relatively independent aspects of collaboration readiness. The TDO scales seemed to capture a different aspect of collaboration readiness; correlations with MATRICx motivator and threat scales were mostly modest (rs = -.26 to +.43). As expected, collaboration self-efficacy was positively related to collaboration motivators and TDO (rs = +.41 to +.59) and negatively related to collaboration threats (particularly process threats, r = -.47). Participants typically scored in the upper half of the TDO, MATRICx motivator, and collaboration self-efficacy scale ranges, and in the lower half of the MATRICx threat scale ranges. DISCUSSION/SIGNIFICANCE OF IMPACT: Collaboration readiness is a reasonable short-term target of efforts to promote collaboration. However, this work suggests that no single scale captures the entire conceptual space, and multiple measures should be assessed.

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